Swiss Tools

For Automatic and Swiss type Machines

Carmex
Precision Tools Ltd.

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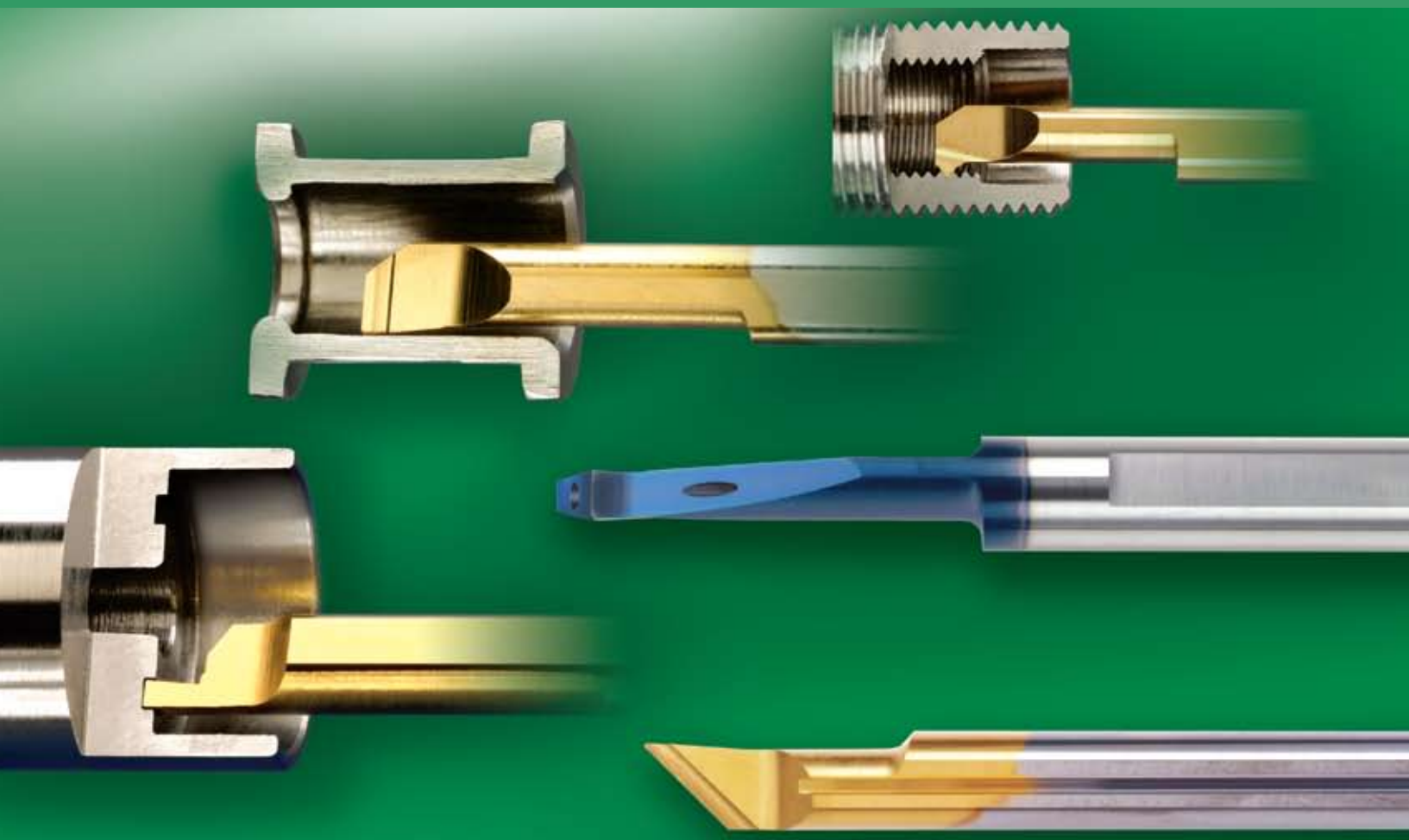
All specifications in this catalogue are subject to change without notice

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 cooling channel on the shank, enabling the cooling fluid to reach efficiently the cutting edge, for easy chip removal and smooth cutting operations.

Product Identification

Tiny Bars Ordering Codes

M	T	R	3	R0.2	L10	BXC

M — M = Tiny Bars

T —
T = Boring
P = Profiling
Q = Profiling & Boring
I = Threading
C = Chamfering
G = Grooving
K = Full Radius Grooving
F = Facing
Z = Full Radius Facing
X = Back Turning
U = Profiling
W= Chamfering & Profiling
V = Deep Face Grooving

R —
R = Right Hand
L = Left Hand

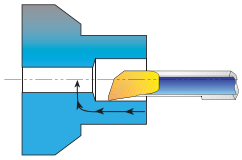
3 — Bar Diameter
3 = 3.0 mm
4 = 4.0 mm
5 = 5.0 mm
6 = 6.0 mm
7 = 7.0 mm
8 = 8.0 mm
10 = 10.0 mm

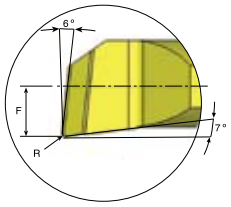
R0.2 —
Nose Radius 0.2 mm,
Threading Partial profile
A60, A55, TR
Full profile
ISO, UN, NPT, ACME
Grooving B1.0 = 1.0 mm
B1.5 = 1.5 mm
B2.0 = 2.0 mm

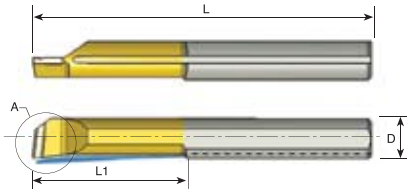
L10 — Neck Length
L5 = 5 mm
L10 = 10 mm
L15 = 15 mm
L22 = 22 mm
L35 = 35 mm

BXC —
BXC
BMK

MTR Bars *Boring - with Coolant Channel*





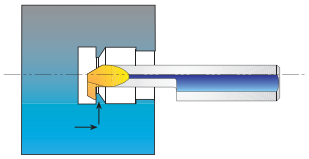


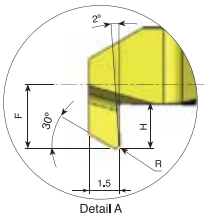
D mm	Ordering Code	L mm	L1 mm	R mm	F mm	Min. Bore Dia. mm	Holder*
3.0	*MTR 1 R0.05 L4	39	4	0.05	0.5	1.0	SIM 0020 H3
3.0	*MTR 1.5R0.1 L6	39	6	0.10	0.7	1.5	SIM 0020 H3
3.0	*MTR 2 R0.05 L10	39	10	0.05	0.8	2.1	SIM 0020 H3
3.0	*MTR 2 R0.15 L5	39	5	0.15	0.8	2.1	SIM 0020 H3
3.0	*MTR 2 R0.15 L10	39	10	0.15	0.8	2.1	SIM 0020 H3
3.0	MTR 3 R0.05 L10	39	10	0.05	1.3	3.1	SIM 0020 H3
3.0	MTR 3 R0.05 L15	39	15	0.05	1.3	3.1	SIM 0020 H3
3.0	MTR 3 R0.1 L15	39	15	0.10	1.3	3.1	SIM 0020 H3
3.0	MTR 3 R0.2 L10	39	10	0.20	1.3	3.1	SIM 0020 H3
3.0	MTR 3 R0.2 L15	39	15	0.20	1.3	3.1	SIM 0020 H3
4.0	MTR 4 R0.1 L10	51	10	0.10	1.7	4.1	SIM 0020 H4
4.0	MTR 4 R0.1 L15	51	15	0.10	1.7	4.1	SIM 0020 H4
4.0	MTR 4 R0.1 L22	51	22	0.20	1.7	4.1	SIM 0020 H4
4.0	MTR 4 R0.2 L10	51	10	0.20	1.7	4.1	SIM 0020 H4
4.0	MTR 4 R0.2 L15	51	15	0.20	1.7	4.1	SIM 0020 H4
4.0	MTR 4 R0.2 L22	51	22	0.20	1.7	4.1	SIM 0020 H4
5.0	MTR 5 R0.1 L15	51	15	0.10	2.1	5.1	SIM 0020 H5
5.0	MTR 5 R0.1 L22	51	22	0.10	2.1	5.1	SIM 0020 H5
5.0	MTR 5 R0.1 L30	76	30	0.10	2.1	5.1	SIM 0020 H5
5.0	MTR 5 R0.2 L15	51	15	0.20	2.1	5.1	SIM 0020 H5
5.0	MTR 5 R0.2 L22	51	22	0.20	2.1	5.1	SIM 0020 H5
5.0	MTR 5 R0.2 L30	76	30	0.20	2.1	5.1	SIM 0020 H5
6.0	MTR 6 R0.1 L15	51	15	0.10	2.8	6.1	SIM 0020 H6
6.0	MTR 6 R0.2 L15	51	15	0.20	2.8	6.1	SIM 0020 H6
6.0	MTR 6 R0.2 L22	51	22	0.20	2.8	6.1	SIM 0020 H6
6.0	MTR 6 R0.2 L30	58	30	0.20	2.8	6.1	SIM 0020 H6
7.0	MTR 7 R0.2 L22	62	22	0.20	3.3	7.1	SIM 0020 H7
7.0	MTR 7 R0.2 L30	62	30	0.20	3.3	7.1	SIM 0020 H7
8.0	MTR 8 R0.2 L15	64	15	0.20	3.8	8.1	SIM 0020 H8
8.0	MTR 8 R0.2 L22	64	22	0.20	3.8	8.1	SIM 0020 H8
8.0	MTR 8 R0.2 L35	76	35	0.20	3.8	8.1	SIM 0020 H8
10.0	MTR10 R0.2 L35	73	35	0.20	4.8	10.1	SIM 0020 H10

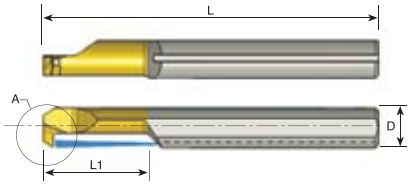
* without coolant

Order example: MTR 4 R0.2 L15 BXC
For L.H. bars specify MTL instead of MTR

MXR Bars *Back Turning - with Coolant Channel*





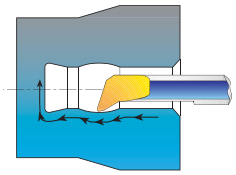


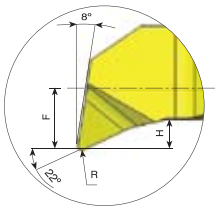
D mm	Ordering Code	L mm	L1 mm	R mm	H mm	F mm	Min. Bore Dia. mm	Holder*
4.0	MXR 4 R0.1 L10	51	10	0.10	0.5	1.3	3.1	SIM 0020 H4
4.0	MXR 4 R0.15 L10	51	10	0.15	0.8	1.6	4.1	SIM 0020 H4
4.0	MXR 4 R0.15 L15	51	15	0.15	0.8	1.6	4.1	SIM 0020 H4
5.0	MXR 5 R0.2 L15	51	15	0.20	1.0	2.2	5.1	SIM 0020 H5
5.0	MXR 5 R0.2 L22	51	22	0.20	1.0	2.2	5.1	SIM 0020 H5
6.0	MXR 6 R0.2 L15	51	15	0.20	1.8	2.8	6.1	SIM 0020 H6
6.0	MXR 6 R0.2 L22	51	22	0.20	1.8	2.8	6.1	SIM 0020 H6

Order example: MXR 4 R0.15 L15 BXC
* For additional holders see page 7

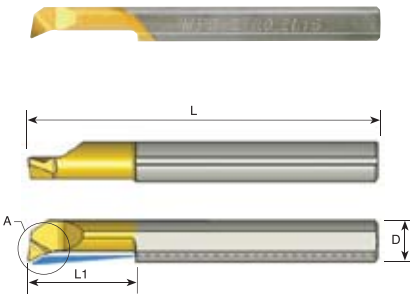
Carmex Precision Tools Ltd.

MPR Bars *Profiling and Boring - with Coolant Channel*





Detail A



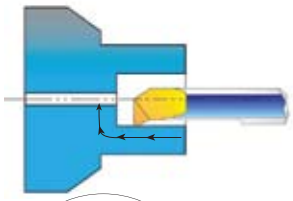
D mm	Ordering Code	L mm	L1 mm	R mm	H mm	F mm	Min. Bore Dia. mm	Holder*
3.0	* MPR 1 R0.05 L4	39	4	0.05	0.2	0.5	1.0	SIM 0020 H3
3.0	* MPR 1.5R0.1 L6	39	6	0.10	0.3	0.7	1.5	SIM 0020 H3
3.0	* MPR 2 R0.05 L10	39	10	0.05	0.5	0.8	2.1	SIM 0020 H3
3.0	* MPR 2 R0.1 L10	39	10	0.10	0.5	0.8	2.1	SIM 0020 H3
3.0	* MPR 2 R0.15 L5	39	5	0.15	0.5	0.8	2.1	SIM 0020 H3
3.0	* MPR 2 R0.15 L10	39	10	0.15	0.5	0.8	2.1	SIM 0020 H3
3.0	MPR 3 R0.05 L10	39	10	0.05	0.7	1.3	3.1	SIM 0020 H3
3.0	MPR 3 R0.05 L15	39	15	0.05	0.7	1.3	3.1	SIM 0020 H3
3.0	MPR 3 R0.1 L15	39	15	0.10	0.7	1.3	3.1	SIM 0020 H3
3.0	MPR 3 R0.1 L22	47	22	0.10	0.7	1.3	3.1	SIM 0020 H3
3.0	MPR 3 R0.2 L10	39	10	0.20	0.7	1.3	3.1	SIM 0020 H3
3.0	MPR 3 R0.2 L15	39	15	0.20	0.7	1.3	3.1	SIM 0020 H3
3.0	MPR 3 R0.2 L22	47	22	0.20	0.7	1.3	3.1	SIM 0020 H3
4.0	MPR 4 R0.1 L15	51	15	0.10	0.8	1.7	4.1	SIM 0020 H4
4.0	MPR 4 R0.1 L22	51	22	0.10	0.8	1.7	4.1	SIM 0020 H4
4.0	MPR 4 R0.2 L10	51	10	0.20	0.8	1.7	4.1	SIM 0020 H4
4.0	MPR 4 R0.2 L15	51	15	0.20	0.8	1.7	4.1	SIM 0020 H4
4.0	MPR 4 R0.2 L22	51	22	0.20	0.8	1.7	4.1	SIM 0020 H4
5.0	MPR 5 R0.1 L22	51	22	0.10	1.2	2.1	5.1	SIM 0020 H5
5.0	MPR 5 R0.1 L30	76	30	0.10	1.2	2.1	5.1	SIM 0020 H5
5.0	MPR 5R0.2 L15	51	15	0.20	1.2	2.1	5.1	SIM 0020 H5
5.0	MPR 5 R0.2 L22	51	22	0.20	1.2	2.1	5.1	SIM 0020 H5
5.0	MPR 5 R0.2 L30	76	30	0.20	1.2	2.1	5.1	SIM 0020 H5
6.0	MPR 6 R0.2 L15	51	15	0.20	1.4	2.8	6.1	SIM 0020 H6
6.0	MPR 6 R0.2 L22	51	22	0.20	1.4	2.8	6.1	SIM 0020 H6
6.0	MPR 6 R0.2 L30	76	30	0.20	1.4	2.8	6.1	SIM 0020 H6
7.0	MPR 7 R0.2 L22	62	22	0.20	1.5	3.3	7.1	SIM 0020 H7
7.0	MPR 7 R0.2 L30	62	30	0.20	1.5	3.3	7.1	SIM 0020 H7
8.0	MPR 8 R0.2 L15	64	15	0.20	1.6	3.8	8.1	SIM 0020 H8
8.0	MPR 8 R0.2 L22	64	22	0.20	1.6	3.8	8.1	SIM 0020 H8
8.0	MPR 8 R0.2 L35	76	35	0.20	1.6	3.8	8.1	SIM 0020 H8
10.0	MPR 10R0.2 L35	73	35	0.20	2.0	4.8	10.1	SIM 0020 H10

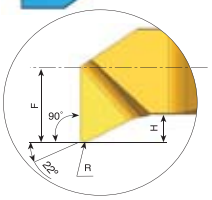
* without coolant

Order example: MPR 4 R0.2 L15 BXC
For L.H. bars specify MPL instead of MPR

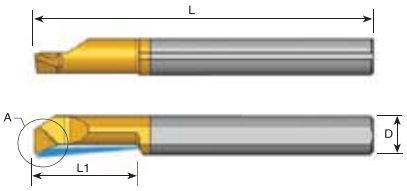
* For additional holders see page 7

MUR Bars *Profiling, 90° Face Cutting - with Coolant Channel*





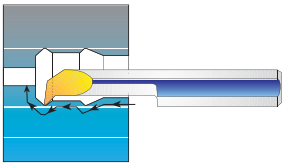
Detail A

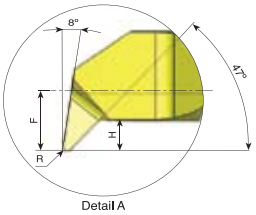


D mm	Ordering Code	L mm	L1 mm	R mm	H mm	F mm	Min. Bore Dia. mm	Holder*
3.0	MUR 3 R0.05 L10	39	10	0.05	0.4	1.3	3.1	SIM 0020 H3
3.0	MUR 3 R0.05 L15	39	15	0.05	0.4	1.3	3.1	SIM 0020 H3
4.0	MUR 4 R0.1 L10	51	10	0.10	0.5	1.7	4.1	SIM 0020 H4
4.0	MUR 4 R0.1 L15	51	15	0.10	0.5	1.7	4.1	SIM 0020 H4
5.0	MUR 5 R0.15 L15	51	15	0.15	0.7	2.1	5.1	SIM 0020 H5
5.0	MUR 5 R0.15 L22	51	22	0.15	0.7	2.1	5.1	SIM 0020 H5
6.0	MUR 6 R0.15 L15	51	15	0.15	0.9	2.8	6.1	SIM 0020 H6
6.0	MUR 6 R0.15 L22	51	22	0.15	0.9	2.8	6.1	SIM 0020 H6
8.0	MUR 8 R0.2 L22	64	22	0.20	1.1	3.8	8.1	SIM 0020 H8

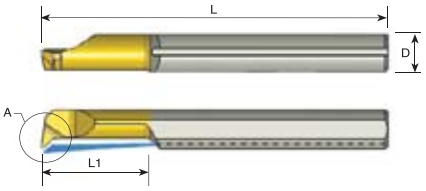
Order example: MUR 5 R0.15 L15 BXC

MQR Bars *Profiling and Boring - with Coolant Channel*





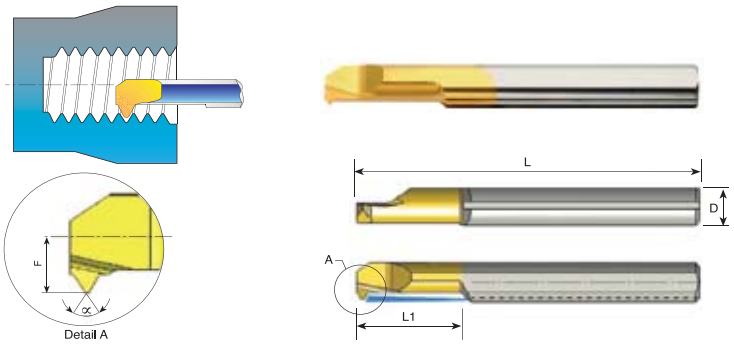
Detail A



D mm	Ordering Code	L mm	L1 mm	R mm	H mm	F mm	Min. Bore Dia. mm	Holder*
4.0	MQR 4 R0.2 L10	51	10	0.20	0.8	1.8	4.1	SIM 0020 H4
4.0	MQR 4 R0.2 L15	51	15	0.20	0.8	1.8	4.1	SIM 0020 H4
4.0	MQR 4 R0.2 L22	51	22	0.20	0.8	1.8	4.1	SIM 0020 H4
5.0	MQR 5 R0.2 L15	51	15	0.20	1.0	2.3	5.1	SIM 0020 H5
5.0	MQR 5 R0.2 L22	51	22	0.20	1.0	2.3	5.1	SIM 0020 H5
6.0	MQR 6 R0.2 L15	51	15	0.20	1.4	2.8	6.1	SIM 0020 H6
6.0	MQR 6 R0.2 L22	51	22	0.20	1.4	2.8	6.1	SIM 0020 H6
6.0	MQR 6 R0.2 L30	58	30	0.20	1.4	2.8	6.1	SIM 0020 H6
8.0	MQR 8 R0.2 L22	64	22	0.20	1.6	3.8	8.1	SIM 0020 H8
8.0	MQR 8 R0.2 L27	64	27	0.20	2.0	3.8	8.1	SIM 0020 H8

Order example: MQR 5 R0.2 L15 BXC
For L.H. bars specify MQL instead of MQR

MIR Bars *Threading - with Coolant Channel*



Partial Profile 55°

D mm	Ordering Code	L mm	L1 mm	α	Pitch Range mm	Pitch Range TPI	F mm	Min. Bore Dia. mm	Holder*
3.0	**MIR 3 L15 A55**	39	15	55	0.5 -1.0	48-24	1.4	3.2	SIM 0020 H3
4.0	**MIR 4 L15 A55**	51	15	55	0.5 -1.0	48-24	1.8	4.1	SIM 0020 H4
5.0	**MIR 5 L15 A55**	51	15	55	0.5 -1.25	48-20	2.3	5.1	SIM 0020 H5
5.0	**MIR 5 L22 A55**	51	22	55	0.5 -1.25	48-20	2.3	5.1	SIM 0020 H5
6.0	**MIR 6 L15 A55**	51	15	55	0.5 -1.5	48-16	2.6	6.0	SIM 0020 H6
6.0	**MIR 6 L22 A55**	51	22	55	0.5 -1.5	48-16	2.6	6.0	SIM 0020 H6

