



x-treme thread cutting™

X-treme Taps



Inch

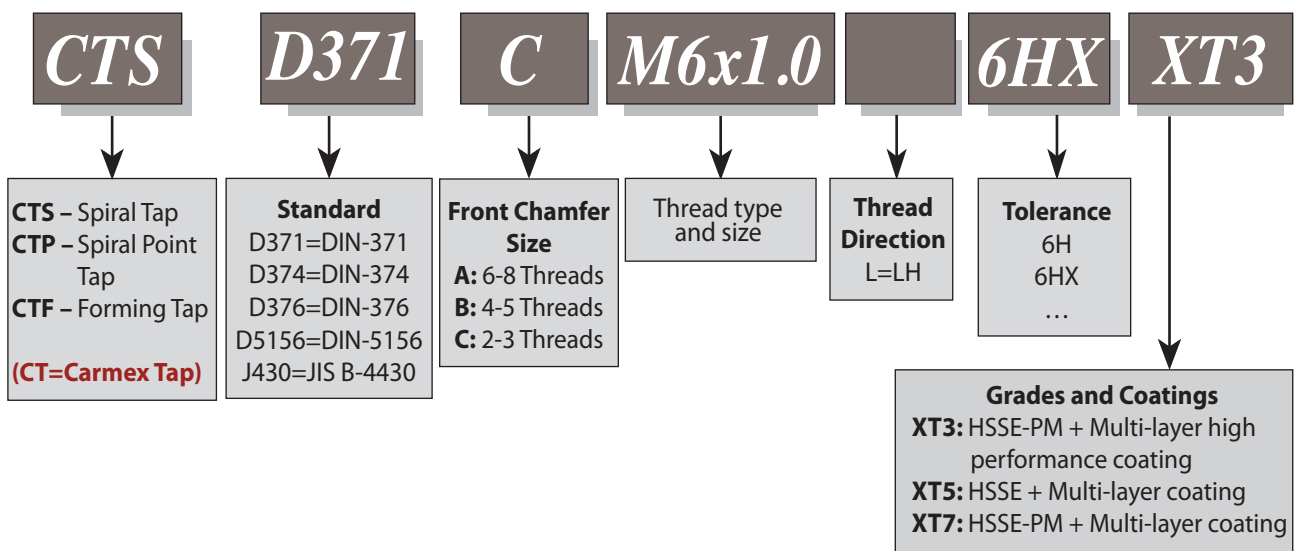
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Key Features

- High performance taps, designed for long lasting tool life, durability and high cutting speed to ensure that each thread is as good and accurate as the first one and as little time-consuming as possible.
- Variety of tap designs and grades ensures that there is a perfect tap for each work application.

