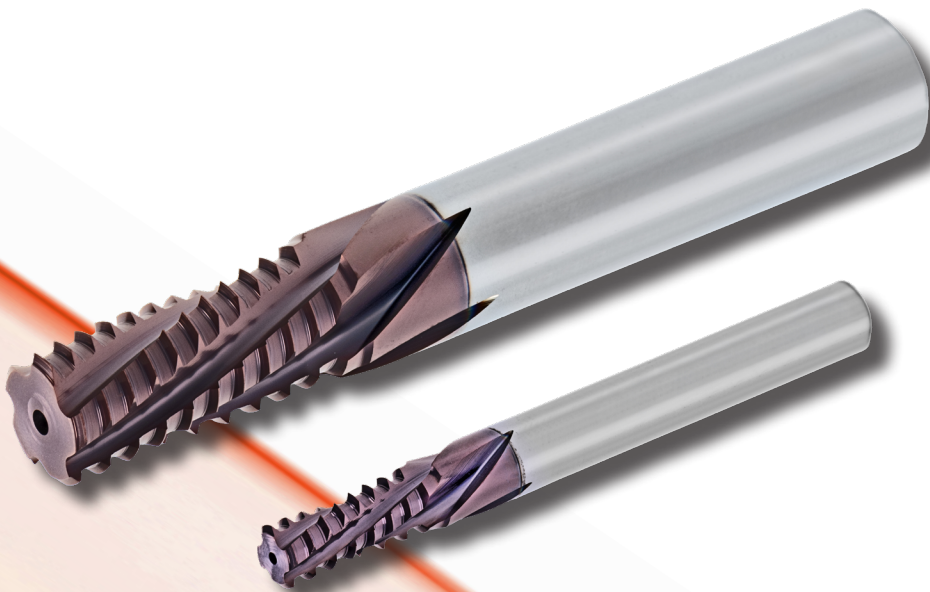




CST Type

Solid Carbide Skip-Tooth thread mills



Inch

Solid Carbide Thread Mills-**CST** Type

Carmex 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**

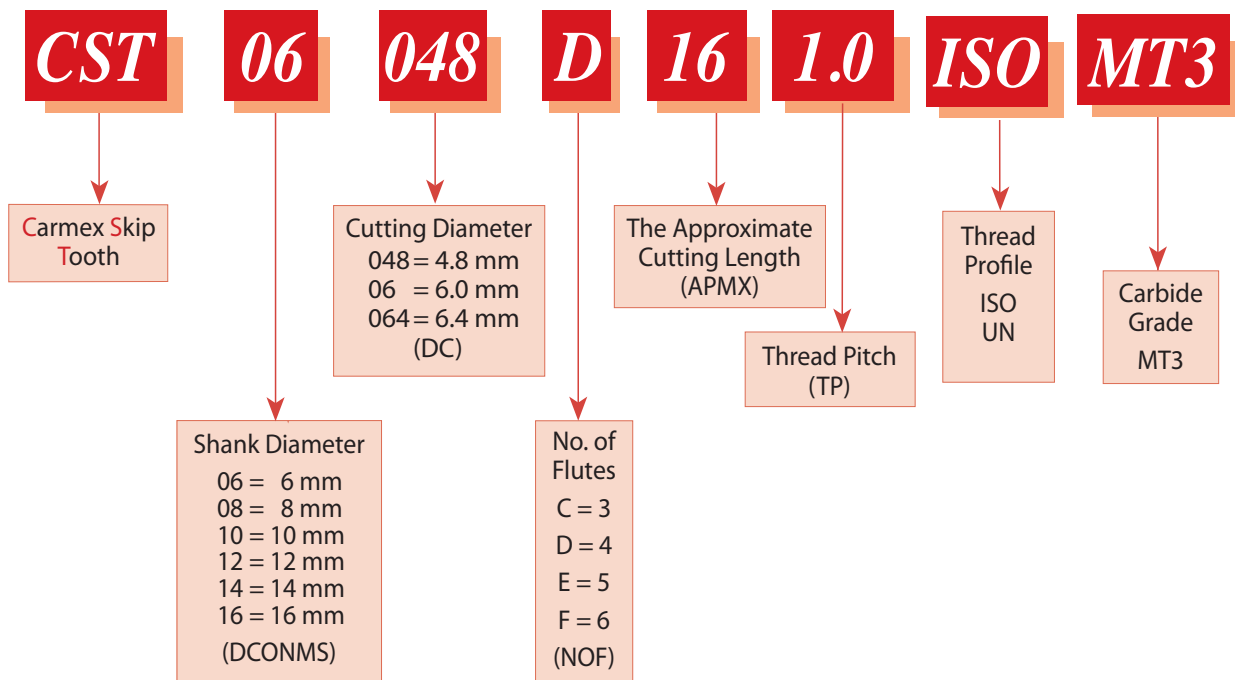
Ultra-fine carbide grade with advanced PVD multi-layer coating, developed for universal application in ISO P, M, K, N, S, and hard materials up to 62 HRC.