Order example: MIR 5 L15 A55 BXC

Partial Profile 60°

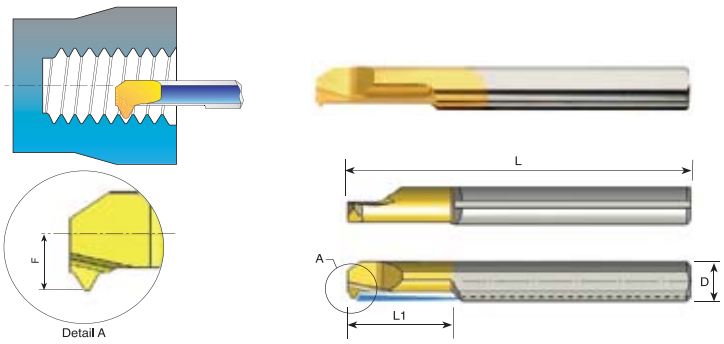
D mm	Ordering Code	L mm	L1 mm	α	Pitch Range mm	Pitch Range TPI	F mm	Min. Bore Dia. mm	Holder*
3.0	*** MIR 2 L8 A60**	39	8	60	0.45-0.7	56-32	1.0	2.1	SIM 0020 H3
3.0	**MIR 3 L15 A60**	39	15	60	0.7 -1.0	32-24	1.4	3.2	SIM 0020 H3
4.0	**MIR 4 L15 A60**	51	15	60	0.7 -1.0	32-24	1.8	4.1	SIM 0020 H4
5.0	**MIR 5 L15 A60**	51	15	60	1.0 -1.25	24-20	2.3	5.1	SIM 0020 H5
5.0	**MIR 5 L22 A60**	51	22	60	1.0 -1.25	24-20	2.3	5.1	SIM 0020 H5
6.0	**MIR 6 L15 A60**	51	15	60	1.0 -1.5	24-16	2.6	6.0	SIM 0020 H6
6.0	**MIR 6 L22 A60**	51	22	60	1.0 -1.5	24-16	2.6	6.0	SIM 0020 H6
8.0	**MIR 8 L22 A60**	64	22	60	1.0 -2.0	24-13	3.6	8.0	SIM 0020 H8

* without coolant

Order example: MIR 5 L15 A60 BXC

For L.H. bars specify MIL instead of MIR

MIR Bars *Threading - with Coolant Channel*



Full Profile – ISO 60°

D mm	Ordering Code	Pitch mm	L mm	L1 mm	F mm	Min. Bore Dia. mm	Holder*
3.0	**MIR 3 L15 0.5 ISO**	0.5	39	15	1.4	3.2	SIM 0020 H3
3.0	**MIR 3 L15 0.75 ISO**	0.75	39	15	1.4	3.2	SIM 0020 H3
4.0	**MIR 4 L15 0.5 ISO**	0.5	51	15	1.8	4.1	SIM 0020 H4
4.0	**MIR 4 L15 0.75 ISO**	0.75	51	15	1.8	4.1	SIM 0020 H4
5.0	**MIR 5 L15 1.0 ISO**	1.0	51	15	2.2	4.9	SIM 0020 H5
6.0	**MIR 6 L22 1.25 ISO**	1.25	51	22	2.8	6.1	SIM 0020 H6

Order example: MIR 5 L15 1.0 ISO BXC

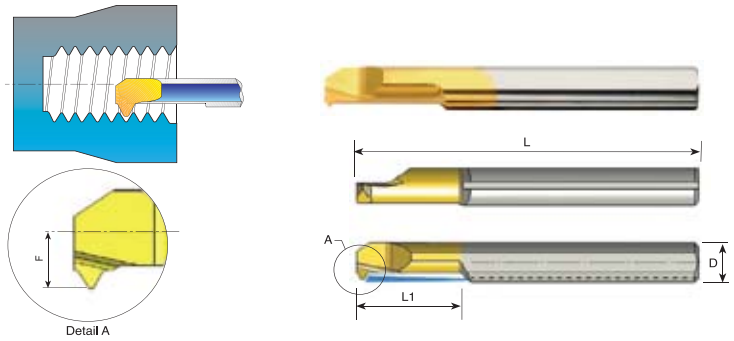
Full Profile – UN 60°

D mm	Ordering Code	Pitch TPI	L mm	L1 mm	F mm	Min. Bore Dia. mm	Holder*
3.0	**MIR 3 L15 36 UN**	36	39	15	1.4	3.2	SIM 0020 H3
3.0	**MIR 3 L15 32 UN**	32	39	15	1.4	3.2	SIM 0020 H3
4.0	**MIR 4 L15 36 UN**	36	51	15	1.8	4.1	SIM 0020 H4
4.0	**MIR 4 L15 32 UN**	32	51	15	1.8	4.1	SIM 0020 H4
5.0	**MIR 5 L15 28 UN**	28	51	15	2.2	4.9	SIM 0020 H5
5.0	**MIR 5 L18 20 UN**	20	51	18	2.3	5.0	SIM 0020 H5
6.0	**MIR 6 L18 24 UN**	24	51	18	2.8	6.5	SIM 0020 H6
6.0	**MIR 6 L18 18 UN**	18	51	18	2.8	6.2	SIM 0020 H6

Order example: MIR 4 L15 36 UN BXC

For L.H. bars specify MIL instead of MIR

MIR Bars *Threading - with Coolant Channel*

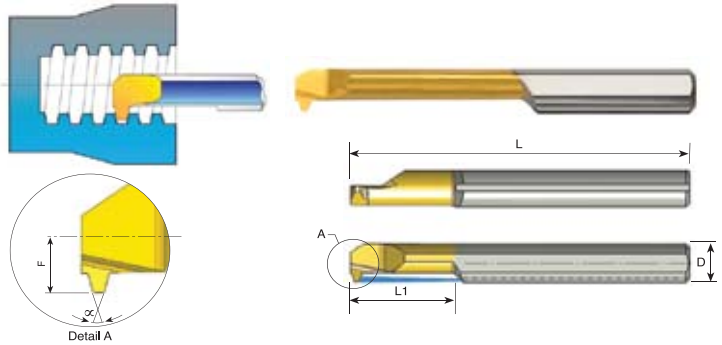


Full Profile - NPT 60°

D mm	Ordering Code	Pitch mm	L mm	L1 mm	F mm	Min. Bore Dia. mm	Thread	Holder*
6.0	**MIR 6 L15 27 NPT**	27	51	15	2.6	5.9	1/16 x 27NPT 1/8 x 27NPT	SIM 0020 H6

Order example: MIR 6 L15 27 NPT BXC

* For additional holders see page 7



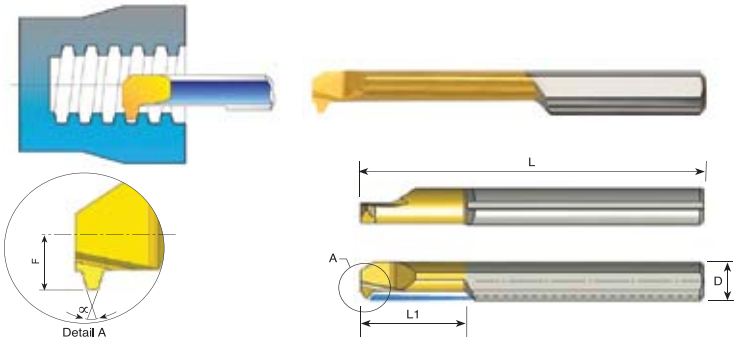
Acme

D mm	Ordering Code	Pitch TPI	L mm	L1 mm	F mm	α	Min. Bore Dia. mm	Thread	Holder*
4.0	**MIR 4 L15 16 ACME**	16	51	15	1.8	29	4.6	1/4 x 16	SIM 0020 H4
6.0	**MIR 6 L20 14 ACME**	14	51	20	2.8	29	6.0	5/16 X 14	SIM 0020 H6
7.0	**MIR 7 L22 12 ACME**	12	62	22	3.3	29	7.2	3/8 X 12	SIM 0020 H7

Order example: MIR 6 L 20 14 ACME BXC

Carmex Precision Tools Ltd.

MIR Bars *Threading - with Coolant Channel*

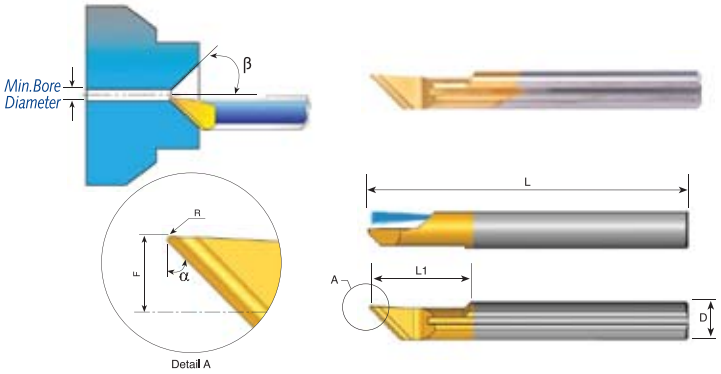


Full Profile Trapez - DIN 103

D mm	Ordering Code	Pitch mm	L mm	L1 mm	F mm	α	Min. Bore Dia. mm	Thread	Holder*
7.0	**MIR 7 L25 2 TR**	2	62	25	3.2	30	6.9	Tr 9 x 2 Tr 10 x 2 Tr 11 x 2 Tr 12 x 2	SIM 0020 H7
10.0	**MIR 10 L35 2 TR**	2	73	35	4.8	30	11.0	Tr 14 x 2 Tr 16 x 2 Tr 18 x 2 Tr 20 x 2	SIM 0020 H10
7.0	**MIR 7 L35 3 TR**	3	62	35	3.3	30	7.5	Tr 11 x 3 Tr 12 x 3	SIM 0020 H7
10.0	**MIR 10 L35 3 TR**	3	73	35	4.8	30	10.5	Tr 14 x 3 Tr 22 x 3 Tr 24 x 3 Tr 26 x 3 Tr 28 x 3	SIM 0020 H10
10.0	**MIR 10 L45 4 TR**	4	105	45	4.8	30	11.5	Tr 16 x 4 Tr 18 x 4 Tr 20 x 4	SIM 0020 H10
10.0	**MIR 10 L55 5 TR**	5	105	55	4.8	30	11.0	Tr 22 x 5 Tr 24 x 5 Tr 28 x 5	SIM 0020 H10

Order example: MIR 10 L35 3 TR BXC

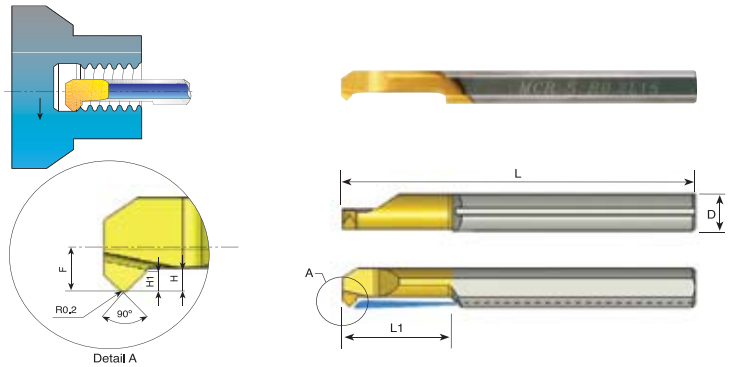
MWR Bars *Chamfering and Profiling - with Coolant Channel*



D mm	Ordering Code	L mm	L1 mm	R mm	α	β	F mm	Min. Bore Dia. mm	Holder*
6.0	**MWR 6 R0.2 A90**	51	15.0	0.20	45°	45°	2.3	1.0	SIM 0020 H6
6.0	**MWR 6 R0.2 A60**	51	15.0	0.20	60°	30°	2.3	1.0	SIM 0020 H6

Order example: MWR 6 R0.2 A90 BXC
For L.H. bars specify MWL instead of MWR

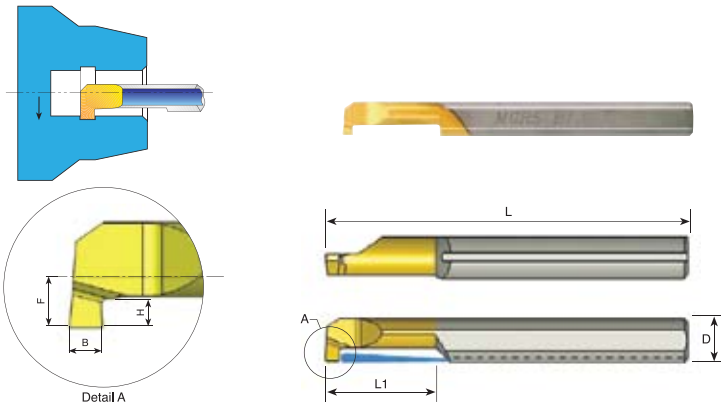
MCR Bars *Chamfering and Boring - with Coolant Channel*



D mm	Ordering Code	L mm	L1 mm	R mm	H mm	H1 mm	F mm	Min. Bore Dia. mm	Holder*
3.0	**MCR 3 R0.2 L10**	39	10	0.20	0.7	0.3	1.3	3.1	SIM 0020 H3
4.0	**MCR 4 R0.2 L15**	51	15	0.20	0.8	0.4	1.7	4.1	SIM 0020 H4
5.0	**MCR 5 R0.2 L15**	51	15	0.20	1.2	0.7	2.1	5.1	SIM 0020 H5
6.0	**MCR 6 R0.2 L15**	51	15	0.20	1.4	0.7	2.8	6.1	SIM 0020 H6

Order example: MCR 4 R0.2 L15 BXC
For L.H. bars specify MCL instead of MCR
* For additional holders see page 7

MGR Bars *Grooving - with Coolant Channel*

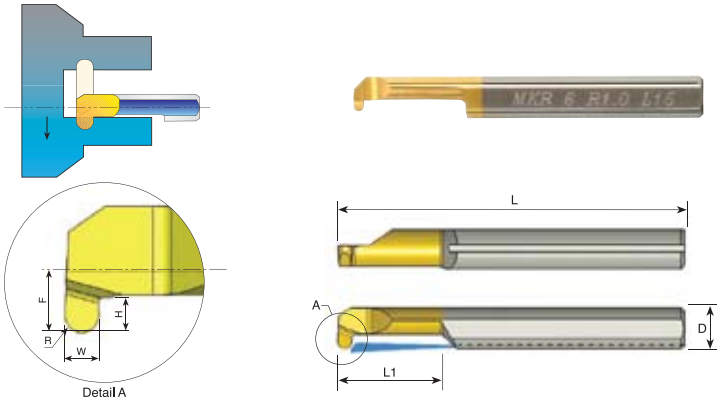


D mm	Ordering Code	L mm	L1 mm	B mm	H mm	F mm	Min. Bore Dia. mm	Holder*
4.0	**MGR 4 B1.0 L10**	51	10	1.0	1.0	1.7	4.1	SIM 0020 H4
4.0	**MGR 4 B1.5 L10**	51	10	1.5	1.0	1.7	4.1	SIM 0020 H4
5.0	**MGR 5 B1.0 L15**	51	15	1.0	1.2	2.3	5.1	SIM 0020 H5
5.0	**MGR 5 B1.5 L15**	51	15	1.5	1.2	2.3	5.1	SIM 0020 H5
5.0	**MGR 5 B2.0 L15**	51	15	2.0	1.2	2.3	5.1	SIM 0020 H5
6.0	**MGR 6 B1.0 L15**	51	15	1.0	1.4	2.8	6.1	SIM 0020 H6
6.0	**MGR 6 B1.5 L15**	51	15	1.5	1.4	2.8	6.1	SIM 0020 H6
6.0	**MGR 6 B2.0 L15**	51	15	2.0	1.4	2.8	6.1	SIM 0020 H6
8.0	**MGR 8 B1.5 L22**	64	22	1.5	1.7	3.8	8.1	SIM 0020 H8
8.0	**MGR 8 B2.0 L22**	64	22	2.0	2.6	3.8	8.1	SIM 0020 H8

Order example: MGR 5 B1.5 L15 BXC

For L.H. bars specify MGL instead of MGR

MKR Bars *Full Radius Grooving - with Coolant Channel*

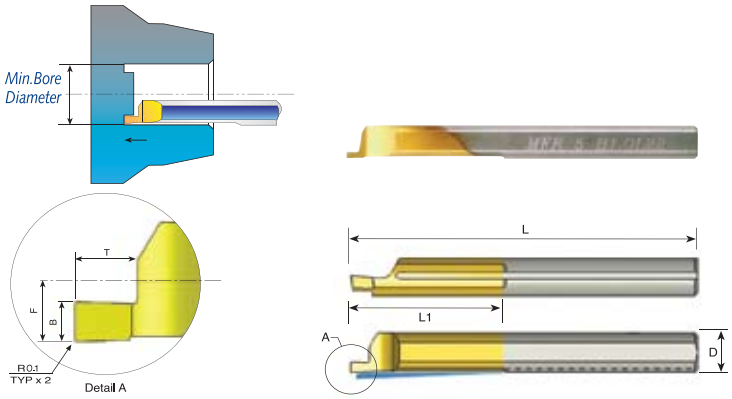


D mm	Ordering Code	L mm	L1 mm	R mm	W mm	H mm	F mm	Min. Bore Dia. mm	Holder*
4.0	**MKR 4 R0.5 L10**	51	10	0.50	1.0	1.0	1.7	4.1	SIM 0020 H4
4.0	**MKR 4 R0.75 L10**	51	10	0.75	1.5	1.0	1.7	4.1	SIM 0020 H4
5.0	**MKR 5 R0.5 L15**	51	15	0.50	1.0	1.2	2.3	5.1	SIM 0020 H5
5.0	**MKR 5 R0.75 L15**	51	15	0.75	1.5	1.2	2.3	5.1	SIM 0020 H5
5.0	**MKR 5 R1.0 L15**	51	15	1.00	2.0	1.2	2.3	5.1	SIM 0020 H5
6.0	**MKR 6 R0.5 L15**	51	15	0.50	1.0	1.6	2.8	6.1	SIM 0020 H6
6.0	**MKR 6 R0.75 L15**	51	15	0.75	1.5	1.6	2.8	6.1	SIM 0020 H6
6.0	**MKR 6 R1.0 L15**	51	15	1.00	2.0	1.6	2.8	6.1	SIM 0020 H6

Order example: MKR 5 R1.0 L15 BXC

For L.H. bars specify MKL instead of MKR

MFR Bars *Face Grooving - with Coolant Channel*

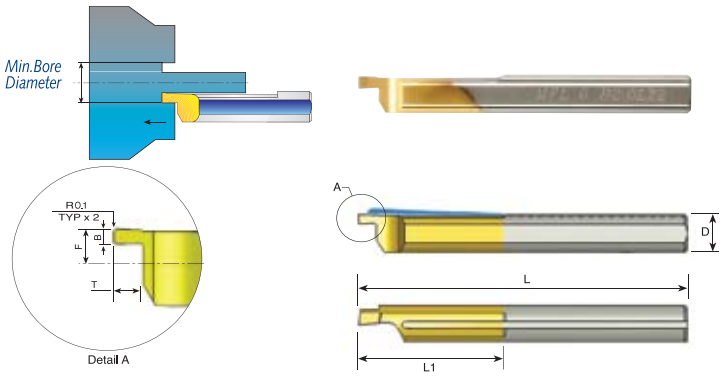


D mm	Ordering Code	L mm	L1 mm	B mm	T mm	F mm	Min. Bore Dia. mm	Holder*
4.0	**MFR 4 B0.75 L15**	51	15	0.75	1.2	1.95	5.0	SIM 0020 H4
4.0	**MFR 4 B1.0 L15**	51	15	1.0	1.5	1.95	5.0	SIM 0020 H4
5.0	**MFR 5 B0.75 L22**	51	22	0.75	1.2	2.45	6.0	SIM 0020 H5
5.0	**MFR 5 B1.0 L22**	51	22	1.0	1.5	2.45	6.0	SIM 0020 H5
5.0	**MFR 5 B1.5 L22**	51	22	1.5	2.5	2.45	6.0	SIM 0020 H5
6.0	**MFR 6 B1.0 L22**	51	22	1.0	1.5	2.95	8.0	SIM 0020 H6
6.0	**MFR 6 B1.5 L22**	51	22	1.5	2.5	2.95	8.0	SIM 0020 H6
6.0	**MFR 6 B2.0 L22**	51	22	2.0	3.0	2.95	8.0	SIM 0020 H6
8.0	**MFR 8 B2.5 L22**	64	22	2.5	3.5	3.95	10.0	SIM 0020 H8

Order example: MFR 5 B1.0 L22 BXC

* For additional holders see page 7

MFL Bars *Face Grooving - with Coolant Channel*

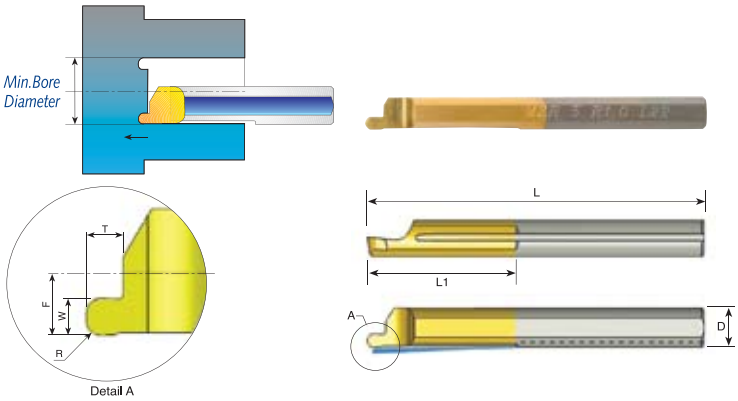


D mm	Ordering Code	L mm	L1 mm	B mm	T mm	F mm	Min. Bore Dia. mm	Holder*
4.0	**MFL 4 B0.75 L15**	51	15	0.75	1.2	1.75	5.0	SIM 0020 H4
4.0	**MFL 4 B1.0 L15**	51	15	1.0	1.5	1.75	5.0	SIM 0020 H4
5.0	**MFL 5 B0.75 L22**	51	22	0.75	1.2	2.25	6.0	SIM 0020 H5
5.0	**MFL 5 B1.0 L22**	51	22	1.0	1.5	2.25	6.0	SIM 0020 H5
5.0	**MFL 5 B1.5 L22**	51	22	1.5	2.5	2.25	6.0	SIM 0020 H5
6.0	**MFL 6 B1.0 L22**	51	22	1.0	1.5	2.75	8.0	SIM 0020 H6
6.0	**MFL 6 B1.5 L22**	51	22	1.5	2.5	2.75	8.0	SIM 0020 H6
6.0	**MFL 6 B2.0 L22**	51	22	2.0	3.0	2.75	8.0	SIM 0020 H6
8.0	**MFL 8 B2.5 L22**	64	22	2.5	3.5	3.75	10.0	SIM 0020 H8

Order example: MFL 6 B1.0 L22 BXC

Carmex Precision Tools Ltd.

