

Solid Carbide Thread Mills - Mini
TMS & TMSH (Hardcut)



TMS

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 Aluminium Nitride coating, the following are achieved:

- * threading from M1 x 0.25*
- * working at high cutting speeds*
- * short machining time*
- * low cutting forces thanks to the short profile*
- * no broken taps*

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TMS

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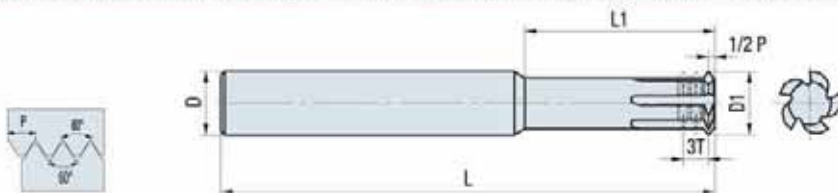
TMS *Hardcut*

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ISO 60°

DIN 13, DIN 68, DIN ISO 965-1, NF ISO 965-1

Métrique - *Metrisch* - Metric



ISO - Tools for Internal Thread (for Thread depth up to 2xD1)

Pitch	ISO		Ordering Code	D	D1	Number of flutes	L	L1
mm				mm	mm		mm	mm
0.25	M1		TMS 03007 C2 0.25 ISO	3	0.72	3	2.5	39
0.25	M1.2		TMS 03009 C3 0.25 ISO	3	0.90	3	3.0	39
0.4	M2		TMS 06016 C4 0.4 ISO	6	1.55	3	4.5	58
0.45	M2.2		TMS 06017 C5 0.45 ISO	6	1.65	3	5.0	58
0.45	M2.5		TMS 06020 C5 0.45 ISO	6	1.95	3	5.5	58
0.5	M3		TMS 06024 C6 0.5 ISO	6	2.35	3	6.5	58
0.6	M3.5		TMS 06028 C7 0.6 ISO	6	2.75	3	7.5	58
0.7	M4		TMS 06031 C9 0.7 ISO	6	3.10	3	9.0	58
0.75	M4.5		TMS 08080 D25 0.75 ISO	8	8.00	4	25.0	64
0.8	M5		TMS 06038 C12 0.8 ISO	6	3.80	3	12.5	58
1.0	M6		TMS 06047 C14 1.0 ISO	6	4.65	3	14.0	58
1.25	M8		TMS 06060 C18 1.25 ISO	6	5.95	3	18.0	58
1.5	M10		TMS 08078 C23 1.5 ISO	8	7.80	3	23.0	64
1.75	M12		TMS 10090 C26 1.75 ISO	10	9.00	3	26.0	73
2.0	M16		TMS 12118 D35 2.0 ISO	12	11.80	4	35.0	84
2.5	M20		TMS 16150 E43 2.5 ISO	16	15.00	5	43.0	105

ISO - Tools for Internal Thread (for Thread depth up to 3xD1)

Pitch	ISO		Ordering Code	D	D1	Number of flutes	L	L1
mm				mm	mm		mm	mm
0.3	M1.4		TMS 03011 C4 0.3 ISO	3	1.05	3	4.0	39
0.35	M1.6		TMS 03012 C5 0.35 ISO	3	1.20	3	4.8	39
0.4	M2		TMS 03016 C6 0.4 ISO	3	1.55	3	6.0	39
0.45	M2.5		TMS 06020 C7 0.45 ISO	6	1.95	3	7.5	58
0.5	M3		TMS 06024 C9 0.5 ISO	6	2.35	3	9.5	58
0.6	M3.5		TMS 06028 C10 0.6 ISO	6	2.75	3	10.5	58
0.7	M4		TMS 06031 C12 0.7 ISO	6	3.10	3	12.5	58
0.8	M5		TMS 06038 C16 0.8 ISO	6	3.80	3	16.0	58
1.0	M6		TMS 06047 C20 1.0 ISO	6	4.65	3	20.0	58
1.25	M8		TMS 06060 C24 1.25 ISO	6	5.95	3	24.0	58

Unified National Standard

DIN 103 5864, ANSI/ASME B1.7

Pouce - Zoll - Inch



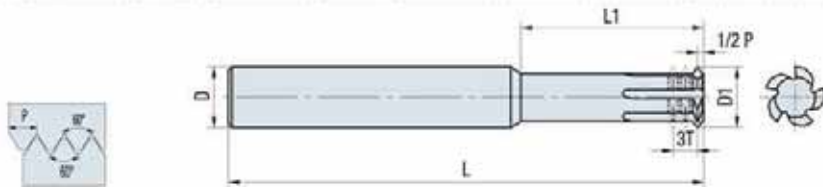
UN - Tools for Internal Thread (for Thread depth up to 2xD1)