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.

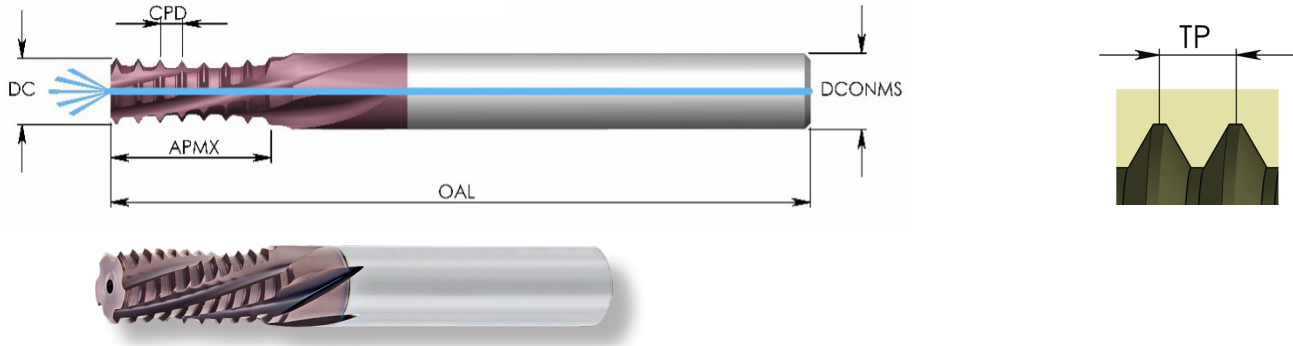
Product Identification

CST thread mills ordering codes



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 mm	DC	NOF	APMX	OAL	CPD mm	Lt	
0.5		M4, M5	CST 06034 D10 0.5ISO	6	.134	4	.40	2.2	1.00	2.5xD	
0.7	M4		CST 06032 D10 0.7ISO	6	.126	4	.40	2.2	1.40	2.5xD	
0.75		M6, M8	CST 0605 D15 0.75ISO	6	.197	4	.61	2.3	1.50	2.5xD	✓
0.8	M5		CST 0604 D13 0.8ISO	6	.157	4	.52	2.3	1.60	2.5xD	✓
1.0	M6	M8	CST 06048 D16 1.0ISO	6	.189	4	.65	2.3	2.00	2.5xD	✓
1.0		M8, M9	CST 08067 D20 1.0ISO	8	.264	4	.81	2.5	2.00	2.5xD	✓
1.0		M10	CST 10087 E26 1.0ISO	10	.343	5	1.04	2.9	2.00	2.5xD	✓
1.25	M8	M10, M12	CST 08064 D20 1.25ISO	8	.252	4	.81	2.5	2.50	2.5xD	✓
1.5	M10	M12	CST 0808 E27 1.5ISO	8	.315	5	1.09	3.1	3.00	2.5xD	✓
1.5		M14, M16	CST 1212 E36 1.5ISO	12	.472	5	1.44	4.1	3.00	2.5xD	✓
1.75	M12		CST 10095 E32 1.75ISO	10	.374	5	1.28	3.1	3.50	2.5xD	✓
2.0	M14		CST 1211 E37 2.0ISO	12	.433	5	1.46	4.1	4.00	2.5xD	✓
2.0	M16	M18, M20	CST 14128 E41 2.0ISO	14	.504	5	1.61	4.1	4.00	2.5xD	✓