MZR Bars *Face Grooving - with Coolant Channel*

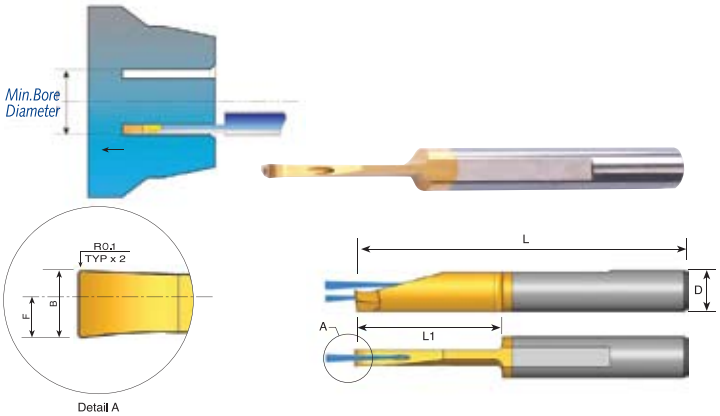


D mm	Ordering Code	L mm	L1 mm	R mm	W mm	T mm	F mm	Min. Bore Dia. mm	Holder*
4.0	**MZR 4 R0.5 L15**	51	15	0.50	1.0	1.2	1.95	5.0	SIM 0020 H4
4.0	**MZR 4 R0.75 L15**	51	15	0.75	1.5	1.5	1.95	5.0	SIM 0020 H4
5.0	**MZR 5 R0.5 L22**	51	22	0.50	1.0	1.2	2.45	6.0	SIM 0020 H5
5.0	**MZR 5 R0.75 L22**	51	22	0.75	1.5	1.5	2.45	6.0	SIM 0020 H5
5.0	**MZR 5 R1.0 L22**	51	22	1.00	2.0	2.5	2.45	6.0	SIM 0020 H5
6.0	**MZR 6 R0.5 L22**	51	22	0.50	1.0	1.2	2.95	8.0	SIM 0020 H6
6.0	**MZR 6 R0.75 L22**	51	22	0.75	1.5	1.5	2.95	8.0	SIM 0020 H6
6.0	**MZR 6 R1.0 L22**	51	22	1.00	2.0	2.5	2.95	8.0	SIM 0020 H6

Order example: MZR 5 R0.5 L22 BXC

* For additional holders see the next table

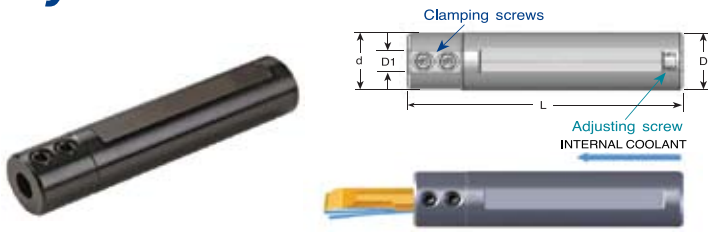
MVR Bars *Deep Face Grooving - with 2 Coolant Bores*

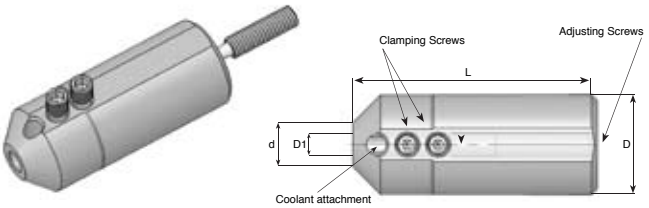


D mm	Ordering Code	L mm	L1 mm	B mm	F mm	Min. Bore Dia. mm	Holder*
6.0	**MVR 6 B2.0 L15**	64	15	2.0	1.7	12.0	SIM 0020 H6
6.0	**MVR 6 B2.0 L22**	64	22	2.0	1.7	12.0	SIM 0020 H6
6.0	**MVR 6 B2.5 L22**	64	22	2.5	2.2	12.0	SIM 0020 H6
8.0	**MVR 8 B3.0 L27**	64	27	3.0	2.5	15.0	SIM 0020 H8

Order example: MVR 6 B2.0 L22 BXC

Tiny Tools Bar Holders



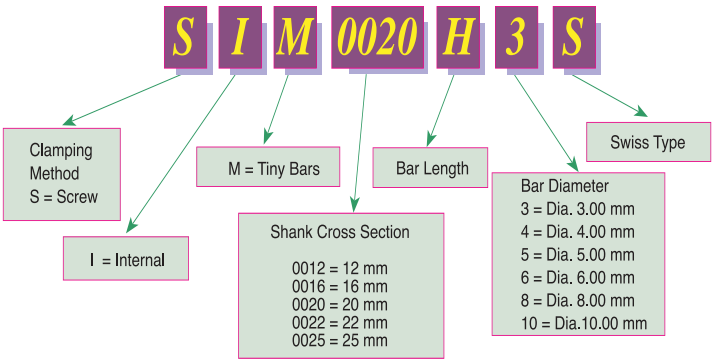


D1 mm	Ordering Code	L mm	D mm	d mm	Key	Clamping Screw	Adjusting Screw
3.0	**SIM0012 H3**	88	12	12	K25	S24	S35
3.0	*** SIM0016 H3S**	75	16	20	K25	S25	S35S
3.0	**SIM0016 H3**	88	16	20	K25	S25	S35
3.0	**SIM0020 H3**	88	20	20	K25	S25	S35
3.0	*** SIM0022 H3**	88	22	22	K25	S25	S35
4.0	**SIM0012 H4**	88	12	12	K25	S24	S35
4.0	*** SIM0016 H4S**	75	16	20	K25	S25	S35S
4.0	**SIM0016 H4**	88	16	20	K25	S25	S35
4.0	**SIM0020 H4**	88	20	20	K25	S25	S35
4.0	*** SIM0022 H4**	88	22	22	K25	S25	S35
5.0	**SIM0012 H5**	88	12	12	K25	S24	S35
5.0	*** SIM0016 H5S**	75	16	20	K25	S25	S35S
5.0	**SIM0016 H5**	88	16	20	K25	S25	S35
5.0	**SIM0020 H5**	88	20	20	K25	S25	S35
5.0	*** SIM0022 H5**	75	22	22	K25	S25	S35
6.0	*** SIM0016 H6S**	75	16	20	K25	S25	S35S
6.0	**SIM0016 H6**	88	16	20	K25	S25	S35
6.0	**SIM0020 H6**	88	20	20	K25	S25	S35
6.0	*** SIM0022 H6**	88	22	22	K25	S25	S35
7.0	**SIM0016 H7**	88	16	20	K25	S25	S35
7.0	**SIM0020 H7**	88	20	20	K25	S25	S35
8.0	**SIM0016 H8**	88	16	20	K25	S25	S35
8.0	**SIM0020 H8**	88	20	20	K25	S25	S35
10.0	**SIM0020 H10**	88	20	20	K25	S25S	S35

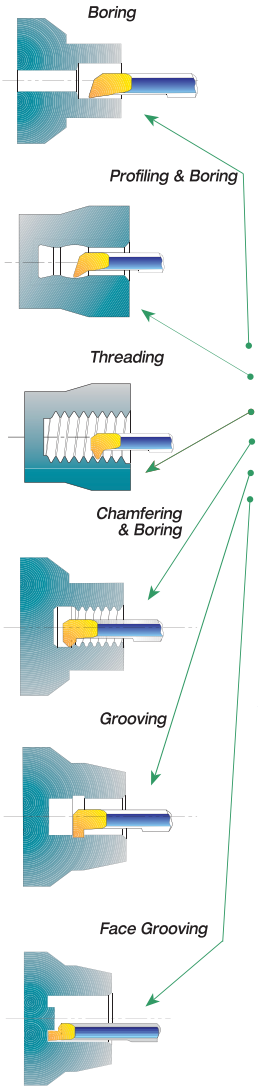
*Can also be used with Swiss type lathe machines

D1 mm	Ordering Code	L mm	D mm	d mm	Torx Key	Clamping Screw	Adjusting Screw
3.0	**SIM0025 H3**	62	25	10.8	K25	S25	S35M
4.0	**SIM0025 H4**	62	25	10.8	K25	S25	S35M
5.0	**SIM0025 H5**	62	25	10.8	K25	S25	S35M
6.0	**SIM0025 H6**	62	25	10.8	K25	S25	S35M

Tiny Bar Holders Ordering Codes



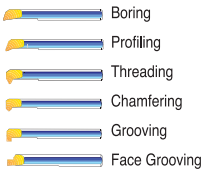
Tiny Tools Kits



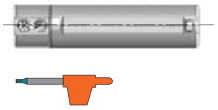
KT4-20	KT5-20
MTR 4 R0.2 L10	MTR 5 R0.2 L15
MPR 4 R0.2 L10	MPR 5 R0.2 L15
MIR 4 L15 A60	MIR 5 L15 A60
MCR 4 R0.2 L15	MCR 5 R0.2 L15
MGR 4 B1.5 L10	MGR 5 B1.5 L15
MFR 4 B1.0 L15	MFR 5 B1.0 L22
SIM 0020 H4	SIM 0020 H5
K25	K25

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

Carbide Grade: **BMK (ISO 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

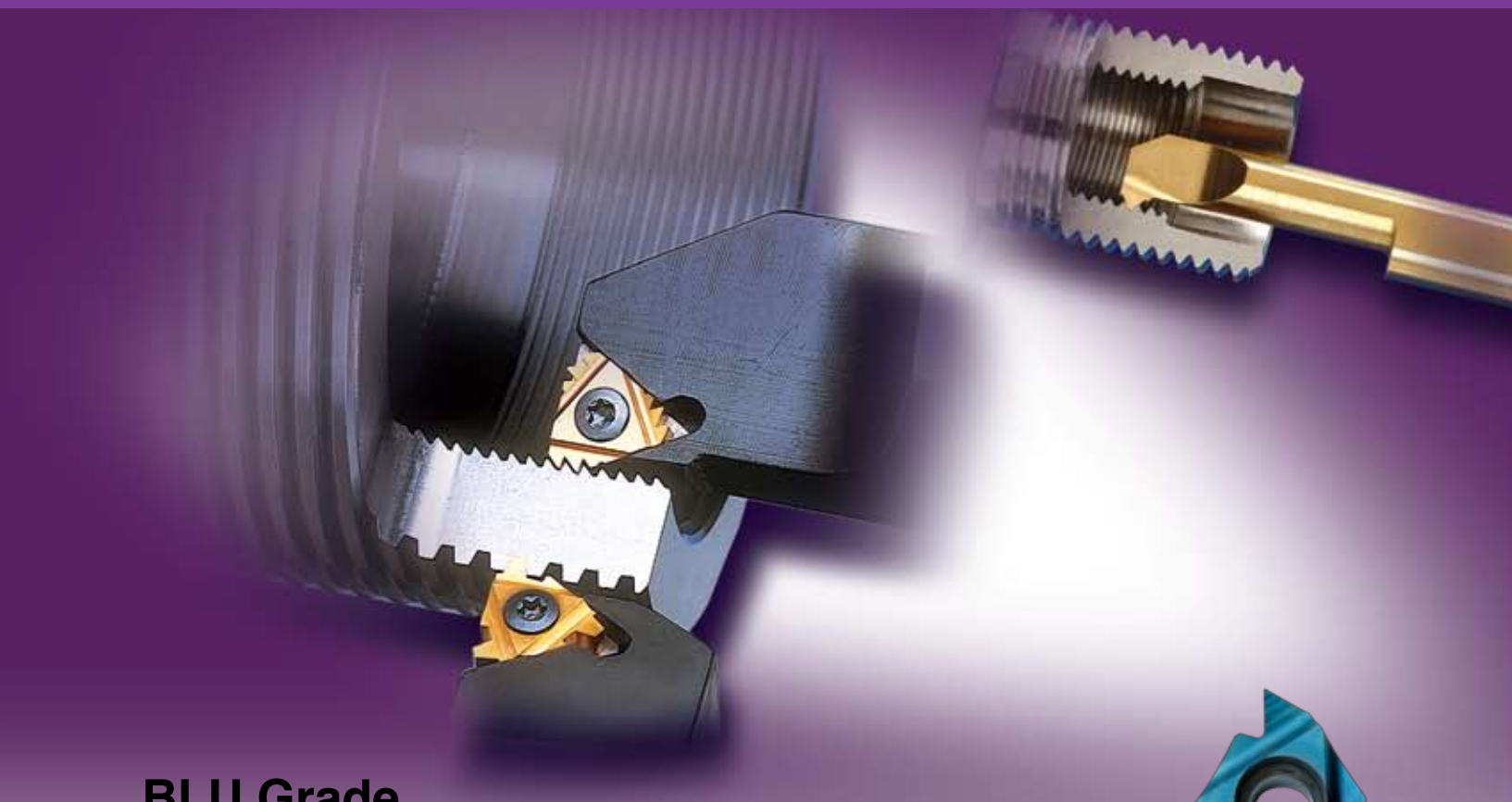
Cutting speed for Tiny Tools

ISO Standard	Material		Condition	BXC	BMK
P	Non-Alloy steel and cast steel, free cutting steel	<0.25%C	Annealed	25-50	30-60
		≥0.25%C	Annealed		
		< 0.55%C	Quenched and tempered		
		≥0.55%C	Annealed		
			Quenched and tempered		
	Low alloy steel and cast steel (less than 5% alloying elements)		Annealed	20-25	24-30
			Quenched and empered		
	High alloy steel, cast steel, and tool steel		Annealed	18-20	22-24
			Quenched and empered		
M	Stainless steel and cast steel		Ferritic/martensitic	25-30	30-42
			Martensitic		
			Austenitic		
K	Cast iron nodular (GGG)		Ferritic/pearlitic	17-23	20-28
			Pearlitic		
	Grey cast iron (GG)		Ferritic	17-23	20-28
			Pearlitic		
	Malleable cast iron		Ferritic	17-23	20-28
			Pearlitic		
N	Aluminum-wrought alloy		Not cureable	50-70	60-84
			Cured		
	Aluminum-cast, alloyed	<=12% Si	Not cureable	30-40	36-48
			Cured		
		>12% Si	High temperature		
	Copper alloys	>1% Pb	Free cutting	22-25	24-30
			Brass		
			Electrolytic copper		
	Non metalic		Duroplastics, fiber plastics	35-45	
			Hard rubber		
S	High temp. alloys, Super alloys	Fe based	Annealed	15-20	18-24
			Cured		
		Ni or Co based	Annealed		
			Cured		
			Cast		
	Titanium alloys		Alpha+beta alloys cured	12-18	15-20
H	Hardened steel		Hardened 45-50 HRc	15-20	18-24
			Hardened 51-55 HRc		
			Hardened 56-62 HRc		
	Chilled cast iron		cast	10-14	12-16
	Cast iron		Hardened	8-12	10-14

Recommended Feed Rate: 0.01 - 0.03 mm/rev

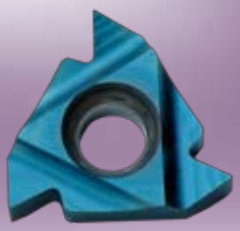
Threading Passes

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



BLU Grade

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

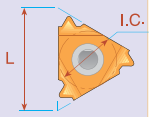


Product Identification

Thread Turning Inserts Ordering Codes

16 E R 12 UN BMA

16



L	I.C.
06	5/32"
08	3/16"
08U	3/16"U
11	1/4"
16	3/8"
16V	3/8"V

E

E = External
I = Internal

R

R = Right Hand
L = Left Hand

12

Pitch
in mm:
0.35-12

or TPI
(Threads per Inch)
72-2

UN

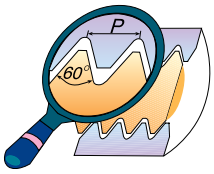
Full Profiles:
ISO
N
WHIT
NPT
NPTF
BSPT
ACME
ST.ACME
TRAPEZ
UNJ
MJ
AM. BUTT.

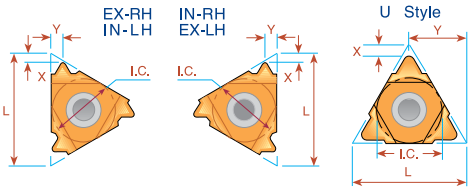
Partial Profiles:
A 60°
G 55°
AG
U

BMA

Carbide Grade:
P30
K20
BMA
BLU
MXC
P25C
BXC

Partial Profile 60°

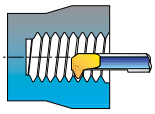




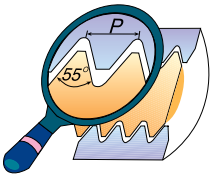
L mm	I.C. in	Pitch Range mm	Pitch Range TPI	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
6	5/32	0.5 -1.25	48-20	ULTRA MINIATURE →		*06 IR A60	*06 IL A60	0.6	0.6
8	3/16	0.5 -1.5	48-16	MINIATURE →		*08 IR 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

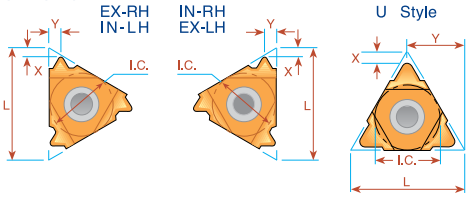
Order example: 11 ER A60 MXC

* Available only in BXC & BMA grades



Partial Profile 55°



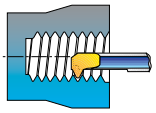


L mm	I.C. in	Pitch Range mm	Pitch Range TPI	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
6	5/32	0.5 -1.25	48-20	ULTRA MINIATURE →		*06 IR A55	*06 IL A55	0.5	0.6
8	3/16	0.5 -1.5	48-16	MINIATURE →		*08 IR 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

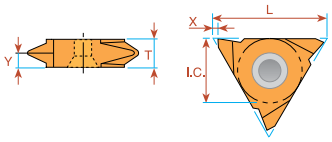
Order example: 11 ER A55 MXC

* Available only in BXC & BMA grades

For carbide grade and cutting speed see page 18



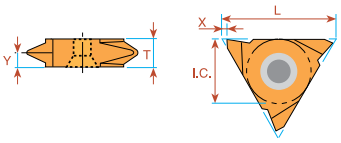
Partial Profile 60°
Vertical



L mm	I.C. in	Pitch Range mm	Pitch Range TPI	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X mm	Y mm	T mm
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 AG	1.0	1.8	3.6

Order example: 16V ER G60 BMA

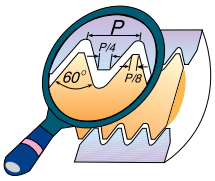
Partial Profile 55°
Vertical

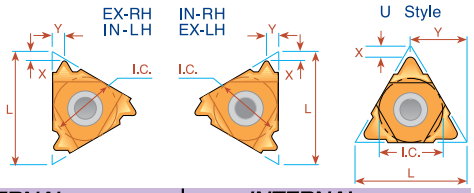


L mm	I.C. in	Pitch Range mm	Pitch Range TPI	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X mm	Y mm	T mm
16	3/8	0.5 -1.5	48-16	16V ER A55	16V EL A55	1.0	0.9	3.6
16	3/8	1.75-3.0	14- 8	16V ER G55	16V EL G55	1.0	1.7	3.6
16	3/8	0.5 -3.0	48- 8	16V ER AG55	16V EL AG55	1.0	1.8	3.6

Order example: 16V ER A55 BMA

ISO - metric





Pitch mm	L	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X mm	Y mm	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
0.5	6	5/32					*06 IR 0.5 ISO	*06 IL 0.5 ISO	0.9	0.5
0.75	6	5/32					*06 IR 0.75 ISO	*06 IL 0.75 ISO	0.8	0.5
1.0	6	5/32	ULTRA MINIATURE →				*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					*08 IR 1.0 ISO	*08 IL 1.0 ISO	0.6	0.6
1.25	8	3/16	MINIATURE →				*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 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

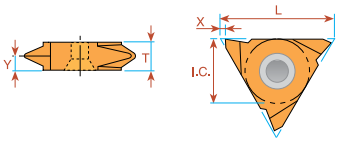
Order example: 08 IR 1.75 ISO BXC

* Available only in BXC & BMA grades

Thread Turning Inserts

Carmex Precision Tools Ltd.

