



MTSH
Demonstration

MTSH Type

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

FSH Type

High productive Solid Carbide Thread-Mills with a large number of flutes for machining hard materials up to 65 HRC

MTH Type

CPT provide innovative mill thread solid carbide tools for machining:

- Hardened steels and cast iron up to 62 HRC.
- High temperature alloys.
- Titanium alloys.
- Super Alloys (Hastelloy, Inconel, Nickel Base Alloys).

- Threading from ISO M1.4 x 0.3 and 0-80UN
- Perfect solution for the Die and Mold industry
- Working at high cutting speeds
- Short machining time
- Low cutting forces thanks to the short profile

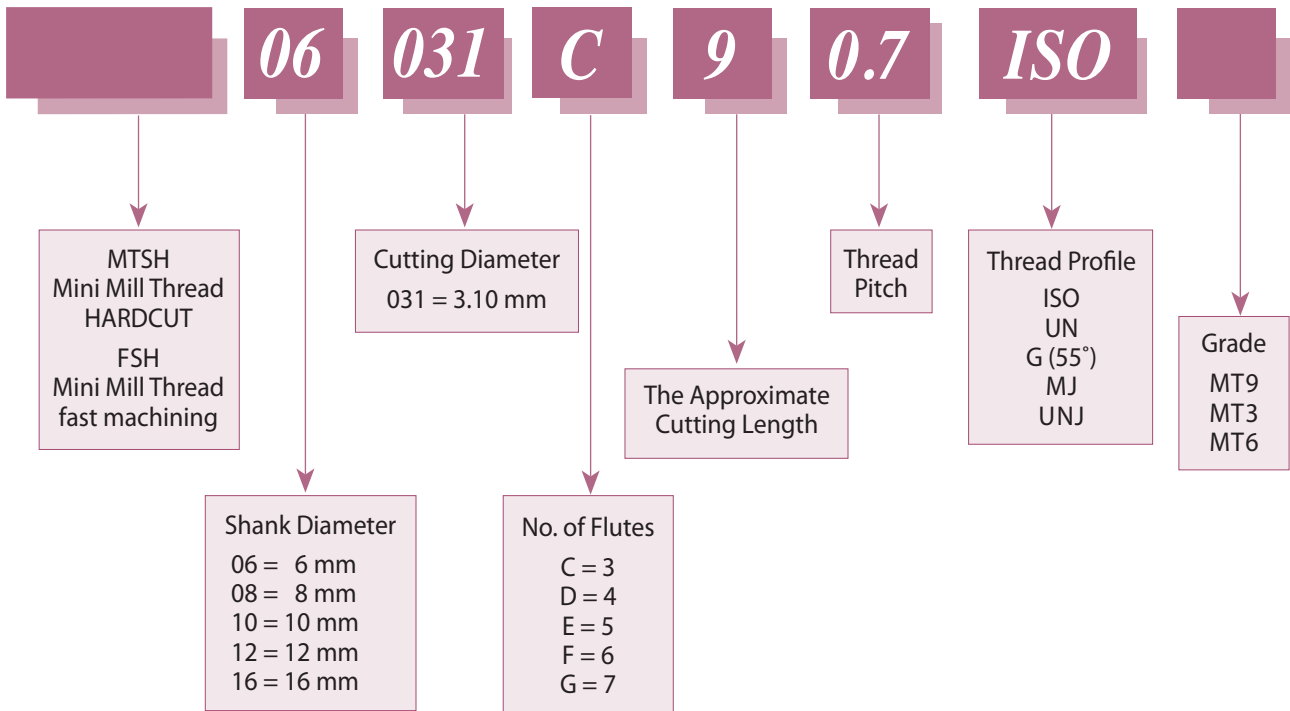
Advantages

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

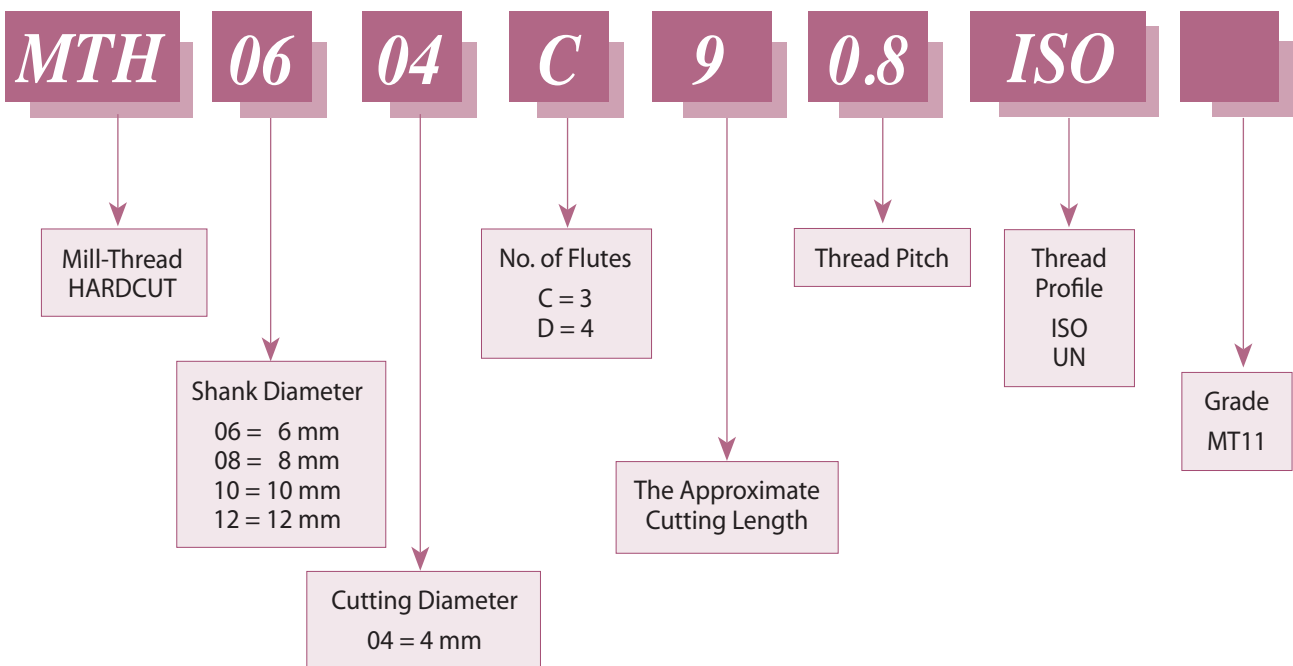
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G55° - BSW, BSP	5	ISO	7
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Product Identification

Mini Mill-Thread MTSH Type Ordering Codes

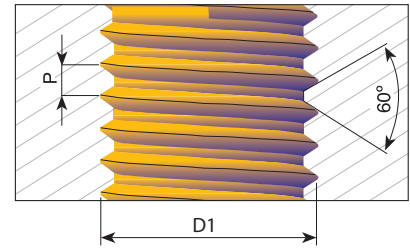
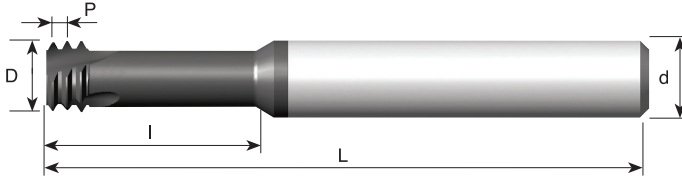


