

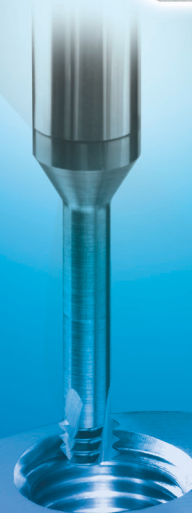
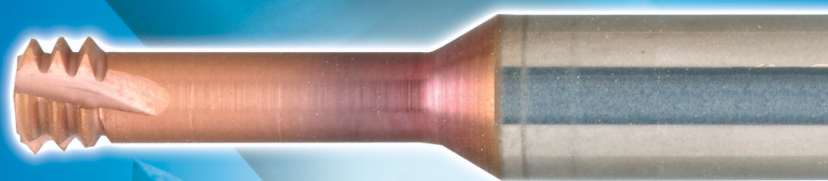
NEW
2008 EDITION

Mini Mill-Thread

迷你螺纹铣削

Solid-Carbide Thread Mills
for threading bores
as small as M1.0 X 0.25

整体硬质合金螺纹铣刀
用于小螺纹例如
M1X0.25



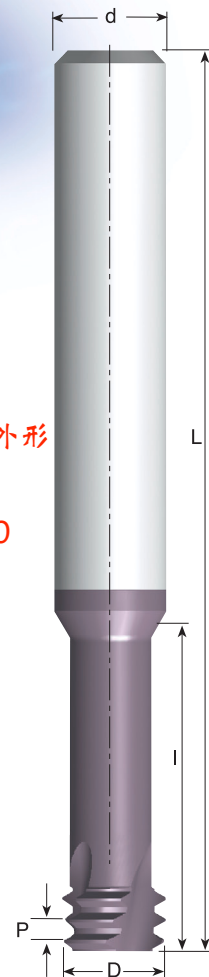
Carmex
Precision Tools Ltd.

Metric

特别设计的整体硬质合金
螺纹铣刀加工非常小的孔
内螺纹。
由于独特的刀具设计，精
确的几何形状和高品质的
MT7亚微粒硬质合金与氮
化铝钛涂层，

Specially designed solid-carbide thread mills for
producing internal threads in very small bores.
Due to the unique tool design, accurate geometries
and high quality MT7 sub-micron carbide grade with
Titanium Aluminum Nitride coating, the following are
achieved:

- Threading from M1.0 x 0.25 (bore diameter $\varnothing$ 0.95)
- Working at high cutting speed 高切削速度
- Short machining time 短的加工时间
- Low cutting forces thanks to the short profile 低切削力短的外形
- No broken taps 不会像丝锥一样折断
- Threading up to shoulder in blind holes 盲孔螺纹可至孔底
- Machining of hardened materials up to 40HRC 硬度至HRC40



ISO

Tools for Internal Thread 用于内螺纹

For thread depth up to 2xD1 螺纹深度2XD1

Pitch	D1	Ordering Code	d	D	No. of Flutes	I	L
* 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
0.45	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
0.5	M3	MTS06024C6 0.5 ISO	6	2.35	3	6.5	58
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
0.8	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 螺纹深度3UNJXD1

Pitch	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	5.0	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
0.7	M4	MTS06031C12 0.7 ISO	6	3.10	3	12.5	58
0.8	M5	MTS06038C16 0.8 ISO	6	3.80	3	16.0	58
1.0	M6	MTS06047C20 1.0 ISO	6	4.65	3	20.0	58
1.25	M8	MTS0606C24 1.25 ISO	6	5.95	3	24.0	58

Order example: MTS 06047C14 1.0 ISO MT7

*Specially designed for the production of dental implants

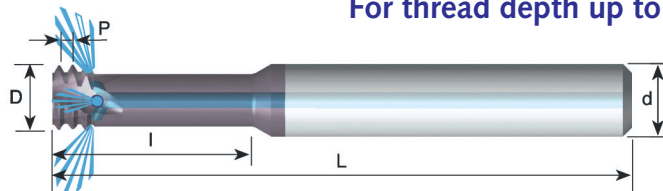
- Machining Titanium, surgical stainless steels and hardened materials.
- Suitable for high speed air turbine machines (30,000-40,000 RPM) and for standard machining centers (6,000 RPM and higher).
- Can also be used for general purpose threading.