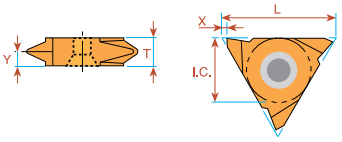
ISO - metric
Vertical



Pitch mm	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	Left Hand	X mm	Y mm	T mm
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

Order example: 16V ER 1.5 ISO BMA

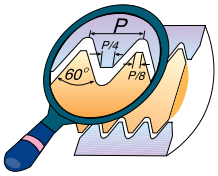
UN - Unified
Vertical

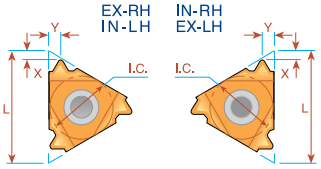


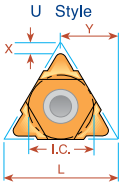
Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	Left Hand	X mm	Y mm	T mm
32	16	3/8	16V ER 32 UN	16V EL 32 UN	1.0	0.6	3.6
28	16	3/8	16V ER 28 UN	16V EL 28 UN	1.0	0.7	3.6
24	16	3/8	16V ER 24 UN	16V EL 24 UN	1.0	0.8	3.6
20	16	3/8	16V ER 20 UN	16V EL 20 UN	1.0	0.9	3.6
18	16	3/8	16V ER 18 UN	16V 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

Order example: 16V ER 10 UN BMA

UN - Unified UNC, UNF, UNEF, UNS







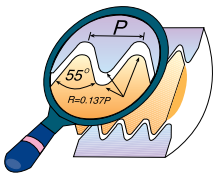
Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	Left Hand	X mm	Y mm	INTERNAL Ordering Code Right Hand	Left Hand	X mm	Y mm
32	6	5/32					*06 IR 32 UN	*06 IL 32 UN	0.8	0.5
28	6	5/32					*06 IR 28 UN	*06 IL 28 UN	0.8	0.6
24	6	5/32	ULTRA MINIATURE →				*06 IR 24 UN	*06 IL 24 UN	0.7	0.6
20	6	5/32					*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	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

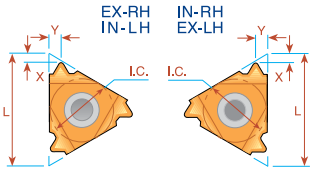
Order example: 11 EL 18 UN BMA

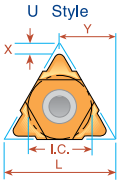
* Available only in BXC & BMA grades

For carbide grade and cutting speed see page 18

Whitworth - 55° BSW, BSF, BSP, BSB







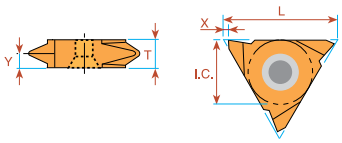
Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	Left Hand	INTERNAL Ordering Code Right Hand	Left Hand	X mm	Y mm
26	6	5/32			*06 IR 26 W	*06 IL 26 W	0.7	0.6
22	6	5/32	ULTRA -MINI →		*06 IR 22 W	*06 IL 22 W	0.6	0.6
20	6	5/32			*06 IR 20 W	*06 IL 20 W	0.6	0.7
18	6	5/32			*06 IR 18 W	*06 IL 18 W	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	MINI →		*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	1.0	1.1
11	11	1/4			11 IR 11 W	11 IL 11 W	0.9	1.2

Order example: 11 IL W BMA

* Available only in BXC & BMA grades

Whitworth - 55° BSW, BSF, BSP, BSB

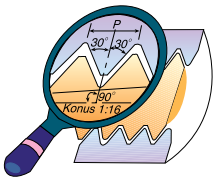
Vertical

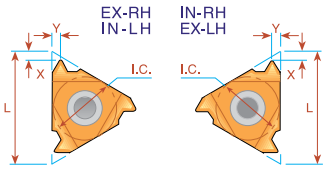


Pitch TPI	L	I.C. in	EXTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm	T mm
20	16	3/8	16V ER 20 W	16V EL 20 W	1.0	0.9	3.6
19	16	3/8	16V ER 19 W	16V EL 19 W	1.0	0.9	3.6
18	16	3/8	16V ER 18 W	16V EL 18 W	1.0	1.0	3.6
16	16	3/8	16V ER 16 W	16V EL 16 W	1.0	1.0	3.6
14	16	3/8	16V ER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

NPTF - Dryseal



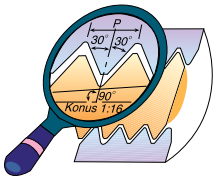


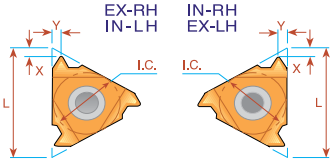
Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INNEN Bestellcode Right Hand	INNEN Bestellcode Left Hand	X mm	Y mm
27	6	5/32	ULTRA MINI →		•06 IR 27 NPTF	*06 IL 27 NPTF	0.7	0.6
27	8	3/16	MINI →		*08 IR 27 NPTF	*08 IL 27 NPTF	0.6	0.6
18	8	3/16			*08 IR 18 NPTF	*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

Order example: 11 ER 27 NPTF BMA

* Available only in BXC & BMA grades

NPT





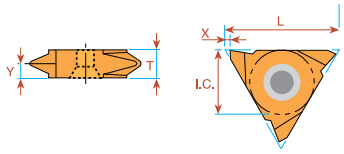
Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
27	6	5/32	ULTRA MINI →		*06 IR 27 NPT	*06 IL 27 NPT	0.6	0.6
27	8	3/16	MINI →		*08 IR 27 NPT	*08 IL 27 NPT	0.6	0.6
18	8	3/16			*08 IR 18 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

Order example: 11 IR 14 NPT MXC

* Available only in BXC & BMA grades

NPT

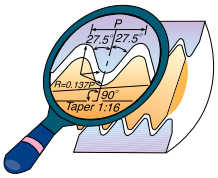
Vertical

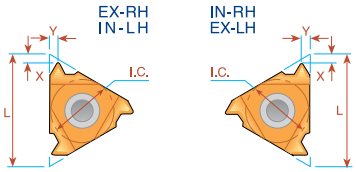


Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	X mm	Y mm	T mm
27	16	3/8	16V ER 27 NPT	16V EL 27 NPT	1.0	0.8	3.6
18	16	3/8	16V ER 18 NPT	16V EL 18 NPT	1.0	1.0	3.6
14	16	3/8	16V ER 14 NPT	16V EL 14 NPT	1.0	1.2	3.6
11.5	16	3/8	16V ER 11.5 NPT	16V EL 11.5 NPT	1.0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

Order example: 16V ER NPT BMA

BSPT





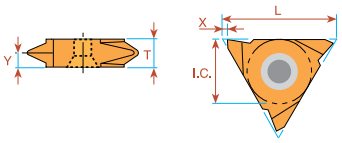
Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
28	6	5/32	ULTRA MINI →		* 06 IR 28 BSPT	* 06 IL 28 BSPT	0.7	0.6
28	8	3/16	MINI →		* 08 IR 28 BSPT	* 08 IL 28 BSPT	0.6	0.6
19	8	3/16			* 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			11 IR 11 BSPT	11 IL 11 BSPT	0.9	1.2

Order example: 11 IR 14 BSPT BMA

* Available only in BXC & BMA grades

BSPT

Vertical



Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Standard	X mm	Y mm	T mm
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

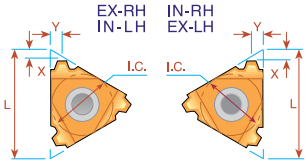
Order example: 16V ER 19 BSPT BMA

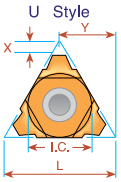
For carbide grade and cutting speed see page 18

Thread Turning Inserts

Carmex Precision Tools Ltd.

Acme





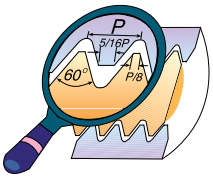
Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
16	8	3/16	MINI →		**08 IR 16 ACME	**08 IL 16 ACME	0.6	0.6
14	8U	3/16U			*08U IR/L 14 ACME		0.8	4.0
12	8U	3/16U	"U" MINI →		*08U IR/L 12 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

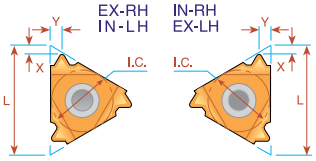
Order example: 11 ER 16 ACME MXC

* Available only in BXC & BMA grades

** One cutting edge

UNJ UNJC, UNJF, UNJEF, UNJS

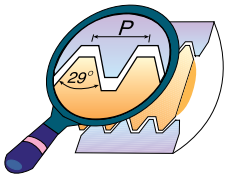


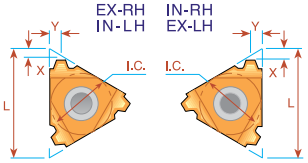


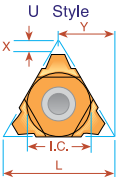
Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
48	11	1/4	11 ER 48 UNJ	11 EL 48 UNJ	11 IR 48 UNJ	11 IL 48 UNJ	0.6	0.6
44	11	1/4	11 ER 44 UNJ	11 EL 44 UNJ	11 IR 44 UNJ	11 IL 44 UNJ	0.6	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 EL14 UNJ	11 IR 14 UNJ	11 IL 14 UNJ	0.9	1.0

Order example: 11 IR 16 UNJ MXC

Stub Acme







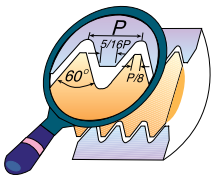
Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
16	8	3/16	MINI →		**08 IR16 STACME	**08 IL16 STACME	0.6	0.6
14	8U	3/16U			*08U IR/L 14 STACME		0.8	4.0
12	8U	3/16U	"U" MINI →		*08U IR/L 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

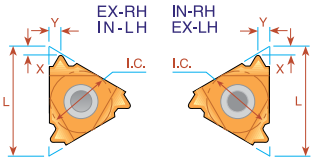
Order example: 08 IR 16 STACME BXC

* Available only in BXC & BMA grades

** One cutting edge

MJ - ISO 5855

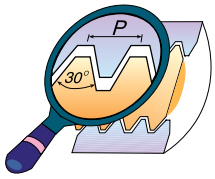


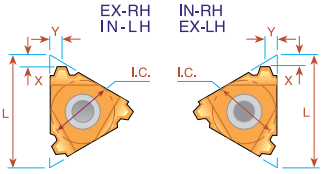


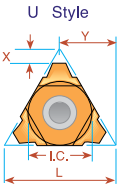
Pitch mm	L mm	I.C. in	INTERNAL Ordering Code Right Hand	X mm	Y mm
1.0	11	1/4	11 IR 1.0 MJ	0.7	0.8
1.25	11	1/4	11 IR 1.25MJ	0.8	0.9
1.5	11	1/4	11 IR 1.5 MJ	0.8	1.0
2.0	11	1/4	11 IR 2.0 MJ	0.9	1.0

Order example: 11 IR 1.0 MJ MXC

Trapez - DIN 103







Pitch mm	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
1.5	8	3/16	MINI →		**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

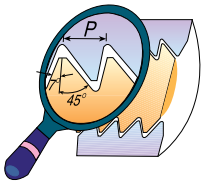
Order example: 08 U IR/L 2 TR BXC

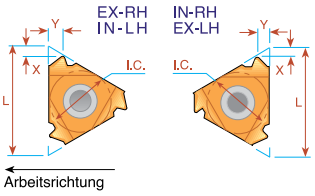
* Available only in BXC & BMA grades

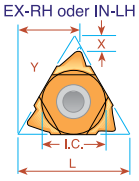
** One cutting edge

For carbide grade and cutting speed see page 18

American Buttress







Pitch TPI	L mm	I.C. in	EXTERNAL Ordering Code Right Hand	EXTERNAL Ordering Code Left Hand	INTERNAL Ordering Code Right Hand	INTERNAL Ordering Code Left Hand	X mm	Y mm
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

Order example: 11 IL 20 ABUT P25C

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

Thread Turning Toolholders and Kits

Product Identification

Threading Toolholders Ordering Codes

S E R 2020 K 16 [ ]

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

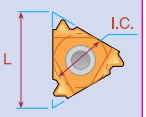
Internal toolholders & boring bars round shank

0020 = Diam. of 20 mm

K — Length of Toolholder:

	mm
D =	60
F =	80
H =	100
K =	125
L =	140
M =	150
P =	170

16 — Insert Pocket Size



L	I.C.
06	5/32"
08	3/16"
08U	3/16"U
11	1/4"
16	3/8"
16V	3/8"V

[ ]

B - With coolant bore

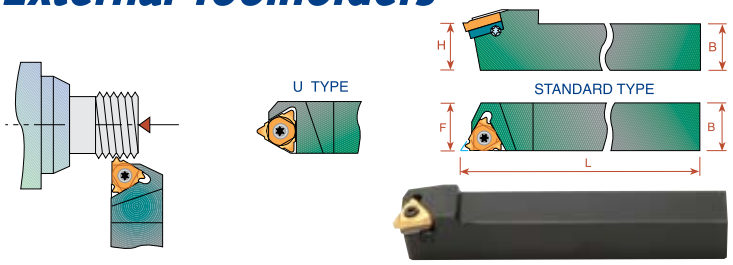
C - Carbide shank

V - Vertical (on edge)

VS - Slim throat

Carmex Precision Tools Ltd.

External Toolholders



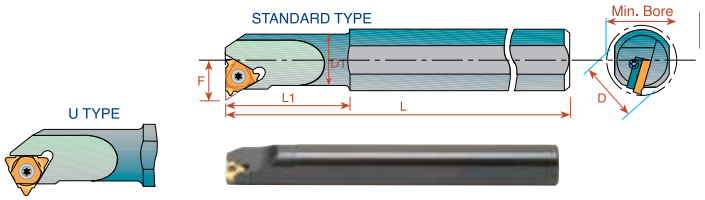
Ordering Code Right Hand	B = H mm	L mm	F mm	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
* SER 88 H11	11	8	100	11	S11	-	K11	-	-
* SER 1010 H11	11	10	100	11	S11	-	K11	-	-
* SER 1212 K11	11	12	125	12	S11	-	K11	-	-
SER 1212 F16	16	12	80	16	S16	A16	K16	AE16	AI16
SER 1616 H16	16	16	100	16	S16	A16	K16	AE16	AI16
SER 2020 K16	16	20	125	20	S16	A16	K16	AE16	AI16

* 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 consult helix angle chart in the technical section of this catalogue.

Internal Toolholders



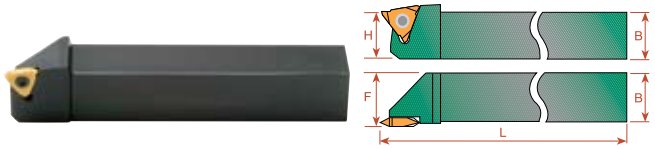
Ordering Code Right Hand	D mm	D1 mm	Min Bore Diam. mm	L mm	L1 mm	F mm	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
* SIR 0005 H06	6	12	5.1	6.0	100	12	4.3	S06	-	K06	-	-
* SIR 0007 K08	8	16	6.6	7.8	125	18	5.3	S08	-	K08	-	-
* SIR 0008 K08U	8U	16	7.3	9.0	125	21	6.6	S08	-	K08	-	-
* SIR 0010 H11	11	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

* Toolholders with no anvil.

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

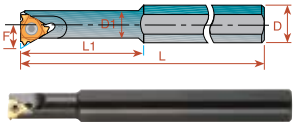
Toolholders are made with a **1.5° Helix Angle**. For other Helix Angles please consult Helix Angle chart in the technical section of this catalogue.

Vertical toolholders



Ordering Code Right Hand	B=H mm	L mm	F mm	Insert Screw	Torx Key
SER 1616 H16V	16	16	100	18	S16S	K16

Internal toolholders with coolant bore



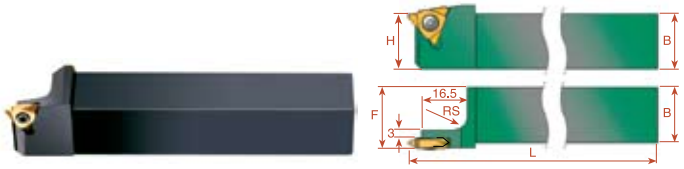
Ordering Code Right Hand	D mm	D1 mm	Min Bore Diam. mm	L mm	L1 mm	F mm	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
* SIR 0010 K11B	11	16	10	12	125	25	7.4	S11	-	K11	-	-

* 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 consult helix angle chart in the technical section of this catalogue.

Slim Throat toolholders

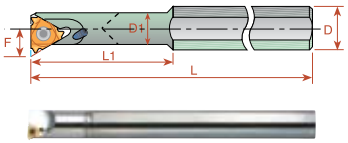


Ordering Code Right Hand	B=H mm	L mm	F mm	Insert Screw	Torx Key
SER 1616 H16VS	16	16	100	18	S16S	K16

Carbide Shank Boring Bars

With coolant bore

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



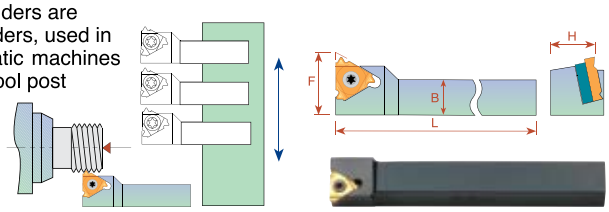
Ordering Code Right Hand	D mm	D1 mm	Min Bore Diam. mm	L mm	L1 mm	F mm	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
SIR 0005 H06CB	6	6	5.1	6.0	100	26	4.3	S06	-	K06	-	-
SIR 0007 K08CB	8	8	6.6	7.8	125	31	5.3	S08	-	K08	-	-
SIR 0008 K08UCB	8U	8	7.3	9.0	125	35	6.6	S08	-	K08	-	-

* Carbide shank boring bars with anvils

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

Gang Toolholders

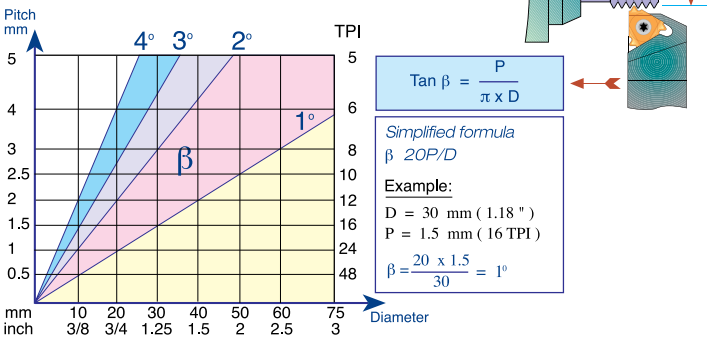
Gang Toolholders are External Holders, used in small automatic machines with a gangtool post



Ordering Code Right Hand		B = H mm	L mm	F mm	Insert Screw	Anvil Screw	Torx Key	RH Anvil	LH Anvil
* SER 88 H11G		11	8	100	12.0	S11	-	K11	-	-
* SER 1010 H11G		11	10	100	14.0	S11	-	K11	-	-
SER 1616 K16G		16	16	125	21.7	S16	A16	K16	AE16	AI16
SER 2020 K16G		16	20	125	26.2	S16	A16	K16	AE16	AI16

* Toolholders with no anvil
For LEFT HAND toolholders specify SEL instead of SER

Thread Helix Angle



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

Simplified formula
β 20P/D

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

$$\beta = \frac{20 \times 1.5}{30} = 1^{\circ}$$

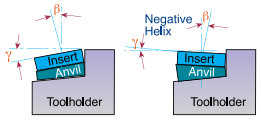
Miniature & Ultra-miniature Kits

Ordering Code	Type	No. of Inserts	Contents: Insert	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

Standard and Slanted Anvils

CARMEX Toolholders 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's 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

Threading & Boring Combination Kit

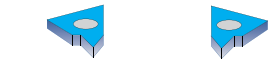
A practical and convenient combination kit for Ultra Miniature Threading and Boring. It enables Boring and Threading of mini bores as small as 6 mm diameter (1/4") with just one deep reaching CARBIDE shank ultra mini Boring Bar.