MTH Type Ordering Codes



MTSH ISO

Tools for Internal Thread



Left hand cutting
For CNC code use M04

Grade	P	M	K	N	S	H
MT9	●	●	○	○	●	≤62 HRc

Pitch mm	M Coarse	M Fine	Ordering Code	d	D	No. of Flutes	I	L	Thread depth
0.3	M1.4		MTSH 03011 C4 0.3 ISO	3	1.05	3	4.0	39	3xD1
0.35	M1.6, M1.8	M2, M2.5	MTSH 03012 C5 0.35 ISO	3	1.20	3	4.8	39	3xD1
0.4	M2		MTSH 06016 C4 0.4 ISO	6	1.53	3	4.5	58	2xD1
0.4	M2		MTSH 03016 C6 0.4 ISO	3	1.53	3	6.0	39	3xD1
0.45	M2.2		MTSH 06017 C5 0.45 ISO	6	1.65	3	5.0	58	2xD1
0.45	M2.2		MTSH 06017 C7 0.45 ISO	6	1.65	3	7.0	58	3xD1
0.45	M2.5		MTSH 0602 C5 0.45 ISO	6	1.95	3	5.5	58	2xD1
0.45	M2.5		MTSH 0602 C7 0.45 ISO	6	1.95	3	7.5	58	3xD1
0.5	M3	M4, M5	MTSH 06024 C6 0.5 ISO	6	2.37	3	6.5	58	2xD1
0.5	M3	M4, M5	MTSH 06024 C9 0.5 ISO	6	2.37	3	9.5	58	3xD1
0.6	M3.5		MTSH 06028 C7 0.6 ISO	6	2.75	3	7.5	58	2xD1
0.6	M3.5		MTSH 06028 C10 0.6 ISO	6	2.75	3	10.5	58	3xD1
0.7	M4		MTSH 06031 C9 0.7 ISO	6	3.10	3	9.0	58	2xD1
0.7	M4		MTSH 06031 C12 0.7 ISO	6	3.10	3	12.5	58	3xD1
0.7	M4		MTSH 06032 C12 0.7 ISO-L	6	3.20	3	12.5	105	3xD1
0.8	M5		MTSH 06038 C12 0.8 ISO	6	3.80	3	12.5	58	2xD1
0.8	M5		MTSH 06038 C16 0.8 ISO	6	3.80	3	16.0	58	3xD1
0.8	M5		MTSH 0604 C16 0.8 ISO-L	6	4.00	3	16.0	105	3xD1
1.0	M6	M8	MTSH 06047 C14 1.0 ISO	6	4.65	3	14.0	58	2xD1
1.0	M6	M8	MTSH 06047 C20 1.0 ISO	6	4.65	3	20.0	58	3xD1
1.0	M6	M8	MTSH 06048 C20 1.0 ISO-L	6	4.80	3	20.0	105	3xD1
1.0		M10, M12	MTSH 0808 D31 1.0 ISO	8	8.00	4	31.0	64	3xD1
1.25	M8	M10, M12	MTSH 0606 C18 1.25 ISO	6	6.00	3	18.0	58	2xD1
1.25	M8	M10, M12	MTSH 0606 C24 1.25 ISO	6	6.00	3	24.0	58	3xD1
1.5	M10	M14, M16	MTSH 08078 C23 1.5 ISO	8	7.80	3	23.0	64	2xD1
1.5	M10	M14, M16	MTSH 08078 D31 1.5 ISO	8	7.80	4	31.5	64	3xD1
1.75	M12		MTSH 1009 C26 1.75 ISO	10	9.00	3	26.0	73	2xD1
2.0	M14	M17	MTSH 1010 D30 2.0 ISO	10	10.00	4	30.0	73	2xD1
2.0	M16	M18, M20	MTSH 12118 D35 2.0 ISO	12	11.80	4	35.0	84	2xD1

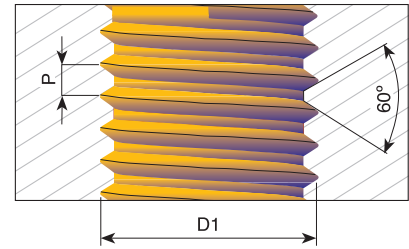
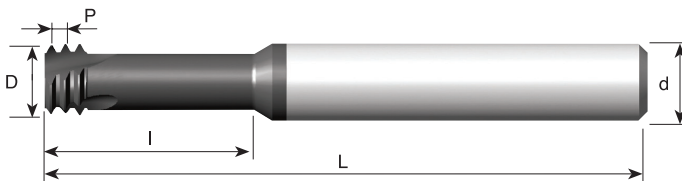
Order example: MTSH 0808 D31 1.0 ISO MT9

