

Mill-Thread Inserts and Kits



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

Advantages of Mill-Thread Tools

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

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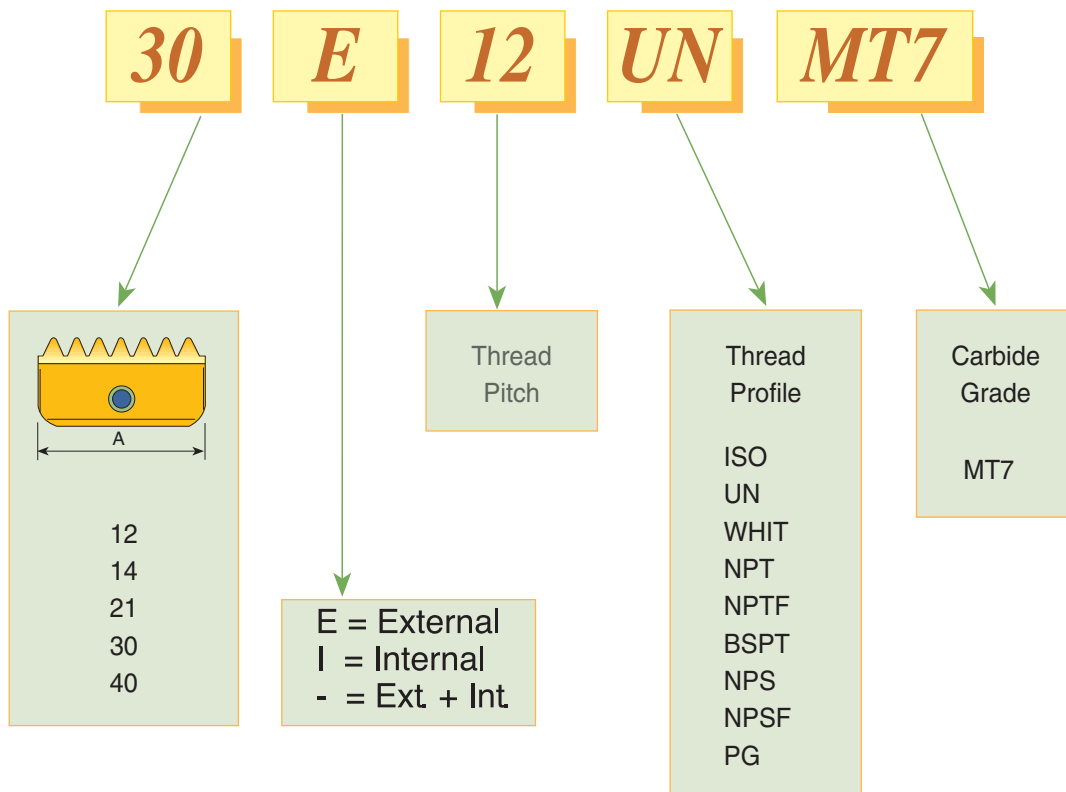
Special Tools

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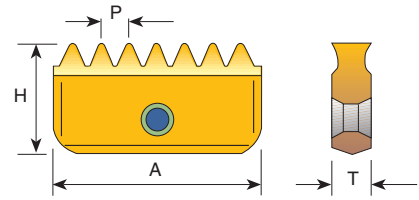
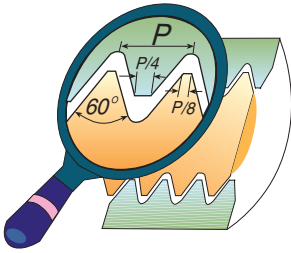
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Product Identification

Mill-Thread Inserts Ordering Codes



ISO

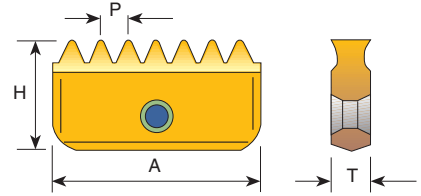
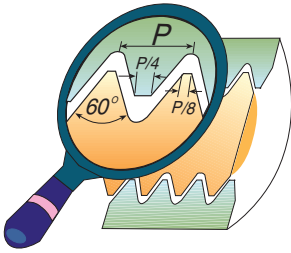


Pitch mm		Insert Size = A				
		12	14	21	30	40
0.5	Ext.					
0.5	Int.	* 12 I 0.5 ISO	14 I 0.5 ISO			
0.75	Ext.		14 E 0.75 ISO			
0.75	Int.	* 12 I 0.75 ISO	14 I 0.75 ISO			
1.0	Ext.		14 E 1.0 ISO	21 E 1.0 ISO		
1.0	Int.	* 12 I 1.0 ISO	14 I 1.0 ISO	21 I 1.0 ISO		
1.25	Ext.		14 E 1.25 ISO			
1.25	Int.	* 12 I 1.25 ISO	14 I 1.25 ISO			
1.5	Ext.		14 E 1.5 ISO	21 E 1.5 ISO	30 E 1.5 ISO	40 E 1.5 ISO
1.5	Int.	* 12 I 1.5 ISO	14 I 1.5 ISO	21 I 1.5 ISO	30 I 1.5 ISO	40 I 1.5 ISO
1.75	Ext.		14 E 1.75 ISO			
1.75	Int.		14 I 1.75 ISO	21 I 1.75 ISO		
2.0	Ext.		14 E 2.0 ISO	21 E 2.0 ISO	30 E 2.0 ISO	40 E 2.0 ISO
2.0	Int.		14 I 2.0 ISO	21 I 2.0 ISO	30 I 2.0 ISO	40 I 2.0 ISO
2.5	Ext.		14 E 2.5 ISO	21 E 2.5 ISO		
2.5	Int.		14 I 2.5 ISO	21 I 2.5 ISO		
3.0	Ext.			21 E 3.0 ISO	30 E 3.0 ISO	40 E 3.0 ISO
3.0	Int.			21 I 3.0 ISO	30 I 3.0 ISO	40 I 3.0 ISO
3.5	Ext.				30 E 3.5 ISO	
3.5	Int.			21 I 3.5 ISO	30 I 3.5 ISO	40 I 3.5 ISO
4.0	Ext.				30 E 4.0 ISO	40 E 4.0 ISO
4.0	Int.				30 I 4.0 ISO	40 I 4.0 ISO
4.5	Ext.					
4.5	Int.				30 I 4.5 ISO	40 I 4.5 ISO
5.0	Ext.					40 E 5.0 ISO
5.0	Int.				30 I 5.0 ISO	40 I 5.0 ISO
5.5	Ext.					
5.5	Int.					40 I 5.5 ISO
6.0	Ext.					40 E 6.0 ISO
6.0	Int.					40 I 6.0 ISO
	H	6.3	7.5	12	16	20
	T	2.9	3.1	4.7	5.5	6.3

* One cutting edge

Order example: 14 I 1.5 ISO MT7

UN UNC, UNF, UNEF, UNS

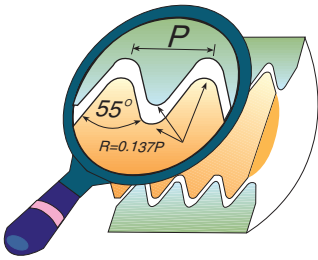


Pitch TPI		Insert Size = A				
		12	14	21	30	40
32	Ext.		14 E 32 UN			
32	Int.	*12 I 32 UN	14 I 32 UN			
28	Ext.		14 E 28 UN			
28	Int.	*12 I 28 UN	14 I 28 UN			
27	Ext.					
27	Int.		14 I 27 UN			
24	Ext.		14 E 24 UN	21 E 24 UN		
24	Int.	*12 I 24 UN	14 I 24 UN	21 I 24 UN		
20	Ext.		14 E 20 UN	21 E 20 UN	30 E 20 UN	
20	Int.	*12 I 20 UN	14 I 20 UN	21 I 20 UN	30 I 20 UN	
18	Ext.		14 E 18 UN	21 E 18 UN	30 E 18 UN	
18	Int.	*12 I 18 UN	14 I 18 UN	21 I 18 UN	30 I 18 UN	
16	Ext.		14 E 16 UN	21 E 16 UN	30 E 16 UN	40 E 16 UN
16	Int.	*12 I 16 UN	14 I 16 UN	21 I 16 UN	30 I 16 UN	40 I 16 UN
14	Ext.		14 E 14 UN	21 E 14 UN	30 E 14 UN	40 E 14 UN
14	Int.		14 I 14 UN	21 I 14 UN	30 I 14 UN	40 I 14 UN
12	Ext.		14 E 12 UN	21 E 12 UN	30 E 12 UN	40 E 12 UN
12	Int.		14 I 12 UN	21 I 12 UN	30 I 12 UN	40 I 12 UN
11	Ext.					
11	Int.		14 I 11 UN			
10	Ext.			21 E 10 UN	30 E 10 UN	40 E 10 UN
10	Int.		14 I 10 UN	21 I 10 UN	30 I 10 UN	40 I 10 UN
8	Ext.				30 E 8 UN	40 E 8 UN
8	Int.			21 I 8 UN	30 I 8 UN	40 I 8 UN
7	Ext.					
7	Int.			21 I 7 UN		
6	Ext.				30 E 6 UN	40 E 6 UN
6	Int.				30 I 6 UN	40 I 6 UN
5	Ext.					
5	Int.				30 I 5 UN	
4.5	Ext.					
4.5	Int.					40 I 4.5UN
4	Ext.					
4	Int.					40 I 4 UN
H		.248	.295	.472	.630	.787
T		.114	.122	.185	.217	.248

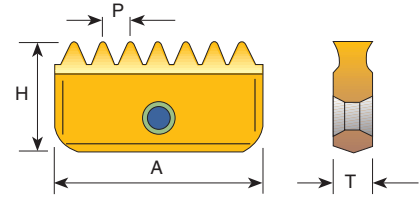
* One cutting edge

Order example: 21 E 18 UN MT7

WHIT BSW, BSF, BSP



Same Insert for External and Internal thread.

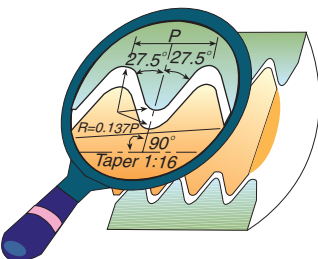


Pitch TPI	Insert Size = A				
	12	14	21	30	40
24		14-24 W			
20		14-20 W	21-20 W		
19	* 12-19 W	14-19 W	21-19 W		
16		14-16 W	21-16 W	30-16 W	
14		14-14 W	21-14 W	30-14 W	
11			21-11 W	30-11 W	40-11 W
8					40- 8 W
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

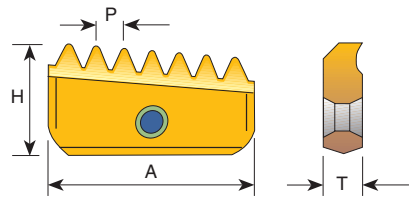
* One cutting edge

Order example: 21-11 W MT7

BSPT



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

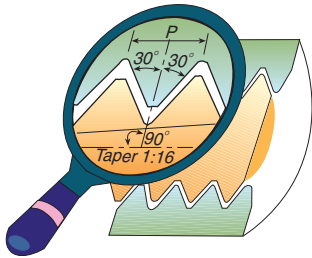


Pitch TPI	Insert Size = A				
	12	14	21	30	40
19	12-19 BSPT	14-19 BSPT			
14		14-14 BSPT	21-14 BSPT		
11			21-11 BSPT	30-11 BSPT	40-11 BSPT
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

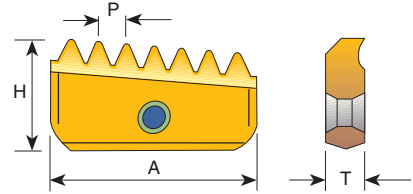
Order example: 14-19 BSPT MT7

For conical preparation end mills see page 100

NPT



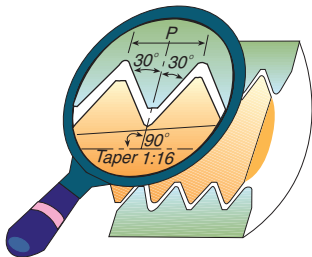
Conical pipe thread inserts are one-sided and may be used for both External and Internal threading.



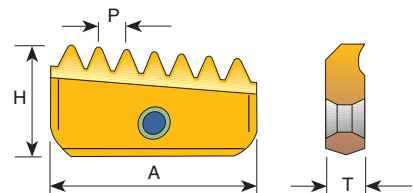
Pitch TPI	Insert Size = A				
	12	14	21	30	40
18	12-18 NPT	14-18 NPT			
14		14-14 NPT	21-14 NPT		
11.5			21-11.5 NPT	30-11.5 NPT	40-11.5 NPT
8				30- 8 NPT	40- 8 NPT
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

Order example: 30-11.5 NPT MT7

NPTF



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

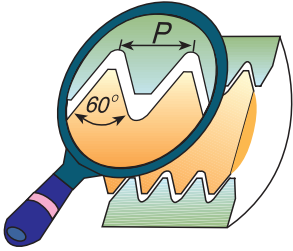


Pitch TPI	Insert Size = A				
	12	14	21	30	40
18	12-18 NPTF	14-18 NPTF			
14		14-14 NPTF	21-14 NPTF		
11.5			21-11.5 NPTF	30-11.5 NPTF	40-11.5 NPTF
8				30- 8 NPTF	40- 8 NPTF
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

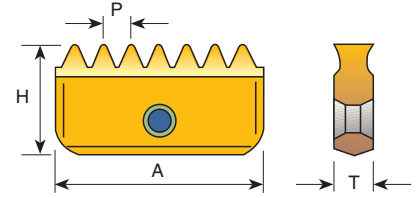
Order example: 21-14 NPTF MT7

For conical preparation end mills see page 100

NPS



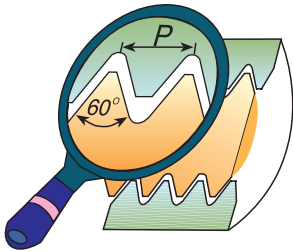
Same Insert for External and Internal thread



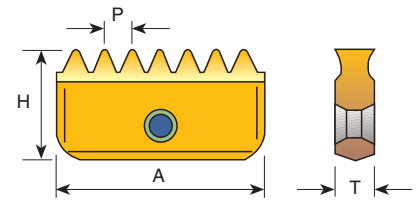
Pitch TPI	12	14	Insert Size = A 21	30	40
18	12-18 NPS	14-18 NPS			
14		14-14 NPS	21-14 NPS		
11.5			21-11.5 NPS	30-11.5 NPS	40-11.5 NPS
8				30- 8 NPS	40- 8 NPS
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

Order example: 30-11.5 NPS MT7

NPSF



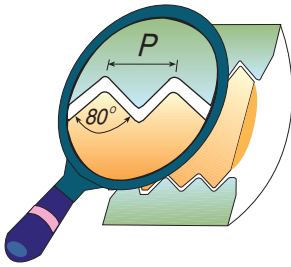
Same Insert for External and Internal thread



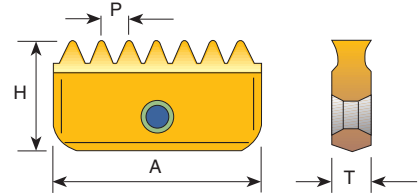
Pitch TPI	12	14	Insert Size = A 21	30	40
18	12-18 NPSF	14-18 NPSF			
14		14-14 NPSF	21-14 NPSF		
11.5			21-11.5 NPSF	30-11.5 NPSF	40-11.5 NPSF
8				30- 8 NPSF	40- 8 NPSF
H	6.3	7.5	12	16	20
T	2.9	3.1	4.7	5.5	6.3

Order example: 21-14 NPSF MT7

PG - DIN 40430



Same Insert for External and Internal thread



Pitch TPI	Insert Size = A		
	14	21	30
18	14-18 PG (PG 9, 11, 13.5, 16)	21-18 PG (PG 16)	
16		21-16 PG (PG 21, 29, 36, 42, 48)	30-16 PG (PG 36, 42, 48)
H	7.5	12	16
T	3.1	4.7	5.5

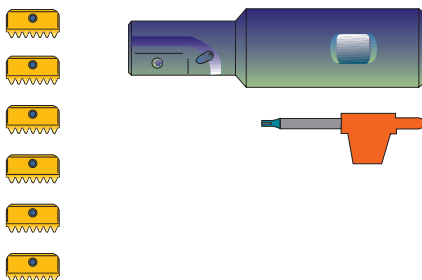
Order example: 21-18 PG MT7

Internal ISO Kits



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

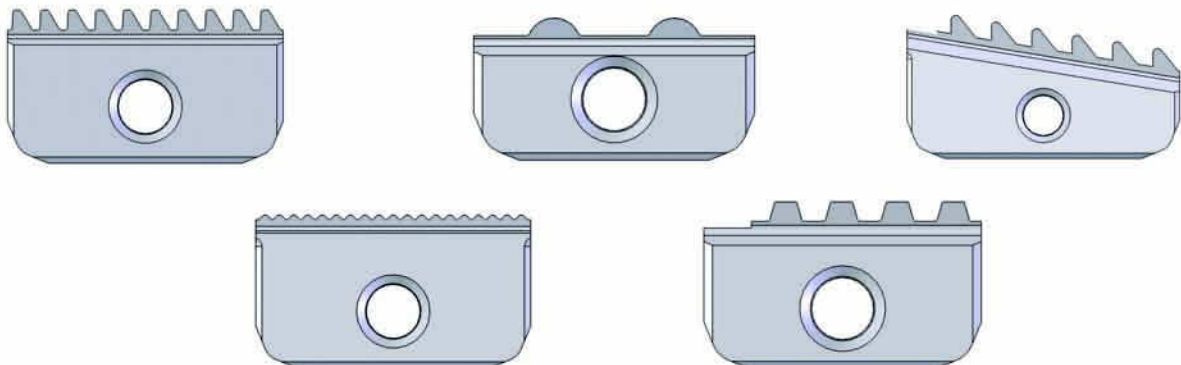
Order example : MTK 14 | ISO

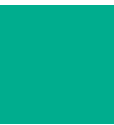


Special Tools



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





Mill-Thread Toolholders



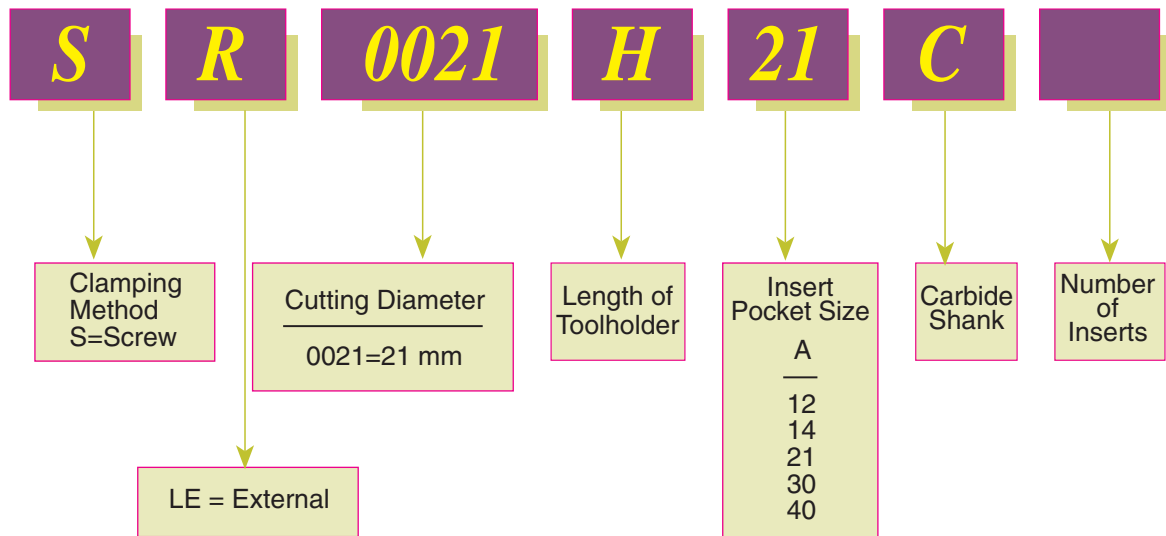
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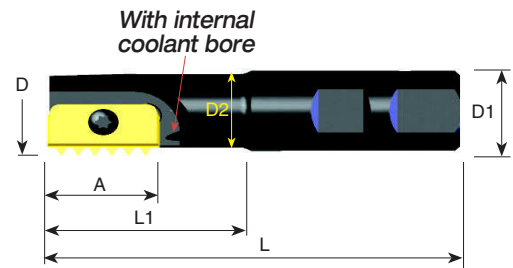
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Product Identification

Mill-Thread Toolholders Ordering Codes



Single Insert Toolholders



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

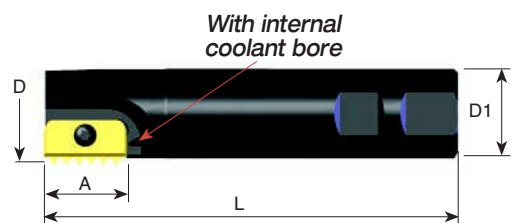
Order example: SR0029J30

* For conic inserts: 12-18 NPT, 12-18 NPTF, 12-19 BSPT

** Cannot be used with the following inserts:

21 I 3.5 ISO, 21I 8 UN, 21I 7 UN, 21-11 BSPT, 21-11.5 NPT, 21-11.5 NPTF

Long Shank Toolholders

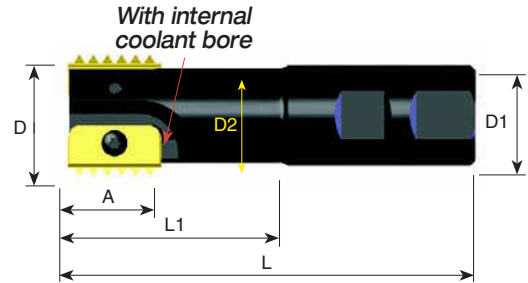


Ordering Code	A	D	D1	L	Insert Screw	Torx Key
SR0025K21	21	25	20	125	S21	K21
SR0031M30	30	31	25	150	S30	K30
SR0038M30	30	38	32	150	S30	K30
SR0048R40	40	48	40	210	S40	K40