Ordering Code	Contents: Threading Insert	Contents: Turning Insert	Contents: Boring Bar	Contents: Key
KC6TM	06 IR A60 BXC 10 Pcs	06 IR TURN BMA 10 Pcs	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

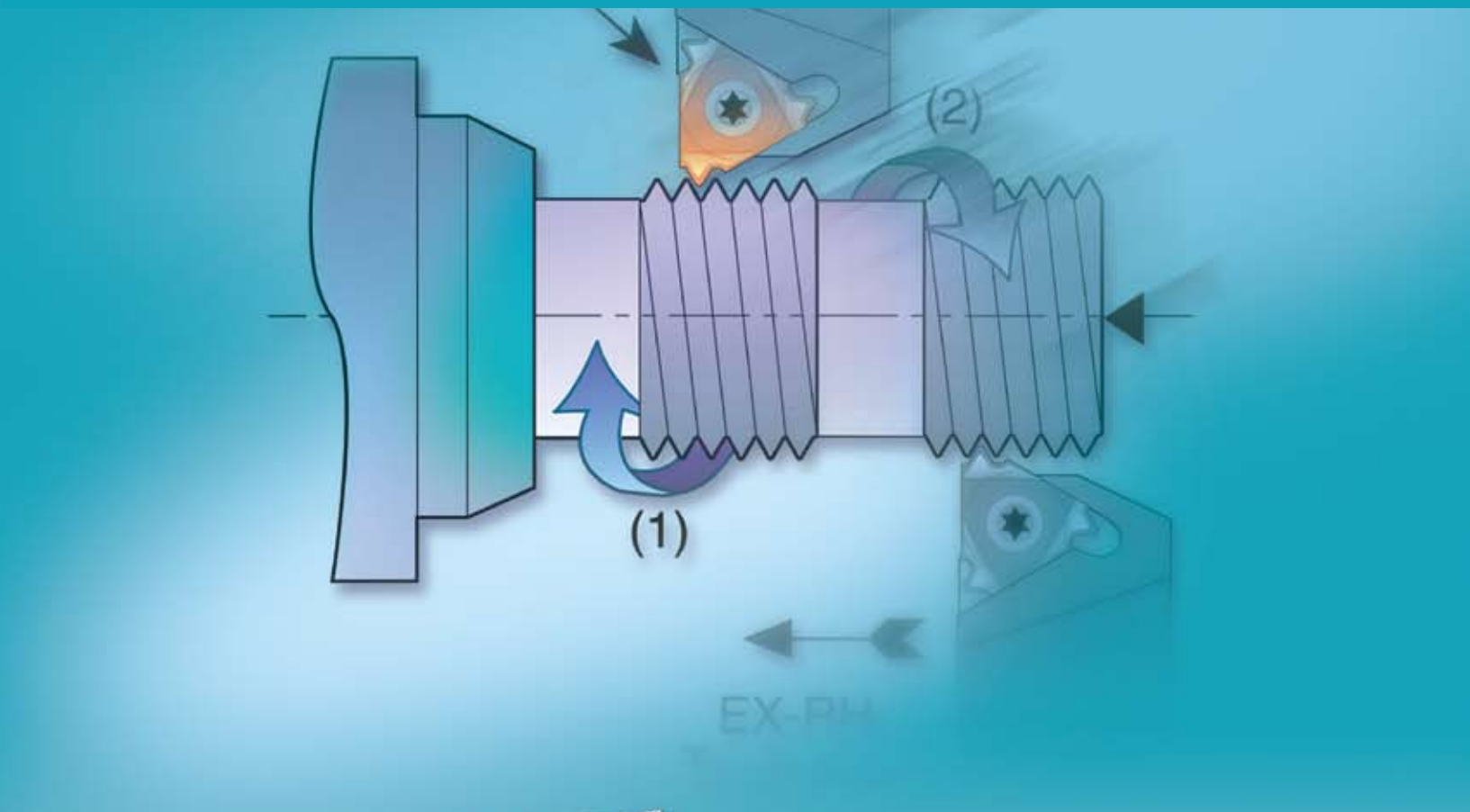
Anvil Kits

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



Coming soon
Thread Turning catalog and CNC programming software

Carbide Grade Selection

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

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.

Coated Grades

P25C (P15-P35) — PVD TiN coated grade for treated and hard alloy steels (25 HRc & up) at medium to low cutting speeds.

BLU (M10-M20) (K05-K20) (N10-N20) (S10-S20) — PVD triple layer coated Sub-micrograin grade for stainless steels, cast iron, titanium, non-ferrous metals and most of the high temperature alloys.

MXC (K10-K20) (P10-P25) — PVD TiN coated micrograin for free cutting untreated alloy steels (below 30 HRc), for stainless steels and cast iron.

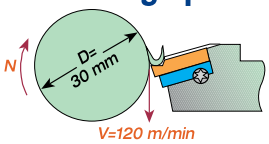
BMA (P20-P40) (K20-K30) — PVD TiALN coated sub-micrograin grade for stainless steels and exotic materials at medium to high cutting speeds.

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

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

Conversion of Cutting Speed to Rotational Speed

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



Example

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

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

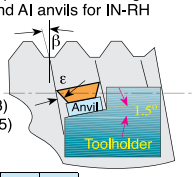
ISO Standard	Material		Condition	BLU	BMA	P25C	MXC	BXC	K20	P30
P	Non-Alloy steel and cast steel, free cutting steel	<0.25%C	Annealed	110–210	120–180	100–180	100–180	70–150		50–130
		≥0.25%C	Annealed							
		< 0.55%C	Quenched and tempered							
		≥0.55%C	Annealed							
			Quenched and tempered							
	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 and empered							
	High alloy steel, cast steel, and tool steel		Annealed	70–90	60–80	50–60	55–70	50–60		40–50
			Quenched and empered							
M	Stainless steel and cast steel		Ferritic/martensitic	100–160	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 metalic		Duroplastics, fiber plastics				200–300	150–210	100–200	110–150
			Hard rubber							
S	High temp. alloys, Super alloys	Fe based	Annealed	30–65	25–60					
			Cured							
		Ni or Co based	Annealed							
			Cured							
			Cast							
	Titanium alloys		Alpha+beta alloys cured	40–50	35–45				35–45	
H	Hardened steel		Hardened 45–50 HRc	40–50	35–45					
			Hardened 51–55 HRc							
			Hardened 56–62 HRc							
	Chilled cast iron		cast	30–40	25–35					
	Cast iron		Hardened	20–30	15–25					

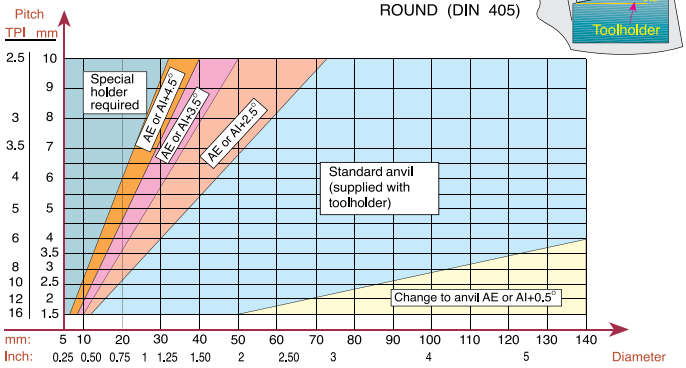
• Upon request
•• For miniature and ultra miniature insert

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.

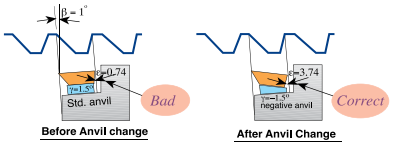
ACME
STUB ACME
TRAPEZ (DIN 103)
ROUND (DIN 405)

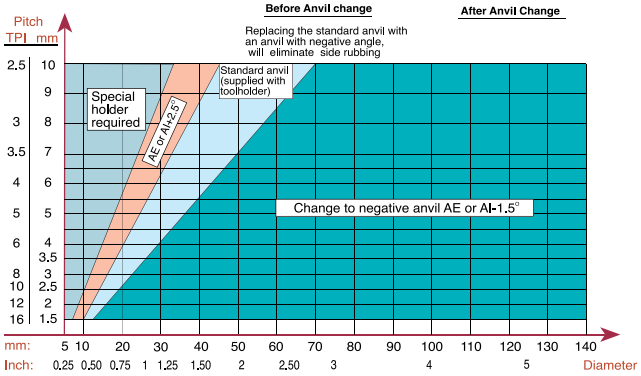




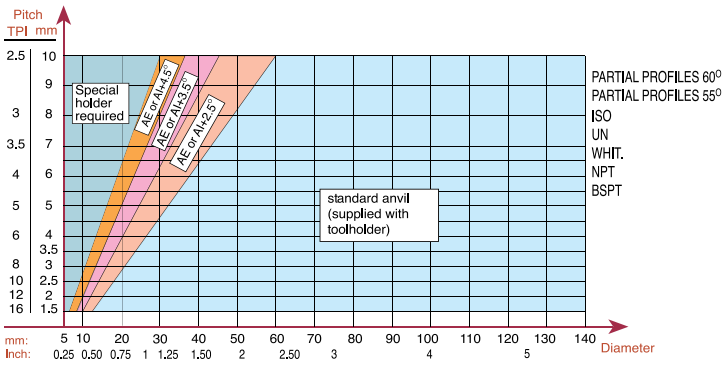
As can be seen from the chart, most applications require an anvil change. In most cases a negative anvil is required. use AE anvils for EX-RH

AMERICAN BUTTRESS
SAGENGEWINDE (DIN 513)



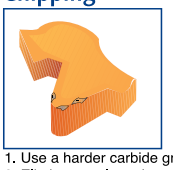


As can be seen from the chart, most applications do not require an anvil change. If change is required, use AE anvils for EX-RH and IN-LH toolholders and AI anvils for IN-RH and EX-LH toolholders



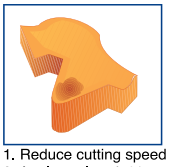
Troubleshooting

Chipping



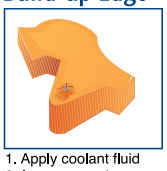
1. Use a harder carbide grade
2. Eliminate tool overhang
3. Check if insert is correctly clamped
4. Eliminate vibration

Crater Wear



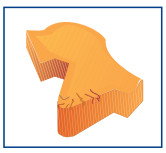
1. Reduce cutting speed
2. Apply coolant fluid
3. Use a harder carbide grade

Build-up Edge



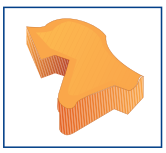
1. Apply coolant fluid
2. Increase cutting speed
3. Use a harder carbide grade

Thermal Cracking



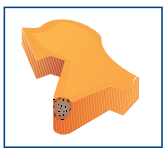
1. Reduce cutting speed
2. Apply coolant fluid
3. Use a harder carbide grade

Deformation



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

Fracture



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

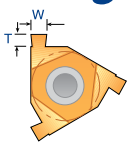
Grooving Tools

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**

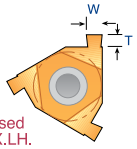
Grooving Inserts



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	IC	Ordering Code ER/IL Inserts	Anvil	Ordering Code IR/EL Inserts	Anvil
0.50	1.4	1/4	**11 ER/IL 0.50**	-	**11 IR/EL 0.50**	-
0.60	1.4	1/4	**11 ER/IL 0.60**	-	**11 IR/EL 0.60**	-
0.70	1.4	1/4	**11 ER/IL 0.70**	-	**11 IR/EL 0.70**	-
0.80	1.4	1/4	**11 ER/IL 0.80**	-	**11 IR/EL 0.80**	-
1.00	1.3	1/4	**11 ER/IL 1.00**	-	**11 IR/EL 1.00**	-
0.50	1.4	3/8	**16 ER/IL 0.50**	AE 16-0	**16 IR/EL 0.50**	AI 16-0
1.00	1.4	3/8	**16 ER/IL 1.00**	AE 16-0	**16 IR/EL 1.00**	AI 16-0
1.20	1.6	3/8	**16 ER/IL 1.20**	AE 16-0	**16 IR/EL 1.20**	AI 16-0
1.40	1.8	3/8	**16 ER/IL 1.40**	AE 16-0	**16 IR/EL 1.40**	AI 16-0
1.70	2.0	3/8	**16 ER/IL 1.70**	AE 16-0	**16 IR/EL 1.70**	AI 16-0
1.95	2.0	3/8	**16 ER/IL 1.95**	AE 16-0	**16 IR/EL 1.95**	AI 16-0
2.25	2.25	3/8	**16 ER/IL 2.25**	AE 16-0	**16 IR/EL 2.25**	AI 16-0

Order example: 16 ER/IL 1.20 BXC

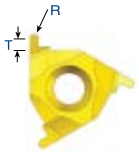
* The inserts should be used with our standard threading toolholders (See page 15-16)
* Attention: The anvil must be changed to AE 16-0 or AI 16-0

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

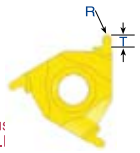
Grooving Inserts for Snap Ring



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 us for IN.RH and for EX.



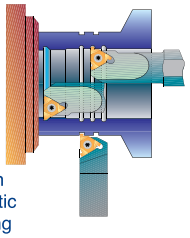
R ±0.04	T	IC	Ordering Code ER/IL Inserts	Anvil	Ordering Code IR/EL Inserts	Anvil
0.5	1.4	3/8	**16 ER/IL R 0.50**	AE 16 - 0	**16 IR/EL R 0.50**	AI 16 - 0
0.6	1.6	3/8	**16 ER/IL R 0.60**	AE 16 - 0	**16 IR/EL R 0.60**	AI 16 - 0
0.9	2.0	3/8	**16 ER/IL R 0.90**	AE 16 - 0	**16 IR/EL R 0.90**	AI 16 - 0
1.0	2.0	3/8	**16 ER/IL R 1.00**	AE 16 - 0	**16 IR/EL R 1.00**	AI 16 - 0
1.1	2.15	3/8	**16 ER/IL R 1.10**	AE 16 - 0	**16 IR/EL R 1.10**	AI 16 - 0
1.2	2.25	3/8	**16 ER/IL R 1.20**	AE.16 - 0	**16 IR/EL R 1.20**	AI 16 - 0

Order example: 16ER/IL R1.20 BXC

* The inserts should be used with our standard threading toolholders (See page 15-16)
* Attention: The anvil must be changed to AE 16-0 or AI 16-0

Technical Section

Cutting Speeds for Grooving Tools



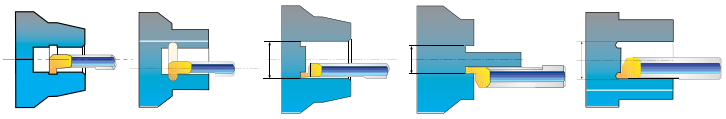
Carbide Grade:

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

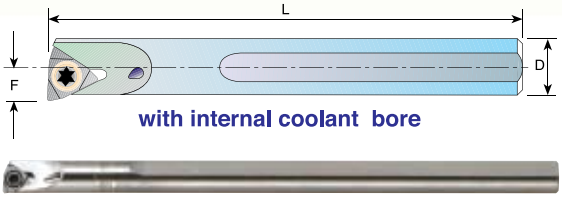
BMA (P20 - P40, K20 - K30)
PVD TiALN coated sub-micrograin grade for stainless steels and exotic materials at medium to high cutting speeds.

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 & Aluminium	20-200

For grooving small bores see pages 6-7



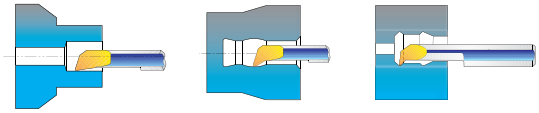
Carbide Shank Boring Bars and Inserts



D	Ordering Code	L mm	F mm	Min. Bore Dia. mm	Screw	Key
6	**SIR 0006 H06CT**	100	3.3	6.5	S6	K6
8	**SIR 0008 K06CT**	125	4.3	8.6	S6	K6

Insert ordering code: 06 IR TURN BMA
Nose radius R= 0.2 mm

For turning small bores see pages 2-5



Thread Whirling Tools

For Perfect Long Threads on Swiss Type Machines

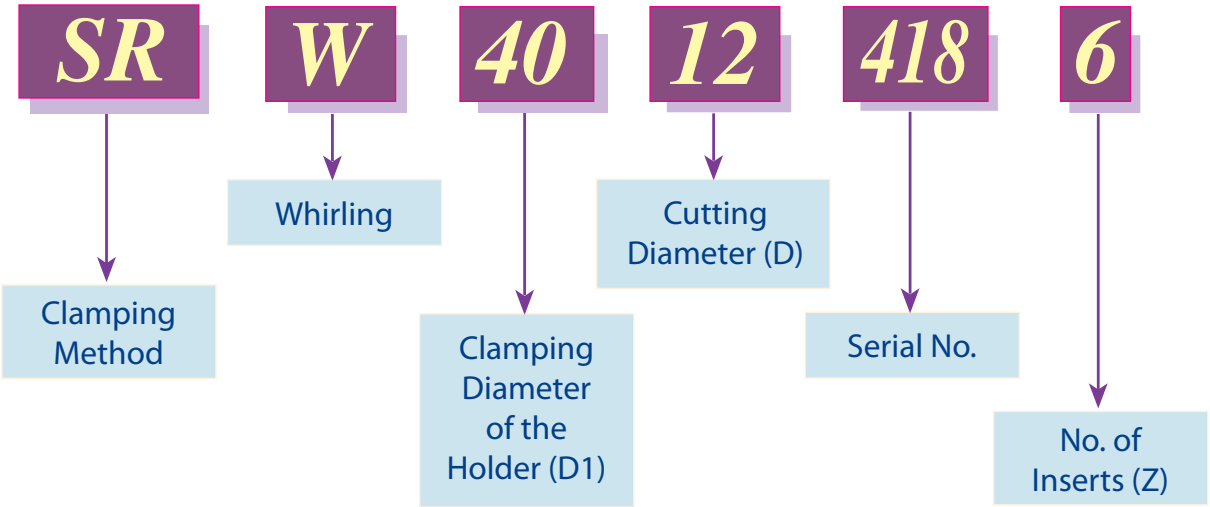
This method enables fast and accurate production of special threads.
Used for medical components such as implants, bone screws and small parts.

- Enables production of small diameter long threads on Swiss Type machines.
- Short machining time - one pass thread forming is needed.
- Very high surface quality and accurate geometry.
- Long tool life, short time tool set-up and insert changing.
- One toolholder can be used for various applications.
- All toolholders are standard stock items.
- Inserts are made for each application as a special item.
- Short delivery time for each application.
- The toolholders are designed according to different machine types and manufacturers.
- Whirling toolholders hold 3/5/6/8 Inserts.
- The unique clamping provides high indexability.
- Special adaptors for machine heads are available as stock items.

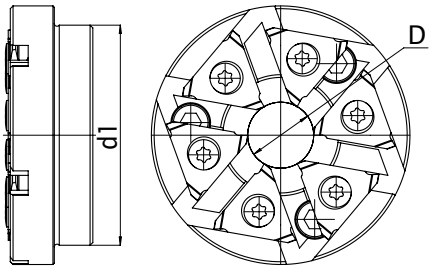
CARBIDE GRADE

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

Product Identification

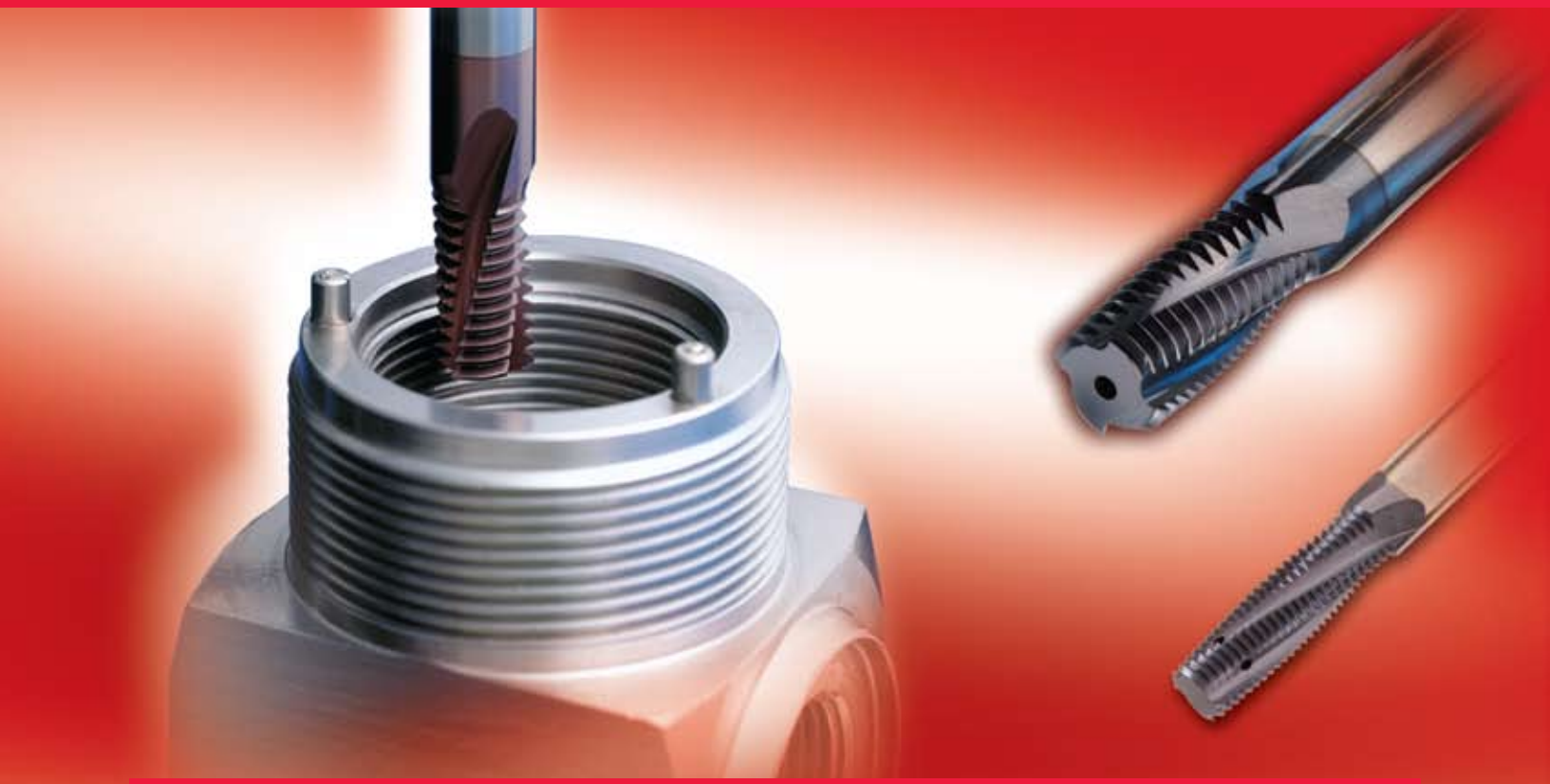


Toolholders & Adaptors



Machine		Whirling Holder Ordering Code	Adaptor Ordering Code	Z mm	D mm	d1 mm	Insert Size mm	Insert Screw	Torx Key
Type	Model								
Star	SV12 / SV20	SRW4012 418 - 6	-	6	12	40	16	SW16	KW16
		SRW4012 424 - 8	WA4012 537	8			11	SW11	KW11
	SR20 / ECAS20	SRW4012 419 - 6	-	6			16	SW16	KW16
		SRW4012 425 - 8	WA4012 439	8			11	SW11	KW11
Citizen	M12 / M16	SRW4512 422 - 6	-	6	12	45	16	SW16	KW16
		SRW4512 426 - 8	WA4512 443	8			11	SW11	KW11
	M20 / M32	SRW4512 423 - 6	-	6			16	SW16	KW16
		SRW4512 427 - 8	WA4512 536	8			11	SW11	KW11
Tornos	Deco 13 / 20	SRW4012 420 - 6	-	6	12	40	16	SW16	KW16
Traub	TNL26 / TNK36	SRW4116 421 - 6	-	6	16	41	16	SW16	KW16
Hanwha	SL26HPD	SRW4012 416 - 3	-	3	12	40	16	SW16	KW16
Maier	ML20D	SRW4012 417 - 5	-	5	12	40	16	SW16	KW16

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 holes.
- 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.