● First choice

○ Alternative

UN

Tools for Internal Thread



Left hand cutting
For CNC code use M04

Grade	P	M	K	N	S	H
MT9	●	●	○	○	●	≤62 HRc

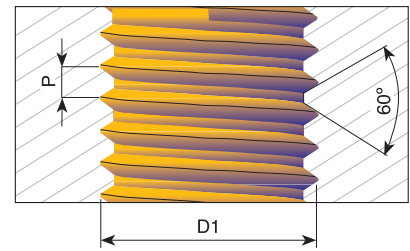
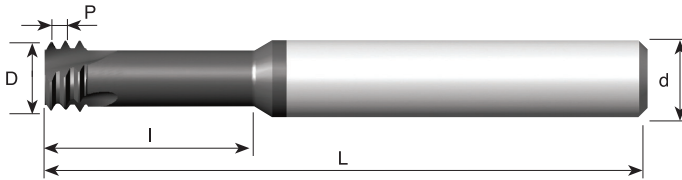
Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	I	L	Thread depth
80		0	MTSH 06012 C4 80 UN	6	1.15	3	4.0	58	3xD1
72		1	MTSH 06014 C3 72 UN	6	1.45	3	3.7	58	2xD1
72		1	MTSH 03015 C6 72 UN	3	1.45	3	6.0	39	3xD1
64	1	2	MTSH 06014 C3 64 UN	6	1.40	3	3.8	58	2xD1
56	2	3	MTSH 06016 C4 56 UN	6	1.65	3	4.4	58	2xD1
56	2	3	MTSH 06016 C6 56 UN	6	1.65	3	6.6	58	3xD1
48	3	4	MTSH 06019 C5 48 UN	6	1.90	3	5.2	58	2xD1
40	4		MTSH 06021 C6 40 UN	6	2.10	3	6.3	58	2xD1
40	4		MTSH 06021 C8 40 UN	6	2.10	3	8.0	58	3xD1
40	5	6	MTSH 06024 C7 40 UN	6	2.45	3	7.0	58	2xD1
40	5	6	MTSH 06024 C9 40 UN	6	2.45	3	9.6	58	3xD1
36		8	MTSH 06033 C9 36 UN	6	3.30	3	9.0	58	2xD1
32	6		MTSH 06025 C7 32 UN	6	2.55	3	7.1	58	2xD1
32	6		MTSH 06025 C10 32 UN	6	2.55	3	10.5	58	3xD1
32	8		MTSH 06032 C9 32 UN	6	3.20	3	9.5	58	2xD1
32	8		MTSH 06032 C12 32 UN	6	3.20	3	12.5	58	3xD1
32		10	MTSH 06037 C10 32 UN	6	3.70	3	10.5	58	2xD1
32		10	MTSH 06037 C15 32 UN	6	3.70	3	15.0	58	3xD1
28		12	MTSH 06042 C11 28 UN	6	4.20	3	11.0	58	2xD1
28		1/4	MTSH 0605 C14 28 UN	6	5.00	3	14.5	58	2xD1
28		1/4	MTSH 0605 C19 28 UN	6	5.00	3	19.0	58	3xD1
24	10,12		MTSH 06035 C10 24 UN	6	3.50	3	10.6	58	2xD1
24		5/16, 3/8	MTSH 08066 C17 24 UN	8	6.60	3	17.0	64	2xD1
24		5/16, 3/8	MTSH 08066 C24 24 UN	8	6.60	3	24.0	64	3xD1
20	1/4		MTSH 06047 C14 20 UN	6	4.75	3	14.0	58	2xD1
20	1/4		MTSH 06047 C19 20 UN	6	4.75	3	19.0	58	3xD1
20		7/16	MTSH 0808 C25 20 UN	8	8.00	3	25.0	64	2xD1
18	5/16		MTSH 0606 C17 18 UN	6	6.00	3	17.0	58	2xD1
18	5/16		MTSH 0606 C23 18 UN	6	6.00	3	23.0	58	3xD1
18		5/8	MTSH 1212 D35 18 UN	12	12.00	4	35.0	84	2xD1
16	3/8		MTSH 08067 C22 16 UN	8	6.70	3	22.0	64	2xD1
16	3/8		MTSH 08074 D30 16 UN	8	7.40	4	30.2	64	3xD1
14	7/16		MTSH 08077 C25 14 UN	8	7.70	3	25.0	64	2xD1
13	1/2		MTSH 10092 C27 13 UN	10	9.20	3	27.5	73	2xD1
12	9/16		MTSH 12105 C31 12 UN	12	10.50	3	31.5	84	2xD1
11	5/8		MTSH 12114 C34 11 UN	12	11.40	3	34.5	84	2xD1
10	3/4		MTSH 16144 D41 10 UN	16	14.40	4	41.5	105	2xD1