Pitch	UNC	UNF	Ordering Code	D	D1	Number of flutes	L	L1
tpi				mm	mm		mm	mm
72		1	TMS 06014 C3 72 UN	6	1.45	3	3.7	58
64	1	2	TMS 06014 C3 64 UN	6	1.40	3	3.8	58
56	2	3	TMS 06016 C4 56 UN	6	1.65	3	4.4	58
48	3	4	TMS 06019 C5 48 UN	6	1.90	3	5.2	58
40	4		TMS 06021 C6 40 UN	6	2.10	3	6.3	58
40	5	6	TMS 06024 C7 40 UN	6	2.45	3	7.0	58
36		8	TMS 06033 C9 36 UN	6	3.30	3	9.0	58
32	6		TMS 06025 C7 32 UN	6	2.55	3	7.1	58
32	8		TMS 06032 C9 32 UN	6	3.20	3	9.5	58
32		10	TMS 06037 C10 32 UN	6	3.70	3	10.5	58
28		12	TMS 06042 C11 28 UN	6	4.20	3	11.0	58
28		1/4	TMS 06050 C14 28 UN	6	5.00	3	14.5	58
24	10,12		TMS 06035 C10 24 UN	6	3.50	3	10.6	58
24		5/16, 3/8	TMS 08066 C17 24 UN	8	6.60	3	17.0	64
20	1/4		TMS 06047 C14 20 UN	6	4.75	3	14.0	58
20		7/16	TMS 08080 C25 20 UN	8	8.00	3	25.0	64
18	5/16		TMS 06060 C17 18 UN	6	6.00	3	17.0	58
18		5/8	TMS 12120 D35 18 UN	12	12.00	4	35.0	84
16	3/8		TMS 08067 C22 16 UN	8	6.70	3	22.0	64
14	7/16		TMS 08077 C25 14 UN	8	7.70	3	25.0	64
13	1/2		TMS 10092 C27 13 UN	10	9.20	3	27.5	73
12	9/16		TMS 12105 C31 12 UN	12	10.50	3	31.5	84
11	5/8		TMS 12114 C34 11 UN	12	11.40	3	34.5	84
10	3/4		TMS 16144 D41 10 UN	16	14.40	4	41.5	105

Unified National Standard

DIN ISO 5864, ANSI/ASME B1.7

Pouce - Zoll - Inch



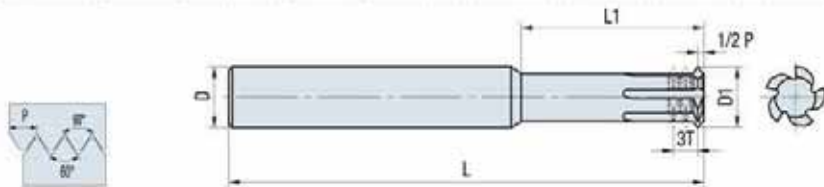
UN - Tools for Internal Thread (for Thread depth up to 3xD1)

Pitch	UNC	UNF	Ordering Code	D	D1	Number of flutes	L	L1
tpi				mm	mm		mm	mm
80		0	TMS 06012 C4 80 UN	6	1.15	3	4.0	58
72		1	TMS 03015 C6 72 UN	3	1.45	3	6.0	39
56	2	3	TMS 03016 C6 56 UN	3	1.65	3	6.6	39
56	2	3	TMS 06016 C6 56 UN	6	1.65	3	6.6	58
40	4		TMS 06021 C8 40 UN	6	2.10	3	8.0	58
40	5	6	TMS 06024 C9 40 UN	6	2.45	3	9.6	58
32	6		TMS 03025 C10 32 UN	3	2.55	3	10.5	39
32	6		TMS 06025 C10 32 UN	6	2.55	3	10.5	58
32	8		TMS 06032 C12 32 UN	6	3.20	3	12.5	58
32		10	TMS 06037 C15 32 UN	6	3.70	3	15.0	58
28		1/4	TMS 06050 C19 28 UN	6	5.00	3	19.0	58
24		5/16, 3/8	TMS 08066 C24 24 UN	8	6.60	3	24.0	64
20	1/4		TMS 06047 C19 20 UN	6	4.75	3	19.0	58
18	5/16		TMS 06060 C23 18 UN	6	6.00	3	23.0	58