Thread Mills with Internal Coolant

- **Coolant fluid washes the chips out of hole**
- **Increased tool life**

MTB - Thread Mills with internal coolant bore for blind holes

Product Identification

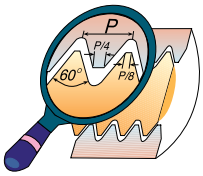
Mill-Thread Solid Carbide Ordering Codes

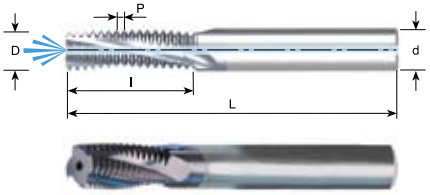
MT	B	0250	046	C	04	1.0	ISO
Mill Thread	B = With Internal Coolant	Shank Diameter 0250 = 1/4 0312 = 5/16 0375 = 3/8	Cutting Diameter 046=4.6 mm	No. of Flutes C=3 D=4 E=5 F=6	The Approximate Cutting Length	Thread Pitch	Thread Profile ISO UN W BSPT NPT NPTF NPS NPSF PG

Carmex Precision Tools Ltd.

ISO With internal coolant bore

Tools for Internal Thread





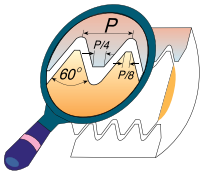
Pitch mm	M coarse	M fine mm	Ordering Code	d	D	No. of Flutes	l	L
0.5		∅≥ 5	MTB0250C04 0.5 ISO	1/4	.150	3	.41	2.5
0.7	M 4	∅≥ 5	MTB0250C02 0.7 ISO	1/4	.122	3	.29	2.5
0.75		∅≥ 6	MTB0250C04 0.75 ISO	1/4	.177	3	.40	2.5
0.8	M 5	∅≥ 6	MTB0250C03 0.8 ISO	1/4	.150	3	.36	2.5
1.0	M 6	∅≥ 7	MTB0250C04 1.0 ISO	1/4	.181	3	.41	2.5
1.0	M 6	∅≥ 7	MTB0250C06 1.0 ISO	1/4	.181	3	.60	2.5
1.0		∅≥ 9	MTB0250C05 1.0 ISO	1/4	.250	3	.50	2.5
1.0		∅≥ 10	MTB0312D06 1.0 ISO	5/16	.312	4	.65	2.5
1.0		∅≥ 12	MTB0375D09 1.0 ISO	3/8	.375	4	.96	3.0
1.25	M 8	∅≥ 10	MTB0250C05 1.25 ISO	1/4	.250	3	.57	2.5
1.25	M 8	∅≥ 10	MTB0250C07 1.25 ISO	1/4	.250	3	.76	2.5
1.5	M10	∅≥ 12	MTB0312C06 1.5 ISO	5/16	.307	3	.67	2.5
1.5	M10	∅≥ 12	MTB0312C09 1.5 ISO	5/16	.307	3	.98	2.5
1.5		∅≥ 14	MTB0375D08 1.5 ISO	3/8	.375	4	.86	3.0
1.5		∅≥ 16	MTB0500D10 1.5 ISO	1/2	.500	4	1.04	4.0
1.5		∅≥ 20	MTB0625F13 1.5 ISO	5/8	.625	6	1.33	4.0
1.75	M12	∅≥ 12	MTB0375C07 1.75 ISO	3/8	.354	3	.79	3.0
1.75	M12	∅≥ 12	MTB0375C11 1.75 ISO	3/8	.354	3	1.14	3.0
2.0	M14	∅≥ 15	MTB0375C10 2.0 ISO	3/8	.375	3	1.06	3.0
2.0	M16	∅≥ 17	MTB0500D10 2.0 ISO	1/2	.465	4	1.06	4.0
2.0	M16	∅≥ 17	MTB0500D15 2.0 ISO	1/2	.465	4	1.54	4.0
2.0		∅≥ 26	MTB0750F16 2.0 ISO	3/4	.750	6	1.61	4.0
2.5	M20	∅≥ 22	MTB0625E13 2.5 ISO	5/8	.591	5	1.33	4.0
2.5	M20	∅≥ 22	MTB0625E19 2.5 ISO	5/8	.591	5	1.92	4.0
3.0	M24	∅≥ 25	MTB0750D15 3.0 ISO	3/4	.709	4	1.59	4.0
3.0	M27	∅≥ 27	MTB0750D17 3.0 ISO	3/4	.750	4	1.71	4.0

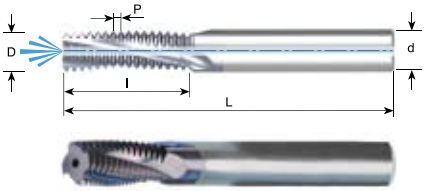
Order example: MTB 0312C06 1.5 ISO MT7

For small thread mills see page 29

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	MTB0250C02 32 UN	1/4	.126	3	.27	2.5
32			5/16	MTB0250C05 32 UN	1/4	.250	3	.58	2.5
32			3/8	MTB0312D07 32 UN	5/16	.312	4	.74	2.5
28		1/4		MTB0250C04 28 UN	1/4	.197	3	.44	2.5
28			7/16-1/2	MTB0250C05 28 UN	1/4	.250	3	.56	2.5
24		5/16		MTB0312C05 24 UN	5/16	.260	3	.56	2.5
24		3/8	9/16-5/8	MTB0312D08 24 UN	5/16	.312	4	.81	2.5
20	1/4			MTB0250C04 20 UN	1/4	.185	3	.48	2.5
20		7/16		MTB0312C08 20 UN	5/16	.312	3	.83	2.5
20		1/2		MTB0375D08 20 UN	3/8	.375	4	.88	3.0
20			3/4-1	MTB0500E10 20 UN	1/2	.500	5	1.07	4.0
18	5/16			MTB0250C05 18 UN	1/4	.220	3	.58	2.5
18		9/16-5/8	$1^{1/8}$-$1^{5/8}$	MTB0500D10 18 UN	1/2	.445	4	1.03	4.0
16	3/8			MTB0312C06 16 UN	5/16	.264	3	.66	2.5
16		3/4		MTB0500D12 16 UN	1/2	.500	4	1.22	4.0
14	7/16			MTB0312C08 14 UN	5/16	.303	3	.82	2.5
14		7/8		MTB0625E14 14 UN	5/8	.625	5	1.46	4.0
13	1/2			MTB0375C08 13 UN	3/8	.362	3	.89	3.0
12	9/16			MTB0500C10 12 UN	1/2	.413	3	1.04	4.0
12		1-$1^{1/2}$		MTB0625E16 12 UN	5/8	.625	5	1.63	4.0
11	5/8			MTB0500C11 11 UN	1/2	.449	3	1.14	4.0
10	3/4			MTB0625D13 10 UN	5/8	.567	4	1.35	4.0
9	7/8			MTB0625C15 9 UN	5/8	.625	3	1.50	4.0
8	1			MTB0750D16 8 UN	3/4	.750	4	1.69	4.0
7	$1^{1/8}$-$1^{1/4}$			MTB0750D17 7 UN	3/4	.750	4	1.78	4.0

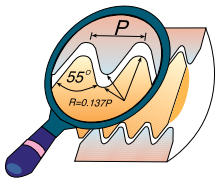
Order example: MTB 0625E14 14 UN MT7

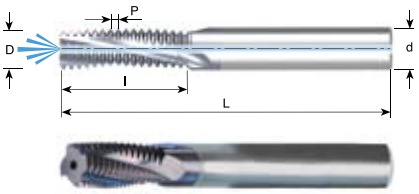
For small thread mills see page 29

G 55° BSF, BSP

With internal coolant bore

Same Tool for Internal and External Thread





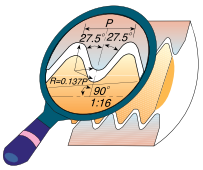
Pitch TPI	Standard	Ordering Code	d mm	D	No. of Flutes	l	L
28	G1/8	MTB08078C14 28W	8	.307	3	.56	2.5
19	G1/4-3/8	MTB1010D16 19W	10	.394	4	.66	2.9

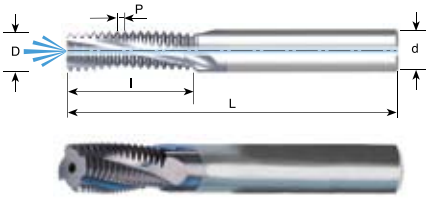
Order example: MTB 1010D16 19 W MT7

For small thread mills see page 29

BSPT With internal coolant

Same Tool for Internal and External Thread

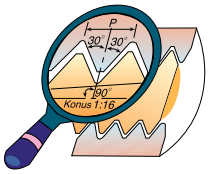


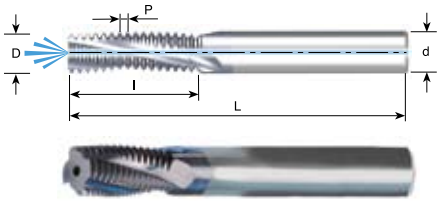


Pitch TPI	Standard	Ordering Code	d mm	D	No. of Flutes	l	L
28	RC1/8	MTB08078C14 28 BSPT	8	.307	3	.56	2.5
19	RC1/4-3/8	MTB1010D16 19 BSPT	10	.394	4	.66	2.9

Order example: MTB 08078C14 28 BSPT MT7

NPT
Same Tool for Internal and External Thread

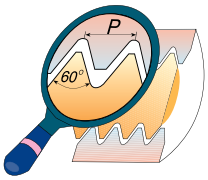


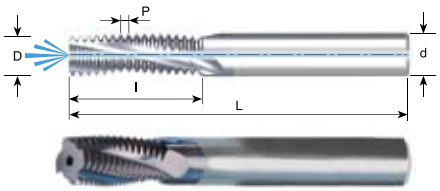


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/8	MTB0312C04 27 NPT	5/16	.299	3	.43	2.5
18	1/4-3/8	MTB0375D06 18 NPT	3/8	.375	4	.64	3.0

Order example: MTB 0312C04 27 NPT MT7

NPS With internal coolant
Same Tool for Internal and External Thread - Inch Shanks

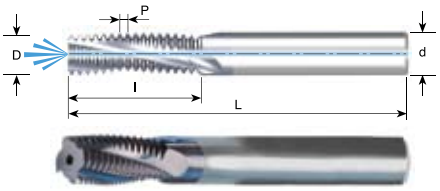




Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/8	MTB0312C04 27 NPS	5/16	.299	3	.43	2.5
18	1/4-3/8	MTB0375D06 18 NPS	3/8	.375	4	.64	3.0

Order example: MTB 0375D06 18 NPS MT7

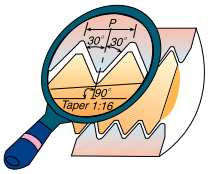
NPSF With internal coolant
Same Tool for Internal and External Thread - Inch Shanks

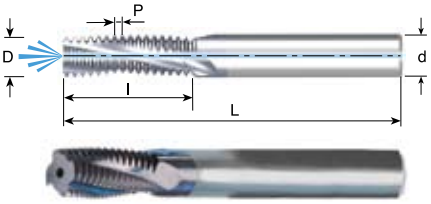


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/8	MTB0312C04 27 NPSF	5/16	.299	3	.43	2.5
18	1/4-3/8	MTB0375D06 18 NPSF	3/8	.375	4	.64	3.0

Order example: MTB 0312C04 27 NPSF MT7

NPTF With internal coolant
Same Tool for Internal and External Thread

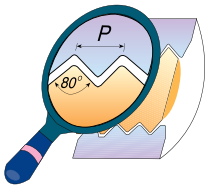


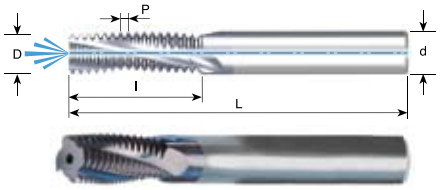


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
27	1/8	MTB0312C04 27 NPTF	5/16	.299	3	.43	2.5
18	1/4-3/8	MTB0375D06 18 NPTF	3/8	.375	4	.64	3.0

Order example: MTB 0312C04 27 NPTF MT7

PG With internal coolant
Same Tool for Internal and External Thread





Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
20	Pg 7	MTB01010D19 20 PG	.394	.39	4	.78	3
18	Pg 9, 11, 13.5, 16	MTB01212D20 18 PG	.472	.47	4	.81	3.5
16	Pg 21, 29, 36, 42, 48	MTB01212D23 16 PG	.472	.47	4	.91	3.5

Order example: MTB 1212 D20 18 PG MT7

Mini Mill-Thread

MTS

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:

Specially designed solid-carbide thread mills for the production of internal threads in very small bores.

Due to the unique tool design, accurate geometries and high quality sub-micron carbide grade with Titanium Aluminum Nitride coating, the following are achieved:

- Threading from M1 x 0.25.
- Working in high cutting speed.
- Short machining time.
- Low cutting forces thanks to the short profile.
- No broken taps.

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.

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.

Product Identification

Mini Mill-Thread MTS Ordering Codes

MTS → Mini Mill Thread

0250 → Shank Diameter
Inch
0250 = 1/4
0312 = 5/16
0375 = 3/8
Metric
06 = 6mm
08 = 8mm
10 = 10mm

C → No. of Flutes
C = 3
D = 4
E = 5

35 → The Approximate Cutting Length

0.7 → Thread Pitch

ISO → Thread Profile
ISO
UN
G 55°
UNJ
MJ

-L → Long
L = 105mm

Mini Mill-Thread MTI Ordering Codes

MTI → TI = Thread Mills Partial Profile

06 → Shank Diameter
06 = 6mm
08 = 8mm
10 = 10mm

05 → Cutting Diameter
05 = 5mm
10 = 10mm

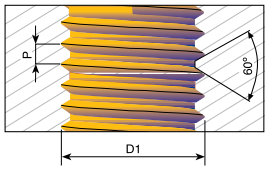
D → No. of Flutes
D = 4
E = 5

20 → The Approximate Cutting Length
20 = 20mm

A60 → Partial Profile 60°

Carmex Precision Tools Ltd.

ISO
Tools for Internal Thread



For thread depth up to 2xD1

Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	L
0.25	M1	MTS03007C2 0.25 ISO	3mm	.028	3	.10	1.5
0.25	M1.2	MTS03009C3 0.25 ISO	3mm	.035	3	.12	1.5
0.4	M2	MTS0250C18 0.4 ISO	1/4	.061	3	.18	2.5
0.4	M2	MTS06016C4 0.4 ISO-L	6mm	.061	3	.18	4.1
0.45	M2.2	MTS0250C20 0.45 ISO	1/4	.065	3	.20	2.5
0.45	M2.5	MTS0250C22 0.45 ISO	1/4	.077	3	.22	2.5
0.45	M2.5	MTS0602C5 0.45 ISO-L	6mm	.077	3	.22	4.1
0.5	M3	MTS0250C26 0.5 ISO	1/4	.093	3	.26	2.5
0.5	M3	MTS06024C6 0.5 ISO-L	6mm	.093	3	.26	4.1
0.6	M3.5	MTS0250C30 0.6 ISO	1/4	.108	3	.30	2.5
0.7	M4	MTS0250C35 0.7 ISO	1/4	.122	3	.35	2.5
0.8	M5	MTS0250C49 0.8 ISO	1/4	.150	3	.49	2.5
1.0	M6	MTS0250C55 1.0 ISO	1/4	.183	3	.55	2.5
1.25	M8	MTS0250C71 1.25 ISO	1/4	.234	3	.71	2.5
1.5	M10	MTS0312C91 1.5 ISO	5/16	.307	3	.91	2.5
1.75	M12	MTS0375C10 1.75 ISO	3/8	.354	3	1.02	3.0
2.0	M16	MTS0500D13 2.0 ISO	1/2	.465	4	1.38	3.5
2.5	M20	MTS0625E16 2.5 ISO	5/8	.591	5	1.69	4.0

For thread depth up to 3xD1

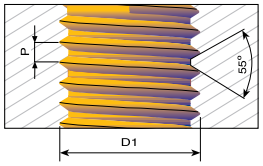
Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	L
* 0.3	M1.4	MTS03011C4 0.3 ISO	3mm	.041	3	.16	1.5
* 0.35	M1.6	MTS03012C5 0.35 ISO	3mm	.047	3	.19	1.5
* 0.4	M2	MTS03016C6 0.4 ISO	3mm	.061	3	.24	1.5
0.45	M2.5	MTS0250C30 0.45 ISO	1/4	.077	3	.30	2.5
0.5	M3	MTS0250C37 0.5 ISO	1/4	.093	3	.37	2.5
0.5	M3	MTS06024C9 0.5 ISO-L	6mm	.093	3	.37	4.1
0.7	M4	MTS0250C49 0.7 ISO	1/4	.122	3	.49	2.5
0.7	M4	MTS06031C12 0.7 ISO-L	6mm	.122	3	.49	4.1
0.8	M5	MTS0250C63 0.8 ISO	1/4	.150	3	.63	2.5
0.8	M5	MTS06038C16 0.8 ISO-L	6mm	.150	3	.63	4.1
1.0	M6	MTS0250C79 1.0 ISO	1/4	.183	3	.79	2.5
1.0	M6	MTS06047C20 1.0 ISO-L	6mm	.183	3	.79	4.1
1.25	M8	MTS0250C94 1.25 ISO	1/4	.234	3	.94	2.5

Order example: MTS 0250C26 0.5 ISO MT7

***Specially designed for the production of dental implants**

- 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

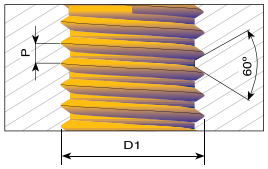


For thread depth up to 2xD1

Pitch TPI	Standard	Ordering code	d mm	D	No. of Flutes	l	L
28	G 1/8	MTS08078C19 28 W	8	.31	3	0.77	2.5
19	G 1/4 - 3/8	MTS1010D30 19 W	10	.39	4	1.18	2.9
14	G 1/2 - 7/8	MTS1212D37 14 W	12	.47	4	1.46	3.3
11	G ≥ 1	MTS1616D44 11 W	16	.63	4	1.73	4.1