Order example: SR0031M30

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

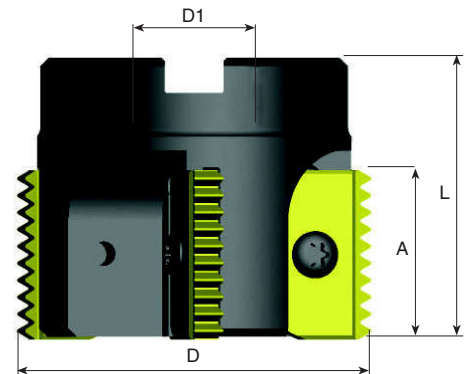
Twin Insert Toolholders



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

Order example: SR0030J21-2

Multi Insert Toolholders

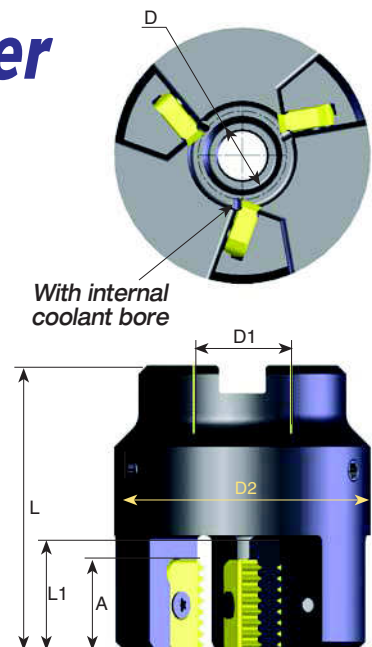


Ordering Code	A	D	D1	L	No. of Inserts	Insert Screw	Torx Key
SR0063C21-5	21	63	22	50	5	S21	K21
SR0063C30-4	30	63	22	50	4	S30	K30
SR0080D30-4	30	80	27	55	4	S30	K30
SR0100D30-4	30	100	32	60	4	S30	K30
SR0080D40-4	40	80	27	65	4	S40	K40
SR0100E40-4	40	100	32	70	4	S40	K40

Order example: SR0080D30-4

External Multi Insert Toolholder

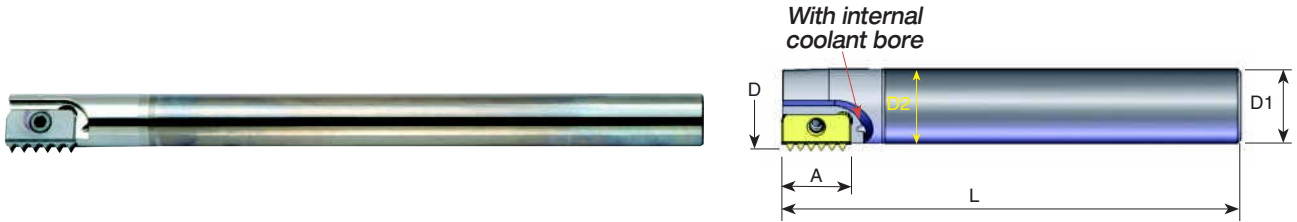
- Reduced machining time
- Optimal coolant supply



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

Order example: SLE 0030D21-3

Long Carbide Shank Toolholders



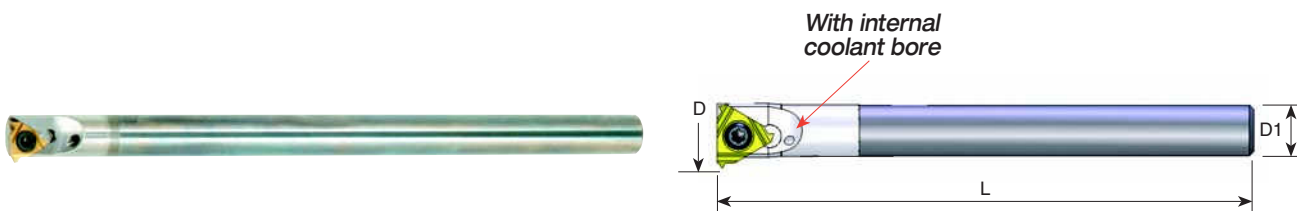
Ordering Code	A	D	D1	D2	L	Insert Screw	Torx Key
*SR0010K12C	12	9.9	8	8	125	S12	K12
SR0013H14C	14	13.2	10	10	110	S14	K14
SR0013J14C	14	13.2	10	10	150	S14	K14
SR0015K14C	14	15.2	12	12	175	S14	K14
SR0021K21C	21	21.0	16	16	130	S21	K21
SR0021M21C	21	21.0	16	16	200	S21	K21
SR0027S30C	30	27.0	20	20	270	S30	K30


Order example: SR0015K14C

* Without coolant bore

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

Carbide Shank Toolholders for Single Point Threading



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

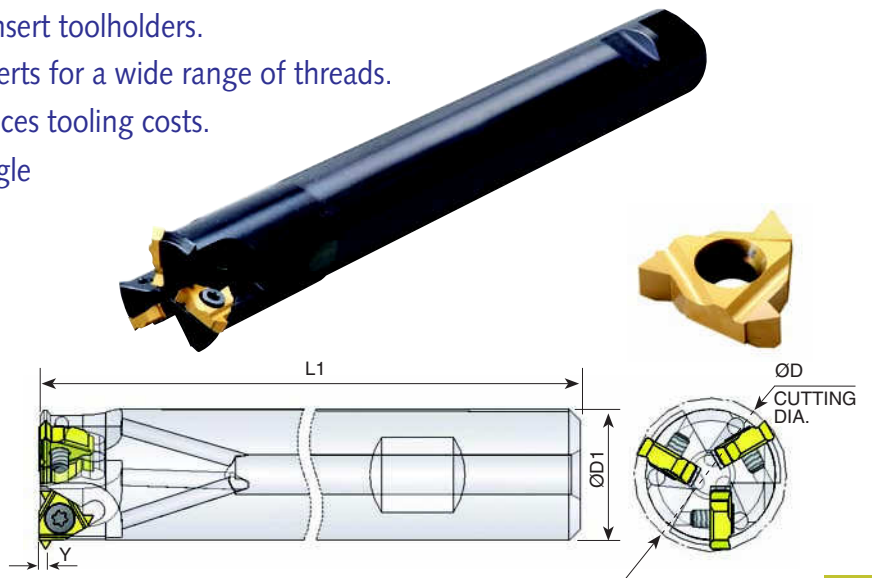
For Inserts see the Threading Tools section of this Catalogue
For an internal application use an internal R.H. insert.

* Without coolant bore

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

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

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



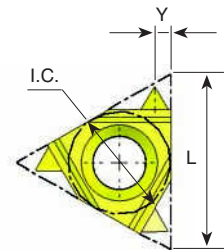
Ordering Code	Insert Size		Y	D	D1	L1	No. of Inserts	Insert Screw	Torx Key
	L	I.C.							
SR0023Q11	11	1/4	1	23.5	20	190	3	SE11	K11

Partial 60° Size 11

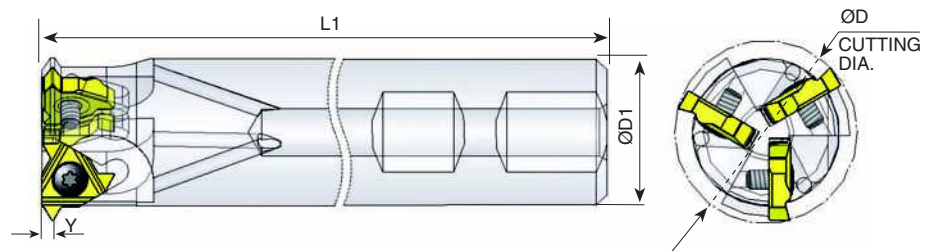
Ordering Code		Pitch	
		mm	TPI
1160D	INT.	1.0 -2.0	24-12
	EX.	0.75-1.5	32-14

Partial 55° Size 11

Ordering Code		Pitch TPI
1155D	INT./EX.	24-14



Coated Grade: BMA



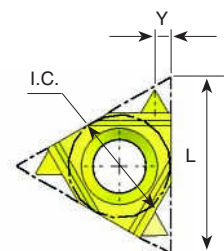
Ordering Code	Insert Size		Y	D	D1	L1	No. of Inserts	Insert Screw	Torx Key
	L	I.C.							
SR0031R16	16	3/8	1.8	31	25	225	3	SE16	K16

Partial 60° Size 16

Ordering Code		Pitch	
		mm	TPI
1660D	INT.	2.5-3.5	10-7
	EX.	2.0-3.0	12-8

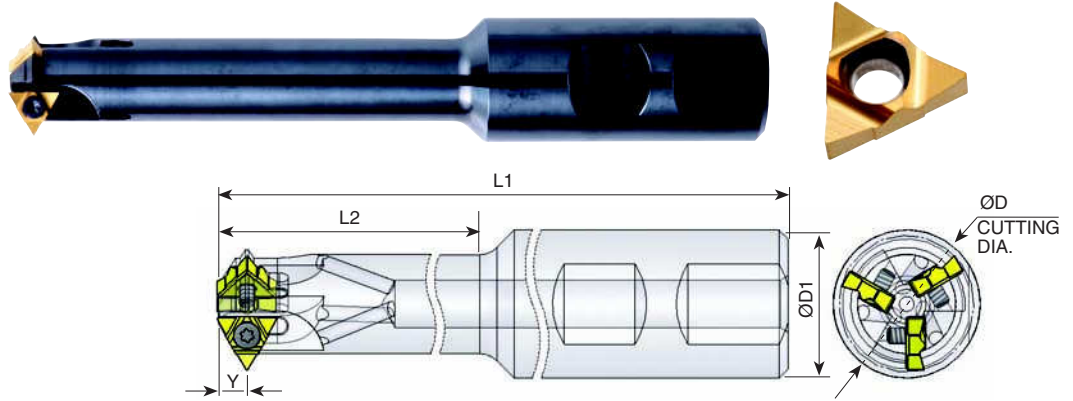
Partial 55° Size 16

Ordering Code		Pitch TPI
1655D	INT./EX.	10-8



Coated Grade: BMA

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



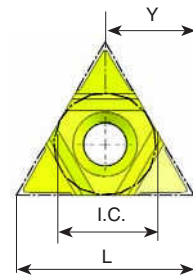
Ordering Code	Insert Size		Y	D	D1	L1	L2	No. of Inserts	Insert Screw	Torx Key
	L	I.C.								
SR0023Q11U	11U	1/4U	5	23	25	150	88	3	SE11	K11

Partial 60° Size 11U

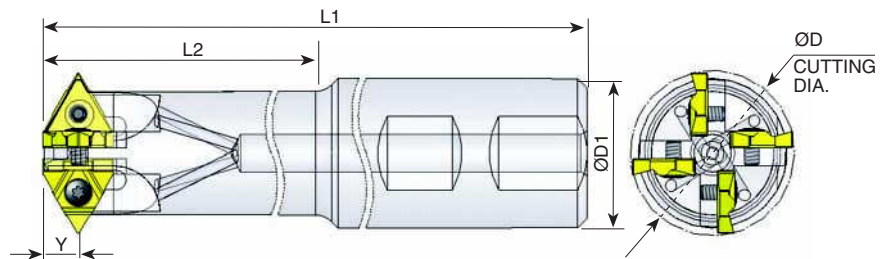
Ordering Code		Pitch	
		mm	TPI
11U60D	INT.	2.5-4.0	10-6
	EX.	2.0-3.0	12-8

Partial 55° Size 11U

Ordering Code		Pitch
		TPI
11U55D	INT./EX.	10-7



Coated Grade: BMA



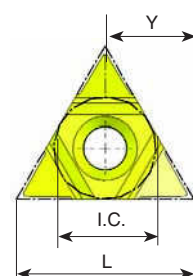
Ordering Code	Insert Size		Y	D	D1	L1	L2	No. of Inserts	Insert Screw	Torx Key
	L	I.C.								
SR0035R16U	16U	3/8U	7.6	33.5	32	220	155	4	SE16	K16

Partial 60° Size 16U

Ordering Code		Pitch	
		mm	TPI
16U60D	INT.	4.0-6.0	6-4
	EX.	3.0-5.0	8-5

Partial 55° Size 16U

Ordering Code		Pitch
		TPI
16U55D	INT./EX.	6-4.5



Coated Grade: BMA

Spiral Mill-Thread



Advantages of Spiral Mill-Thread Tools

- The spiral designed tools enable a smooth cutting operation at a high feed rate and reduced machining time.
- The tools suit a wide range of applications, from machining small components in small machining centers to heavy-duty applications in high power milling machines.
- Spiral fluted toolholders hold 2 or 9 inserts in a comparatively small cutting diameter.
- The unique clamping method enables optimal indexability.
- Spiral tools reduce vibration and chatter.
- High grade finish is achieved in all applications: threading, roughing and finishing.
- Inserts are available in MT7 Sub-Micron Grade with Titanium Aluminium Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials.

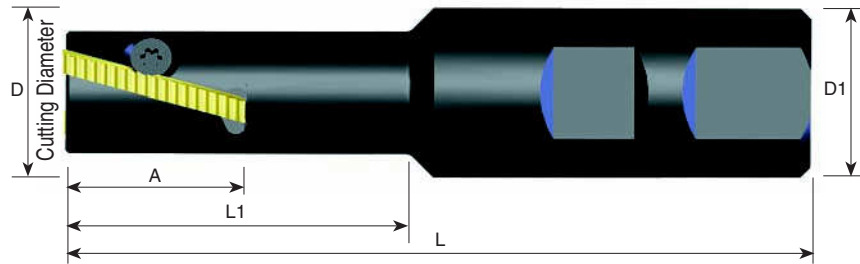
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H23 Toolholder



Ordering Code	Insert Size A	D	D1	L	L1	No. of Inserts	Screw	Key
SRH23-2	27	23	25	110	50	2	S23	K21

H23 Threading Inserts

Spiral inserts have one cutting edge



ISO

Pitch mm	Ordering Code	Thread Size
1.0	H23 I 1.0 ISO	≥ M26
1.5	H23 I 1.5 ISO	≥ M27
2.0	H23 I 2.0 ISO	≥ M28
3.0	H23 I 3.0 ISO	≥ M30

For internal thread

UN

Pitch TPI	Ordering Code	Thread Size
24	H23 I 24 UN	≥ 1"
20	H23 I 20 UN	≥ 1"
18	H23 I 18 UN	≥ 1 1/16"
16	H23 I 16 UN	≥ 1 1/16"
14	H23 I 14 UN	≥ 1 1/8"
12	H23 I 12 UN	≥ 1 1/8"
8	H23 I 8 UN	≥ 1 3/16"
7	H23 I 7 UN	≥ 1 1/4"

For internal thread

Whitworth

Pitch TPI	Ordering Code	Thread Size
11	H23-11 W	≥ G 1"

Same insert for internal and external thread

BSPT

Pitch TPI	Ordering Code	Thread Size
11	H23-11 BSPT	≥ 1" BSPT

Same insert for internal and external thread

NPT

Pitch TPI	Ordering Code	Thread Size
11.5	H23-11.5 NPT	1"-2" NPT

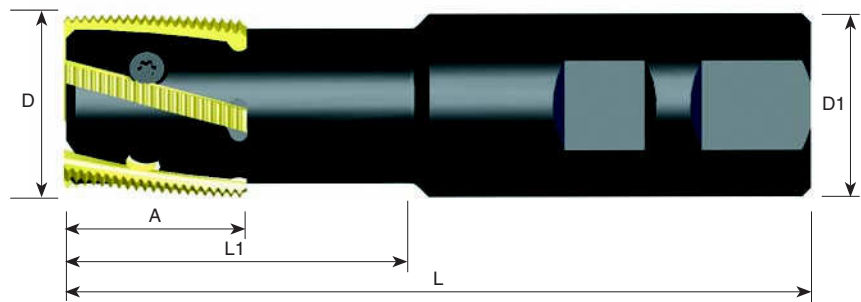
Same insert for internal and external thread

NPTF

Pitch TPI	Ordering Code	Thread Size
11.5	H23-11.5 NPTF	1"-2" NPTF

Same insert for internal and external thread

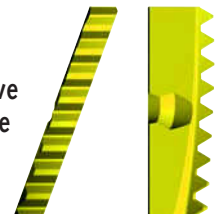
H32 Toolholder



Ordering Code	Insert Size A	D	D1	L	L1	No. of Inserts	Screw	Key
SRH32-5	32	32	32	130	60	5	S32	K22

H32 Threading Inserts

Spiral inserts have one cutting edge



ISO

Pitch mm	Ordering Code	Thread Size
1.5	H32 I 1.5 ISO	≥ M35
2.0	H32 I 2.0 ISO	≥ M36
3.0	H32 I 3.0 ISO	≥ M38
4.0	H32 I 4.0 ISO	≥ M40

For internal thread

UN

Pitch TPI	Ordering Code	Thread Size
20	H32 I 20 UN	≥1 3/8"
18	H32 I 18 UN	≥1 3/8"
16	H32 I 16 UN	≥1 3/8"
12	H32 I 12 UN	≥1 7/16"
8	H32 I 8 UN	≥1 1/2"
6	H32 I 6 UN	≥1 9/16"

For internal thread

Whitworth

Pitch TPI	Ordering Code	Thread Size
11	H32-11 W	Internal ≥ G 1 1/8" External ≥ G 1"

Same insert for internal and external thread

BSPT

Pitch TPI	Ordering Code	Thread Size
11	H32-11 BSPT	Internal ≥ 1 1/8" BSPT External ≥ 1" BSPT

Same insert for internal and external thread

NPT

Pitch TPI	Ordering Code	Thread Size
11.5	H32-11.5 NPT	Internal 1 1/4"-2" NPT External 1"-2" NPT

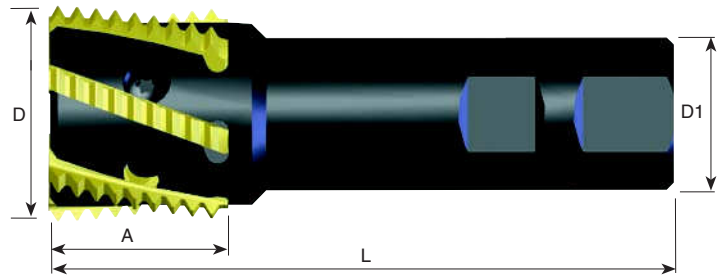
Same insert for internal and external thread

NPTF

Pitch TPI	Ordering Code	Thread Size
11.5	H32-11.5 NPTF	Internal 1 1/4"-2" NPTF External 1"-2" NPTF

Same insert for internal and external thread

H45 Toolholder



Ordering Code	Insert size A	D	D1	L	No. of Insert	Screw	Key
SRH45-6	37	45	32	130	6	S45	K40

H45 Threading Inserts

Spiral inserts have one cutting edge



ISO

Pitch mm	Ordering Code	Thread Size
1.5	H45 I 1.5 ISO	≥ M50
2.0	H45 I 2.0 ISO	≥ M50
3.0	H45 I 3.0 ISO	≥ M56
4.0	H45 I 4.0 ISO	≥ M56

For internal thread

UN

Pitch TPI	Ordering Code	Thread Size
16	H45 I 16 UN	≥ 2"
12	H45 I 12 UN	≥ 2"
8	H45 I 8 UN	≥ 2 1/4"
6	H45 I 6 UN	≥ 2 1/4"

For internal thread

Whitworth

Pitch TPI	Ordering Code	Thread Size
11	H45 - 11 W	Internal ≥ G 1 3/4" External ≥ G 1"

Same insert for internal and external thread

BSPT

Pitch TPI	Ordering Code	Thread Size
11	H45 - 11 BSPT	Internal $\geq 1 \frac{3}{4}$ " BSPT External ≥ 1 " BSPT

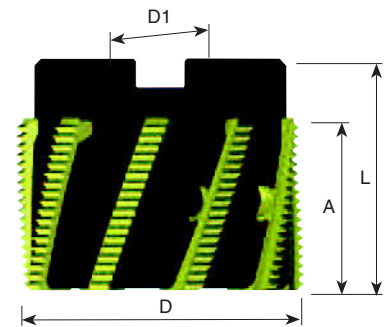
Same insert for internal and external thread

NPT

Pitch TPI	Ordering Code	Thread Size
11.5	H45 - 11.5 NPT	Internal 2" NPT External 1"-2" NPT

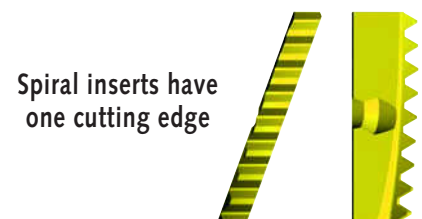
Same insert for internal and external thread

H63 Toolholder



Ordering Code	Insert size A	D	D1	L	No. of Insert	Screw	Key
SRH63-9	38	63	22	50	9	S63	K40

H63 Threading Inserts



ISO

Pitch mm	Ordering Code	Thread Size
1.5	H63 1.5 ISO	$\geq M70$
2.0	H63 2.0 ISO	$\geq M70$
3.0	H63 3.0 ISO	$\geq M75$
4.0	H63 4.0 ISO	$\geq M75$

For internal thread

UN

Pitch TPI	Ordering Code	Thread Size
16	H63 I 16 UN	≥ 2 3/4"
12	H63 I 12 UN	≥ 2 3/4"
8	H63 I 8 UN	≥ 3"
6	H63 I 6 UN	≥ 3"