British Straight Whitworth

DIN 6630, NF E 03-005

Pouce - Zoll - Inch



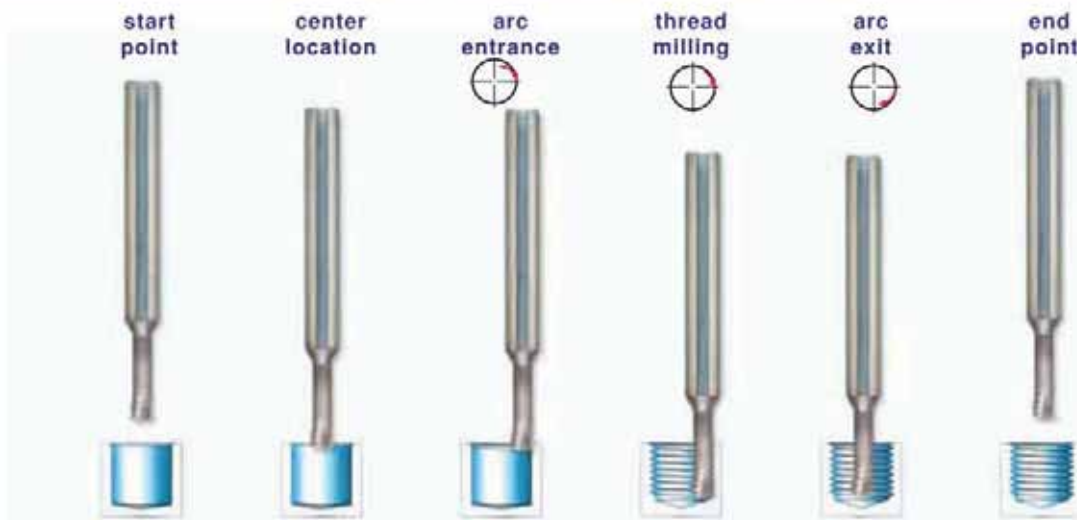
G (55°) BSF, BSP

Same Tools for Internal & External (for thread depth up to 3xD1)

Pitch	Standard	Ordering Code	D	D1	Number of flutes	L	L1
tpi			mm	mm		mm	mm
28	G1/8	TMS 08078 C19 28 W	8	7.8	3	19.5	64
19	G1/4, G3/8	TMS 10100 D30 19 W	10	10.0	4	30.0	73
14	G1/2, G7/8	TMS 12120 D37 14 W	12	12.0	4	37.0	84
11	>G 1	TMS 16160 D44 11 W	16	16.0	4	44.0	105

Technical Section Cutting Data TMS

ISO Standard	Materials	Cutting Speed mm/min	Feed mm/tooth													
			ø 1	ø 1.5	ø 2	ø 3	ø 4	ø 5	ø 6	ø 7	ø 8	ø 9	ø 10	ø 12	ø 14	ø 16
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	0,1	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	0,1	0,11	0,12	0,13
	Stainless Steels Austenitic	60-90	0,02	0,03	0,03	0,04	0,05	0,06	0,06	0,07	0,08	0,09	0,1	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	0,1	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	0,19	0,18
	Aluminium > 10% Si	60-140	0,03	0,03	0,03	0,07	0,05	0,06	0,06	0,07	0,08	0,1	0,1	0,11	0,13	0,14
	Synthetics, Duroplastics, Thermoplastics	50-200	0,09	0,1	0,11	0,12	0,14	0,16	0,18	0,19	0,19	0,19	0,19	0,19	0,2	0,2
S	Nickel Alloys, 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



Comparison Table - Mini Thread Mills - vs. Tap

Features	Solid Carbide Thread Mills	Taps Thread Surface Quality
Thread surface quality	High	Medium
Thread geometry	Very accurate	Medium
Thread tolerances	4h, 5h, 6h with standard 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



Solid Carbide Thread Mills - Mini Hardcut





TMS Hardcut

A unique Line of thread milling tools designed specially for the machining of hardened materials up to 62 HRc. These tools provide high performance, improved cut and an excellent surface finish.