Order example: MTSH 06047 C14 20 UN MT9

● First choice ○ Alternative

G (55°) BSW, BSP

Same Tool for Internal and External Thread

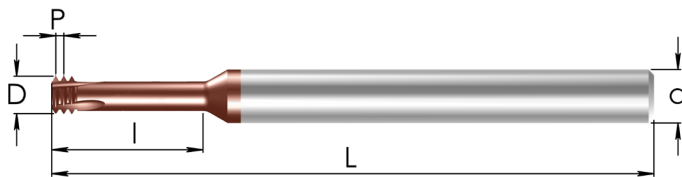


Left hand cutting
For CNC code use M04

Grade	P	M	K	N	S	H
MT9	●	●	○	○	●	≤62 HRc

Pitch TPI	Standard	Ordering Code	d	D	No. of Flutes	I	L	Thread depth
28	G1/8	MTSH 08078 C19 28 W	8	7.8	3	19.5	64	2xD1
19	G1/4-3/8	MTSH 1010 D30 19 W	10	10.0	4	30.0	73	2xD1
14	G1/2-7/8	MTSH 1212 D37 14 W	12	12.0	4	37.0	84	2xD1
11	G≥1	MTSH 1616 D44 11 W	16	16.0	4	44.0	105	2xD1

MJ Tools for Internal Thread



Grade	P	M	K	N	S	H
MT6	●	●	○	○	●	≤58 HRc

Pitch mm	D1	Ordering Code	d	D	No. of Flutes	I	L	Thread depth
0.5	MJ3	MTSH 06024 C9 0.5 MJ	6	2.40	3	9.5	58	3xD1
0.7	MJ4	MTSH 06032 C12 0.7 MJ	6	3.20	3	12.7	58	3xD1
0.8	MJ5	MTSH 0604 D15 0.8 MJ	6	4.00	4	15.8	58	3xD1
1.0	MJ6-MJ8	MTSH 06048 D19 1.0 MJ	6	4.80	4	19.0	58	3xD1
1.25	MJ8-MJ10	MTSH 08064 D25 1.25 MJ	8	6.40	4	25.3	64	3xD1
1.5	MJ10-MJ12	MTSH 0808 D31 1.5 MJ	8	8.00	4	31.5	64	3xD1
1.75	MJ12	MTSH 10095 D25 1.75 MJ	10	9.50	4	25.8	73	2xD1
2.0	MJ14-MJ20	MTSH 1211 D30 2.0 MJ	12	11.00	4	30.0	84	2xD1

UNJ Tools for Internal Thread

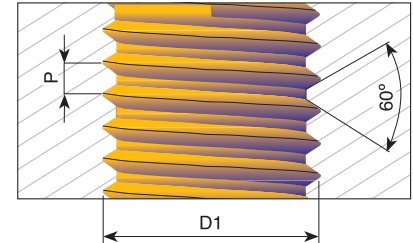
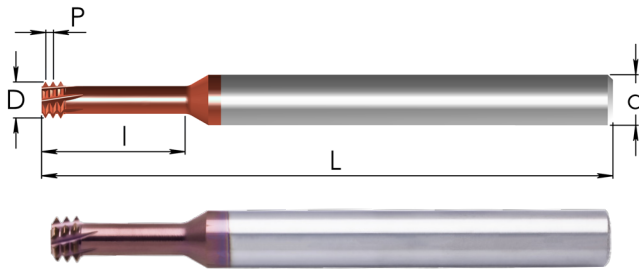
Grade	P	M	K	N	S	H
MT6	●	●	○	○	●	≤58 HRc