For internal thread

Whitworth

Pitch TPI	Ordering Code	Thread Size
11	H63 - 11 W	Internal ≥ G 2 1/2" External ≥ G 1"

Same insert for internal and external thread

BSPT

Pitch TPI	Ordering Code	Thread Size
11	H63 - 11 BSPT	Internal ≥ 2 1/2" BSPT External ≥ 1" BSPT

Same insert for internal and external thread

NPT

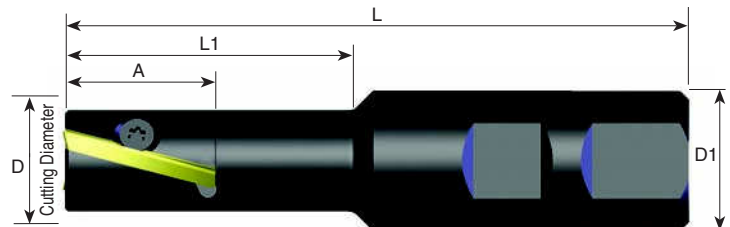
Pitch TPI	Ordering Code	Thread Size
11.5	H63 - 11.5 NPT	External ≥ 1" NPT

Same insert for internal and external thread

Spiral inserts and toolholders for finishing

- Milling a 90° shoulder with variety of corner radiuses
- Maximum depth of cut - 37 mm

H23 Toolholder

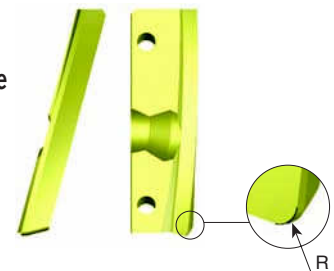


Ordering Code	Insert size A	D	D1	L	L1	No. of Insert	Screw	Key
SRH23-2	27	23	25	110	50	2	S23	K21

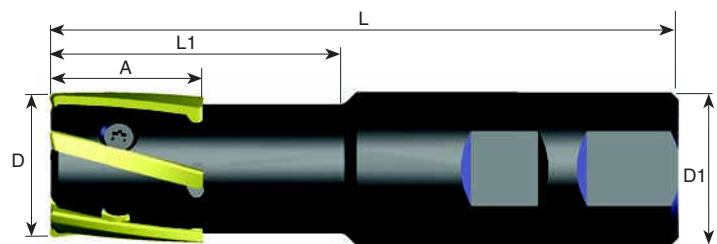
H23F Finishing Inserts

R	Ordering Code
0.2	H23 F R0.2
0.5	H23 F R0.5
1.0	H23 F R1.0

Spiral inserts have one cutting edge



H32 Toolholder

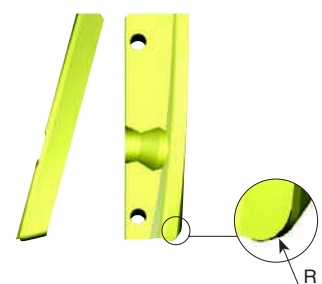


Ordering Code	Insert size A	D	D1	L	L1	No. of Insert	Screw	Key
SRH32-5	32	32	32	130	60	5	S32	K22

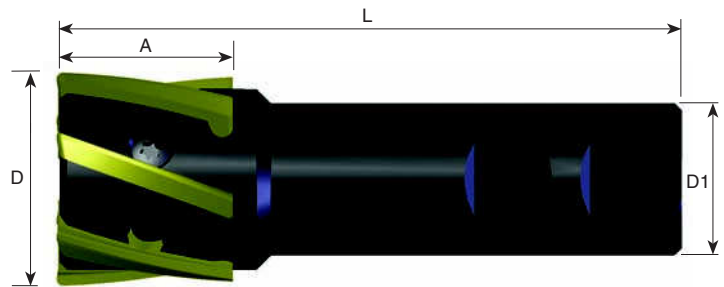
H32F Finishing Inserts

R	Ordering Code
0.2	H32 F R0.2
0.5	H32 F R0.5
1.0	H32 F R1.0

Spiral inserts have one cutting edge



H45 Toolholder

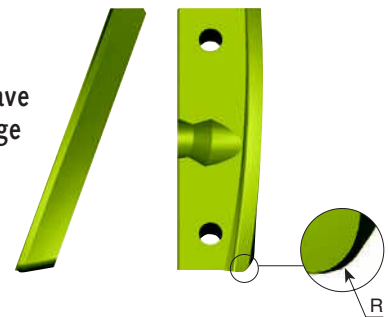


Ordering Code	Insert size A	D	D1	L	No. of Insert	Screw	Key
SRH45-6	37	45	32	130	6	S45	K40

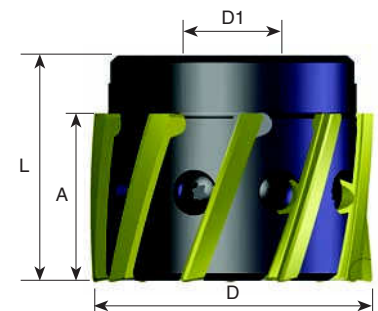
H45F Finishing Inserts

R	Ordering Code
0.2	H45 F R0.2
0.5	H45 F R0.5
1.0	H45 F R1.0
1.5	H45 F R1.5
2.0	H45 F R2.0

Spiral inserts have one cutting edge



H63 Toolholder

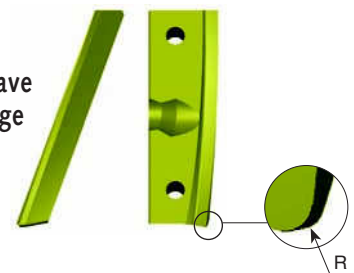


Ordering Code	Insert size A	D	D1	L	No. of Insert	Screw	Key
SRH63-9	38	63	22	50	9	S63	K40

H63F Finishing Inserts

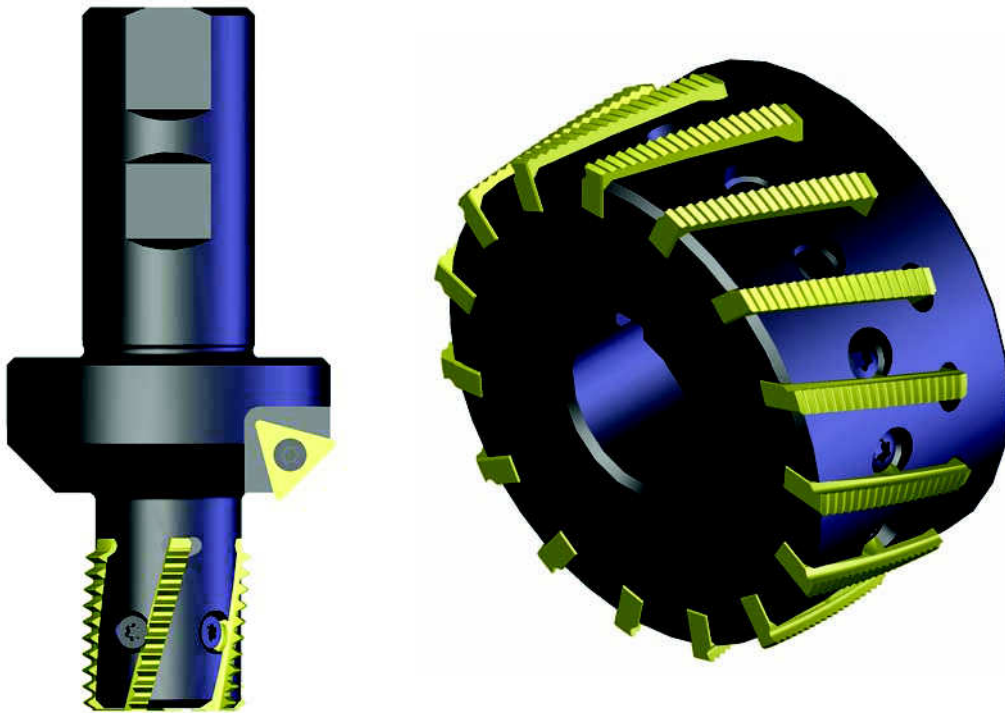
R	Ordering Code
0.2	H63 F R0.2
0.5	H63 F R0.5
1.0	H63 F R1.0
1.5	H63 F R1.5
2.0	H63 F R2.0

Spiral inserts have one cutting edge



MT7 Inserts are available in MT7 Sub-Micron Grade with Titanium Aluminium Nitride multi-layer coating (ISO K10 - K20). This is a general purpose grade, which can be used with all materials.

Special Tools



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



Mill-Thread Solid Carbide



Advantages of Mill-Thread Solid Carbide

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

- 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

MTZ - Thread Mills with internal coolant through the flutes

NEW MTQ - Thread Mills that include relieved neck for deep work pieces

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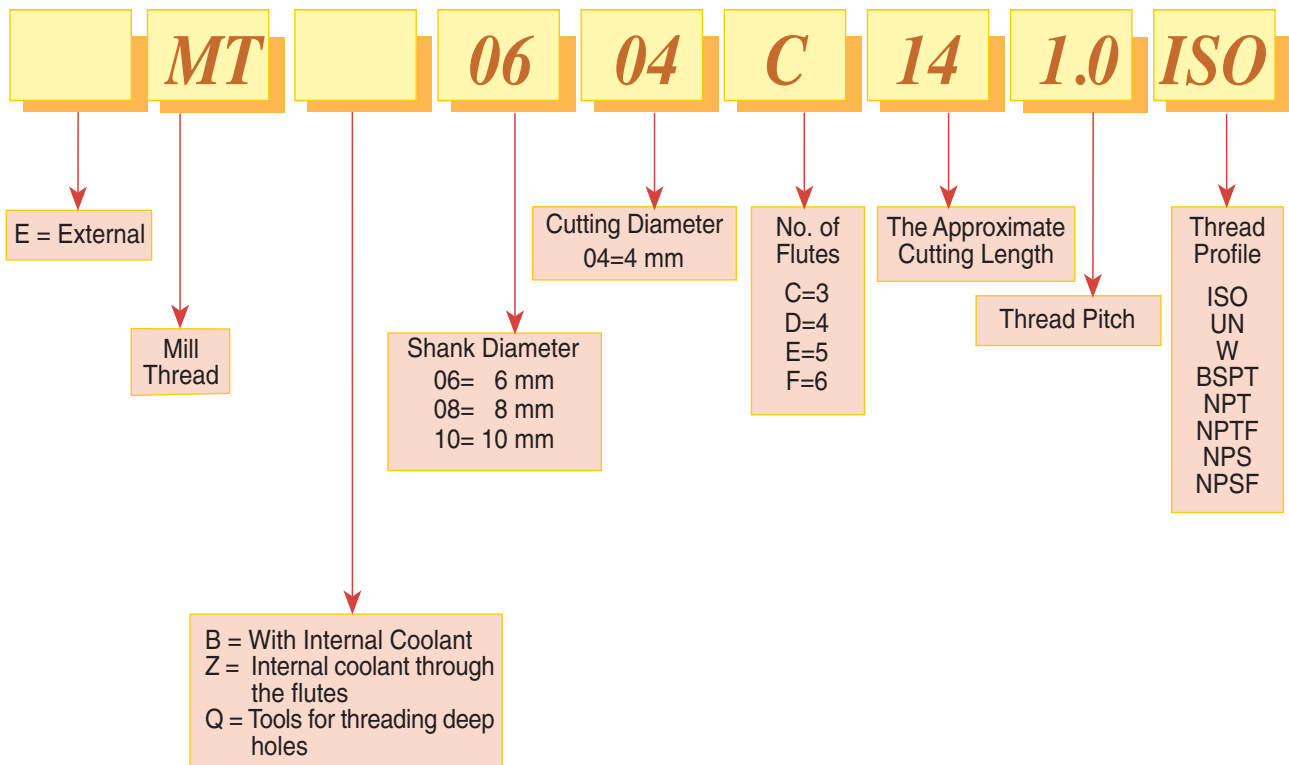
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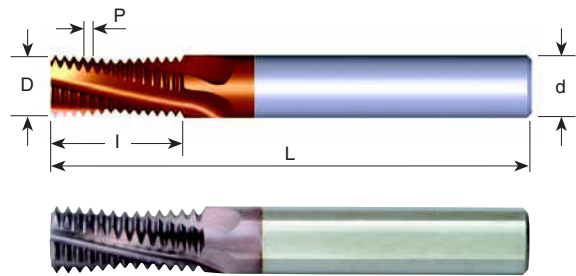
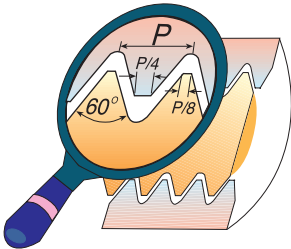
Product Identification

Mill-Thread Solid Carbide Ordering Codes



ISO

Tools for Internal Thread



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

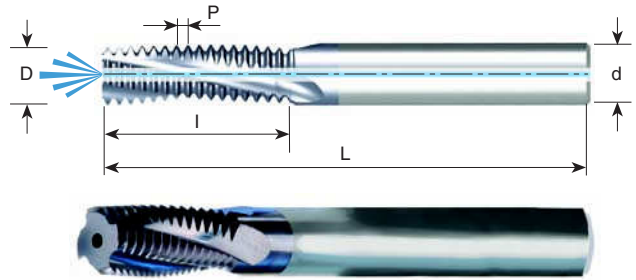
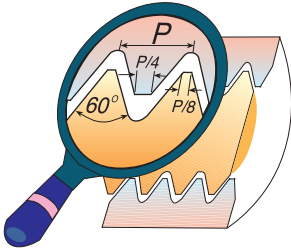
Order example: MT 1212D27 2.0 ISO MT7

For thread mills with coolant bore see following pages

For small thread mills see pages 105 & 113



ISO With internal coolant bore Tools for Internal Thread



Pitch mm	M coarse	M fine	Ordering Code	d	D	No. of Flutes	I	L
0.5		$\varnothing \geq 5$	MTB06038C10 0.5 ISO	6	3.8	3	10.3	58
0.7	M 4	$\varnothing \geq 5$	MTB06031C7 0.7 ISO	6	3.1	3	7.4	58
0.75		$\varnothing \geq 6$	MTB06045C10 0.75 ISO	6	4.5	3	10.1	58
0.75		$\varnothing \geq 12$	MTB1010D24 0.75 ISO	10	10.0	4	24.4	73
0.8	M 5	$\varnothing \geq 6$	MTB06038C9 0.8 ISO	6	3.8	3	9.2	58
1.0	M 6	$\varnothing \geq 7$	MTB06046C10 1.0 ISO	6	4.6	3	10.5	58
1.0	M 6	$\varnothing \geq 7$	MTB06046C14 1.0 ISO	6	4.6	3	14.5	58
1.0		$\varnothing \geq 9$	MTB0606C12 1.0 ISO	6	6.0	3	12.5	58
1.0		$\varnothing \geq 10$	MTB0808D16 1.0 ISO	8	8.0	4	16.5	64
1.0		$\varnothing \geq 12$	MTB1010D24 1.0 ISO	10	10.0	4	24.5	73
1.25	M 8	$\varnothing \geq 10$	MTB0606C14 1.25 ISO	6	6.0	3	14.4	58
1.25	M 8	$\varnothing \geq 10$	MTB0606C19 1.25 ISO	6	6.0	3	19.4	58
1.5	M10	$\varnothing \geq 12$	MTB08078C17 1.5 ISO	8	7.8	3	17.3	64
1.5	M10	$\varnothing \geq 12$	MTB08078C24 1.5 ISO	8	7.8	3	24.8	76
1.5		$\varnothing \geq 14$	MTB1010D21 1.5 ISO	10	10.0	4	21.8	73
1.5		$\varnothing \geq 16$	MTB1212D26 1.5 ISO	12	12.0	4	26.3	84
1.5		$\varnothing \geq 20$	MTB1616F33 1.5 ISO	16	16.0	6	33.8	105
1.75	M12	$\varnothing \geq 12$	MTB1009C20 1.75 ISO	10	9.0	3	20.1	73
1.75	M12	$\varnothing \geq 12$	MTB1009C28 1.75 ISO	10	9.0	3	28.9	73
2.0	M14	$\varnothing \geq 15$	MTB1010C27 2.0 ISO	10	10.0	3	27.0	73
2.0	M16	$\varnothing \geq 17$	MTB12118D27 2.0 ISO	12	11.8	4	27.0	84
2.0	M16	$\varnothing \geq 17$	MTB12118D39 2.0 ISO	12	11.8	4	39.0	105
2.0		$\varnothing \geq 26$	MTB2020F41 2.0 ISO	20	20.0	6	41.0	105
2.5	M20	$\varnothing \geq 22$	MTB1615E33 2.5 ISO	16	15.0	5	33.8	105
2.5	M20	$\varnothing \geq 22$	MTB1615E48 2.5 ISO	16	15.0	5	48.8	105
3.0	M24	$\varnothing \geq 25$	MTB2018D40 3.0 ISO	20	18.0	4	40.5	105
3.0	M24	$\varnothing \geq 25$	MTB2018D58 3.0 ISO	20	18.0	4	58.5	120
3.0	M27	$\varnothing \geq 27$	MTB2020D43 3.0 ISO	20	20.0	4	43.5	105

Order example: MTB 08078C17 1.5 ISO MT7

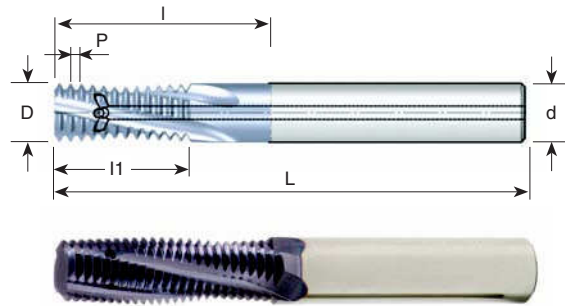
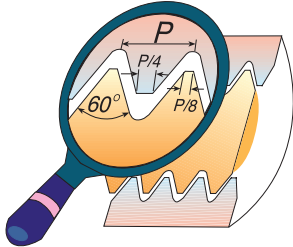
For thread mills with coolant through the flutes see next page

For small thread mills see pages 105 & 113



ISO With internal coolant through the flutes

Tools for Internal Thread



Pitch mm	M coarse	M fine	Ordering Code	d	D	No. of Flutes	l	L
1.0	M6	$\varnothing \geq 7$	MTZ06048C10 1.0 ISO	6	4.8	3	10.5	58
1.0		$\varnothing \geq 9$	MTZ0606C12 1.0 ISO	6	6.0	3	12.5	58
1.0		$\varnothing \geq 10$	MTZ0808D16 1.0 ISO	8	8.0	4	16.5	64
1.25	M8	$\varnothing \geq 10$	MTZ0606C14 1.25 ISO	6	6.0	3	14.4	58
1.25	M8	$\varnothing \geq 10$	MTZ0606C19 1.25 ISO	6	6.0	3	19.4	58
1.5	M10	$\varnothing \geq 12$	MTZ08078C17 1.5 ISO	8	7.8	3	17.3	64
1.5		$\varnothing \geq 14$	MTZ1010D21 1.5 ISO	10	10.0	4	21.8	73
1.5		$\varnothing \geq 16$	MTZ1212D26 1.5 ISO	12	12.0	4	26.3	84
1.5		$\varnothing \geq 20$	MTZ1616E33 1.5 ISO	16	16.0	5	33.8	101
1.75	M12	$\varnothing \geq 12$	MTZ1009C20 1.75 ISO	10	9.0	3	20.1	73
1.75	M12	$\varnothing \geq 12$	MTZ1009C28 1.75 ISO	10	9.0	3	28.9	73
2.0	M14	$\varnothing \geq 15$	MTZ1010C27 2.0 ISO	10	10.0	3	27.0	73
2.0	M16	$\varnothing \geq 17$	MTZ12118D27 2.0 ISO	12	11.8	4	27.0	84
2.5	M20	$\varnothing \geq 22$	MTZ1615E33 2.5 ISO	16	15.0	5	33.8	101

Order example: MTZ 08078C17 1.5 ISO MT7

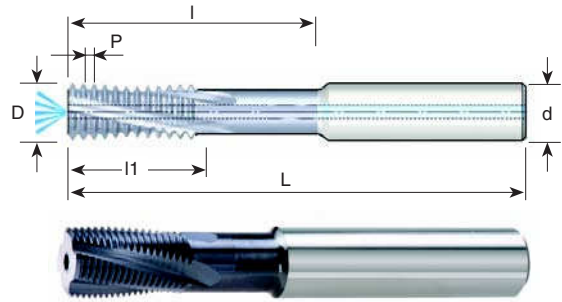
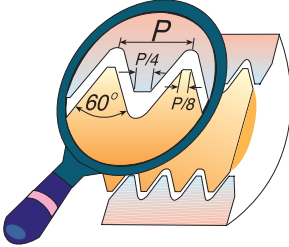
For thread mills with coolant bore for deep holes see next page

For small thread mills see pages 105 & 113



ISO With relieved neck and internal coolant bore

Tools for Internal Thread



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

Order example: MTQ 1010D30 1.5 ISO MT7

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

Carbide grade: MT7

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

Advantages

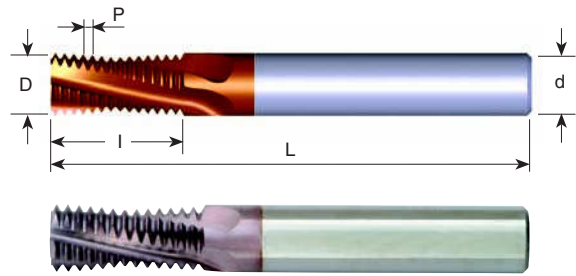
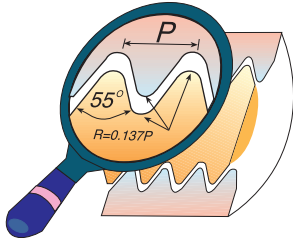
- Provides high rigidity and stability (anti-vibrations).
- Accomplishes deep threads in one pass.
- Relatively low cutting forces due to short cutting length which enables reduction of the radial in feed required.
- Threads length up to 3D.