Order example: CST 06048 D16 1.0ISO MT3

FTDZ - Thread diameter size

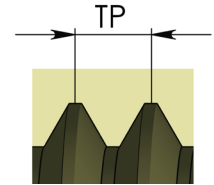
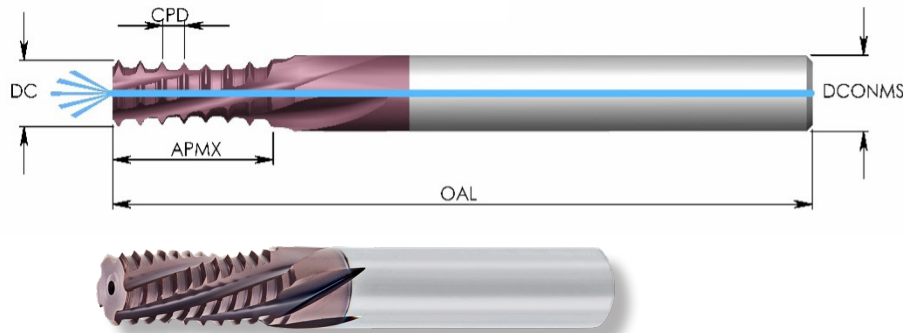
OAL - Overall length

CPD - Pitch x 2

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 mm	DC	NOF	APMX	OAL	CPD	Lt	
32	8		CST 06032 C11 32UN	6	.126	3	.45	2.2	.063	2.5xD	
32		10	CST 06038 D13 32UN	6	.150	4	.52	2.3	.063	2.5xD	✓
28		1/4	CST 06052 D16 28UN	6	.205	4	.66	2.3	.071	2.5xD	✓
28		7/16, 1/2	CST 10098 E27 28UN	10	.386	5	1.09	2.9	.071	2.5xD	✓
24	10, 12		CST 06036 C13 24UN	6	.142	3	.52	2.2	.083	2.5xD	
24		5/16	CST 08066 D19 24UN	8	.260	4	.77	2.5	.083	2.5xD	✓
24		3/8	CST 10082 E23 24UN	10	.323	5	.94	2.9	.083	2.5xD	✓
20	1/4		CST 06048 C15 20UN	6	.189	3	.62	2.2	.100	2.5xD	
20		7/16	CST 10092 E28 20UN	10	.362	5	1.12	2.9	.100	2.5xD	✓
20		1/2	CST 12111 E31 20UN	12	.437	5	1.22	3.3	.100	2.5xD	✓
18	5/16		CST 0606 D20 18UN	6	.236	4	.80	2.8	.111	2.5xD	✓
18		9/16, 5/8	CST 14125 E37 18UN	14	.492	5	1.47	4.1	.111	2.5xD	✓
16	3/8		CST 08074 E26 16UN	8	.291	5	1.03	3.1	.125	2.5xD	✓
16		3/4	CST 1616 F48 16UN	16	.630	6	1.91	5.1	.125	2.5xD	✓
14	7/16		CST 10085 E30 14UN	10	.335	5	1.18	2.9	.143	2.5xD	✓
14		7/8	CST 1616 F55 14 UN	16	.630	6	2.18	5.1	.143	2.5xD	✓
13	1/2		CST 10098 E32 13UN	10	.386	5	1.27	3.1	.154	2.5xD	✓
12	9/16		CST 12116 E39 12UN	12	.457	5	1.54	4.1	.167	2.5xD	✓
12		1, 1 1/2	CST 1616 E43 12 UN	16	.630	5	1.71	5.1	.167	1.5xD	✓
11	5/8		CST 1212 E42 11UN	12	.472	5	1.68	4.1	.182	2.5xD	✓
10	3/4		CST 16147 E47 10UN	16	.579	5	1.85	5.1	.200	2.5xD	✓