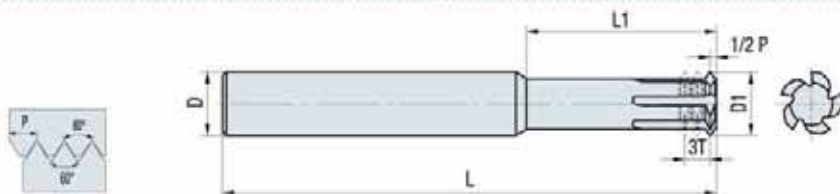
Sub-micron carbide grade with advanced Titanium Aluminium Nitride coating

- * threading from M1.4 x 0.3*
- * perfect solution for the Die and Mould industry*
- * working at high cutting speeds*
- * short machining time*
- * low cutting forces thanks to the short profile*

ISO 60°

DIN 13, DIN 68, DIN ISO 965-1, NF ISO 965-1

Métrique - Metrisch - Metric



ISO - Tools for Internal Thread (for Thread depth up to 2xD1)

Pitch	ISO	Ordering Code	D	D1	Number of flutes	L	L1
mm			mm	mm		mm	mm
0.4	M2	TMSH 06016 C4 0.4 ISO	6	1.55	3	4.5	58
0.45	M2.2	TMSH 06017 C5 0.45 ISO	6	1.65	3	5.0	58
0.45	M2.5	TMSH 06020 C5 0.45 ISO	6	1.95	3	5.5	58
0.5	M3	TMSH 06024 C6 0.5 ISO	6	2.35	3	6.5	58
0.6	M3.5	TMSH 06028 C7 0.6 ISO	6	2.75	3	7.5	58
0.7	M4	TMSH 06031 C9 0.7 ISO	6	3.10	3	9.0	58
0.8	M5	TMSH 06038 C12 0.8 ISO	6	3.80	3	12.5	58
1.0	M6	TMSH 06047 C14 1.0 ISO	6	4.65	3	14.0	58
1.25	M8	TMSH 06060 C18 1.25 ISO	6	5.95	3	18.0	58
1.5	M10	TMSH 08078 C23 1.5 ISO	8	7.80	3	23.0	64
1.75	M12	TMSH 10090 C26 1.75 ISO	10	9.00	3	26.0	73
2.0	M16	TMSH 12118 D35 2.0 ISO	12	11.80	4	35.0	84

ISO - Tools for Internal Thread (for Thread depth up to 3xD1)

Pitch	ISO	Ordering Code	D	D1	Number of flutes	L	L1
mm			mm	mm		mm	mm
0.3	M1.4	TMSH 03011 C4 0.3 ISO	3	1.05	3	4.0	39
0.35	M1.6	TMSH 03012 C5 0.35 ISO	3	1.20	3	4.8	39
0.4	M2	TMSH 03016 C6 0.4 ISO	3	1.55	3	6.0	58
0.45	M2.5	TMSH 06020 C7 0.45 ISO	6	1.95	3	7.5	58
0.5	M3	TMSH 06024 C9 0.5 ISO	6	2.35	3	9.5	58
0.7	M4	TMSH 06031 C12 0.7 ISO	6	3.10	3	12.5	58
0.8	M5	TMSH 06038 C16 0.8 ISO	6	3.80	3	16.0	58
1.25	M6	TMSH 06047 C20 1.0 ISO	6	4.65	3	20.0	58
1.25	M8	TMSH 06060 C24 1.25 ISO	6	5.95	3	24.0	58

Unified National Standard

DIN ISO 5854, ANSI/ASME B1.7

Pouce - Zoll - Inch



UN - Tools for Internal Thread (for Thread depth up to 2xD1)

Pitch	UNC	UNF	Ordering Code	D	D1	Number of flutes	L	L1
tpi				mm	mm		mm	mm
72		1	TMSH 06014 C3 72 UN	6	1.45	3	3.7	58
64	1	2	TMSH 06014 C3 64 UN	6	1.40	3	3.8	58
56	2	3	TMSH 06016 C4 56 UN	6	1.65	3	4.4	58
48	3	4	TMSH 06019 C5 48 UN	6	1.90	3	5.2	58
40	4		TMSH 06021 C6 40 UN	6	2.10	3	6.3	58
40	5	6	TMSH 06024 C7 40 UN	6	2.45	3	7.0	58
36		8	TMSH 06033 C9 36 UN	6	3.30	3	9.0	58
32	6		TMSH 06025 C7 32 UN	6	2.55	3	7.1	58
32	8		TMSH 06032 C9 32 UN	6	3.20	3	9.5	58
32		10	TMSH 06037 C10 32 UN	6	3.70	3	10.5	58
28		12	TMSH 06042 C11 28 UN	6	4.20	3	11.0	58
28		1/4	TMSH 06050 C14 28 UN	6	5.00	3	14.5	58
24	10,12		TMSH 06035 C10 24 UN	6	3.50	3	10.6	58
24		5/16, 3/8	TMSH 08066 C17 24 UN	8	6.60	3	17.0	64
20	1/4		TMSH 06047 C14 20 UN	6	4.75	3	14.0	58
20		7/16	TMSH 08080 C25 20 UN	8	8.00	3	25.0	64
18	5/16		TMSH 06060 C17 18 UN	6	6.00	3	17.0	58
18		5/8	TMSH 12120 D35 18 UN	12	12.00	4	35.0	84
16	3/8		TMSH 08067 C22 16 UN	8	6.70	3	22.0	64
14	7/16		TMSH 08077 C25 14 UN	8	7.70	3	25.0	64
13	1/2		TMSH 10092 C27 13 UN	10	9.20	3	27.5	73
12	9/16		TMSH 12105 C31 12 UN	12	10.50	3	31.5	84
11	5/8		TMSH 12114 C34 11 UN	12	11.40	3	34.5	84