For small thread mills see pages 105 & 113



G (55°) BSF, BSP

Same Tool for Internal and External Thread

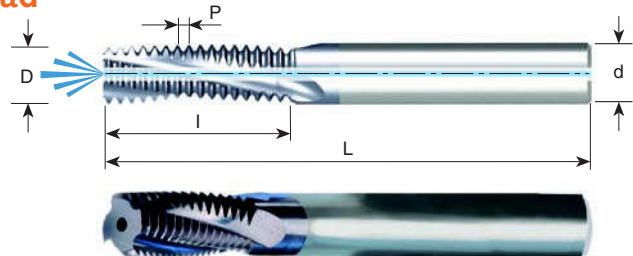


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
28	G1/8	MT0606C9 28 W	6	6.0	3	9.5	58
19	G1/4-3/8	MT0808C1419 W	8	8.0	3	14.0	64
14	G1/2-7/8	MT1212D1914 W	12	12.0	4	19.0	84
14	G1/2-7/8	MT1212D2614 W	12	12.0	4	26.3	84
11	G1-11/2	MT1212C2411 W	12	12.0	3	24.2	84
11	G1-3	MT1616D3811 W	16	16.0	4	38.1	105
11	G≥1	MT2020E4711 W	20	20.0	5	47.3	105

Order example: MT 1212D19 14 W MT7

With internal coolant bore

Same Tool for Internal and External Thread

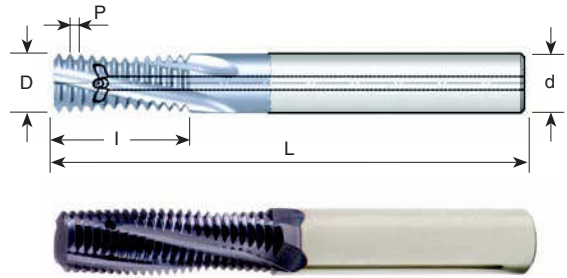
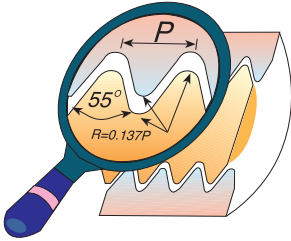


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
28	G1/8	MTB08078C14 28W	8	7.8	3	14.1	64
19	G1/4-3/8	MTB1010D16 19W	10	10.0	4	16.7	73
14	G1/2-7/8	MTB1616E26 14W	16	16.0	5	26.3	105
11	G≥1	MTB1616D38 11W	16	16.0	4	38.1	105
11	G≥1	MTB2020E47 11W	20	20.0	5	47.3	105

Order example: MTB 1010D16 19 W MT7

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

Same Tool for Internal and External Thread

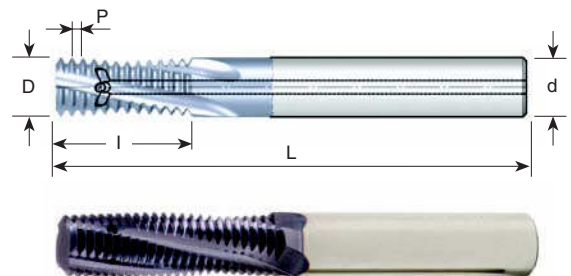
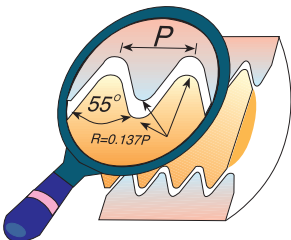


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
28	G1/8	MTZ08078C14 28W	8	7.8	3	14.1	64
19	G1/4-3/8	MTZ1010D16 19W	10	10.0	4	16.7	73
14	G1/2-7/8	MTZ1616E26 14W	16	16.0	5	26.3	101
11	G≥1	MTZ1616D38 11W	16	16.0	4	38.1	101

Order example: MTZ 08078C14 28W MT7

Whitworth BSW With internal coolant through the flutes

Same Tool for Internal and External Thread



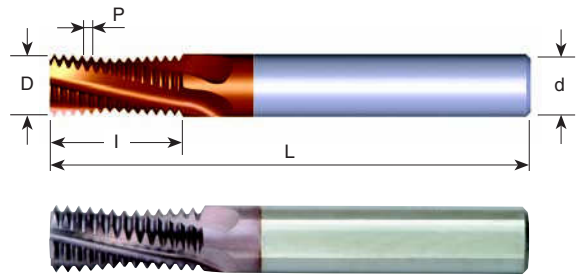
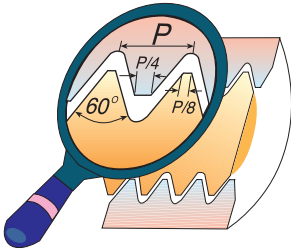
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
* 20	1/4	MTZ06046C12 20W	6	4.6	3	12.1	58
18	5/16	MTZ06053C14 18W	6	5.3	3	14.8	58
16	3/8	MTZ08068C16 16W	8	6.8	3	16.7	64
16	1/2	MTZ10092D24 16W	10	9.2	4	24.6	73
14	7/16	MTZ08078D20 14W	8	7.8	4	20.9	64
12	1/2	MTZ10086D24 12W	10	8.6	4	24.4	73
11	5/8	MTZ12109D28 11W	12	10.9	4	28.9	84

Order example: MTZ 08068C16 16 W MT7

* Cutter without coolant

UN

Tools for Internal Thread



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

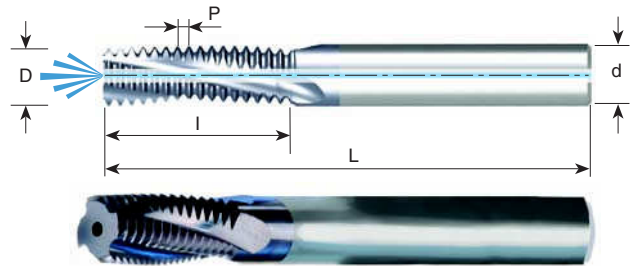
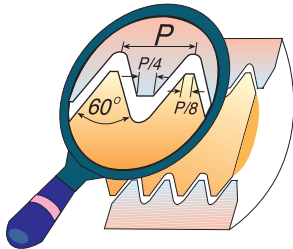
Order example: MT 1615E37 14UN MT7

For thread mills with coolant bore see following pages

For small thread mills see pages 106-107, 114



UN With internal coolant bore Tools for Internal Thread



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

Order example: MTB 1212D31 16 UN MT7

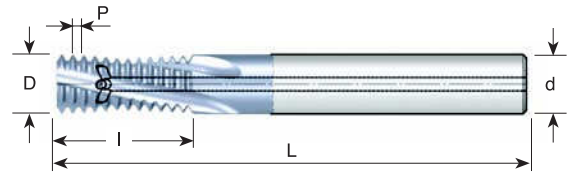
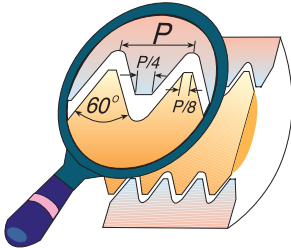
For thread mills with coolant through the flutes see next page

For small thread mills see pages 106-107, 114



UN with internal coolant through the flutes

Tools for Internal Thread



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

Order example: MTZ 0808D21 24UN MT7

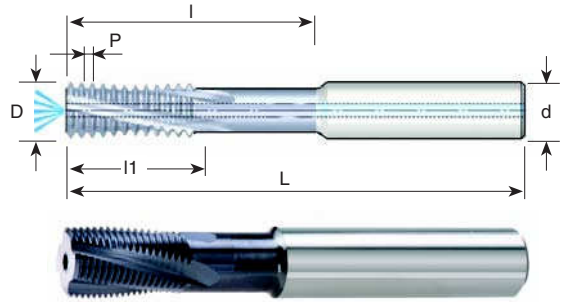
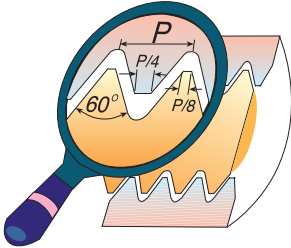
For thread mills with coolant bore for deep holes see next page

For small thread mills see pages 106-107, 114



UN With relieved neck and internal coolant bore

Tools for Internal Thread



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

Order example: MTQ 1212D35 16 UN MT7

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

Carbide grade: MT7

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

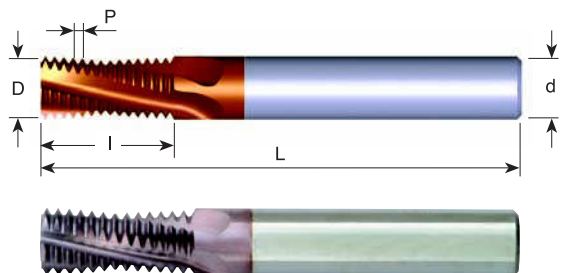
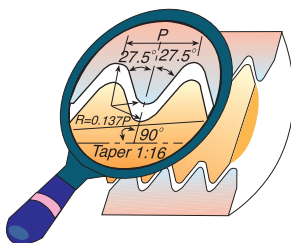
Advantages

- Provides high rigidity and stability (anti-vibrations).
- Accomplishes deep threads in one pass.
- Relatively low cutting forces due to short cutting length which enables reduction of the radial in feed required.
- Threads length up to 3D.

For small thread mills see pages 106-107, 114 

BSPT

Same Tool for Internal and External Thread



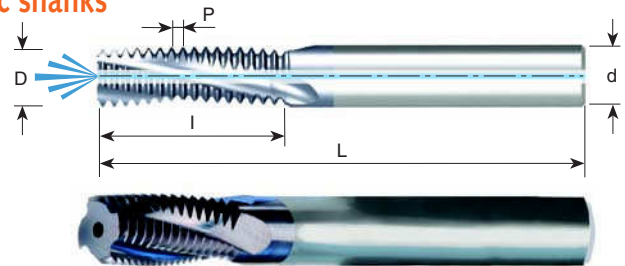
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	l	L
28	RC1/8	MT0606C9 28 BSPT	6	6.0	3	9.5	58
19	RC1/4-3/8	MT0808C14 19 BSPT	8	8.0	3	14.0	64
14	RC1/2-7/8	MT1212D19 14 BSPT	12	12.0	4	19.1	84
11	RC1-2	MT1616D28 11 BSPT	16	16.0	4	28.9	105

Order example: MT 1616D28 11 BSPT MT7

For thread mills with coolant bore see next page

BSPT With internal coolant bore

Same Tool for Internal and External Thread - Metric shanks

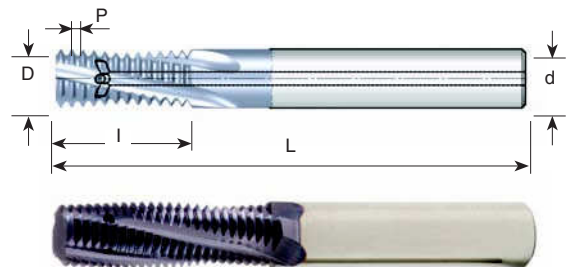
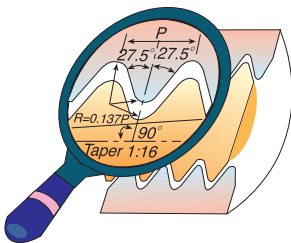


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
28	RC1/8	MTB08078C14 28 BSPT	8	7.8	3	14.1	64
19	RC1/4-3/8	MTB1010D16 19 BSPT	10	10.0	4	16.7	73
14	RC1/2-7/8	MTB1616E26 14 BSPT	16	16.0	5	26.3	105
11	RC1-2	MTB1616D28 11 BSPT	16	16.0	4	28.9	105

Order example: MTB 08078C14 28 BSPT MT7

BSPT With internal coolant through the flutes

Same Tool for Internal and External Thread

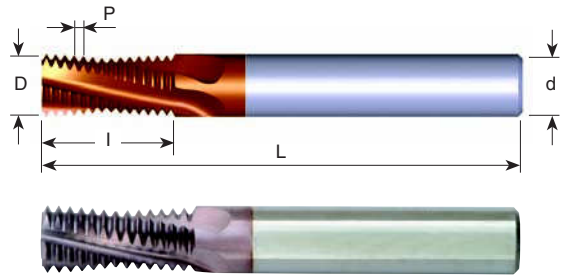
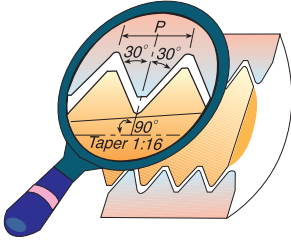


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
28	RC1/8	MTZ08078C14 28 BSPT	8	7.8	3	14.1	64
19	RC1/4-3/8	MTZ1010D16 19 BSPT	10	10.0	4	16.7	73
14	RC1/2-7/8	MTZ1616E26 14 BSPT	16	16.0	5	26.3	101
11	RC1-2	MTZ1616D28 11 BSPT	16	16.0	4	28.9	101

Order example: MTZ 1010D16 19 BSPT MT7

NPT

Same Tool for Internal and External Thread

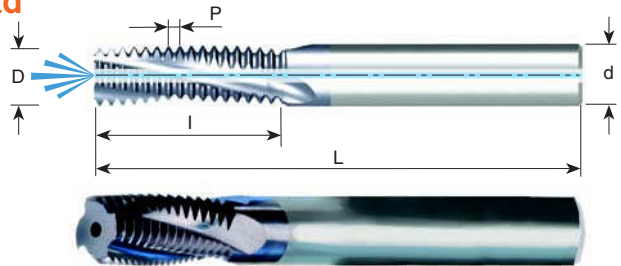


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
27	1/16 -1/8	MT0606C9 27 NPT	6	6.0	3	9.9	58
18	1/4-3/8	MT0808C14 18 NPT	8	8.0	3	14.8	64
14	1/2-3/4	MT1212D20 14 NPT	12	12.0	4	20.9	84
11.5	1-2	MT1616D27 11.5 NPT	16	16.0	4	27.6	105
8	≥ 2 1/2	MT2020D39 8 NPT	20	20.0	4	39.7	105

Order example: MT 0808C14 18 NPT MT7

NPT With internal coolant

Same Tool for Internal and External Thread



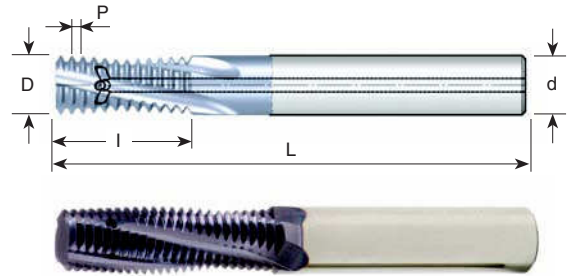
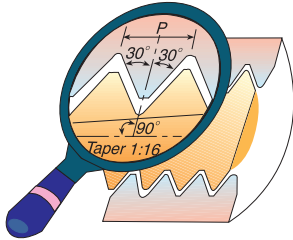
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
27	1/8	MTB08076C10 27 NPT	8	7.6	3	10.8	64
18	1/4-3/8	MTB1010D16 18 NPT	10	10.0	4	16.2	73
14	1/2-3/4	MTB16155D22 14 NPT	16	15.5	4	22.7	105
11.5	1-2	MTB2020D29 11.5 NPT	20	20.0	4	29.8	105
8	≥ 2 1/2	MTB2020D39 8 NPT	20	20.0	4	39.7	105

Order example: MTB 1010D16 18 NPT MT7

For thread mills with coolant through the flutes see next page
 For conical preparation end mills see page 100

NPT With internal coolant through the flutes

Same Tool for Internal and External Thread

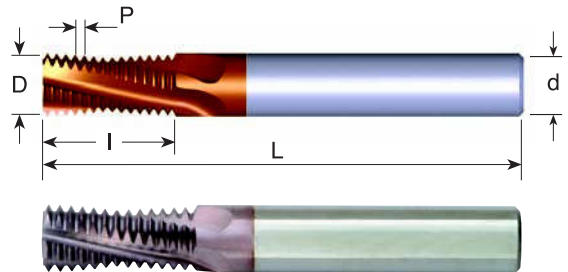
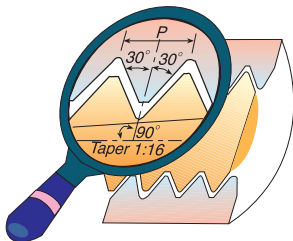


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
27	1/8	MTZ08076C10 27NPT	8	7.6	3	10.8	64
18	1/4-3/8	MTZ1010D16 18NPT	10	10.0	4	16.2	73
14	1/2-3/4	MTZ16155D22 14NPT	16	15.5	4	22.7	101

Order example: MTZ 08076C10 27 NPT MT7

NPTF

Same Tool for Internal and External Thread

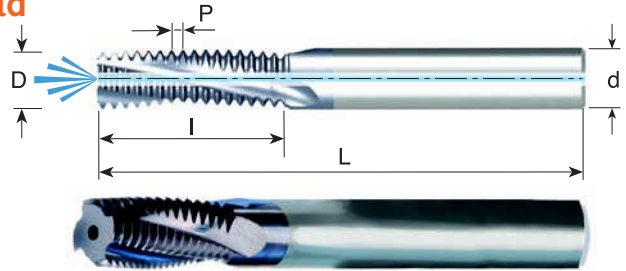


Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
27	1/16-1/8	MT0606C9 27 NPTF	6	6.0	3	9.9	58
18	1/4-3/8	MT0808C14 18 NPTF	8	8.0	3	14.8	64
14	1/2-3/4	MT1212D20 14 NPTF	12	12.0	4	20.9	84
11.5	1-2	MT1616D27 11.5 NPTF	16	16.0	4	27.6	105
8	≥2 1/2	MT2020D39 8 NPTF	20	20.0	4	39.7	105

Order example: MT 1212D20 14 NPTF MT7

For thread mills with coolant bore see next page
 For conical preparation end mills see page 100

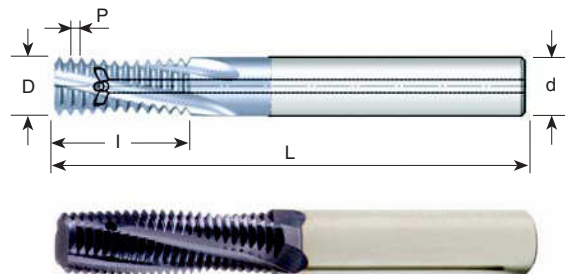
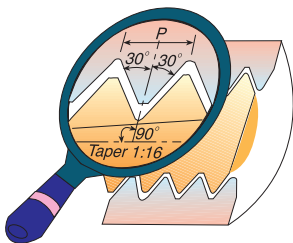
NPTF With internal coolant Same Tool for Internal and External Thread



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

Order example: MTB 16155D22 14 NPTF MT7

NPTF With internal coolant through the flutes Same Tool for Internal and External Thread



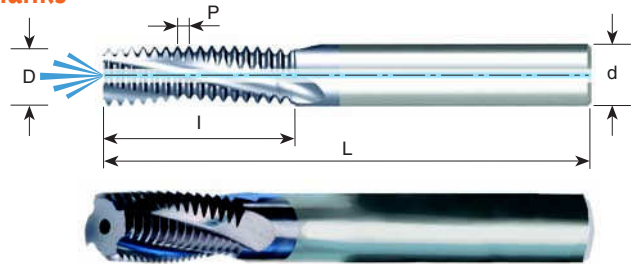
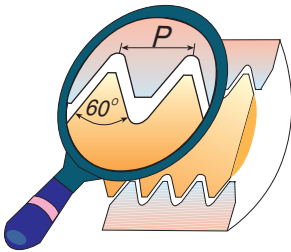
Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L
27	1/8	MTZ08076C10 27NPTF	8	7.6	3	10.8	64
18	1/4-3/8	MTZ1010D16 18NPTF	10	10.0	4	16.2	73
14	1/2-3/4	MTZ16155D22 14NPTF	16	15.5	4	22.7	101

Order example: MTZ 1010D16 18 NPTF MT7

For conical preparation end mills see page 100

NPS With internal coolant

Same Tool for Internal and External Thread - Inch Shanks

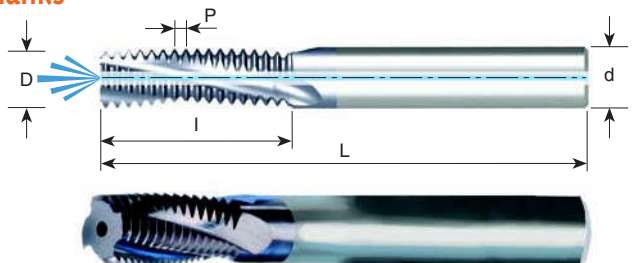
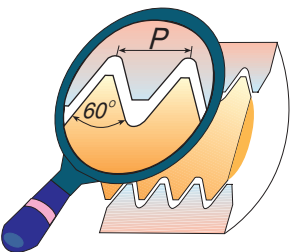


Pitch TPI	Standard	Ordering Code	d inch	D	No. of Flutes	I	L
27	1/8	MTB0312C04 27 NPS	5/16	7.6	3	10.8	63
18	1/4-3/8	MTB0375D06 18 NPS	3/8	9.5	4	16.2	76
14	1/2-3/4	MTB0625D08 14 NPS	5/8	15.5	4	22.7	101
11.5	1-2	MTB0750D11 11.5 NPS	3/4	19.0	4	29.8	101

Order example: MTB 0375D06 18 NPS MT7

NPSF With internal coolant

Same Tool for Internal and External Thread - Inch Shanks



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

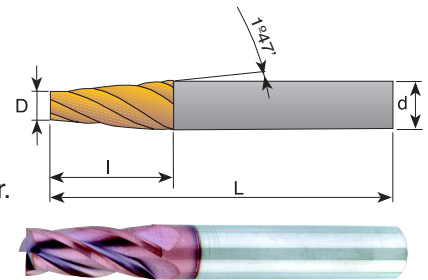
Order example: MTB 0312C04 27 NPSF MT7

Solid Carbide Tapered End Mills

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

Advantages:

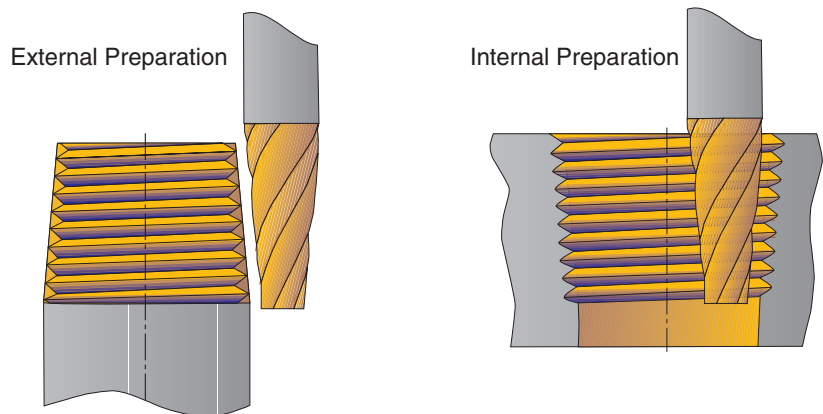
- * Increases the tool life of mill thread cutters and indexable inserts.
- * Equal and uniform load along the cutting edge of the mill thread cutter.
- * Shorter machining time during the mill thread operation, due to the tapered preparation.



