C.P.T.
Präzisions Werkzeuge
x-treme thread cutting™



CST Type

Solid Carbide
Skip-Tooth thread mills

English

Solid Carbide Thread Mills – CST Type

CPT introduces ***CST,*** solid carbide thread mills featuring skip-tooth geometry, designed to significantly reduce radial cutting forces and vibrations during machining.
The unique cutting-edge design delivers extended tool life, improved stability and high productivity.

Features

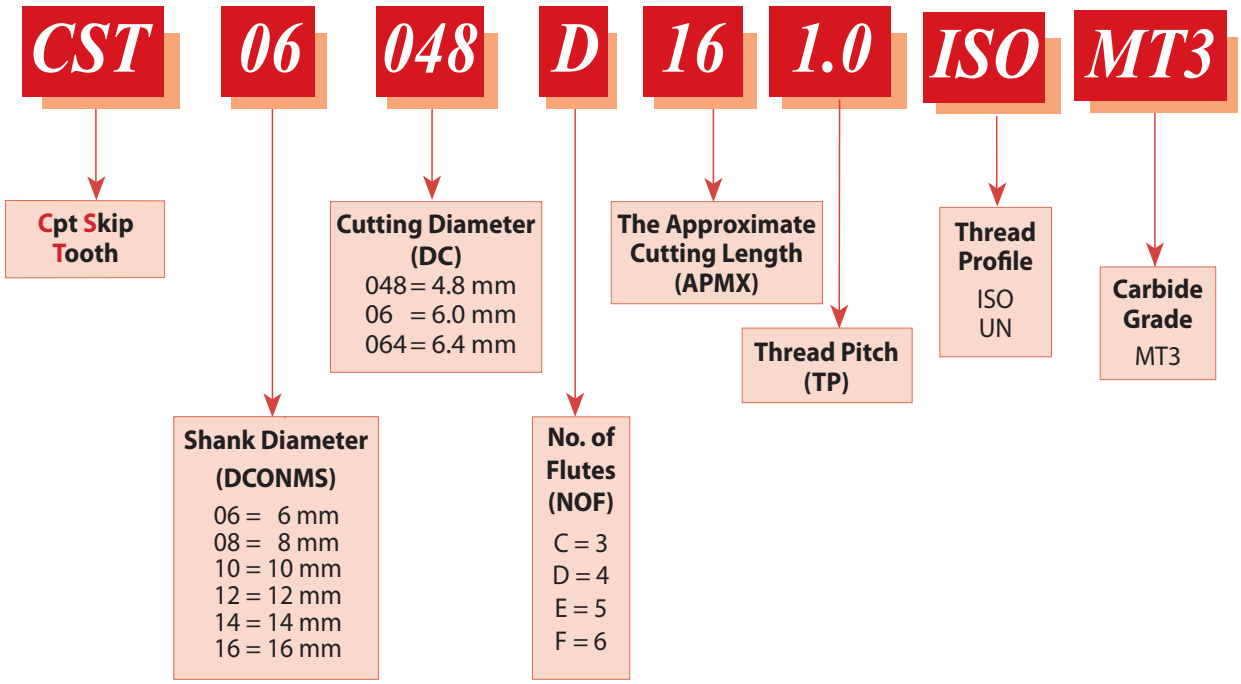
- Smooth cutting and reduced cutting forces during process.
- Lower tool vibrations, ensuring excellent surface finish.
- High productivity enabled by significantly shorter cycle times.
- Through-coolant hole for efficient chip evacuation and cutting-edge cooling.
- Suitable for both right-hand and left-hand threads.
- Optimized carbide grade for high-performance cutting and superior edge stability.

Carbide grade: MT3

Ultra-fine carbide grade with advanced PVD multi-layer coating, developed for universal application in ISO P, M, K, N, S, and hard materials up to 62 HRC.
The grade provides excellent edge stability combined with high heat and wear resistance, enabling consistent and reliable performance in demanding machining operations.
Optimized for high-performance cutting and increased productivity.