UNJ

With internal coolant through the flutes

Tools for Internal Thread

For thread depth up to $2.5 \times D1$



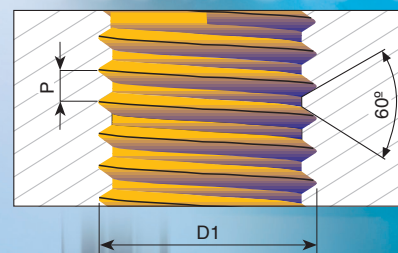
UNJ帶槽內冷
內螺紋 $2.5 \times D1$

Pitch TPI	UNC	UNF	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

* without coolant

Order example: MTS06049C16 20UNJ MT8

Carbide grade 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.

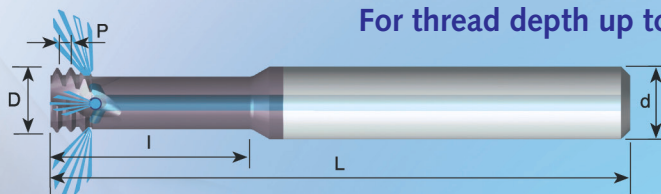


MJ

With internal coolant through the flutes

Tools for Internal Thread

For thread depth up to $2.5 \times D1$



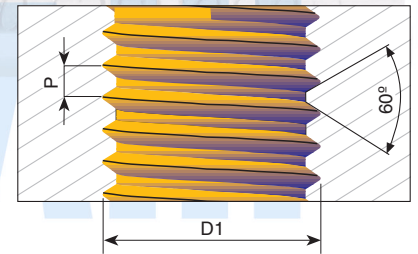
MJ帶槽內冷
內螺紋 $2.5 \times D1$

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

* without coolant

Order example: MTS06048C15 1.0 MJ MT8

Carbide grade 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.



UN

Tools for Internal Thread For thread depth up to 2xD1

UN帶槽內冷
內螺紋2XD1

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	I	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	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	8		MTS06032C9 32 UN	6	3.20	3	9.5	58
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

Order example: MTS06021C6 40UN MT7

For thread depth up to 3xD1 內螺紋3XD1

Pitch TPI	UNC	UNF	Ordering Code	d	D	No. of Flutes	I	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	MTS06016C6 56 UN	6	1.65	3	6.6	58
40	4		MTS06021C8 40 UN	6	2.10	3	8.0	58
40	5	6	MTS06024C9 40 UN	6	2.45	3	9.6	58
32	6		MTS06025C10 32 UN	6	2.55	3	10.5	58
32	8		MTS06032C12 32 UN	6	3.20	3	12.5	58
32		10	MTS06037C15 32 UN	6	3.70	3	15.0	58
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
18	5/16		MTS0606C23 18 UN	6	6.00	3	23.0	58

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- Machining Titanium, surgical stainless steels and hardened materials.
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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	ø15
P	Low & Medium Carbon Steels	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	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	60-90	0.02	0.03	0.03	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
	Cast Steels	70-90	0.03	0.04	0.04	0.05	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.12	0.13	0.14
K	Cast Iron	40-80	0.04	0.05	0.05	0.07	0.09	0.11	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18
N	Aluminum	80-150	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
	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

start point

center location

arc entrance

thread milling

arc exit

end point



Mini Mill-Thread vs. Taps

Features 特征	Mini Mill-Thread 迷你螺纹铣	Taps 丝锥
Thread surface quality 螺纹质量	High 高	Medium 中等
Thread geometry 螺纹几何形状	Very accurate 非常精确	Medium 中等
Thread tolerances 螺纹公差	4H, 5H, 6H with std cutter 4/5/6H	6H with standard tap, 4H with specific tap
Machining time 加工时间	Same as tap or shorter 等同丝锥和更短	Short 短
Tool breakage 刀具折断	Almost not possible 几乎不可能	Could happen often 经常发生
Machining load 切削扭矩	Very low 非常低	High 高
Range of thread diameters 螺纹直径范围	Wide range of diameters 宽范围	Specific tap for each diameter 每个规格一种
Right/Left hand threading 左右手螺纹	Same cutter 相同刀具	Specific tap for each 丝锥需定制
Geometric shape 螺纹形状	Full profile 完整	Partial profile 部分形状



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