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

Order example: SC1085D24 MT7

Carbide grade: MT7

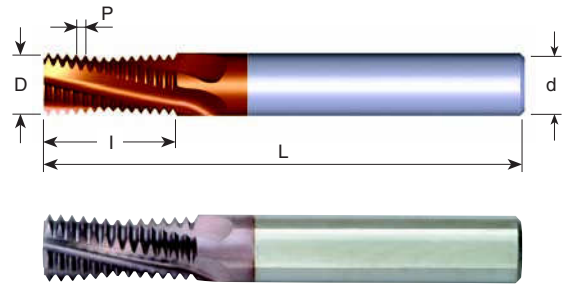
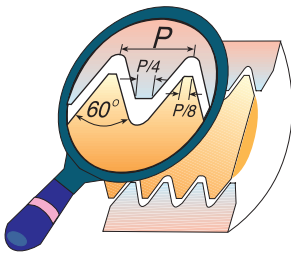


Mill - Thread Solid Carbide for External Threads

Advantages:

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

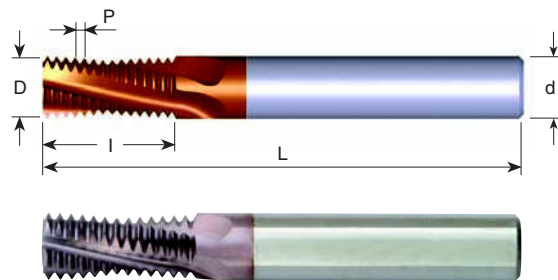
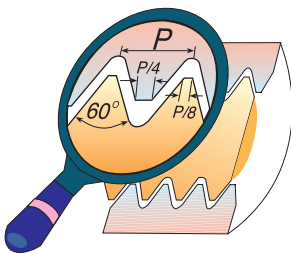
ISO



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

Order example: EMT 1010D15 1.5 ISO MT7

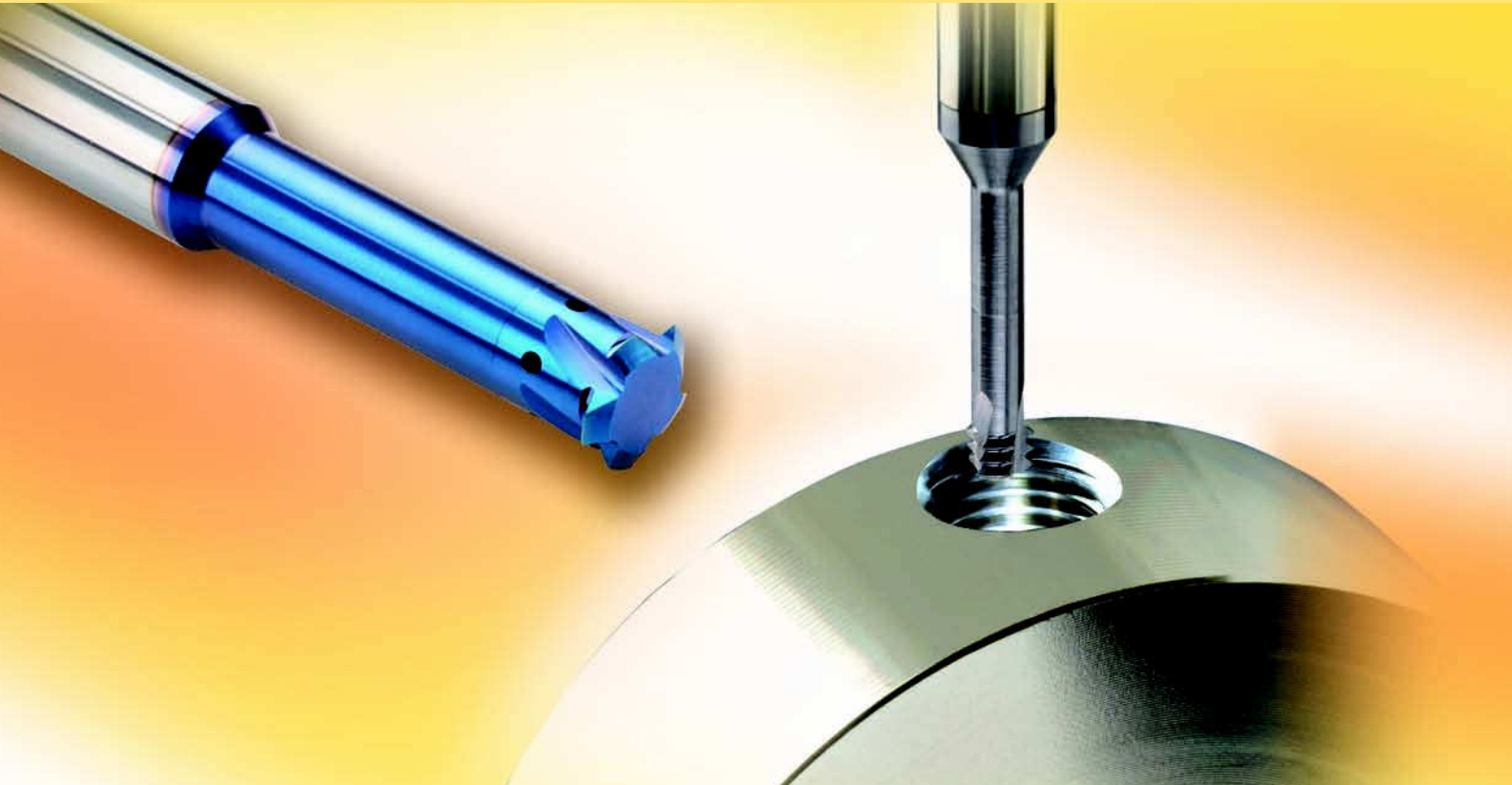
UN



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

Order example: EMT 1212D20 18 UN MT7

Mini Mill-Thread



MTS

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.

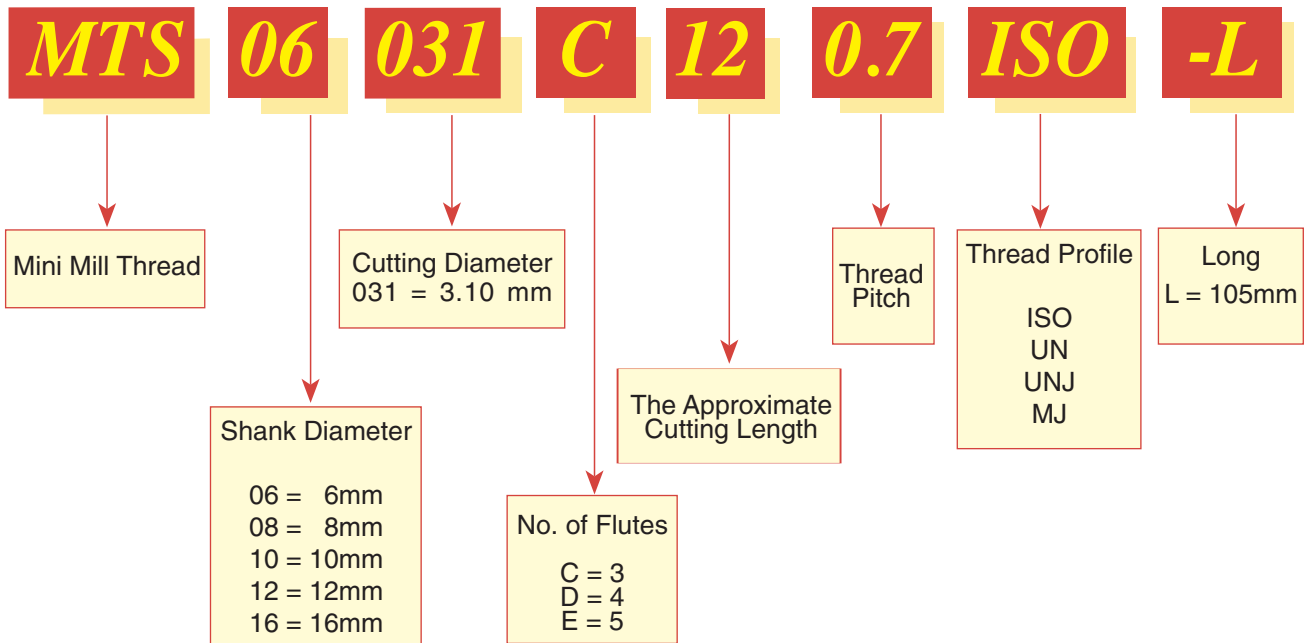
Contents:

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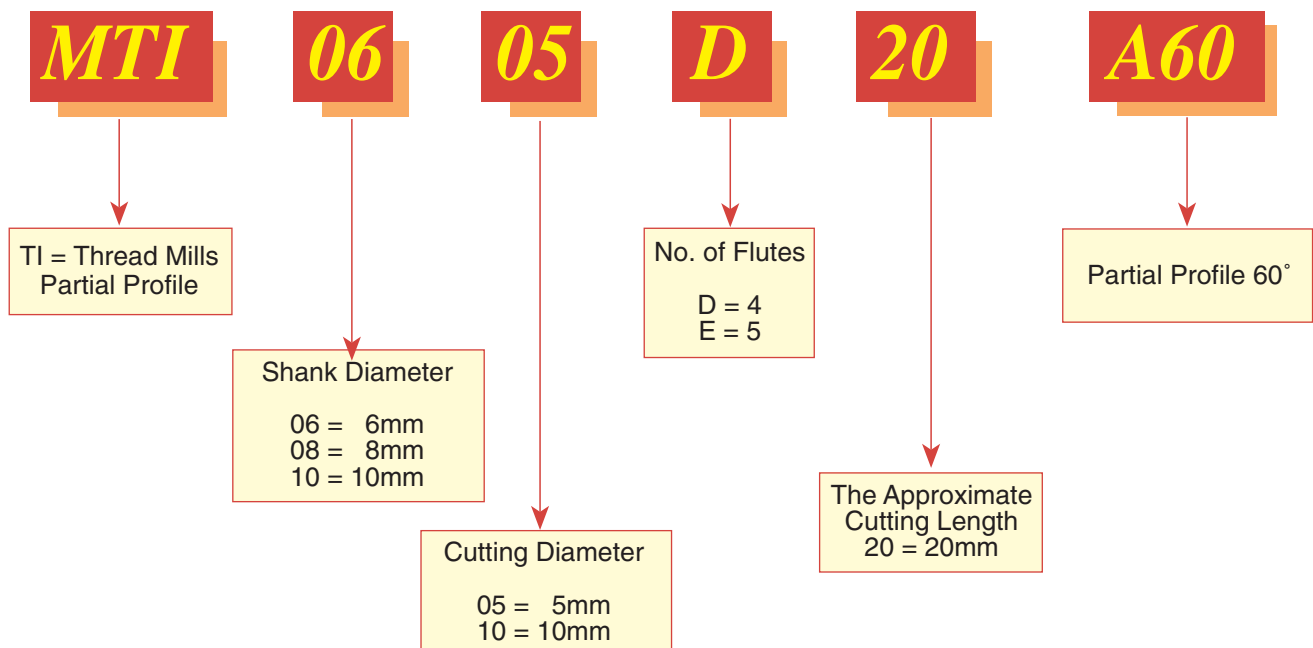
Product Identification	104
MTS	
ISO	105
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UNJ - with Internal Coolant through the flutes	108
MJ - with Internal Coolant through the flutes	108
MTI - Partial Profile 60°	109

Product Identification

Mini Mill-Thread MTS Ordering Codes

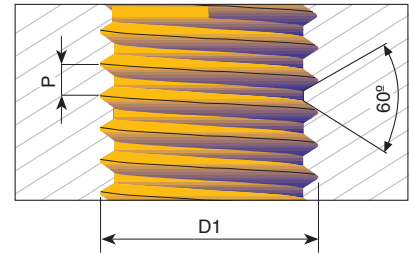
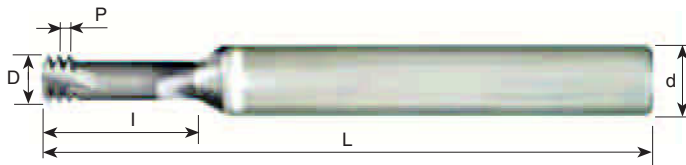


Mini Mill-Thread MTI Ordering Codes



ISO

Tools for Internal Thread



For thread depth up to 2xD1

Pitch mm	D1	Ordering Code	d	D	No. of Flutes	I	L
0.25	M1	MTS03007C2 0.25 ISO	3	0.72	3	2.5	39
0.25	M1.2	MTS03009C3 0.25 ISO	3	0.90	3	3.0	39
0.4	M2	MTS06016C4 0.4 ISO	6	1.55	3	4.5	58
0.4	M2	MTS06016C4 0.4 ISO-L	6	1.55	3	4.5	105
0.45	M2.2	MTS06017C5 0.45 ISO	6	1.65	3	5.0	58
0.45	M2.5	MTS0602C5 0.45 ISO	6	1.95	3	5.5	58
0.45	M2.5	MTS0602C5 0.45 ISO-L	6	1.95	3	5.5	105
0.5	M3	MTS06024C6 0.5 ISO	6	2.35	3	6.5	58
0.5	M3	MTS06024C6 0.5 ISO-L	6	2.35	3	6.5	105
0.6	M3.5	MTS06028C7 0.6 ISO	6	2.75	3	7.5	58
0.7	M4	MTS06031C9 0.7 ISO	6	3.10	3	9.0	58
0.75	M10	MTS0808D25 0.75 ISO	8	8.00	4	25.0	64
0.8	M5	MTS06038C12 0.8 ISO	6	3.80	3	12.5	58
1.0	M6	MTS06047C14 1.0 ISO	6	4.65	3	14.0	58
1.25	M8	MTS0606C18 1.25 ISO	6	5.95	3	18.0	58
1.5	M10	MTS08078C23 1.5 ISO	8	7.80	3	23.0	64
1.75	M12	MTS1009C26 1.75 ISO	10	9.00	3	26.0	73
2.0	M16	MTS12118D35 2.0 ISO	12	11.80	4	35.0	84
2.5	M20	MTS1615E43 2.5 ISO	16	15.00	5	43.0	105

For thread depth up to 3xD1

Pitch mm	D1	Ordering Code	d	D	No. of Flutes	I	L
* 0.3	M1.4	MTS03011C4 0.3 ISO	3	1.05	3	4.0	39
* 0.35	M1.6	MTS03012C5 0.35 ISO	3	1.20	3	4.8	39
* 0.4	M2	MTS03016C6 0.4 ISO	3	1.55	3	6.0	39
0.45	M2.5	MTS0602C7 0.45 ISO	6	1.95	3	7.5	58
0.5	M3	MTS06024C9 0.5 ISO	6	2.35	3	9.5	58
0.5	M3	MTS06024C9 0.5 ISO-L	6	2.35	3	9.5	105
0.6	M3.5	MTS06028C10 0.6 ISO	6	2.75	3	10.5	58
0.7	M4	MTS06031C12 0.7 ISO	6	3.10	3	12.5	58
0.7	M4	MTS06031C12 0.7 ISO-L	6	3.10	3	12.5	105
0.8	M5	MTS06038C16 0.8 ISO	6	3.80	3	16.0	58
0.8	M5	MTS06038C16 0.8 ISO-L	6	3.80	3	16.0	105
1.0	M6	MTS06047C20 1.0 ISO	6	4.65	3	20.0	58
1.0	M6	MTS06047C20 1.0 ISO-L	6	4.65	3	20.0	105
1.25	M8	MTS0606C24 1.25 ISO	6	5.95	3	24.0	58

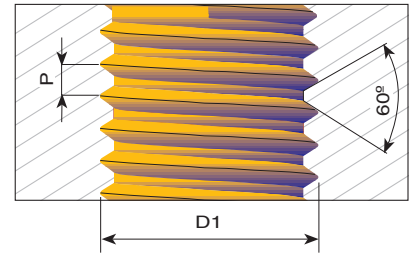
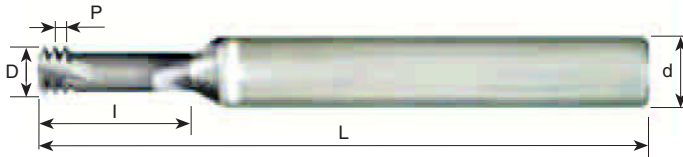
Order example: [MTS 06024C9 0.5 ISO MT7](#)

*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.

UN

Tools for Internal Thread

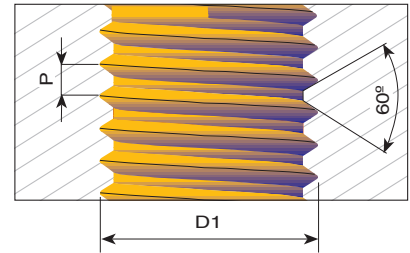
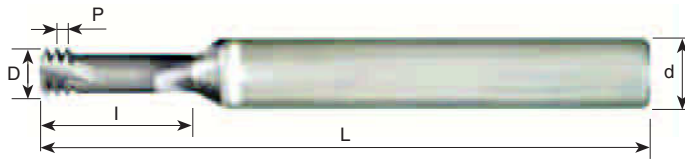


For thread depth up to 2xD1

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L
72		1	MTS06014C3 72 UN	6	1.45	3	3.7	58
64	1	2	MTS06014C3 64 UN	6	1.40	3	3.8	58
56	2	3	MTS06016C4 56 UN	6	1.65	3	4.4	58
48	3	4	MTS06019C5 48 UN	6	1.90	3	5.2	58
40	4		MTS06021C6 40 UN	6	2.10	3	6.3	58
40	4		MTS06021C6 40 UN-L	6	2.10	3	6.3	105
40	5	6	MTS06024C7 40 UN	6	2.45	3	7.0	58
36		8	MTS06033C9 36 UN	6	3.30	3	9.0	58
32	6		MTS06025C7 32 UN	6	2.55	3	7.1	58
32	6		MTS06025C7 32 UN-L	6	2.55	3	7.1	105
32	8		MTS06032C9 32 UN	6	3.20	3	9.5	58
32	8		MTS06032C9 32 UN-L	6	3.20	3	9.5	105
32		10	MTS06037C10 32 UN	6	3.70	3	10.5	58
28		12	MTS06042C11 28 UN	6	4.20	3	11.0	58
28		1/4	MTS0605C14 28 UN	6	5.00	3	14.5	58
24	10,12		MTS06035C10 24 UN	6	3.50	3	10.6	58
24		5/16, 3/8	MTS08066C17 24 UN	8	6.60	3	17.0	64
20	1/4		MTS06047C14 20 UN	6	4.75	3	14.0	58
20		7/16	MTS0808C25 20 UN	8	8.00	3	25.0	64
18	5/16		MTS0606C17 18 UN	6	6.00	3	17.0	58
18		5/8	MTS1212D35 18 UN	12	12.00	4	35.0	84
16	3/8		MTS08067C22 16 UN	8	6.70	3	22.0	64
14	7/16		MTS08077C25 14 UN	8	7.70	3	25.0	64
13	1/2		MTS10092C27 13 UN	10	9.20	3	27.5	73
12	9/16		MTS12105C31 12 UN	12	10.50	3	31.5	84
11	5/8		MTS12114C34 11 UN	12	11.40	3	34.5	84
10	3/4		MTS16144D41 10 UN	16	14.40	4	41.5	105

UN

Tools for Internal Thread



For thread depth up to $3xD1$

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	l	L
80		0	MTS06012C4 80 UN	6	1.15	3	4.0	58
* 72		1	MTS03015C6 72 UN	3	1.45	3	6.0	39
56	2	3	MTS03016C6 56 UN	3	1.65	3	6.6	39
56	2	3	MTS06016C6 56 UN	6	1.65	3	6.6	58
56	2	3	MTS06016C6 56 UN-L	6	1.65	3	6.6	105
40	4		MTS06021C8 40 UN	6	2.10	3	8.0	58
40	4		MTS06021C8 40 UN-L	6	2.10	3	8.0	105
40	5	6	MTS06024C9 40 UN	6	2.45	3	9.6	58
32	6		MTS03025C10 32 UN	3	2.55	3	10.5	39
32	6		MTS06025C10 32 UN	6	2.55	3	10.5	58
32	6		MTS06025C10 32 UN-L	6	2.55	3	10.5	105
32	8		MTS06032C12 32 UN	6	3.20	3	12.5	58
32	8		MTS06032C12 32 UN-L	6	3.20	3	12.5	105
32		10	MTS06037C15 32 UN	6	3.70	3	15.0	58
32		10	MTS06037C15 32 UN-L	6	3.70	3	15.0	105
28		1/4	MTS0605C19 28 UN	6	5.00	3	19.0	58
24		5/16, 3/8	MTS08066C24 24 UN	8	6.60	3	24.0	64
20	1/4		MTS06047C19 20 UN	6	4.75	3	19.0	58
20	1/4		MTS06047C19 20 UN-L	6	4.75	3	19.0	105
18	5/16		MTS0606C23 18 UN	6	6.00	3	23.0	58