Order example: CST 06048 C15 20UN MT3

FTDZ - Thread diameter size

OAL - Overall length

CPD - Pitch x 2

Lt - Maximum thread length

Cutting Data

ISO Standard	Material	Cutting Speed ft/min	Cutting Diameter = D Feed inch/tooth		
			D ≤ .24	.24 < D < .39	D ≥ .39
P	Low & Medium Carbon Steels < 0.55%C	328 - 820	.0024 - .0031	.0035 - .0047	.0051 - .0059
	High Carbon Steels ≥ 0.55%C	361 - 591	.0020 - .0028	.0031 - .0043	.0047 - .0055
	Alloy Steels, Treated Steels	295 - 525	.0020 - .0028	.0028 - .0039	.0039 - .0047
M	Stainless Steel - Free Cutting	197 - 525	.0016 - .0024	.0028 - .0039	.0043 - .0055
	Stainless Steel - Austenitic	197 - 394	.0016 - .0024	.0028 - .0035	.0039 - .0051
	Cast Steels	427 - 558	.0016 - .0024	.0028 - .0035	.0039 - .0051
K	Cast Iron	230 - 492	.0024 - .0031	.0039 - .0051	.0059 - .0071
N	Aluminum ≤ 12%Si, Copper	492 - 1148	.0024 - .0031	.0039 - .0051	.0059 - .0071
	Aluminum > 12%Si	328 - 820	.0020 - .0028	.0031 - .0043	.0043 - .0055
	Synthetics, Duroplastics, Thermoplastics	328 - 1312	.0031 - .0039	.0043 - .0055	.0051 - .0067
S	Nickel alloys, Titanium alloys.	66 - 262	.0020 - .0031	.0028 - .0039	.0031 - .0051
H	Hardened Steel 45 - 50 HRc	230 - 427	.0016 - .0031	.0020 - .0043	.0031 - .0047
	Hardened Steel 51 - 55 HRc	197 - 394	.0012 - .0020	.0016 - .0035	.0028 - .0043
	Hardened Steel 56 - 62 HRc	164 - 328	.0008 - .0016	.0012 - .0031	.0024 - .0039

Note:

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

Case Study Application

Internal Right-Hand Thread: 1/4-28UNF, blind hole

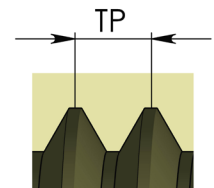
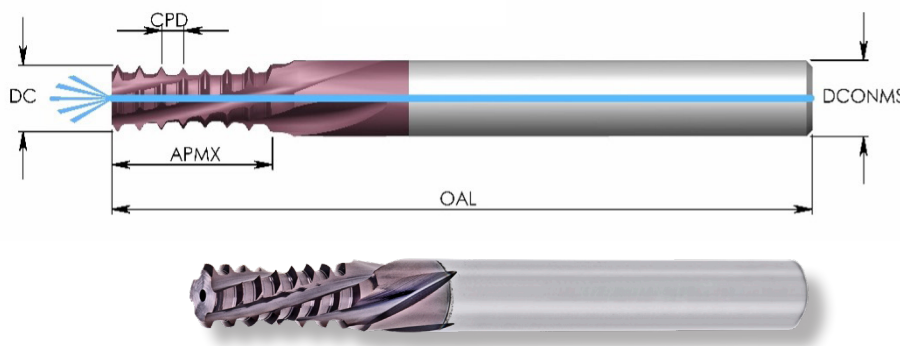
Thread length: .47"

Workpiece material: AISI 4340 Steel | 36CrNiMo4 | 1.6511

The CST thread mills were tested under two material conditions:

1. **Soft** material: 12-16 HRc
2. **Hardened** 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: .205"

NOF: 4

APMX: .66"

OAL: 2.3"

CPD: .071"

With internal coolant passing through



Machine:

DMG Mori, Vertical milling center, 3 axis

Coolant: emulsion 5%

Cutting data:

Soft material

Cutting speed, $V_c = 469$ SFPM (8750 RPM)

Feed, $F_z = .0039$ inch/tooth (F25.0 inch/min)

Single radial pass

Working method: Climb milling

Hardened material

Cutting speed, $V_c = 377$ SFPM (7040 RPM)

Feed, $F_z = 0.0027$ inch/tooth (F14.2 inch/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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