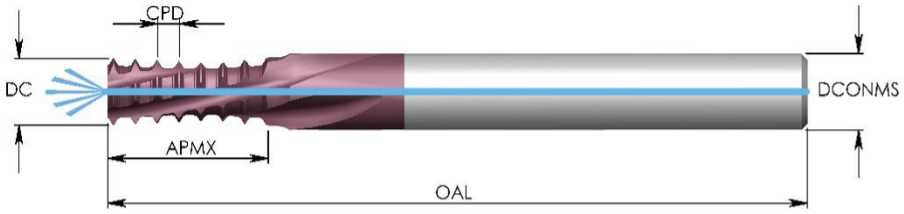
Product Identification – Ordering codes

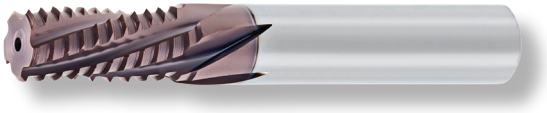
CST Thread Mills

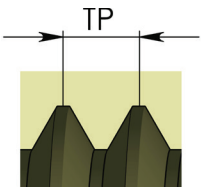


ISO With internal coolant bore

Tools for Internal Thread







Grade	P	M	K	N	S	H
MT3	●	●	●	○	●	≤62 HRc

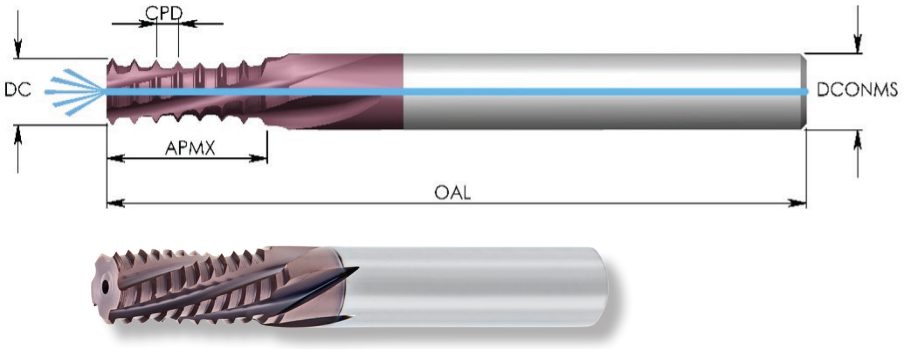
TP mm	FTDZ coarse	FTDZ fine	Ordering Code	DCONMS	DC	NOF	APMX	OAL	CPD	Lt	
0.5		M4, M5	**CST 06034 D10 0.5ISO**	6	3.4	4	10.2	57	1.00	2.5xD	
0.7	M4		**CST 06032 D10 0.7ISO**	6	3.2	4	10.1	57	1.40	2.5xD	
0.75		M6, M8	**CST 0605 D15 0.75ISO**	6	5.0	4	15.4	58	1.50	2.5xD	√
0.8	M5		**CST 0604 D13 0.8ISO**	6	4.0	4	13.2	58	1.60	2.5xD	√
1.0	M6	M8	**CST 06048 D16 1.0ISO**	6	4.8	4	16.5	58	2.00	2.5xD	√
1.0		M8, M9	**CST 08067 D20 1.0ISO**	8	6.7	4	20.5	64	2.00	2.5xD	√
1.0		M10	**CST 10087 E26 1.0ISO**	10	8.7	5	26.5	73	2.00	2.5xD	√
1.25	M8	M10, M12	**CST 08064 D20 1.25ISO**	8	6.4	4	20.6	64	2.50	2.5xD	√
1.5	M10	M12	**CST 0808 E27 1.5ISO**	8	8.0	5	27.7	80	3.00	2.5xD	√
1.5		M14, M16	**CST 1212 E36 1.5ISO**	12	12.0	5	36.7	105	3.00	2.5xD	√
1.75	M12		**CST 10095 E32 1.75ISO**	10	9.5	5	32.4	80	3.50	2.5xD	√
2.0	M14		**CST 1211 E37 2.0ISO**	12	11.0	5	37.0	105	4.00	2.5xD	√
2.0	M16	M18, M20	**CST 14128 E41 2.0ISO**	14	12.8	5	41.0	105	4.00	2.5xD	√