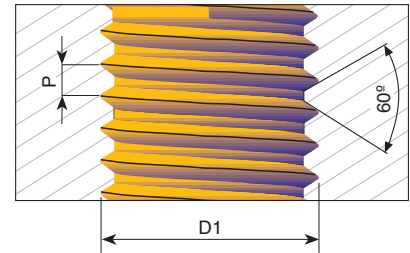
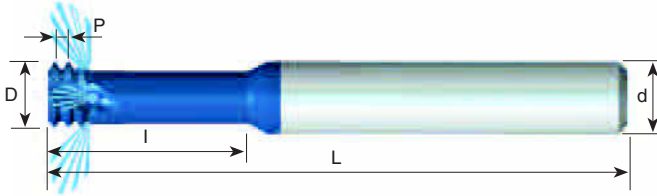
Order example: MTS 0605C19 28 UN MT7

*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 $2.5 \times D1$

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

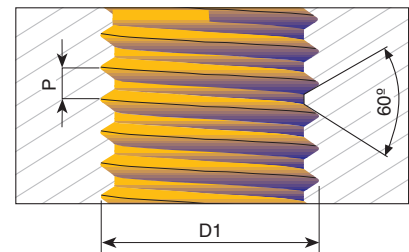
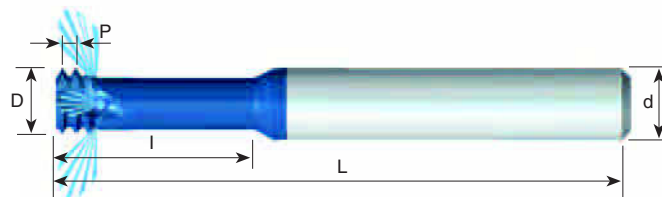
* Cutters without coolant

Order example: MTS 06049C16 20 UNJ MT8

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

MJ With internal coolant through the flutes

Tools for Internal Thread



For thread depth up to $2.5 \times D1$

Pitch mm	D1	Ordering Code	d	D	No. of Flutes	I	L
* 0.7	MJ4	MTS06032C10 0.7 MJ	6	3.20	3	10.0	58
* 0.8	MJ5	MTS06039C12 0.8 MJ	6	3.90	3	12.5	58
* 1.0	MJ6	MTS06048C15 1.0 MJ	6	4.80	3	15.0	58
1.25	MJ8	MTS08061C20 1.25 MJ	8	6.10	3	20.0	64
1.5	MJ10	MTS0808C25 1.5 MJ	8	8.00	3	25.0	64
1.75	MJ12	MTS10092C30 1.75 MJ	10	9.20	3	30.0	73
2.0	MJ14, MJ16	MTS1010C35 2.0 MJ	10	10.00	3	35.0	73

* Cutters without coolant

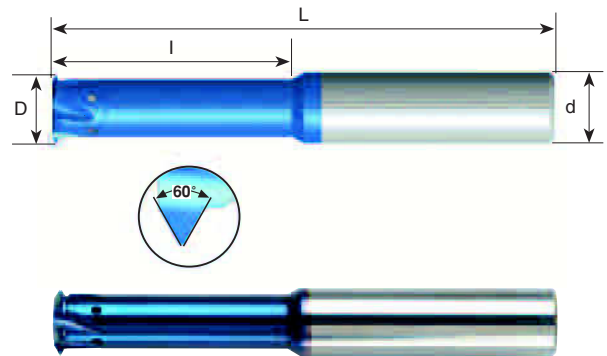
Order example: MTS 06048C15 1.0 MJ MT8

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

Partial Profile 60°

With internal coolant through the flutes

Same Tool for Internal and External Thread



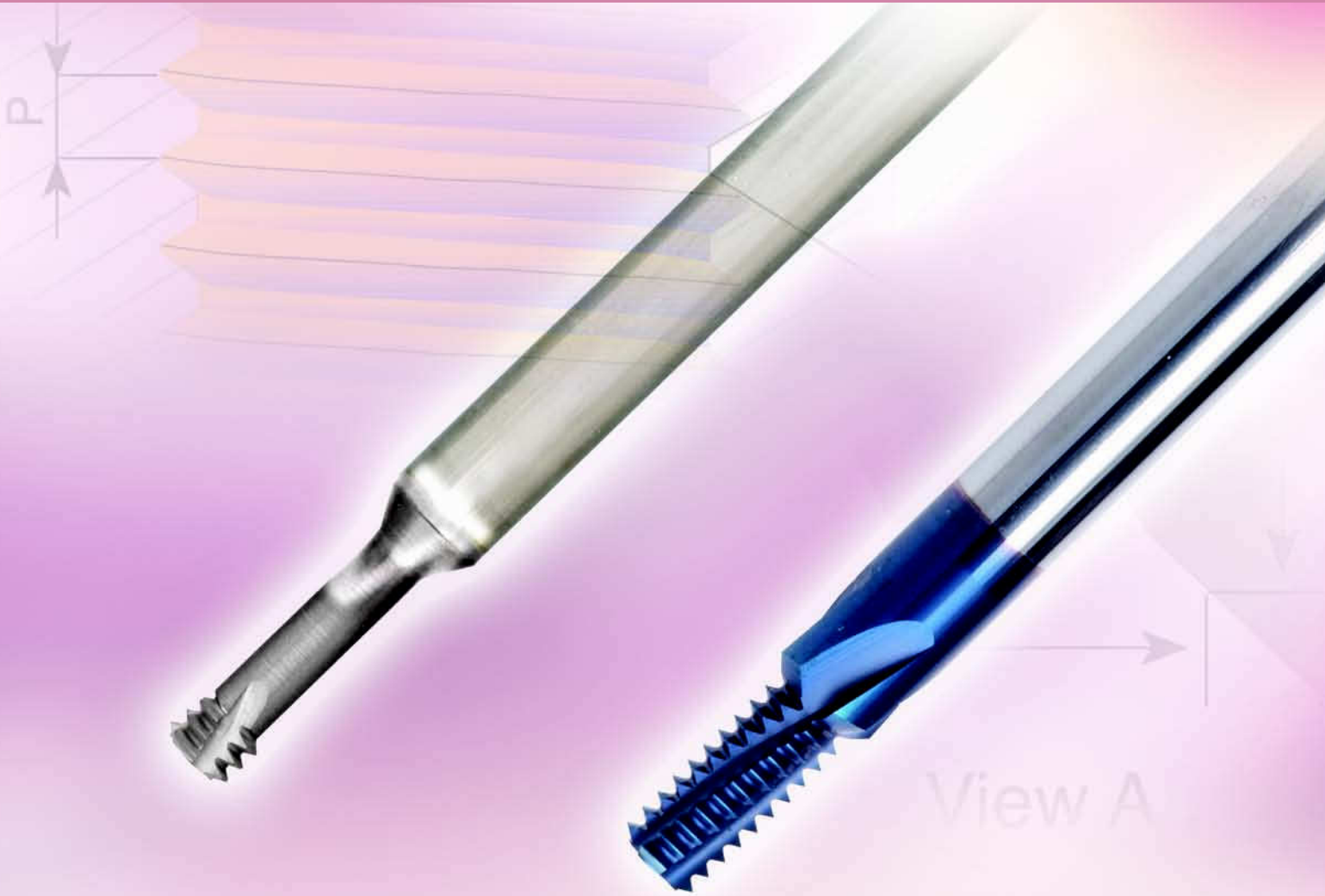
For threading deep parts

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

Order example: MTI 0808D28 A60 MT8

HARDCUT

Mill-Thread Solid Carbide for machining hard materials



Mini Mill-Thread Type

MTH Type

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.

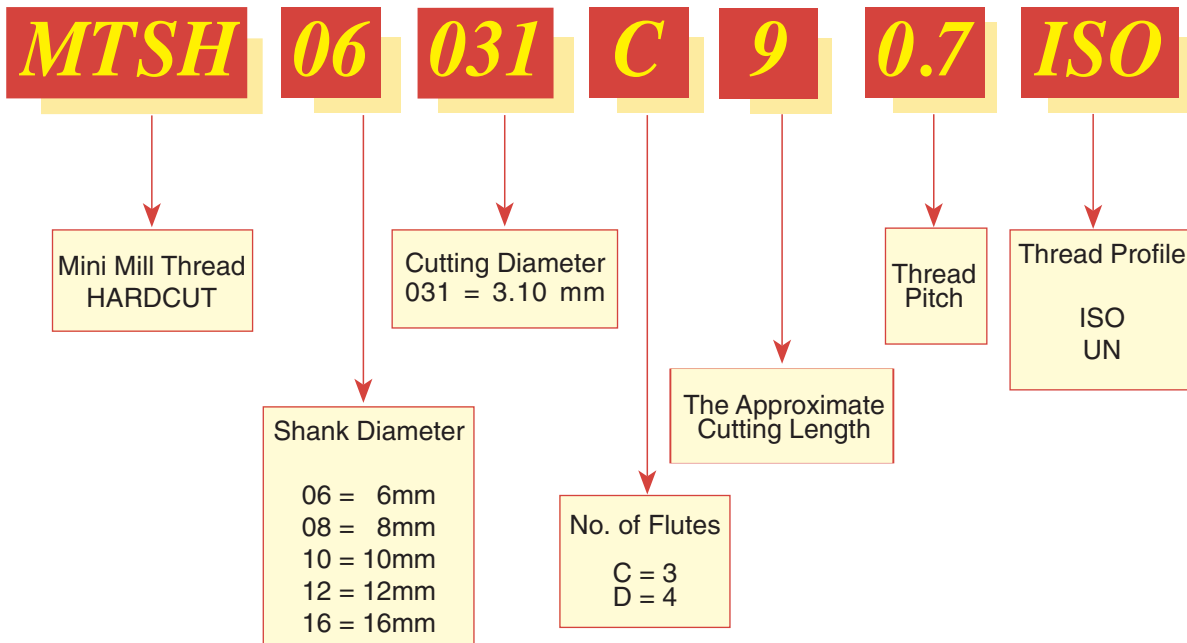
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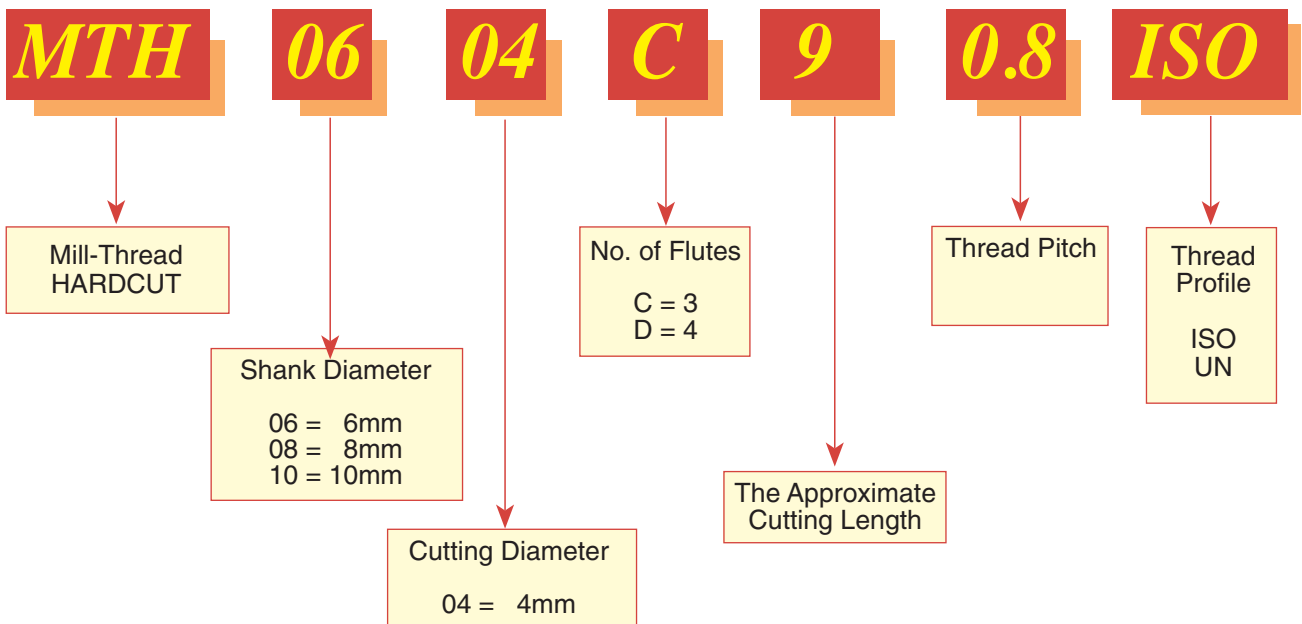
Product Identification	112
Mini Mill-Thread HARDCUT	113
ISO	113
UN	114
MTH Type	
ISO	115
UN	116

Product Identification

Mini Mill-Thread MTSH Type Ordering Codes



MTH Type Ordering Codes



HARDCUT

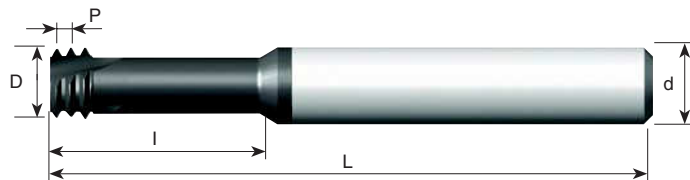
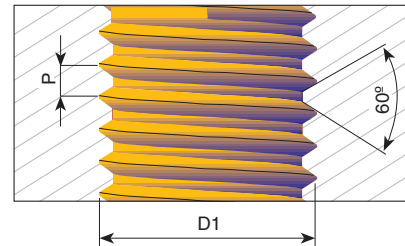
A unique line of thread milling tools designed specifically for the machining of hardened materials up to 62HRc.

These tools provide high performance, improved cut and an excellent surface finish.

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



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	I	L
0.4	M2	MTSH06016C4 0.4 ISO	6	1.55	3	4.5	58
0.45	M2.2	MTSH06017C5 0.45 ISO	6	1.65	3	5.0	58
0.45	M2.5	MTSH0602C5 0.45 ISO	6	1.95	3	5.5	58
0.5	M3	MTSH06024C6 0.5 ISO	6	2.35	3	6.5	58
0.6	M3.5	MTSH06028C7 0.6 ISO	6	2.75	3	7.5	58
0.7	M4	MTSH06031C9 0.7 ISO	6	3.10	3	9.0	58
0.8	M5	MTSH06038C12 0.8 ISO	6	3.80	3	12.5	58
1.0	M6	MTSH06047C14 1.0 ISO	6	4.65	3	14.0	58
1.25	M8	MTSH0606C18 1.25 ISO	6	5.95	3	18.0	58
1.5	M10	MTSH08078C23 1.5 ISO	8	7.80	3	23.0	64
1.75	M12	MTSH1009C26 1.75 ISO	10	9.00	3	26.0	73
2.0	M16	MTSH12118D35 2.0 ISO	12	11.80	4	35.0	84

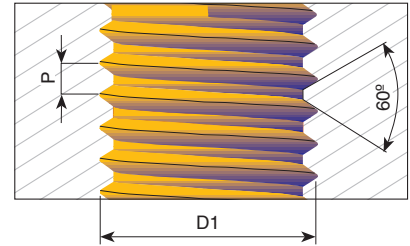
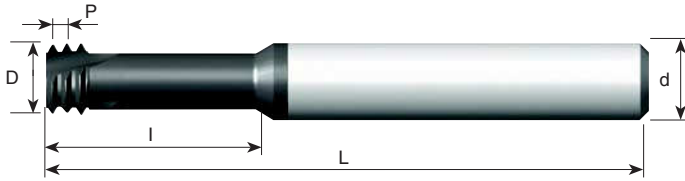
For thread depth up to 3xD1

Pitch mm	D1	Ordering Code	d	D	No. of Flutes	I	L
0.3	M1.4	MTSH03011C4 0.3 ISO	3	1.05	3	4.0	39
0.35	M1.6	MTSH03012C5 0.35 ISO	3	1.20	3	4.8	39
0.4	M2	MTSH03016C6 0.4 ISO	3	1.55	3	6.0	39
0.45	M2.5	MTSH0602C7 0.45 ISO	6	1.95	3	7.5	58
0.5	M3	MTSH06024C9 0.5 ISO	6	2.35	3	9.5	58
0.7	M4	MTSH06031C12 0.7 ISO	6	3.10	3	12.5	58
0.8	M5	MTSH06038C16 0.8 ISO	6	3.80	3	16.0	58
1.0	M6	MTSH06047C20 1.0 ISO	6	4.65	3	20.0	58
1.25	M8	MTSH0606C24 1.25 ISO	6	5.95	3	24.0	58

Order example: MTSH 06031C9 C 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	I	L
72		1	MTSH06014C3 72 UN	6	1.45	3	3.7	58
64	1	2	MTSH06014C3 64 UN	6	1.40	3	3.8	58
56	2	3	MTSH06016C4 56 UN	6	1.65	3	4.4	58
48	3	4	MTSH06019C5 48 UN	6	1.90	3	5.2	58
40	4		MTSH06021C6 40 UN	6	2.10	3	6.3	58
40	5	6	MTSH06024C7 40 UN	6	2.45	3	7.0	58
36		8	MTSH06033C9 36 UN	6	3.30	3	9.0	58
32	6		MTSH06025C7 32 UN	6	2.55	3	7.1	58
32	8		MTSH06032C9 32 UN	6	3.20	3	9.5	58
32		10	MTSH06037C10 32 UN	6	3.70	3	10.5	58
28		12	MTSH06042C11 28 UN	6	4.20	3	11.0	58
28		1/4	MTSH0605C14 28 UN	6	5.00	3	14.5	58
24	10,12		MTSH06035C10 24 UN	6	3.50	3	10.6	58
24		5/16, 3/8	MTSH08066C17 24 UN	8	6.60	3	17.0	64
20	1/4		MTSH06047C14 20 UN	6	4.75	3	14.0	58
20		7/16	MTSH0808C25 20 UN	8	8.00	3	25.0	64
18	5/16		MTSH0606C17 18 UN	6	6.00	3	17.0	58
18		5/8	MTSH1212D35 18 UN	12	12.00	4	35.0	84
16	3/8		MTSH08067C22 16 UN	8	6.70	3	22.0	64
14	7/16		MTSH08077C25 14 UN	8	7.70	3	25.0	64
13	1/2		MTSH10092C27 13 UN	10	9.20	3	27.5	73
12	9/16		MTSH12105C31 12 UN	12	10.50	3	31.5	84
11	5/8		MTSH12114C34 11 UN	12	11.40	3	34.5	84

For thread depth up to 3xD1

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	I	L
80		0	MTSH06012C4 80 UN	6	1.15	3	4.0	58
72		1	MTSH03015C6 72 UN	3	1.45	3	6.0	39
56	2	3	MTSH06016C6 56 UN	6	1.65	3	6.6	58
40	4		MTSH06021C8 40 UN	6	2.10	3	8.0	58
40	5	6	MTSH06024C9 40 UN	6	2.45	3	9.6	58
32	6		MTSH06025C10 32 UN	6	2.55	3	10.5	58
32	8		MTSH06032C12 32 UN	6	3.20	3	12.5	58
32		10	MTSH06037C15 32 UN	6	3.70	3	15.0	58
28		1/4	MTSH0605C19 28 UN	6	5.00	3	19.0	58
24		5/16, 3/8	MTSH08066C24 24 UN	8	6.60	3	24.0	64
20	1/4		MTSH06047C19 20 UN	6	4.75	3	19.0	58
18	5/16		MTSH0606C23 18 UN	6	6.00	3	23.0	58

Order example: MTSH 06047C14 20 UN MT9

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

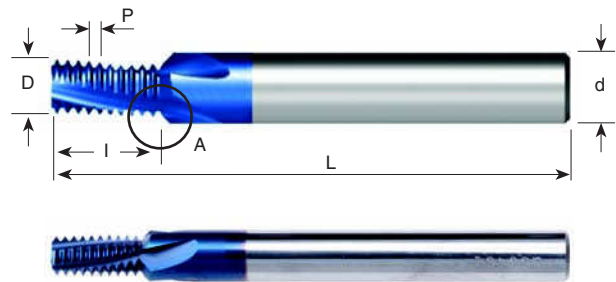
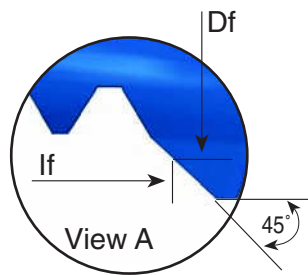
The tools provide the possibility to machine materials with a higher tensile strength and hardness using relatively high cutting data.