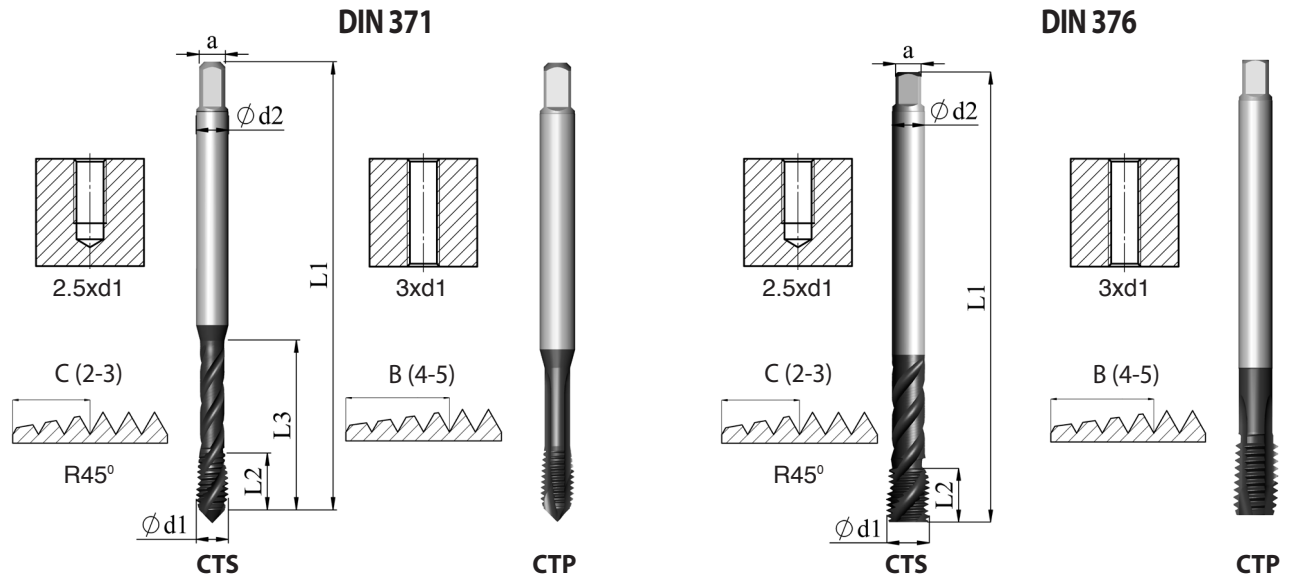
Product Identification

Ordering Codes




HPC Taps

ISO metric coarse M - DIN13



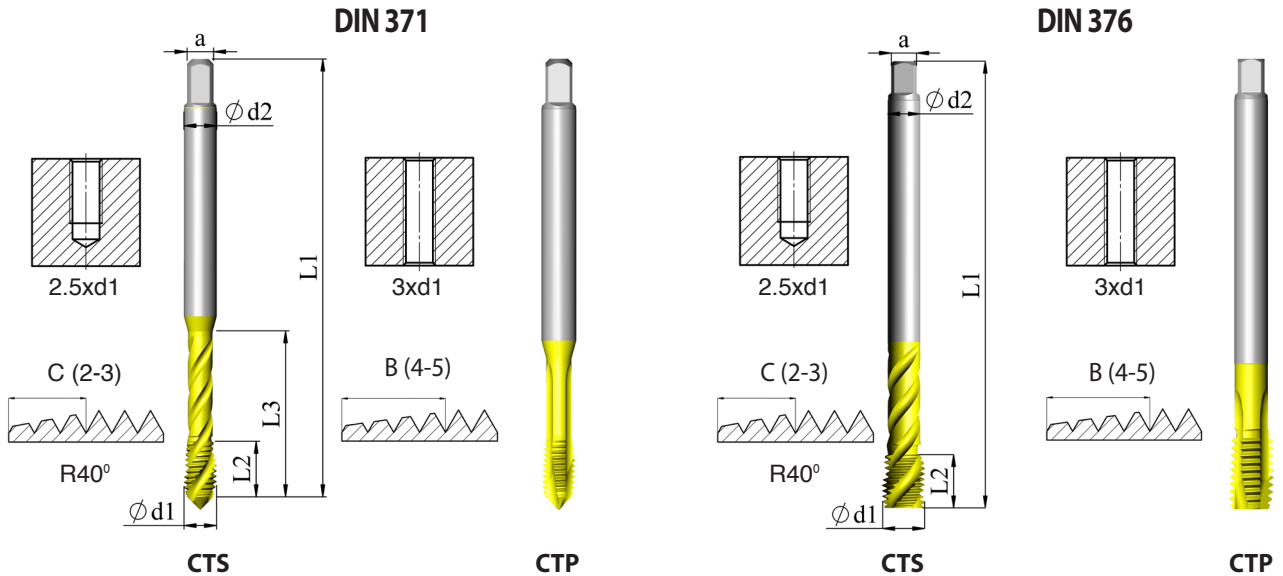
ISO	P	M	K	N	S	H
XT3 Grade	●	●	●	●	●	

d1	Pitch mm	Ordering Code	d2 mm	L1	L2	L3	a	
M3	0.5	CTS D371 C M3x0.5 6HX XT3	3.5	2.2	.20	.71	.106	.098
		CTP D371 B M3x0.5 6HX XT3	3.5	2.2	.20	.71	.106	.098
M4	0.7	CTS D371 C M4x0.7 6HX XT3	4.5	2.5	.27	.83	.134	.130
		CTP D371 B M4x0.7 6HX XT3	4.5	2.5	.27	.83	.134	.130
M5	0.8	CTS D371 C M5x0.8 6HX XT3	6.0	2.7	.31	.98	.193	.165
		CTP D371 B M5x0.8 6HX XT3	6.0	2.7	.31	.98	.193	.165
M6	1.0	CTS D371 C M6x1.0 6HX XT3	6.0	3.1	.39	1.18	.193	.197
		CTP D371 B M6x1.0 6HX XT3	6.0	3.1	.39	1.18	.193	.197
M8	1.25	CTS D371 C M8x1.25 6HX XT3	8.0	3.5	.51	1.38	.244	.268
		CTP D371 B M8x1.25 6HX XT3	8.0	3.5	.51	1.38	.244	.268
M10	1.5	CTS D371 C M10x1.5 6HX XT3	10.0	3.9	.59	1.53	.315	.335
		CTP D371 B M10x1.5 6HX XT3	10.0	3.9	.59	1.53	.315	.335
M12	1.75	CTS D376 C M12x1.75 6HX XT3	9.0	4.3	.71	---	.276	.402
		CTP D376 B M12x1.75 6HX XT3	9.0	4.3	.71	---	.276	.402
M16	2.0	CTS D376 C M16x2.0 6HX XT3	12.0	4.3	.79	---	.354	.551
		CTP D376 B M16x2.0 6HX XT3	12.0	4.3	.79	---	.354	.551