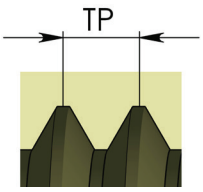
Order example: CST 06048 D16 1.0ISO MT3

FTDZ – Thread diameter size
OAL – Overall length
Lt – Maximum thread length

UN With internal coolant bore

Tools for Internal Thread





Grade	P	M	K	N	S	H
MT3	●	●	●	○	●	≤62 HRc

TP TPI	FTDZ UNC	FTDZ UNF	Ordering Code	DCONMS	DC	NOF	APMX	OAL	CPD	Lt	
32	8		**CST 06032 C11 32UN**	6	3.2	3	11.5	57	1.59	2.5xD	
32		10	**CST 06038 D13 32UN**	6	3.8	4	13.1	58	1.59	2.5xD	√
28		1/4	**CST 06052 D16 28UN**	6	5.2	4	16.7	58	1.81	2.5xD	√
28		7/16, 1/2	**CST 10098 E27 28UN**	10	9.8	5	27.6	73	1.81	2.5xD	√
24	10, 12		**CST 06036 C13 24UN**	6	3.6	3	13.2	57	2.12	2.5xD	
24		5/16	**CST 08066 D19 24UN**	8	6.6	4	19.5	64	2.12	2.5xD	√
24		3/8	**CST 10082 E23 24UN**	10	8.2	5	23.8	73	2.12	2.5xD	√
20	1/4		**CST 06048 C15 20UN**	6	4.8	3	15.8	57	2.54	2.5xD	
20		7/16	**CST 10092 E28 20UN**	10	9.2	5	28.5	73	2.54	2.5xD	√
20		1/2	**CST 12111 E31 20UN**	12	11.1	5	31.1	84	2.54	2.5xD	√
18	5/16		**CST 0606 D20 18UN**	6	6.0	4	20.4	70	2.82	2.5xD	√
18		9/16, 5/8	**CST 14125 E37 18UN**	14	12.5	5	37.3	105	2.82	2.5xD	√
16	3/8		**CST 08074 E26 16UN**	8	7.4	5	26.2	80	3.18	2.5xD	√
16		3/4	**CST 1616 F48 16UN**	16	16.0	6	48.4	130	3.18	2.5xD	√
14	7/16		**CST 10085 E30 14UN**	10	8.5	5	29.9	73	3.63	2.5xD	√
14		7/8	**CST 1616 F55 14 UN**	16	16.0	6	55.3	130	3.63	2.5xD	√
13	1/2		**CST 10098 E32 13UN**	10	9.8	5	32.2	80	3.91	2.5xD	√
12	9/16		**CST 12116 E39 12UN**	12	11.6	5	39.1	105	4.23	2.5xD	√
12		1, 1 1/2	**CST 1616 E43 12 UN**	16	16.0	5	43.4	130	4.23	1.5xD	√
11	5/8		**CST 1212 E42 11UN**	12	12.0	5	42.6	105	4.62	2.5xD	√
10	3/4		**CST 16147 E47 10UN**	16	14.7	5	47.0	130	5.08	2.5xD	√

Order example: CST 06048 C15 20UN MT3

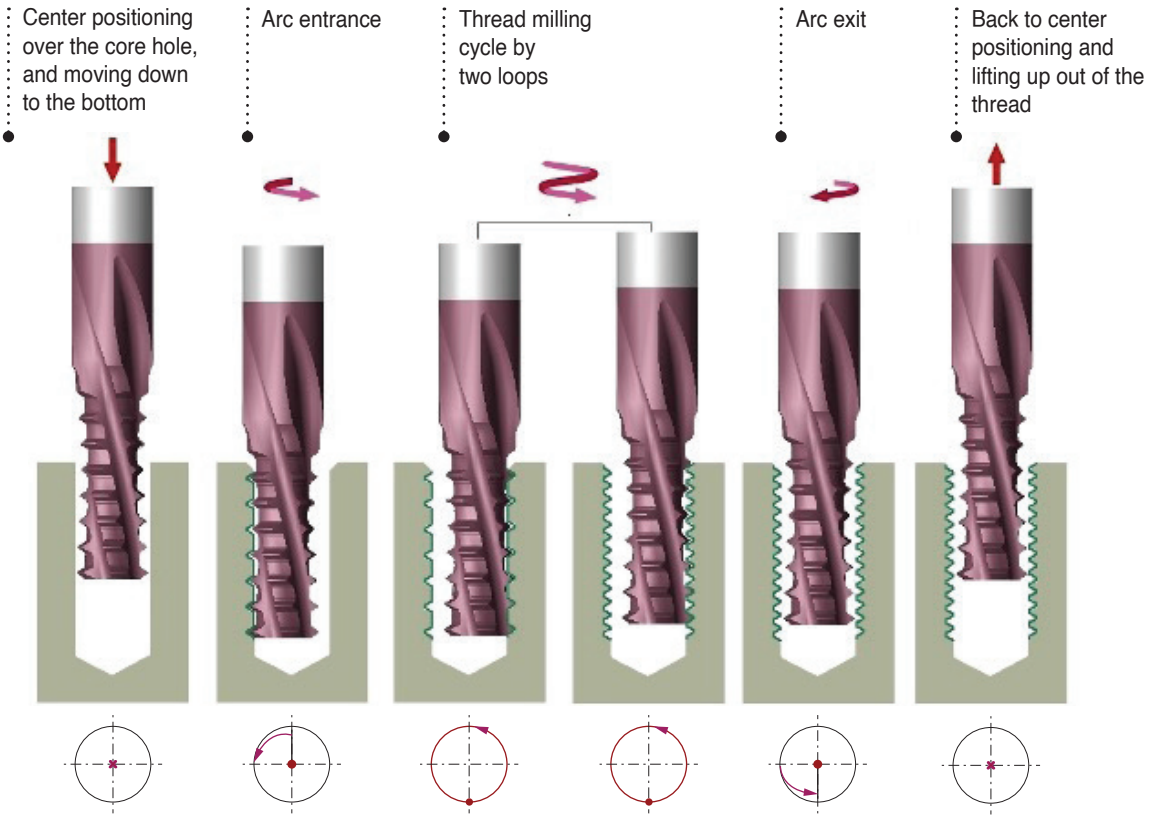
FTDZ – Thread diameter size
OAL – Overall length
Lt – Maximum thread length