Advantages

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

ISO

Tools for Internal Thread

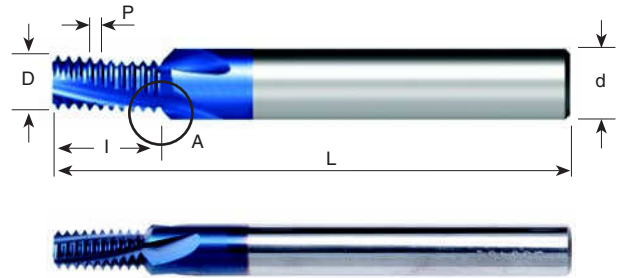
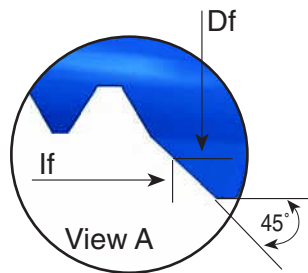


Pitch mm	M coarse	M fine	Ordering Code	d	D	Df	No. of Flutes	I	lf	L
0.5	M3	$\varnothing \geq 4$	MTH06024C5 0.5 ISO	6	2.4	3.6	3	5.3	5.9	58
0.7	M4	$\varnothing \geq 5$	MTH06031C7 0.7 ISO	6	3.1	4.3	3	7.4	8.0	58
0.8	M5	$\varnothing \geq 6$	MTH0604C9 0.8 ISO	6	4.0	5.2	3	9.2	9.8	58
1.0	M6	$\varnothing \geq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

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	I	lf	L
40	5	6		MTH06025C6 40 UN	6	2.5	3.7	3	6.0	6.6	58
32	6			MTH06026C5 32 UN	6	2.6	3.8	3	5.9	6.5	58
32	8			MTH06032C7 32 UN	6	3.2	4.4	3	7.5	8.1	58
32		10	12	MTH06038C9 32 UN	6	3.8	5.0	3	9.1	9.7	58
28		1/4		MTH08052D11 28 UN	8	5.2	6.8	4	11.3	12.1	64
28			7/16, 1/2	MTH12096D20 28 UN	12	9.6	11.2	4	20.4	21.2	84
24		5/16, 3/8	9/16, 5/8, 11/16	MTH08066D14 24 UN	8	6.6	8.0	4	14.3	15.0	64
20	1/4			MTH06048C12 20 UN	6	4.8	6.0	3	12.1	12.7	58
20		7/16, 1/2	3/4, 1	MTH12092D21 20 UN	12	9.2	10.8	4	21.0	21.8	84
18	5/16	9/16, 5/8	11/16	MTH08057C14 18 UN	8	5.7	7.5	3	14.8	15.7	64
16	3/8	3/4		MTH10074C16 16 UN	10	7.4	9.2	3	16.7	17.6	73
14	7/16	7/8		MTH10085D20 14 UN	10	8.5	9.9	4	20.9	21.6	73
13	1/2			MTH12094D22 13 UN	12	9.4	11.4	4	22.5	23.5	84

Order example: MTH 06048C12 20 UN MT9

Mill-Thread Technical Section



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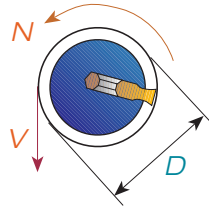
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Mill-Thread Solid Carbide Grades, Speed and Feed Selection	123
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Conversion of Cutting Speed to Rotational Speed

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

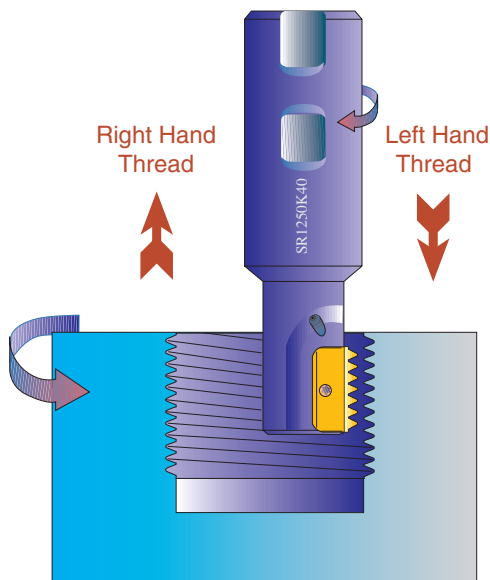
$$N = \frac{V \times 1000}{\pi \times D} = \frac{120 \times 1000}{3.14 \times 30} = 1274 \text{ RPM}$$



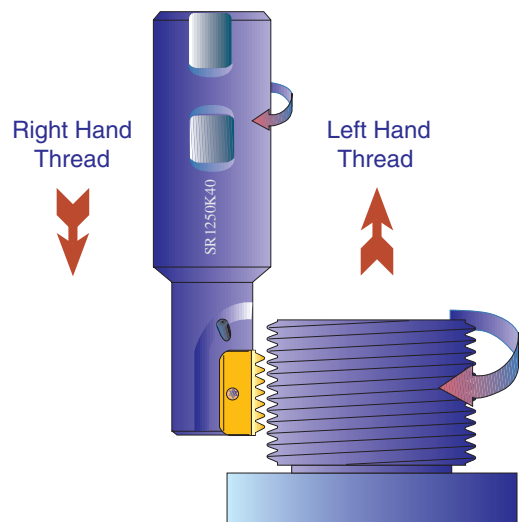
Example: $V=120 \text{ m/min}$
 $D=30 \text{ mm}$

D=Cutting diameter

Internal Thread



External Thread

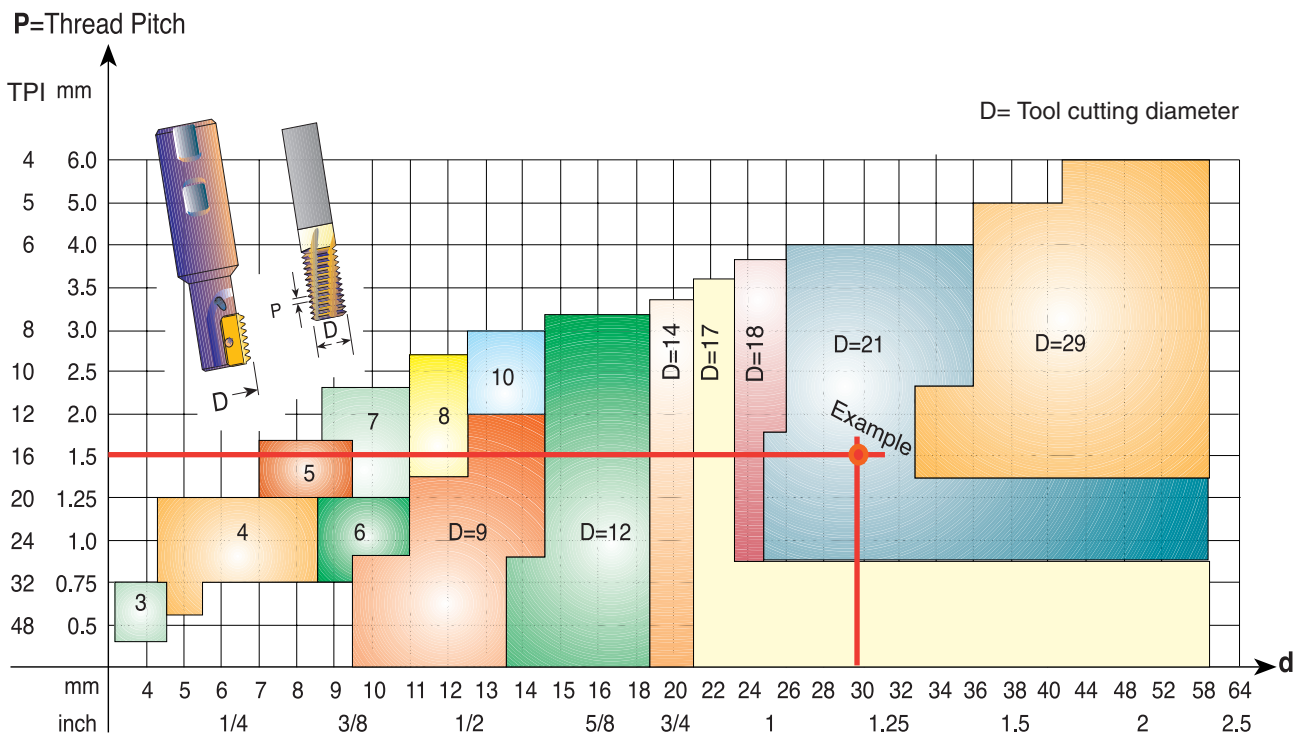


Tool Selection

For indexable and solid carbide Mill Threads

The following chart provides a fairly accurate visual selection tool for Internal Threading.

The chart is suitable for the following thread forms: ISO, UN, WHIT, NPT, NPTF, BSPT and PG.



Any tool with a small cutting diameter can produce large diameter threads.

Example: Internal thread M30 x 1.5:

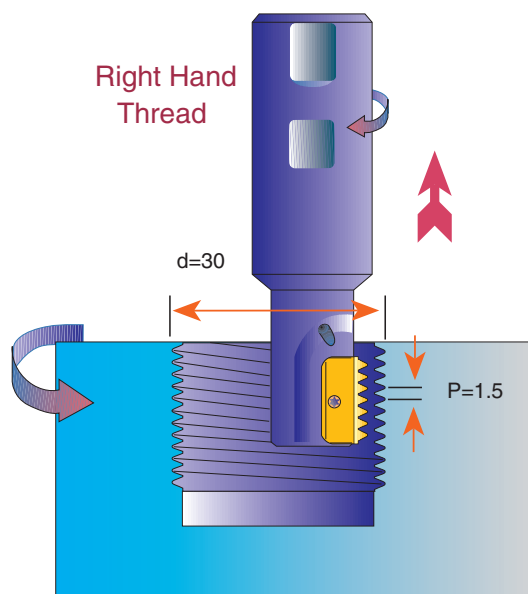
Find a Milling Tool to produce $d=30$ mm Internal right hand ISO thread with a thread pitch $P=1.5$ mm.

As can be seen from the chart above, the two red lines intersect at a selected tool with a cutting diameter of $D=21$ mm.

Chosen toolholder: SR0021H21

Insert: 21 I 1.5 ISO MT7

d=Thread Diameter



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

Carmex Mill-Thread catalogue and CNC programming Software

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

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



Example of Thread Milling CNC Program for Internal Threading

Right hand thread (climb milling) from bottom up.

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

$$A = \frac{D_0 - D}{2}$$

A = Radius of tool path
D₀ = Major thread dia.
D = Cutting dia.

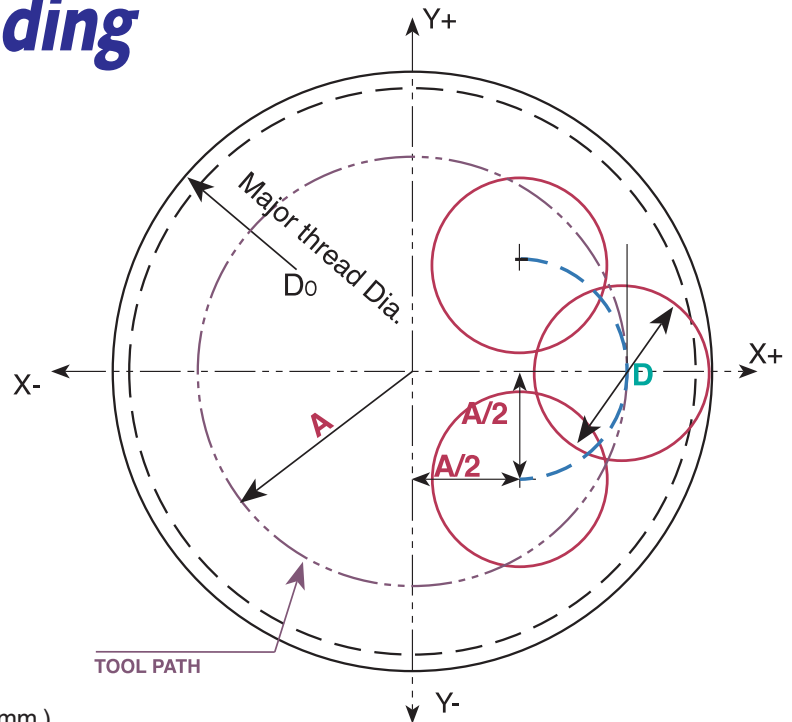
General Program

```
G90 G00 G54 G43 H1X0 Y0 Z10 S---
G00 Z- ( TO THREAD DEPTH )
G01 G91 G41 D1 X(A/2) Y-(A/2) Z0 F---
G03 X(A/2) Y(A/2) R(A/2) Z(1/8 PITCH)
G03 X0 Y0 I-(A) J0 Z(PITCH)
G03 X-(A/2) Y(A/2) R(A/2) Z(1/8 PITCH)
G01 G40 X-(A/2) Y-(A/2) Z0
G90 X0 Y0 Z0
```

Internal Thread

EXAMPLE : M 32 X 2.0 (Thread depth 18 mm)
 TOOLHOLDER : SR0021 H21 (Cutting dia. 21 mm)
 INSERT: 21 I 2.0 ISO
 $A = (32 - 21) / 2 = 5.5$

```
G90 G00 G54 G43 H1X0 Y0 Z10 S2800
G00 Z-18
G01 G91 G41X 2.75 Y-2.75 Z0 F85 D1
G03 X2.75 Y2.75 R2.75 Z0.25
G03 X0 Y0 I-5.5 J0 Z2
G03 X-2.75 Y2.75 R2.75 Z0.25
G01 G40 X-2.75 Y-2.75 Z0
G90 G0 X0 Y0 Z0
```



Mill Thread Inserts Speed and Feed Selection

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

ISO	Materials	Cutting Speed m/min MT7
P	Low and Medium Carbon Steels	115-280
	High Carbon Steels	130-200
	Alloy Steels, Treated Steels	105-180
M	Stainless Steels	130-190
	Cast Steels	150-190
K	Cast Iron	80-170
N	Non- Ferrous and Aluminum	180-340
	Synthetics, Duroplastics, Thermoplastics	115-460
S	Nickel Alloys, Titanium Alloys	25- 90

Recommended FEED RATE : 0.05 - 0.15 mm

Spiral Mill Thread Inserts Speed and Feed Selection

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

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

Recommended FEED RATE : 0.05 - 0.15 mm

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

For hard metals reduce cutting speed.

Spiral Finish Speed and Feed Selection

ISO	Materials	V _C (mm)	h _m (mm)
P	Low and Medium Carbon Steels	200-330	0.05-0.15
	High Carbon Steels	170-235	0.05-0.13
	Alloy Steels, Treated Steels	100-195	0.05-0.13
M	Stainless Steels	180-230	0.04-0.13
	Cast Steels	180-230	0.05-0.12
K	Cast Iron	200-350	0.05-0.11
N	Non- Ferrous and Aluminum	500-1100	0.05-0.15
	Synthetics, Duroplastics, Thermoplastics	400-1500	0.05-0.15
S	Nickel Alloys, Titanium Alloys	30-55	0.04-0.07

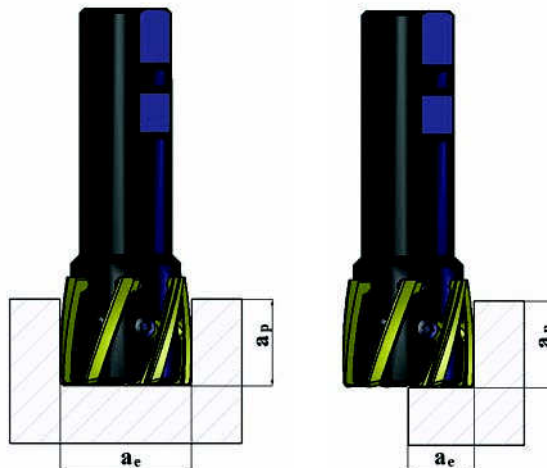
D = cutting diameter	ø23	ø32	ø45	ø63
a _p max	27	32	37	38

$$f_z = h_m \times \sqrt{\frac{D}{a_e}}$$

h_m = average chip load

f_z = tooth load

D	ø23		ø32		ø45		ø63	
h _m	0.05	0.15	0.05	0.15	0.05	0.15	0.05	0.15
a _e	f _z							
2	0.17	0.51	0.20	0.60	0.24	0.71	0.28	0.84
6	0.10	0.29	0.12	0.35	0.14	0.41	0.16	0.49
12	0.07	0.21	0.08	0.24	0.10	0.29	0.11	0.34
18	0.06	0.17	0.07	0.20	0.08	0.24	0.09	0.28
24	0.05	0.15	0.06	0.17	0.07	0.21	0.08	0.24
30	0.04	0.13	0.05	0.15	0.06	0.18	0.07	0.22
36	0.04	0.12	0.05	0.14	0.06	0.17	0.07	0.20



Mill-Thread Solid Carbide Grades, Speed and Feed Selection

MT, MTB, MTZ, EMT types

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

ISO Standard	Material	Cutting Speed m/min	Feed mm/tooth										
			Ø2	Ø3	Ø4	Ø6	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20	Ø25
P	Low and Medium Carbon Steels <0.55%C	100-250	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18
	High Carbon Steels ≥0.55%C	110-180	0.02	0.03	0.03	0.05	0.06	0.07	0.08	0.09	0.10	0.12	0.15
	Alloy Steels, Treated Steels	90-160	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10
M	Stainless Steels - Free Cutting	60-160	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.11
	Stainless Steels - Austenitic	60-120	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10
	Cast Steels	130-170	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10
K	Cast Iron	70-150	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18
N	Aluminium ≤10%Si, Copper	150-350	0.03	0.04	0.04	0.06	0.07	0.08	0.09	0.11	0.12	0.15	0.18
	Aluminium ≥10% Si	100-250	0.02	0.02	0.03	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.10
	Synthetics, Duroplastics, Thermoplastics	100-400	0.05	0.06	0.07	0.08	0.10	0.11	0.12	0.14	0.15	0.18	0.22
S	Nickel Alloys, Titanium Alloys	20- 80	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05

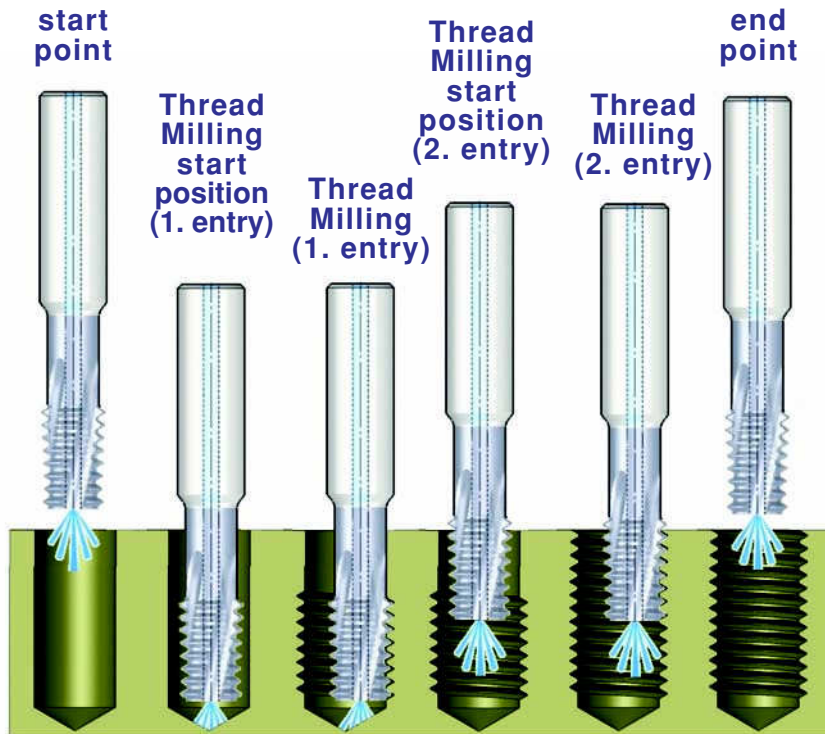
For cutters with long cutting length reduce feed rate by 40%

MTQ type

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					
			Ø10	Ø12	Ø14	Ø16	Ø20	Ø25
P	Low and Medium Carbon Steels <0.55%C	100-250	0.06	0.07	0.07	0.08	0.10	0.12
	High Carbon Steels ≥0.55%C	110-180	0.05	0.05	0.06	0.07	0.09	0.10
	Alloy Steels, Treated Steels	90-160	0.03	0.04	0.04	0.05	0.06	0.07
M	Stainless Steels - Free Cutting	60-160	0.04	0.04	0.05	0.06	0.06	0.08
	Stainless Steels - Austenitic	60- 120	0.04	0.04	0.04	0.05	0.06	0.07
	Cast Steels	130-170	0.03	0.04	0.04	0.05	0.06	0.07
K	Cast Iron	70-150	0.06	0.07	0.07	0.08	0.10	0.12
N	Aluminium ≤10%Si, Copper	150-350	0.06	0.07	0.07	0.08	0.10	0.12
	Aluminium ≥10% Si	100-250	0.03	0.04	0.04	0.05	0.06	0.07
	Synthetics, Duroplastics, Thermoplastics	100-400	0.08	0.09	0.10	0.11	0.13	0.15
S	Nickel Alloys, Titanium Alloys	20- 80	0.02	0.02	0.02	0.03	0.03	0.03