Pitch TPI	UNJC	UNJF	Ordering Code	d	D	No. of Flutes	I	L	Thread depth
56	2		MTSH 06016 C7 56 UNJ	6	1.65	3	7.0	58	3xD1
32	6		MTSH 06025 C11 32 UNJ	6	2.55	3	11.3	58	3xD1
32	8	10	MTSH 06033 C13 32 UNJ	6	3.30	3	13.3	58	3xD1
28		1/4	MTSH 06052 D20 28 UNJ	6	5.20	4	20.0	58	3xD1
24		5/16, 3/8	MTSH 08067 D24 24 UNJ	8	6.70	4	24.9	64	3xD1
20	1/4		MTSH 06049 D20 20 UNJ	6	4.90	4	20.3	58	3xD1
20		7/16	MTSH 10092 D23 20 UNJ	10	9.20	4	23.5	73	2xD1
18	5/16		MTSH 0606 D17 18 UNJ	6	6.00	4	17.3	58	2xD1
16	3/8		MTSH 08074 D20 16 UNJ	8	7.40	4	20.6	64	2xD1
14	7/16		MTSH 10085 D24 14 UNJ	10	8.5	4	24.0	73	2xD1
13	1/2		MTSH 10098 D27 13 UNJ	10	9.80	4	27.4	73	2xD1

Order example: MTSH 10095 D25 1.75 MJ MT6

● First choice ○ Alternative

FSH ISO Tools for Internal Thread



Left hand cutting
For CNC code use M04

Grade	P	M	K	N	S	H
MT3	●	○	○	○	●	≤65 HRc

Pitch mm	M Coarse	M Fine	Ordering Code	d	D	No. of Flutes	I	L	Thread depth
0.45	M2.5		FSH 0602 E5 0.45 ISO	6	1.95	5	5.5	58	2xD1
0.45	M2.5		FSH 0602 E8 0.45 ISO	6	1.95	5	8.0	58	3xD1
0.5	M3	M4,M5	FSH 06024 E6 0.5 ISO	6	2.40	5	6.5	58	2xD1
0.5	M3	M4,M5	FSH 06024 E9 0.5 ISO	6	2.40	5	9.5	58	3xD1
0.7	M4		FSH 06032 E8 0.7 ISO	6	3.20	5	8.7	58	2xD1
0.7	M4		FSH 06032 E12 0.7 ISO	6	3.20	5	12.7	58	3xD1
0.8	M5		FSH 0604 E10 0.8 ISO	6	4.00	5	10.8	58	2xD1
0.8	M5		FSH 0604 E15 0.8 ISO	6	4.00	5	15.8	58	3xD1
1.0	M6	M8	FSH 06048 F13 1.0 ISO	6	4.80	6	13.0	58	2xD1
1.0	M6	M8	FSH 06048 F19 1.0 ISO	6	4.80	6	19.0	58	3xD1
1.25	M8	M10,M12	FSH 08064 G17 1.25 ISO	8	6.40	7	17.3	64	2xD1
1.25	M8	M10,M12	FSH 08064 G25 1.25 ISO	8	6.40	7	25.3	64	3xD1