Order example: MTS 1212D37 14 W MT7

UN
Tools for Internal Thread



For thread depth up to 2xD1

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L
72		1	MTS0250C15 72 UN	1/4	.057	3	.15	2.5
64	1	2	MTS0250C15 64 UN	1/4	.055	3	.15	2.5
56	2	3	MTS0250C17 56 UN	1/4	.065	3	.17	2.5
48	3	4	MTS0250C20 48 UN	1/4	.075	3	.20	2.5
40	4		MTS0250C25 40 UN	1/4	.083	3	.25	2.5
40	4	6	MTS06021C6 40 UN-L	6mm	.083	3	.25	4.1
40	5	6	MTS0250C28 40 UN	1/4	.096	3	.28	2.5
36		8	MTS0250C35 36 UN	1/4	.130	3	.35	2.5
32	6		MTS0250C28 32 UN	1/4	.100	3	.28	2.5
32	6		MTS06025C7 32 UN-L	6mm	.100	3	.28	4.1
32	8		MTS0250C37 32 UN	1/4	.126	3	.37	2.5
32	8		MTS06032C9 32 UN-L	6mm	.126	3	.37	4.1
32		10	MTS0250C41 32 UN	1/4	.146	3	.41	2.5
28		12	MTS0250C43 28 UN	1/4	.165	3	.43	2.5
28		1/4	MTS0250C57 28 UN	1/4	.197	3	.57	2.5
24	10,12		MTS0250C42 24 UN	1/4	.138	3	.42	2.5
24		5/16, 3/8	MTS0312C67 24 UN	5/16	.260	3	.67	2.5
20	1/4		MTS0250C55 20 UN	1/4	.187	3	.55	2.5
20		7/16	MTS0312C98 20 UN	5/16	.312	3	.98	2.5
18	5/16		MTS0250C67 18 UN	1/4	.236	3	.67	2.5
18	5/8		MTS0500D14 18 UN	1/2	.500	4	1.38	3.5
16	3/8		MTS0312C87 16 UN	5/16	.264	3	.87	2.5
14	7/16		MTS0312C98 14 UN	5/16	.303	3	.98	2.5
13	1/2		MTS0375C10 13 UN	3/8	.362	3	1.08	3.0
12	9/16		MTS0500C12 12 UN	1/2	.413	3	1.24	3.5
11	5/8		MTS0500C13 11 UN	1/2	.449	3	1.36	3.5
10	3/4		MTS0625D16 10 UN	5/8	.567	4	1.63	4.0

Order example: MTS 0250C28 40UN MT7

For thread depth up to 3xD1

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L
80		0	MTS0250C16 80 UN	1/4	.045	3	.16	2.5
* 72		1	MTS03015C6 72 UN	3mm	.057	3	.24	1.5
56	2	3	MTS0250C26 56 UN	1/4	.065	3	.26	2.5
56	2	3	MTS06016C6 56 UN-L	6mm	.065	3	.26	4.1
40	4		MTS0250C31 40 UN	1/4	.083	3	.31	2.5
40	4		MTS06021C8 40 UN-L	6mm	.083	3	.31	4.1
40	5	6	MTS0250C38 40 UN	1/4	.096	3	.38	2.5
32	6		MTS0250C40 32 UN	1/4	.100	3	.41	2.5
32	6		MTS06025C10 32 UN-L	6mm	.100	3	.41	4.1
32	8		MTS0250C49 32 UN	1/4	.126	3	.49	2.5
32	8		MTS06032C12 32 UN-L	6mm	.126	3	.49	4.1
32		10	MTS0250C59 32 UN	1/4	.146	3	.59	2.5
32		10	MTS06037C15 32 UN-L	6mm	.146	3	.59	4.1
28		1/4	MTS0250C75 28 UN	1/4	.197	3	.75	2.5
24		5/16, 3/8	MTS0312C94 24 UN	5/16	.260	3	.94	2.5
20	1/4		MTS0250C75 20 UN	1/4	.187	3	.75	2.5
20	1/4		MTS06047C19 20 UN-L	6mm	.187	3	.75	4.1
18	5/16		MTS0250C91 18 UN	1/4	.236	3	.91	2.5

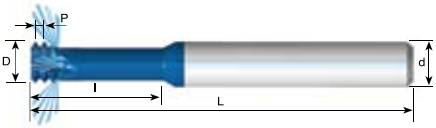
Order example: MTS 0250C26 56 UN MT7

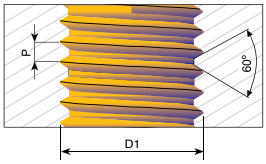
***Specially designed for the production of dental implants**

- 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.

UNJ With internal coolant through the flutes

Tools for Internal Thread





For thread depth up to 2.5xD1

Pitch TPI	UNJC	UNJF	Ordering Code	d mm	D	No. of Flutes	l	L
*32	8	10	* MTS06033C10 32 UNJ	6	.130	3	.41	2.3
28		1/4	MTS08051C16 28 UNJ	8	.201	3	.63	2.5
24		5/16, 3/8	MTS08067C20 24 UNJ	8	.264	3	.79	2.5
*20	1/4		* MTS06049C16 20 UNJ	6	.193	3	.63	2.3
20		7/16	MTS0808C28 20 UNJ	8	.315	3	1.10	2.5
18	5/16	9/16	MTS08061C20 18 UNJ	8	.242	3	.79	2.5
16	3/8		MTS08069C24 16 UNJ	8	.272	3	.94	2.5
14	7/16		MTS08079C25 14 UNJ	8	.311	3	.98	2.5
13	1/2		MTS10094C27 13 UNJ	10	.370	3	1.08	2.9

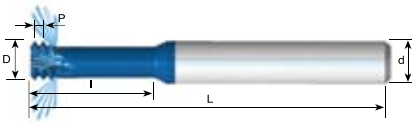
* Cutters without coolant

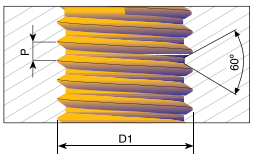
Order example: MTS 06049C16 20 UNJ MT8

Carbide grade MT8 Sub Micron grade with advanced PVD triple coating (ISO K 10-K20). Extremely high 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 2.5xD1

Pitch mm	D1	Ordering Code	d mm	D	No. of Flutes	l	L
* 0.7	MJ4	*MTS06032C10 0.7 MJ	6	.126	3	.39	2.3
* 0.8	MJ5	*MTS06039C12 0.8 MJ	6	.154	3	.49	2.3
* 1.0	MJ6	*MTS06048C15 1.0 MJ	6	.189	3	.59	2.3
1.25	MJ8	MTS08061C20 1.25 MJ	8	.240	3	.79	2.5
1.5	MJ10	MTS0808C25 1.5 MJ	8	.315	3	.98	2.5
1.75	MJ12	MTS10092C30 1.75 MJ	10	.362	3	1.18	2.9
2.0	MJ14, MJ16	MTS1010C35 2.0 MJ	10	.394	3	1.38	2.9

* Cutters without coolant

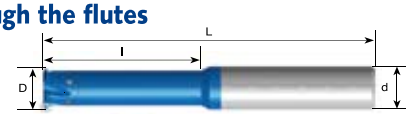
Order example: MTS 06048C15 1.0 MJ MT8

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

MTI - For threading deep parts Partial Profile 60°

With internal coolant through the flutes

Same Tool for Internal and External Thread



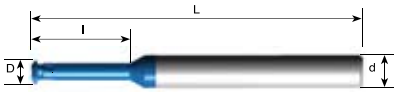
For threading deep parts

Pitch mm	Pitch TPI	Thread Dia. (min.)	Ordering Code	d mm	D	No. of Flutes	l	L
Int. 0.5 - 0.8	56-28	ø≥6	MTI0605D20 A60	6	.197	4	.79	2.3
Ex. 0.4 - 0.8	64-32	ø≥9	MTI0808D28 A60	8	.315	4	1.10	2.5
		ø≥13	MTI1212E38 A60	12	.472	5	1.50	3.3
Int. 1.0 - 1.75	28-14	ø≥10	MTI0808D30 A60	8	.315	4	1.18	2.5
Ex. 0.8 - 1.5	32-16	ø≥12	MTI1010D35 A60	10	.394	4	1.38	2.9
		ø≥14	MTI1212E39 A60	12	.472	5	1.54	3.3
Int. 2.0 - 3.0	13- 8	ø≥16	MTI1212E40 A60	12	.472	5	1.57	3.3
Ex. 1.75-2.5	15-10	ø≥18	MTI1614E45 A60	16	.551	5	1.77	4.0
		ø≥20	MTI1616E50 A60	16	.630	5	1.97	4.0

Order example: MTI 0808D28 A60 MT8

ISO

Tools for Internal Thread



For thread depth up to 3.5xD1

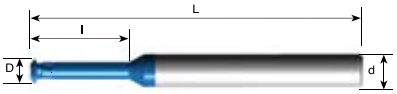
Pitch mm	M Coarse	M fine	Ordering Code	d	D	No. of Flutes	l	L
0.25	M1 x 0.25		MTI03007C3 0.25 ISO	3	0.72	3	3.6	39
0.25	M1.2 x 0.25	M1.4 x 0.25 M1.6 x 0.25	MTI03009C4 0.25 ISO	3	0.90	3	4.3	39
0.3	M1.4 x 0.3		MTI03011C5 0.3 ISO	3	1.05	3	5.0	39
0.35	M1.6 x 0.35	M2 x 0.35 M2.2 x 0.35	MTI03012C6 0.35 ISO	3	1.20	3	5.7	39
0.4	M2 x 0.4		MTI03012C7 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 MT9

Carbide grade MT9 with advanced PVD triple coating (ISO K 10-K20).

UN

Tools for Internal Thread



For thread depth up to 3.5xD1

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 MT9

Carbide grade MT9 with advanced PVD triple coating (ISO K 10-K20).

HARDCUT
Mill-Thread Solid Carbide for machining hard materials

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

Mini Mill - Thread

Carbide grade: MT9
Sub-micron carbide grade with advanced Titanium Aluminium Nitride coating.

- Threading from M1.4 x 0.3
- Perfect solution for the Die and Mold industry
- Working at high cutting speeds
- Short machining time
- Low cutting forces thanks to the short profile

MTH

Carmex provide new 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).

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

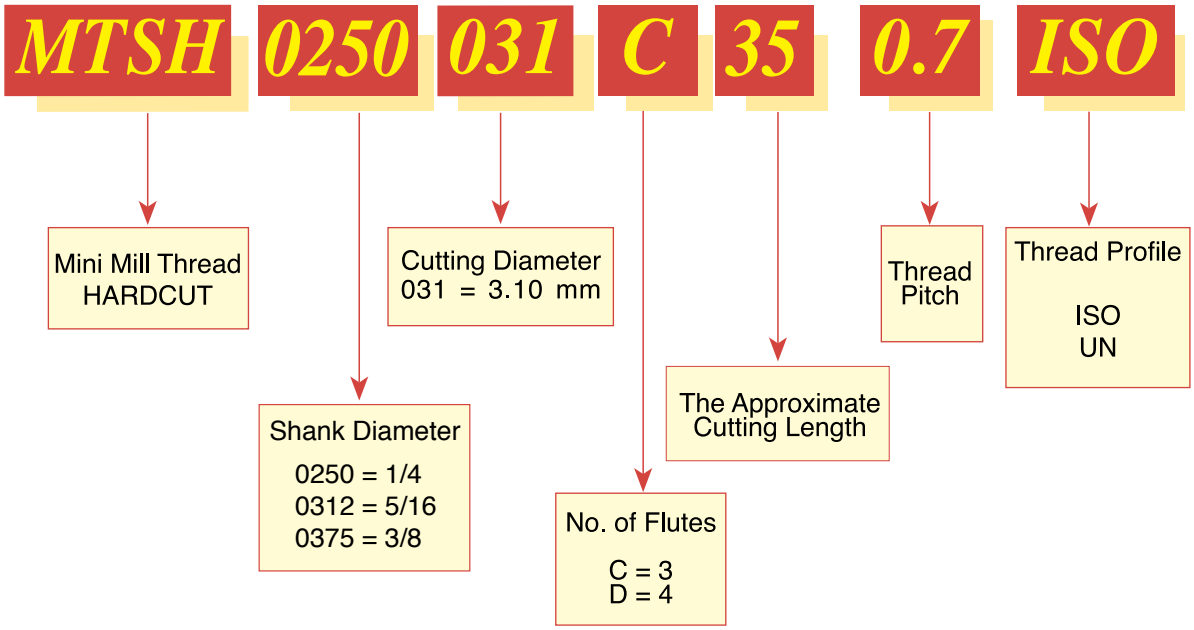
Principle
The tools provide the possibility to machine materials with a higher tensile strength and hardness using relatively high cutting data.

Advantages

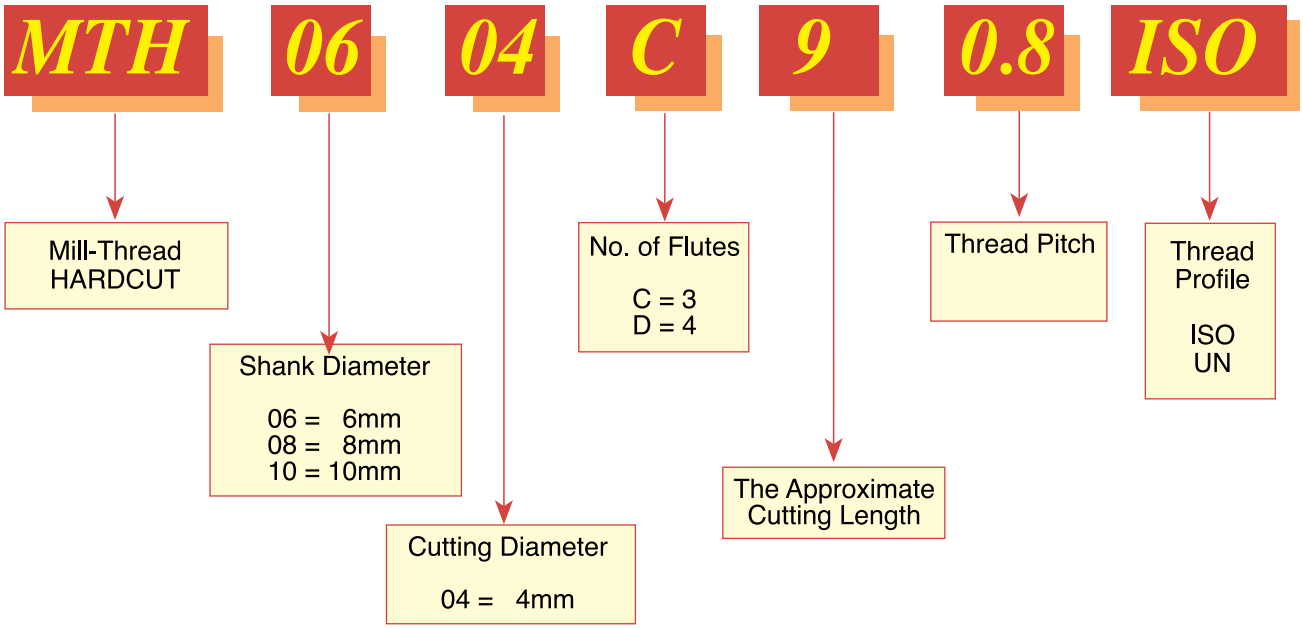
- Same tool perfoms thread milling and chamfering - saves machining time.
- Increased cutting diameter - better rigidity and stability.
- Coating provides high wear and heat resistance.
- Ultra fine grade - dedicated for hardened materials.
- Short chips are produced, insure high process security.
-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

Product Identification

Mini Mill-Thread MTSH Type Ordering Codes



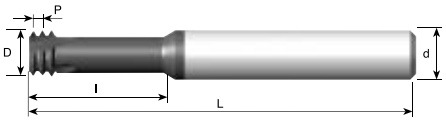
MTH Type Ordering Codes

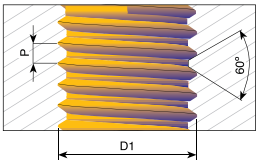


Carmex Precision Tools Ltd.

ISO

Tools for Internal Thread





For thread depth up to 2xD1

Left hand cutting
For CNC code use M04

Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	L
0.4	M2	MTSH0250C18 0.4 ISO	1/4	.061	3	.18	2.5
0.45	M2.2	MTSH0250C20 0.45 ISO	1/4	.065	3	.20	2.5
0.45	M2.5	MTSH0250C22 0.45 ISO	1/4	.077	3	.22	2.5
0.5	M3	MTSH0250C26 0.5 ISO	1/4	.093	3	.26	2.5
0.6	M3.5	MTSH0250C30 0.6 ISO	1/4	.108	3	.30	2.5
0.7	M4	MTSH0250C35 0.7 ISO	1/4	.122	3	.35	2.5
0.8	M5	MTSH0250C49 0.8 ISO	1/4	.150	3	.49	2.5
1.0	M6	MTSH0250C55 1.0 ISO	1/4	.183	3	.55	2.5
1.25	M8	MTSH0250C71 1.25 ISO	1/4	.234	3	.71	2.5
1.5	M10	MTSH0312C91 1.5 ISO	5/16	.307	3	.91	2.5
1.75	M12	MTSH0375C10 1.75 ISO	3/8	.354	3	1.02	3.0
2.0	M16	MTSH12118D35 2.0 ISO	12mm	.465	4	1.38	3.3

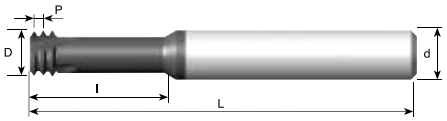
For thread depth up to 3xD1

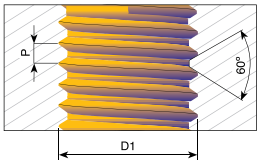
Pitch mm	D1	Ordering Code	d	D	No. of Flutes	l	L
0.3	M1.4	MTSH03011C4 0.3 ISO	3mm	.041	3	.16	1.5
0.35	M1.6	MTSH03012C5 0.35 ISO	3mm	.047	3	.19	1.5
0.4	M2	MTSH03016C6 0.4 ISO	3mm	.061	3	.24	1.5
0.45	M2.5	MTSH0602C7 0.45 ISO	1/4	.077	3	.30	2.5
0.5	M3	MTSH06024C9 0.5 ISO	1/4	.093	3	.37	2.5
0.7	M4	MTSH06031C12 0.7 ISO	1/4	.122	3	.49	2.5
0.8	M5	MTSH06038C16 0.8 ISO	1/4	.150	3	.63	2.5
1.0	M6	MTSH06047C20 1.0 ISO	1/4	.183	3	.79	2.5
1.25	M8	MTSH0606C24 1.25 ISO	1/4	.234	3	.94	2.5

Order example: MTSH 0250C35C 0.7 ISO MT9

UN

Tools for Internal Thread





For thread depth up to 2xD1

Left hand cutting
For CNC code use M04

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L
72		1	MTSH0250C15 72 UN	1/4	.057	3	.15	2.5
64	1	2	MTSH0250C15 64 UN	1/4	.055	3	.15	2.5
56	2	3	MTSH0250C17 56 UN	1/4	.065	3	.17	2.5
48	3	4	MTSH0250C20 48 UN	1/4	.075	3	.20	2.5
40	4		MTSH0250C25 40 UN	1/4	.083	3	.25	2.5
40	5	6	MTSH0250C28 40 UN	1/4	.096	3	.28	2.5
36		8	MTSH0250C35 36 UN	1/4	.130	3	.35	2.5
32	6		MTSH0250C28 32 UN	1/4	.100	3	.28	2.5
32	8		MTSH0250C37 32 UN	1/4	.126	3	.37	2.5
32		10	MTSH0250C41 32 UN	1/4	.146	3	.41	2.5
28		12	MTSH0250C43 28 UN	1/4	.165	3	.43	2.5
28		1/4	MTSH0250C57 28 UN	1/4	.197	3	.57	2.5
24	10,12		MTSH0250C42 24 UN	1/4	.138	3	.42	2.5
24		5/16, 3/8	MTSH0312C67 24 UN	5/16	.260	3	.67	2.5
20	1/4		MTSH0250C55 20 UN	1/4	.187	3	.55	2.5
20		7/16	MTSH0312C98 20 UN	5/16	.312	3	.98	2.5
18	5/16		MTSH0250C67 18 UN	1/4	.236	3	.67	2.5
18	5/8		MTS0500D14 18 UN	1/2	.500	4	1.38	3.5
16	3/8		MTSH0312C87 16 UN	5/16	.264	3	.87	2.5
14	7/16		MTSH0312C98 14 UN	5/16	.303	3	.98	2.5
13	1/2		MTSH0375C10 13 UN	3/8	.362	3	1.08	3.0
12	9/16		MTSH12105C31 12 UN	12mm	.413	3	1.24	3.3
11	5/8		MTSH12114C34 11 UN	12mm	.449	3	1.36	3.3

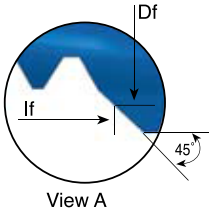
For thread depth up to 3xD1

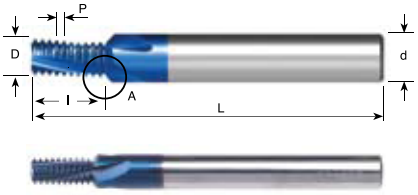
Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L
80		0	MTSH0250C16 80 UN	1/4	.045	3	.16	2.5
72		1	MTSH03015C6 72 UN	3mm	.057	3	.24	1.5
56	2	3	MTSH0250C26 56 UN	1/4	.065	3	.26	2.5
40	4		MTSH0250C31 40 UN	1/4	.083	3	.31	2.5
40	5	6	MTSH0250C38 40 UN	1/4	.096	3	.38	2.5
32	6		MTSH0250C40 32 UN	1/4	.100	3	.41	2.5
32	8		MTSH0250C49 32 UN	1/4	.126	3	.49	2.5
32		10	MTSH0250C59 32 UN	1/4	.146	3	.59	2.5
28		1/4	MTSH0250C75 28 UN	1/4	.197	3	.75	2.5
24		5/16, 3/8	MTSH0312C94 24 UN	5/16	.260	3	.94	2.5
20	1/4		MTSH0250C75 20 UN	1/4	.187	3	.75	2.5
18	5/16		MTSH0250C91 18 UN	1/4	.236	3	.91	2.5