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

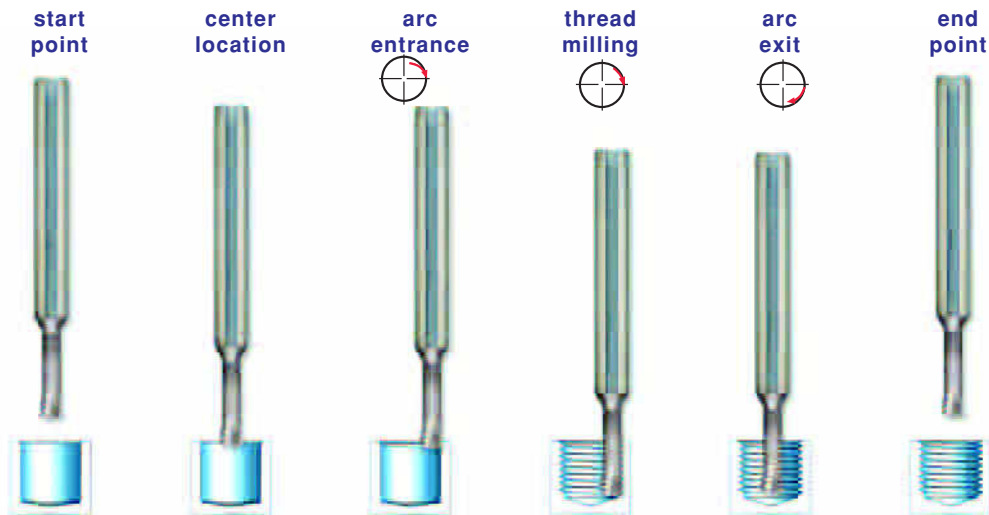


Mini Mill Thread MTS and MTI types

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



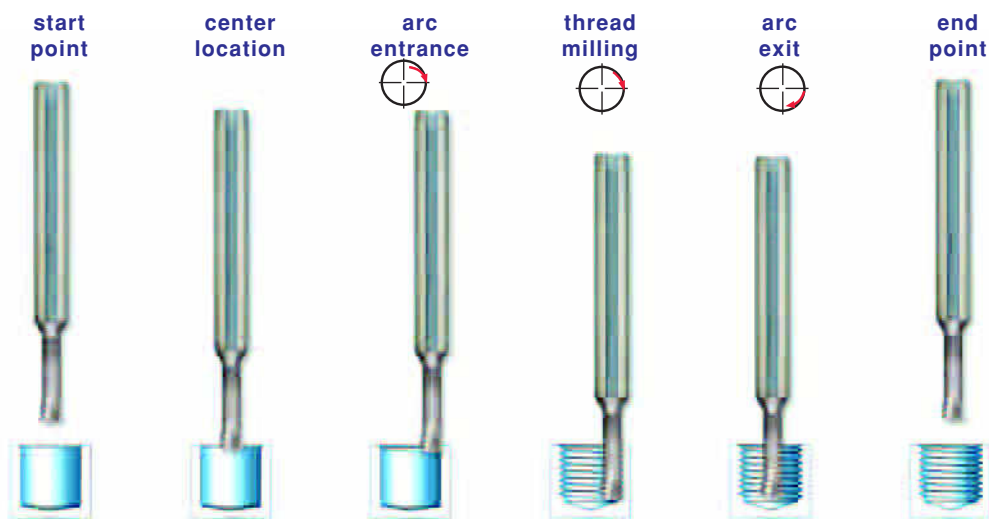
Mini Mill-Thread vs. Taps

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

Mini Mill Thread MTSH type

MT9 Sub-Micron Grade with advanced PVD triple 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	ø14	ø16
S	Nickel Alloys, Titanium Alloys and High Temp. Alloys		20-40	0.03	0.03	0.03	0.04	0.04	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08
H	Hardened Steels	45-50	60-70	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.10	0.11
		51-55	50-60	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.09	0.10
		56-62	40-50	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.08	0.09



CASE STUDY

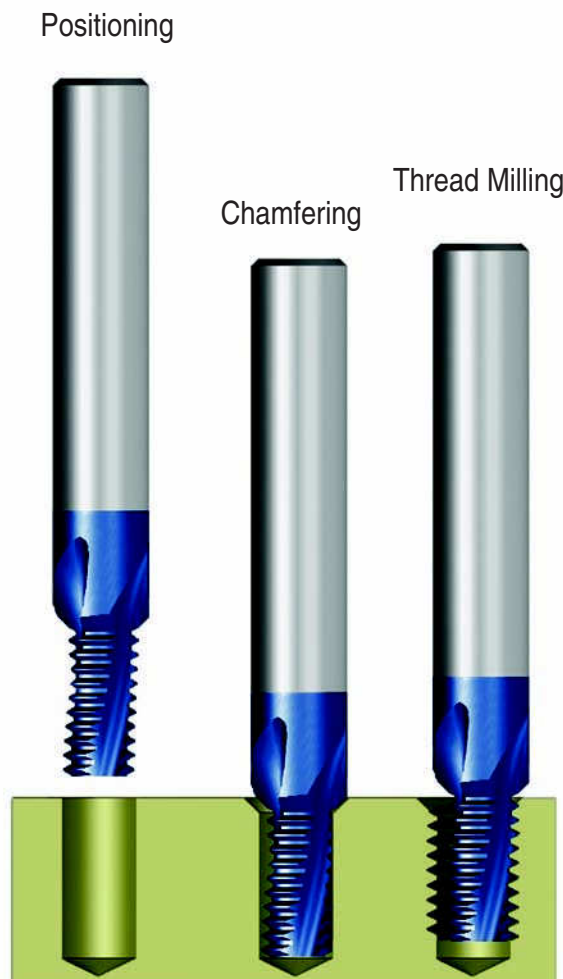
Application	Internal Thread M4 X 0.7
Thread Depth	8.0 mm
Workpiece Material	Tool Steel: D2
Hardness	60-62 (HRc)
Cutter Description	MTSH0250C35 0.7 ISO
Machining Conditions	Cutting Speed: 44 m / min Feed: 0.03 mm / tooth
Machine	Mori Seiki VN5000
Control	Fanuc
Cooling Lubricant	Emulsion
Tool Life (No. of Threads)	84

MTH type

MT9 Sub-Micron Grade with advanced PVD triple coating.

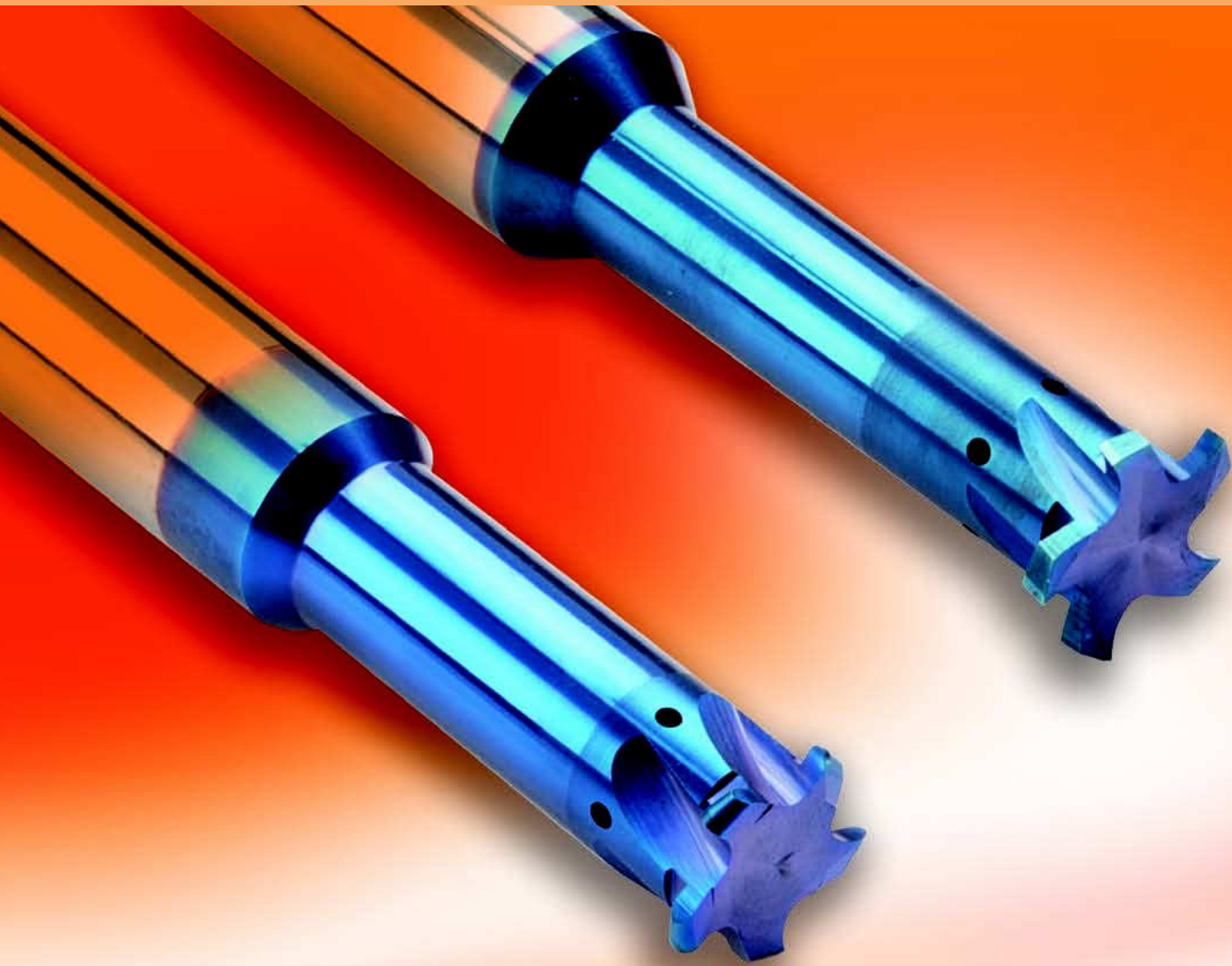
ISO Standard	Material	Hardness HRc	Cutting Speed m/min	Feed mm/tooth Cutting Diameter = D								
				Ø2.5	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10
S	Nickel Alloys, Titanium Alloys, High Temperature Alloys		20 - 50	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04
H	Hardened Steels, Cast Iron	45 - 50	70 - 80	0.02	0.03	0.03	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

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





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

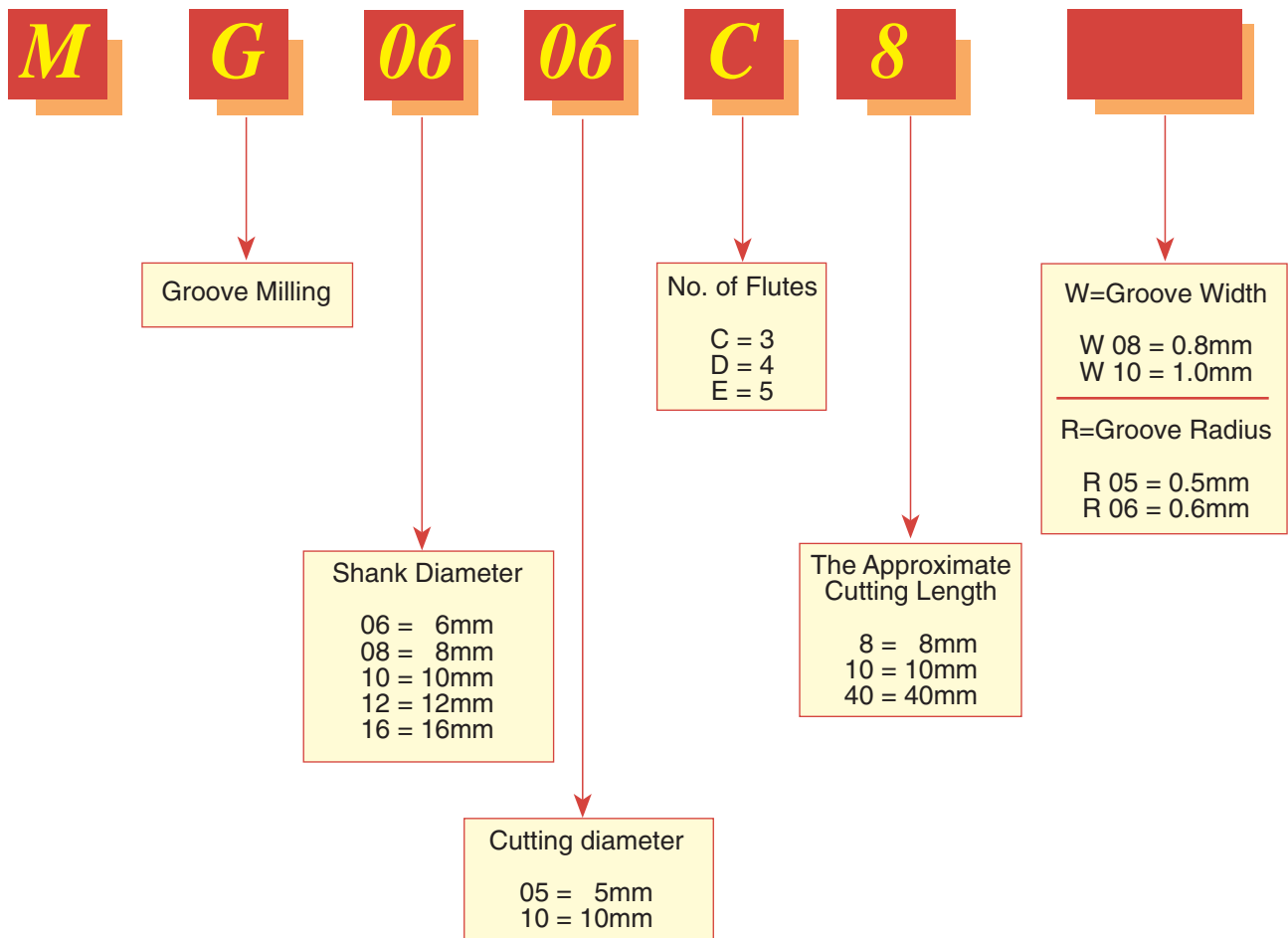
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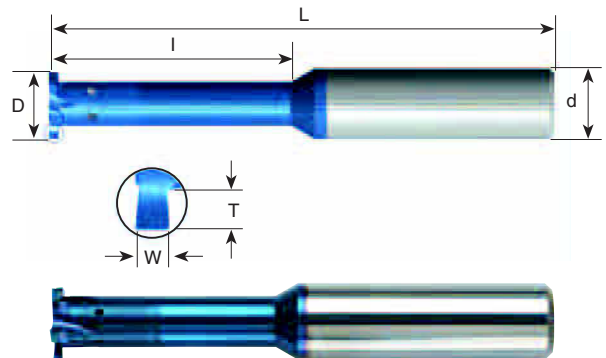
Product Identification

Groove Milling Ordering Codes



Groove Milling

With internal coolant through the flutes



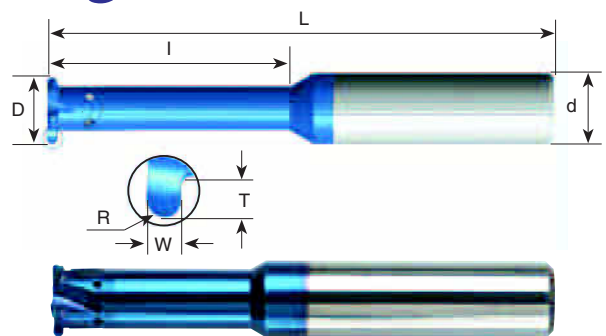
For grooving deep parts

W ± 0.02	T Max.	Groove Dia. (min)	Ordering Code	d	D	No. of Flutes	l	L
0.80	0.8	$\phi > 6$	MG0606C8 W08	6	6.0	3	8	58
1.00	1.2	$\phi \geq 8$	MG08078D10 W10	8	7.8	4	10	64
1.20	1.4	$\phi \geq 10$	MG10098D20 W12	10	9.8	4	20	73
1.40	1.8	$\phi > 16$	MG1616E30 W14	16	16.0	5	30	101
1.70	2.0	$\phi > 16$	MG1616E40 W17	16	16.0	5	40	101
1.95	2.2	$\phi > 16$	MG1616E45 W19	16	16.0	5	45	101

Order example: MG 10098D20 W12 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
0.5	1.00	0.8	$\phi > 6$	MG0606C8 R05	6	6.0	3	8	58
0.5	1.00	1.0	$\phi > 8.8$	MG10088D16 R05	10	8.8	4	16	73
0.6	1.20	1.0	$\phi > 10$	MG1010D20 R06	10	10.0	4	20	73
0.9	1.80	1.4	$\phi > 12$	MG1212D30 R09	12	12.0	4	30	84
1.0	2.00	1.6	$\phi > 16$	MG1616E40 R10	16	16.0	5	40	101
1.5	3.00	2.2	$\phi > 16$	MG1616E40 R15	16	16.0	5	40	101

Order example: MG 1010D20 R06 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

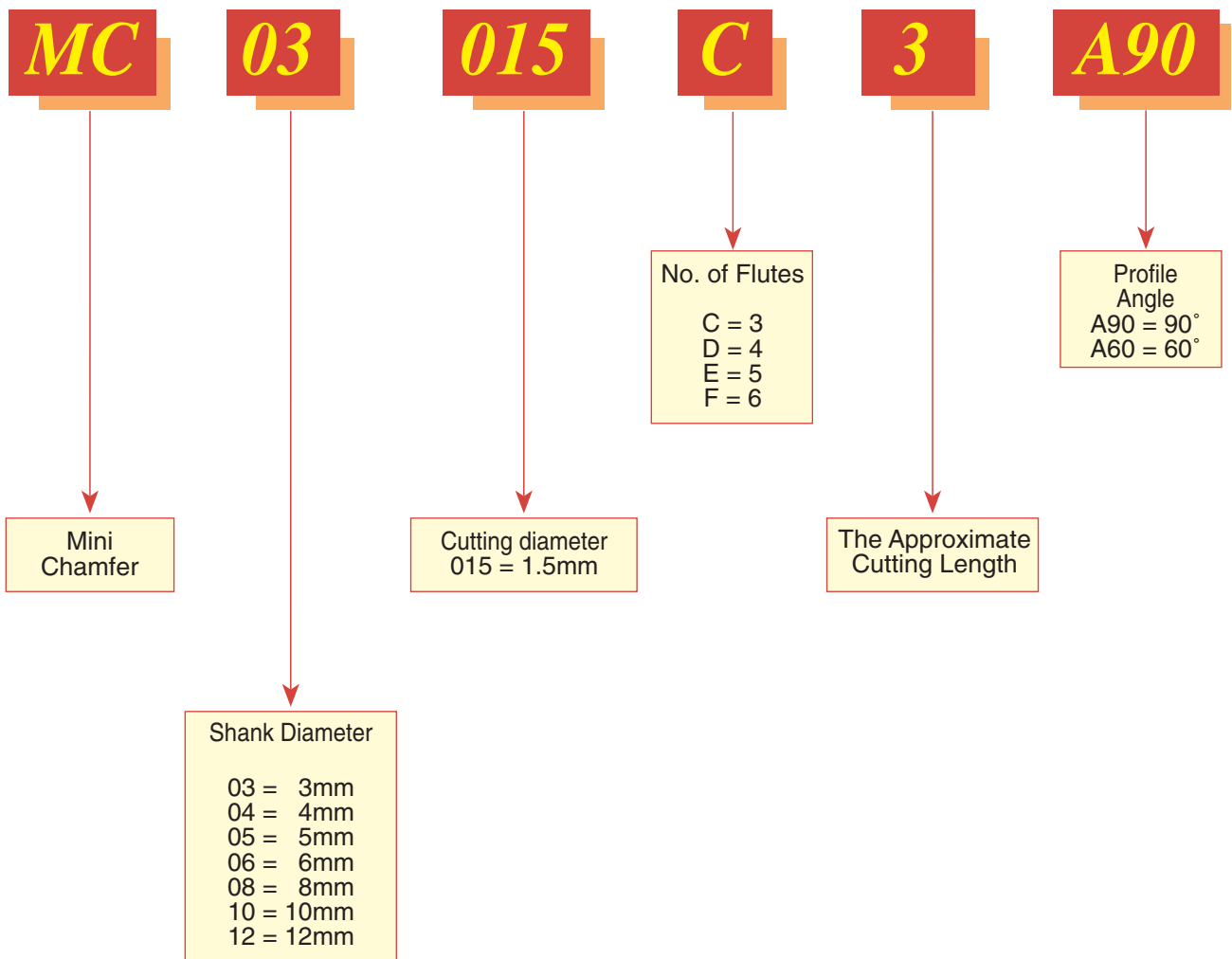
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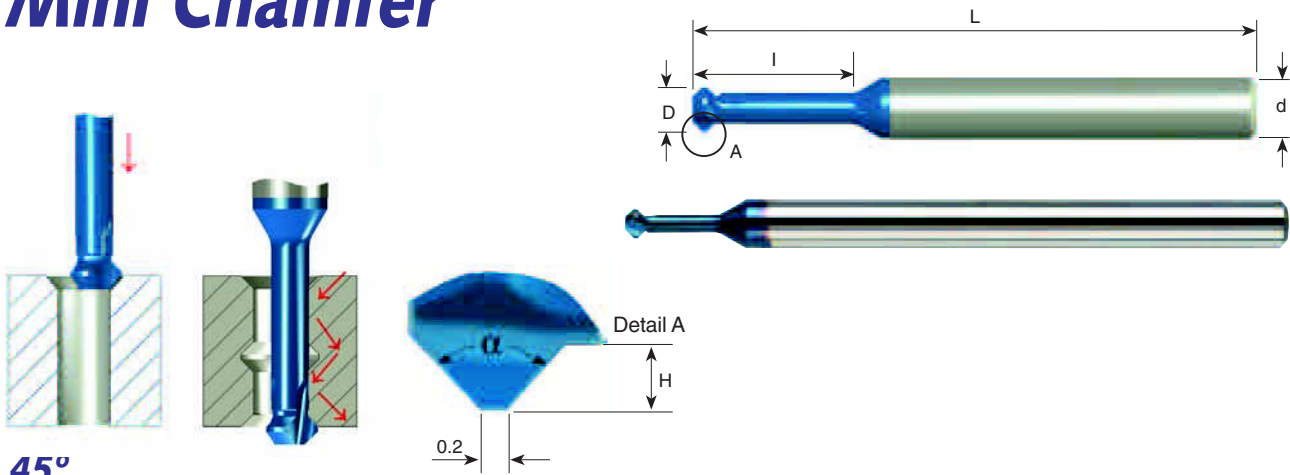
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Product Identification

Mini Chamfer Ordering Codes:



Mini Chamfer



45°

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

Long Reach 45°

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

30°

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

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



Special Solid Carbide Tools



As part of being a service-oriented company, Carmex produces specials according to customer's requirements. Special tools are supplied in short delivery times.