Cutting Data

ISO Standard	Material	Cutting Speed m/min	Cutting Diameter = D Feed mm/tooth		
			D ≤ 6	6 < D < 10	D ≥ 10
P	Low & Medium Carbon Steels < 0.55%C	100-250	0.06-0.08	0.09-0.12	0.13-0.15
	High Carbon Steels ≥ 0.55%C	110-180	0.05-0.07	0.08-0.11	0.12-0.14
	Alloy Steels, Treated Steels	90-160	0.05-0.07	0.07-0.10	0.10-0.12
M	Stainless Steel-Free Cutting	60-160	0.04-0.06	0.07-0.10	0.11-0.14
	Stainless Steel-Austenitic	60-120	0.04-0.06	0.07-0.09	0.10-0.13
	Cast Steels	130-170	0.04-0.06	0.07-0.09	0.10-0.13
K	Cast Iron	70-150	0.06-0.08	0.10-0.13	0.15-0.18
N	Aluminum ≤ 12%Si, Copper	150-350	0.06-0.08	0.10-0.13	0.15-0.18
	Aluminum > 12%Si	100-250	0.05-0.07	0.08-0.11	0.11-0.14
	Synthetics, Duroplastics, Thermoplastics	100-400	0.08-0.10	0.11-0.14	0.13-0.17
S	Nickel alloys, Titanium alloys.	20-80	0.05-0.08	0.07-0.10	0.08-0.13
H	Hardened Steel 45-50 HRc	70-130	0.04-0.08	0.05-0.11	0.08-0.12
	Hardened Steel 51-55 HRc	60-120	0.03-0.05	0.04-0.09	0.07-0.11
	Hardened Steel 56-62 HRc	50-100	0.02-0.04	0.03-0.08	0.06-0.10

Note:
The cutting data recommended in the table above are intended as initial guidelines only and may be adjusted to suit specific application requirements.

Thread Cycle



Case Study

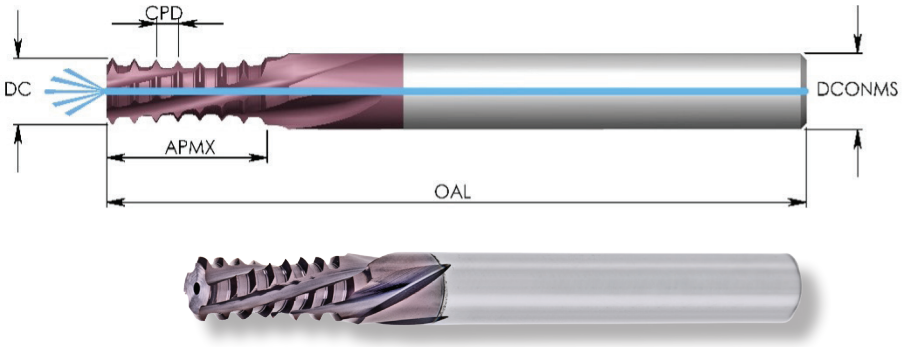
Application

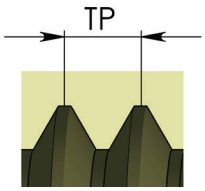
Internal Right-Hand Thread: 1/4-28UNF, blind hole
Thread length: 12 mm
Workpiece material: AISI 4340 Steel I 36CrNiMo4 I 1.6511

The CST thread mills were tested under two material conditions:

1. **Soft** material: 12-16 HRc
2. **Hardene**d material: 42-45 HRc

The CST thread mill used in the test:





Ordering Code: CST 06052 D16 28UN MT3
TP: 28/1”

DCONMS: 6 mm
DC: 5.2 mm
NOF: 4
APMX: 16.7 mm
OAL: 58 mm
CPD: 1.81 mm

With internal coolant passing through

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Machine:

DMG Mori, Vertical milling center, 3 axis
Coolant: emulsion 5%

Cutting data:

Soft material

Cutting speed, Vc = 143 m/min	(8750 RPM)
Feed, Fz = 0.10 mm/tooth	(F634 mm/min)

Single radial pass
Working method: Climb milling

Hardened material

Cutting speed, Vc = 115 m/min	(7040 RPM)
Feed, Fz = 0.07 mm/tooth	(F360 mm/min)

Single radial pass
Working method: Climb milling

Edge wear and tool life:

Throughout the test, the thread mill maintained stable performance with small and uniform edge wear.

Tool life:

Soft material: 3,072 threads
Hardened material: 2,178 threads

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