Order example: FSH 0604 E10 0.8 ISO MT3

UN Tools for Internal Thread

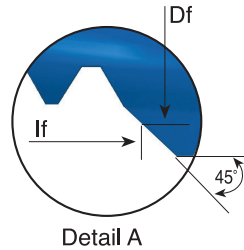
Grade	P	M	K	N	S	H
MT3	●	○	○	○	●	≤65 HRc

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	I	L	Thread depth
40	4		FSH 06021 D6 40 UN	6	2.10	4	6.3	58	2xD1
40	4		FSH 06021 D9 40 UN	6	2.10	4	9.2	58	3xD1
40	5	6	FSH 06024 D7 40 UN	6	2.45	4	7.0	58	2xD1
40	5	6	FSH 06024 D10 40 UN	6	2.45	4	10.2	58	3xD1
32	6		FSH 06025 D7 32 UN	6	2.55	4	7.8	58	2xD1
32	6		FSH 06025 D11 32 UN	6	2.55	4	11.3	58	3xD1
32	8		FSH 06032 D9 32 UN	6	3.20	4	9.1	58	2xD1
32	8		FSH 06032 D13 32 UN	6	3.20	4	13.3	58	3xD1
32		10	FSH 06038 E10 32 UN	6	3.80	5	10.5	58	2xD1
32		10	FSH 06038 E15 32 UN	6	3.80	5	15.3	58	3xD1
28		1/4	FSH 06052 F13 28 UN	6	5.20	6	13.6	58	2xD1
28		1/4	FSH 06052 F20 28 UN	6	5.20	6	20.0	58	3xD1
24		5/16, 3/8	FSH 08066 F16 24 UN	8	6.60	6	16.9	64	2xD1
24		5/16, 3/8	FSH 08066 F24 24 UN	8	6.60	6	24.9	64	3xD1
20	1/4		FSH 06048 E14 20 UN	6	4.80	5	14.0	58	2xD1
20	1/4		FSH 06048 E20 20 UN	6	4.80	5	20.3	58	3xD1

Order example: FSH 08066 F24 24 UN MT3

● First choice ○ Alternative

MTH ISO Tools for Internal Thread

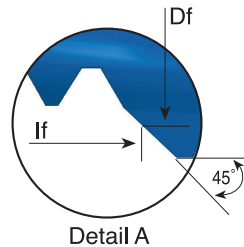
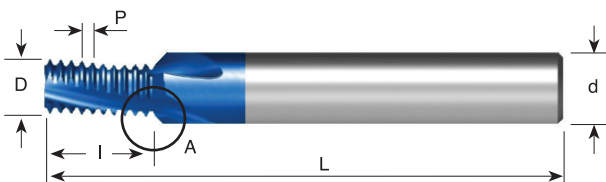


Grade	P	M	K	N	S	H
MT11	●	○	●	○	●	≤62 HRc

Pitch mm	M Coarse	M Fine	Ordering Code	d	D	Df	No. of Flutes	I	lf	L
0.5	M3	$\varnothing \geq 4$	MTH 06024 C5 0.5 ISO	6	2.4	3.6	3	5.3	5.9	58
0.7	M4	$\varnothing \geq 5$	MTH 06031 C7 0.7 ISO	6	3.1	4.3	3	7.4	8.0	58
0.8	M5	$\varnothing \geq 6$	MTH 0604 C9 0.8 ISO	6	4.0	5.2	3	9.2	9.8	58
1.0	M6	$\varnothing \geq 7$	MTH 08048 D10 1.0 ISO	8	4.8	6.4	4	10.5	11.3	64
1.0		$\varnothing \geq 9$	MTH 0806 D13 1.0 ISO	8	6.0	7.6	4	13.5	14.3	64
1.0		$\varnothing \geq 10$	MTH 1008 D16 1.0 ISO	10	8.0	9.6	4	16.5	17.3	73
1.25	M8	$\varnothing \geq 10$	MTH 0806 D14 1.25 ISO	8	6.0	7.6	4	14.4	15.2	64
1.5	M10	$\varnothing \geq 12$	MTH 1008 D17 1.5 ISO	10	8.0	9.8	4	17.3	18.2	73
1.5		$\varnothing \geq 14$	MTH 1210 D21 1.5 ISO	12	10.0	11.8	4	21.8	22.7	84
1.75	M12	$\varnothing \geq 12$	MTH 12095 D20 1.75 ISO	12	9.5	11.5	4	20.1	21.1	84