Unified National Standard

DIN ISO 5854, ANSI/ASME B1.7

Pouce - Zoll - Inch

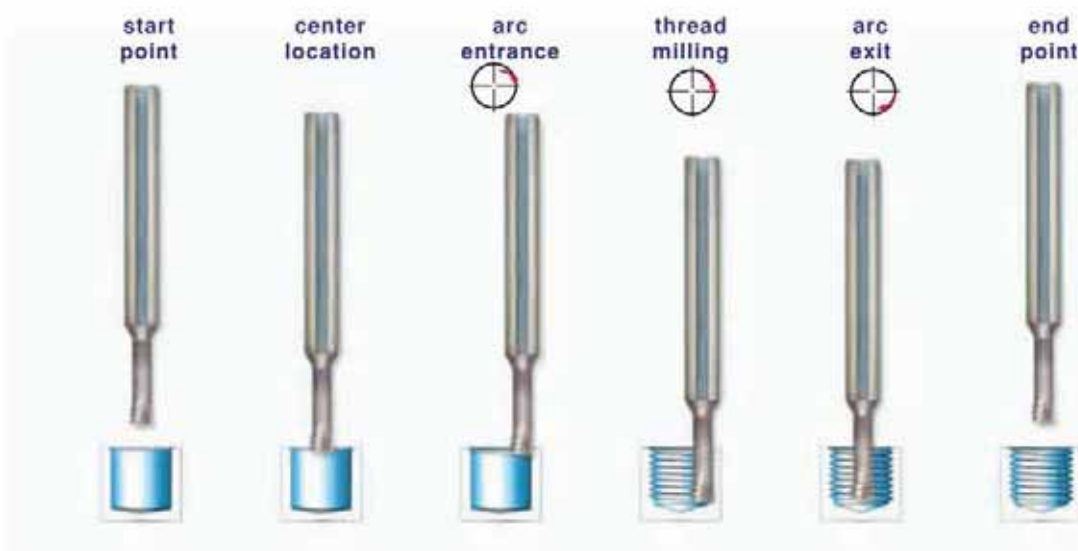


UN - Tools for Internal Thread (for Thread depth up to 3xD1)

Pitch	UNC	UNF	Ordering Code	D	D1	Number of flutes	L	L1
tpi				mm	mm		mm	mm
80		0	TMSH 06012 C4 80 UN	6	1.15	3	4.0	58
72		1	TMSH 03015 C6 72 UN	3	1.45	3	6.0	39
56	2	3	TMSH 06016 C6 56 UN	6	1.65	3	6.6	58
40	4		TMSH 06021 C8 40 UN	6	2.10	3	8.0	58
40	5	6	TMSH 06024 C9 40 UN	6	2.45	3	9.6	58
32	6		TMSH 06025 C10 32 UN	6	2.55	3	10.5	58
32	8		TMSH 06032 C12 32 UN	6	3.20	3	12.5	58
32		10	TMSH 06037 C15 32 UN	6	3.70	3	15.0	58
28		1/4	TMSH 06050 C19 28 UN	6	5.00	3	19.0	58
24		5/16, 3/8	TMSH 08066 C24 24 UN	8	6.60	3	24.0	64
20	1/4		TMSH 06047 C19 20 UN	6	4.75	3	19.0	58
18	5/16		TMSH 06060 C23 18 UN	6	6.00	3	23.0	58

Technical Section Cutting Data TMSH (hardcut)

ISO Standard	Materials	Hardness	Cutting Speed	Feed mm/tooth														
				Hrc	mm/min	ø 1	ø 1.5	ø 2	ø 3	ø 4	ø 5	ø 6	ø 7	ø 8	ø 9	ø 10	ø 12	ø 14
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	





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