Order example: MTSH 0250C28 40 UN MT9

ISO

Tools for Internal Thread



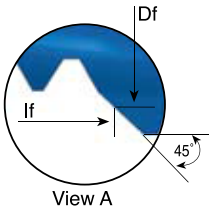


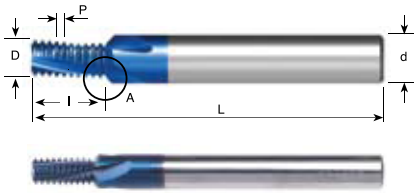
Pitch mm	M coarse	M fine	Ordering Code	d mm	D	Df	No. of Flutes	l	lf	L
0.5	M3	∅≥ 4	MTH06024C5 0.5 ISO	6	.094	.142	3	.209	.232	2.3
0.7	M4	∅≥ 5	MTH06031C7 0.7 ISO	6	.122	.169	3	.291	.315	2.3
0.8	M5	∅≥ 6	MTH0604C9 0.8 ISO	6	.157	.205	3	.362	.386	2.3
1.0	M6	∅≥ 7	MTH08048D10 1.0 ISO	8	.189	.252	4	.413	.445	2.5
1.0		∅≥ 9	MTH0806D13 1.0 ISO	8	.236	.299	4	.531	.563	2.5
1.0		∅≥ 10	MTH1008D16 1.0 ISO	10	.315	.378	4	.650	.681	2.9
1.25	M8	∅≥ 10	MTH0806D14 1.25 ISO	8	.236	.299	4	.567	.598	2.5
1.5	M10	∅≥ 12	MTH1008D17 1.5 ISO	10	.315	.386	4	.681	.717	2.9
1.5		∅≥ 14	MTH1210D21 1.5 ISO	12	.394	.465	4	.858	.894	3.3
1.75	M12	∅≥ 12	MTH12095D20 1.75 ISO	12	.374	.453	4	.791	.831	3.3

Order example: MTH 08048D10 1.0 ISO MT9

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	.098	.146	3	.236	.260	2.3
32	6			MTH06026C5 32 UN	6	.102	.150	3	.232	.256	2.3
32	8			MTH06032C7 32 UN	6	.126	.173	3	.295	.319	2.3
32		10	12	MTH06038C9 32 UN	6	.150	.197	3	.358	.382	2.3
28		1/4		MTH08052D11 28 UN	8	.205	.268	4	.445	.476	2.5
28			7/16, 1/2	MTH12096D20 28 UN	12	.378	.441	4	.803	.835	3.3
24		5/16, 3/8	9/16, 5/8, 11/16	MTH08066D14 24 UN	8	.260	.315	4	.563	.591	2.5
20	1/4			MTH06048C12 20 UN	6	.189	.236	3	.476	.500	2.3
20		7/16, 1/2	3/4, 1	MTH12092D21 20 UN	12	.362	.425	4	.827	858	3.3
18	5/16	9/16, 5/8	11/16	MTH08057C14 18 UN	8	.224	.295	3	.583	.618	2.5
16	3/8	3/4		MTH10074C16 16 UN	10	.291	.362	3	.657	.693	2.9
14	7/16	7/8		MTH10085D20 14 UN	10	.335	.390	4	.823	.850	2.9
13	1/2			MTH12094D22 13 UN	12	.370	.449	4	.886	.925	3.3

Order example: MTH 06048C12 20 UN MT9

Carmex Mill-Thread catalogue and CNC programming Software

The software is available at our homepage **www.carmex.com** or on a CD-ROM

Mill-Thread Solid Carbide Grades, Speed and Feed Selection

MTB 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 Standard	Material	Cutting Speed m/min	Feed mm/tooth						
			Ø2	Ø3	Ø4	Ø6	Ø8	Ø10	Ø12
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
	High Carbon Steels ≥0.55%C	110-180	0.02	0.03	0.03	0.05	0.06	0.07	0.08
	Alloy Steels, Treated Steels	90-160	0.02	0.02	0.03	0.03	0.04	0.05	0.05
M	Stainless Steels - Free Cutting	60-160	0.02	0.03	0.03	0.04	0.05	0.06	0.06
	Stainless Steels - Austenitic	60-120	0.02	0.02	0.03	0.03	0.04	0.05	0.05
	Cast Steels	130-170	0.02	0.02	0.03	0.03	0.04	0.05	0.05
K	Cast Iron	70-150	0.03	0.04	0.04	0.06	0.07	0.08	0.09
N	Aluminium ≤10%Si, Copper	150-350	0.03	0.04	0.04	0.06	0.07	0.08	0.09
	Aluminium ≥10% Si	100-250	0.02	0.02	0.03	0.03	0.04	0.05	0.05
	Synthetics, Duroplastics, Thermoplastics	100-400	0.05	0.06	0.07	0.08	0.10	0.11	0.12
S	Nickel Alloys, Titanium Alloys	20- 80	0.02	0.02	0.02	0.03	0.03	0.03	0.03

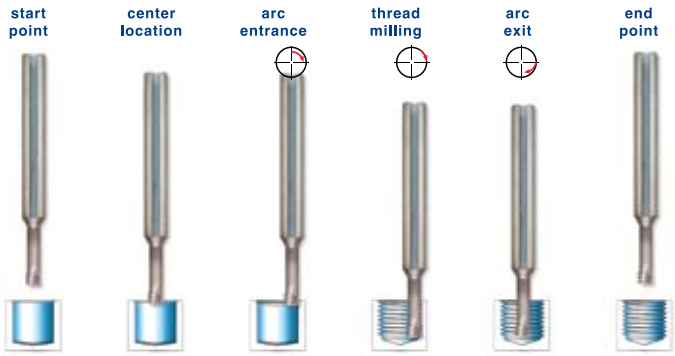
For cutters with long cutting length reduce feed rate by 40%

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 Aluminium 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														
			ø1	ø1.5	ø2	ø3	ø4	ø5	ø6	ø7	ø8	ø9	ø10	ø12	ø14	ø16
P	Low & 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 Steel-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	Aluminium ≤10%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
	Aluminium >10%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

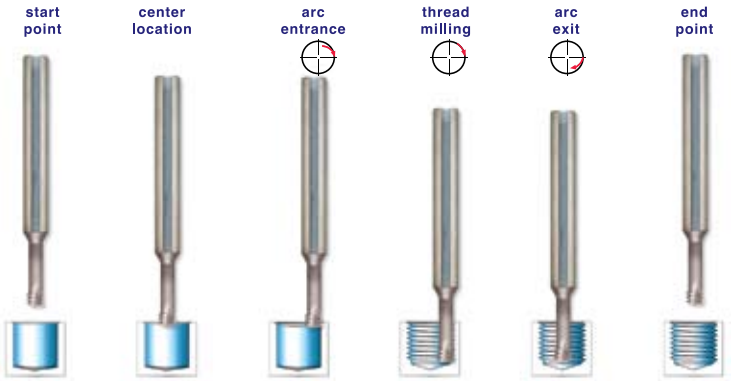
Features	Mini Mill-Thread	Taps
Thread surface quality	High	Medium
Thread geometry	Very accurate	Medium
Thread tolerances	4H, 5H, 6H with std cutter	6H with standard tap, 4H with specific tap
Machining time	Same as tap or shorter	Short
Tool breakage	Almost not possible	Could happen often
Machining load	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

Carmex Precision Tools Ltd.

Mini Mill Thread MTSH type

MT9 Sub - Micron carbide grade with advanced Titanium Aluminium Nitride coating.

ISO	Material	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
S	Nickel Alloys, Titanium Alloys and High Temp. Alloys		20-40	0.03	0.03	0.03	0.04	0.05	0.06	0.06	0.06	0.06	0.07	0.07	0.07
			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
H	Hardened Steels	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
		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



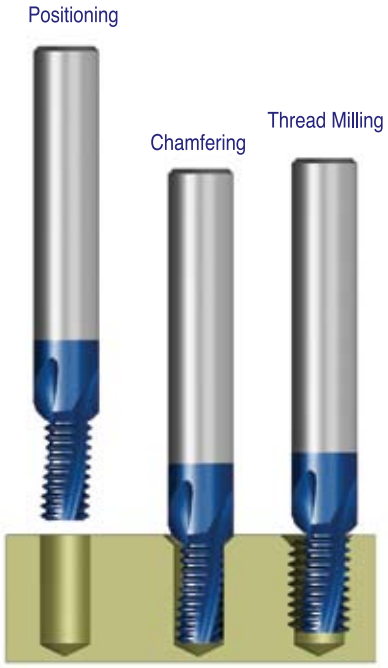
CASE STUDY

Thread Depth	8.0 mm
Workpiece Material	Tool Steel: D2
Hardness	60-62 (HRc)
Cutter Description	MTSH06031C9 0.7 ISO
Schnitt Werte	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

MT9 ultra fine Sub-Micron Grade with advanced PVD triple coating.

ISO Standard	Material	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, High Temperature 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	70 - 80	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.07
		51 - 55	60 - 70	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.06
		56 - 62	40 - 50	0.005	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.05



Solid Carbide Milling Tools

For Grooving Deep Parts

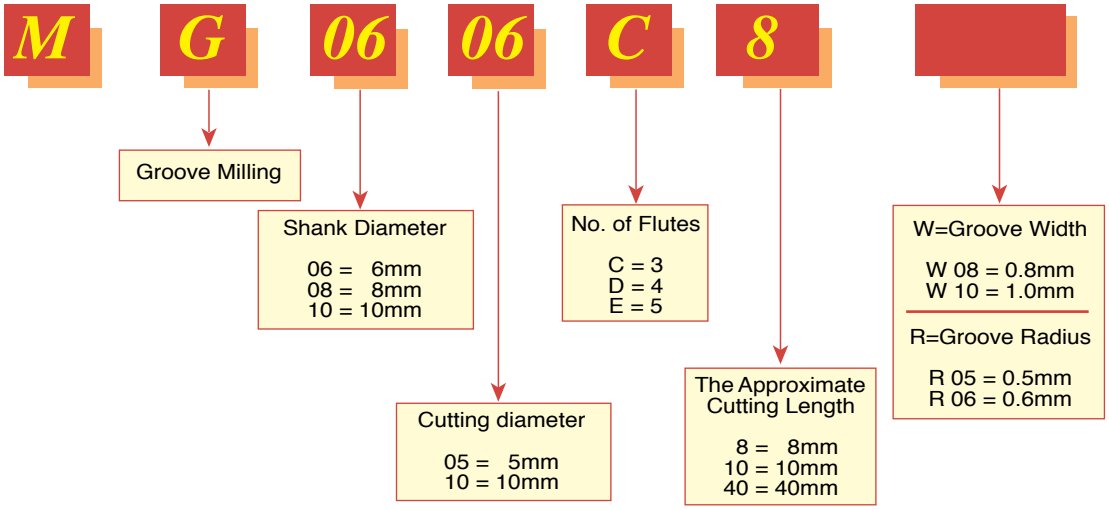
Advantages

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..

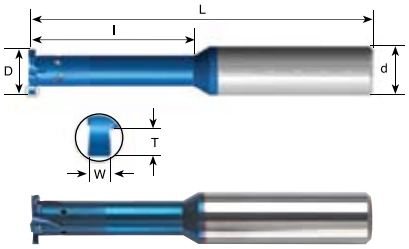
Product Identification

Groove Milling Ordering Codes



Groove Milling

With internal coolant through the flutes



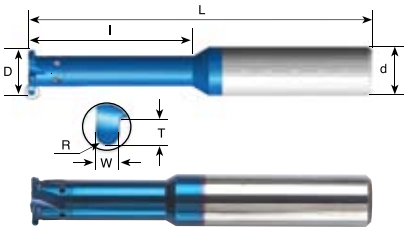
For grooving deep parts

W ± 0.02	T Max.	Groove Dia. (min)	Ordering Code	d	D	No. of Flutes	l	L
.031	.03	ø>6	**MG0606C8 W08**	6	.236	3	.31	2.3
.039	.05	ø≥8	**MG08078D10 W10**	8	.307	4	.39	2.5

Order example: MG 0606C8 W08 MT8

Full Radius Groove Milling

With internal coolant through the flutes



For grooving deep parts

R	W ± 0.02	T Max.	Groove Dia. (min)	Ordering Code	d	D	No. of Flutes	l	L
.020	.039	.03	ø>6	**MG0606C8 R05**	6	.236	3	.31	2.3
.020	.039	.04	ø>8.8	**MG10088D16 R05**	8	.346	4	.63	2.5

Order example: MG 10088D16 R05 MT8

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

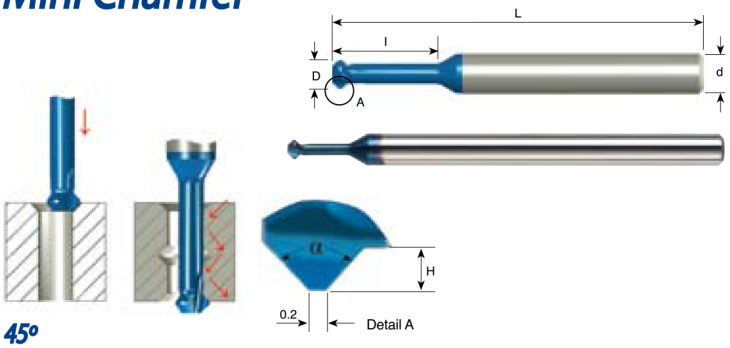
Product Identification

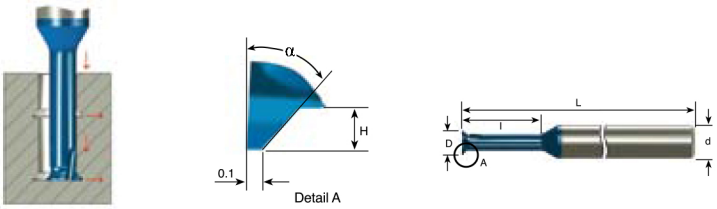
Mini Chamfer Ordering Codes:

MC	03	015	C	3	A90
Mini Chamfer	Shank Diameter 03 = 3mm 04 = 4mm 05 = 5mm 06 = 6mm 08 = 8mm 10 = 10mm 12 = 12mm	Cutting diameter 015 = 1.5mm	No. of Flutes C = 3 D = 4 E = 5 F = 6	The Approximate Cutting Length	Profile Angle A90 = 90˚ A60 = 60˚ A45 = 45˚

Carmex Precision Tools Ltd.

Mini Chamfer





45°

Ordering Code	d	D	l	H	α	No. of Flutes	L
MC03015C3 A90	3	.059	.15	.012	90˚	3	1.5
MC0302C5 A90	3	.079	.20	.016	90˚	3	1.5
MC03025C6 A90	3	.098	.25	.020	90˚	3	1.5
MC0303C7 A90	3	.118	.30	.024	90˚	3	1.5
MC04035C9 A90	4	.138	.35	.028	90˚	3	2.0
MC0404C10 A90	4	.157	.39	.031	90˚	3	2.0
MC05045C11 A90	5	.177	.44	.039	90˚	3	2.0
MC0505C12 A90	5	.197	.49	.043	90˚	3	2.0
MC06055C13 A90	6	.217	.54	.047	90˚	3	2.0
MC0606C15 A90	6	.236	.59	.059	90˚	3	2.0

Long Reach 45°

Ordering Code	d	D	l	H	α	No. of Flutes	L
MC0303C12 A90	3	.118	.47	.024	90˚	3	1.5
MC04035C14 A90	4	.138	.55	.028	90˚	3	2.0
MC0404C16 A90	4	.157	.63	.031	90˚	3	2.0
MC05045C18 A90	5	.177	.71	.039	90˚	3	2.0
MC0505C20 A90	5	.197	.79	.043	90˚	3	2.0
MC06055C22 A90	6	.217	.87	.047	90˚	3	2.3
MC0606C24 A90	6	.236	.94	.059	90˚	3	2.3
MC0808D28 A90	8	.315	1.10	.063	90˚	4	2.5
MC1010E35 A90	10	.394	1.38	.071	90˚	5	2.9
MC1212F42 A90	12	.472	1.65	.083	90˚	6	3.3

30°

Ordering Code	d	D	l	H	α	No. of Flutes	L
MC0302C5 A60	3	.079	.20	.016	60˚	3	1.5
MC0303C7 A60	3	.118	.30	.024	60˚	3	1.5
MC04035C9 A60	4	.138	.35	.028	60˚	3	2.0
MC0404C10 A60	4	.157	.39	.031	60˚	3	2.0
MC05045C11 A60	5	.177	.44	.039	60˚	3	2.0
MC0505C12 A60	5	.197	.49	.043	60˚	3	2.0

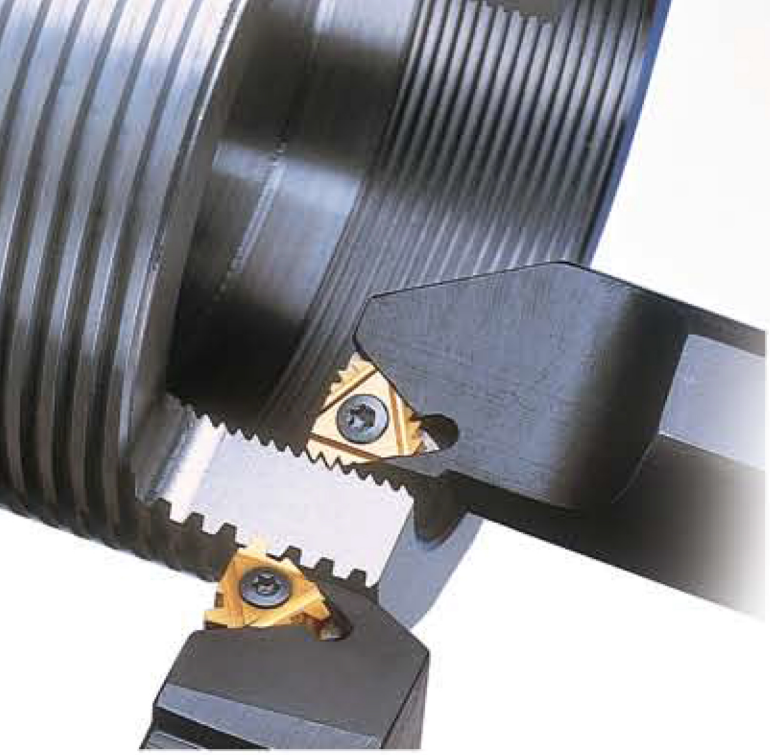
Dovetail 45° *

Ordering Code	d	D	l	H	α	No. of Flutes	L
MC03015C4 A45	3	.059	.18	.012	45°	3	1.5
MC0302C6 A45	3	.079	.24	.016	45°	3	1.5
MC03025C7 A45	3	.098	.30	.020	45°	3	1.5
MC0303C12 A45	3	.118	.47	.024	45°	3	1.5
MC04035C14 A45	4	.138	.55	.028	45°	3	2.0
MC0404C16 A45	4	.157	.63	.031	45°	3	2.0
MC05045C18 A45	5	.177	.71	.039	45°	3	2.0
MC0505C20 A45	5	.197	.79	.043	45°	3	2.0
MC06055C22 A45	6	.217	.87	.047	45°	3	2.3
MC0606C24 A45	6	.236	.94	.059	45°	3	2.3

*one side cutting

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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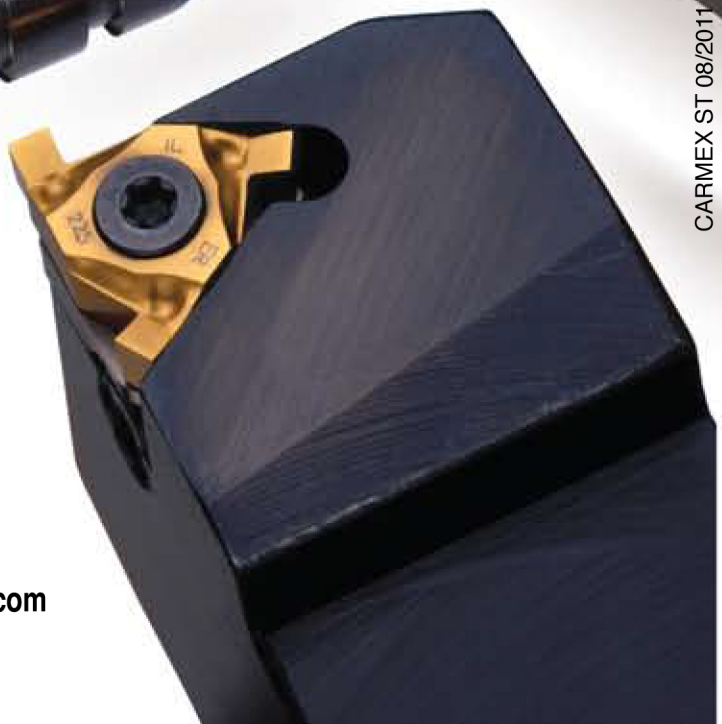

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