Order example: MTH 08048 D10 1.0 ISO MT11

UN Tools for Internal Thread



Grade	P	M	K	N	S	H
MT11	●	○	●	○	●	≤62 HRc

Pitch TPI	UNC	UNF	UNEF	Ordering Code	d	D	Df	No. of Flutes	I	lf	L
40	5	6		MTH 06025 C6 40 UN	6	2.5	3.7	3	6.0	6.6	58
32	6			MTH 06026 C5 32 UN	6	2.6	3.8	3	5.9	6.5	58
32	8			MTH 06032 C7 32 UN	6	3.2	4.4	3	7.5	8.1	58
32		10	12	MTH 06038 C9 32 UN	6	3.8	5.0	3	9.1	9.7	58
28		1/4		MTH 08052 D11 28 UN	8	5.2	6.8	4	11.3	12.1	64
28			7/16, 1/2	MTH 12096 D20 28 UN	12	9.6	11.2	4	20.4	21.2	84
24		5/16, 3/8	9/16, 5/8, 11/16	MTH 08066 D14 24 UN	8	6.6	8.0	4	14.3	15.0	64
20	1/4			MTH 06048 C12 20 UN	6	4.8	6.0	3	12.1	12.7	58
20		7/16, 1/2	3/4, 1	MTH 12092 D21 20 UN	12	9.2	10.8	4	21.0	21.8	84
18	5/16	9/16, 5/8	11/16	MTH 08057 C14 18 UN	8	5.7	7.5	3	14.8	15.7	64
16	3/8	3/4		MTH 10074 C16 16 UN	10	7.4	9.2	3	16.7	17.6	73
14	7/16	7/8		MTH 10085 D20 14 UN	10	8.5	9.9	4	20.9	21.6	73
13	1/2			MTH 12094 D22 13 UN	12	9.4	11.4	4	22.5	23.5	84

Order example: MTH 06048 C12 20 UN MT11

● First choice

○ Alternative

Cutting Data

Mini Mill-Thread MTSH and FSH

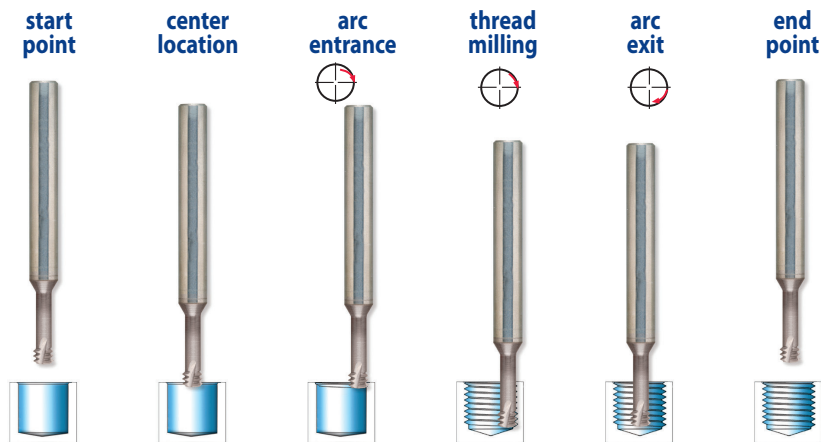
MT9 Sub-Micron Grade with advanced PVD triple coating.

MT6 Ultra-Fine carbide grade with high hardness and toughness provides an excellent solution for machining steels, stainless steels, and super alloys Ni or Ti base. With a universal PVD multi-layer coating, provides high heat and wear resistance.

MT3 Ultra-Fine carbide grade with PVD multi-layer coating for machining Super Alloys and Hard materials up to 65 HRc. Provides supreme edge stability with high heat and wear resistance. For increased productivity and high performance.

Left hand cutting for CNC code use M04

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



Case Study

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

Cutting Data

MTH type

MT11 Sub-Micron Grade with advanced PVD triple coating.

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

Positioning

Thread Milling

Chamfering