Order example: CTS D371 C M6x1.0 6HX XT3

Machine Taps

ISO metric coarse M - DIN13



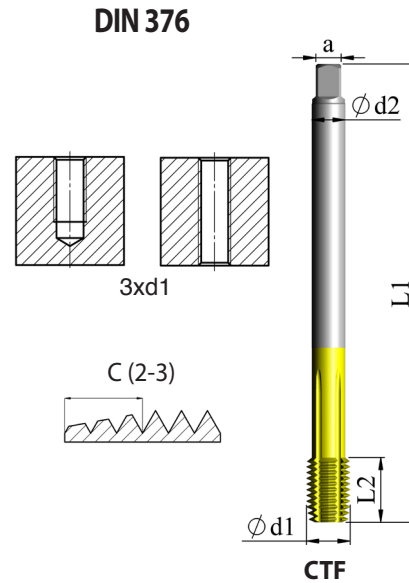
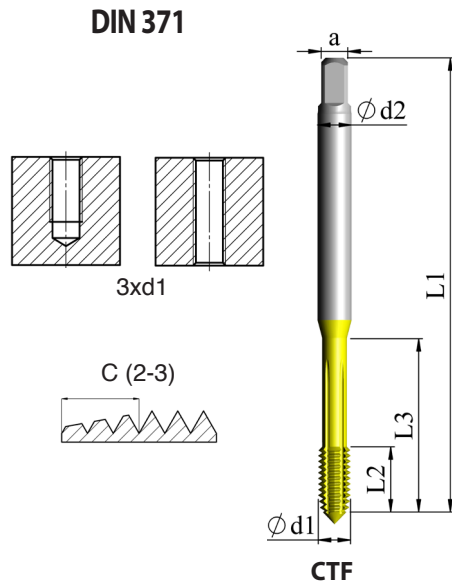
ISO	P	M	K	N	S	H
XT5 Grade	●	●	●	●		

d1	Pitch mm	Ordering Code	d2 mm	L1	L2	L3	a	
M3	0.5	CTS D371 C M3x0.5 6H XT5	3.5	2.2	.20	.71	.106	.098
		CTP D371 B M3x0.5 6H XT5	3.5	2.2	.39	.71	.106	.098
M4	0.7	CTS D371 C M4x0.7 6H XT5	4.5	2.5	.27	.82	.134	.130
		CTP D371 B M4x0.7 6H XT5	4.5	2.5	.47	.82	.134	.130
M5	0.8	CTS D371 C M5x0.8 6H XT5	6.0	2.7	.31	.98	.193	.165
		CTP D371 B M5x0.8 6H XT5	6.0	2.7	.55	.98	.193	.165
M6	1.0	CTS D371 C M6x1.0 6H XT5	6.0	3.1	.39	1.18	.193	.197
		CTP D371 B M6x1.0 6H XT5	6.0	3.1	.71	1.18	.193	.197
M8	1.25	CTS D371 C M8x1.25 6H XT5	8.0	3.5	.51	1.37	.244	.268
		CTP D371 B M8x1.25 6H XT5	8.0	3.5	.79	1.37	.244	.268
M10	1.5	CTS D371 C M10x1.5 6H XT5	10.0	3.9	.59	1.53	.315	.335
		CTP D371 B M10x1.5 6H XT5	10.0	3.9	.79	1.53	.315	.335
M12	1.75	CTS D376 C M12x1.75 6H XT5	9.0	4.3	.71	---	.276	.402
		CTP D376 B M12x1.75 6H XT5	9.0	4.3	.94	---	.276	.402
M16	2.0	CTS D376 C M16x2.0 6H XT5	12.0	4.3	.79	---	.354	.551
		CTP D376 B M16x2.0 6H XT5	12.0	4.3	1.26	---	.354	.551
M20	2.5	CTS D376 C M20x2.5 6H XT5	16.0	5.5	.98	---	.472	.689
		CTP D376 B M20x2.5 6H XT5	16.0	5.5	1.26	---	.472	.689
M24	3.0	CTS D376 C M24x3.0 6H XT5	18.0	6.3	1.18	---	.571	.827
		CTP D376 B M24x3.0 6H XT5	18.0	6.3	1.49	---	.571	.827


Order example: CTS D371 C M8x1.25 6H XT5

Forming Taps

ISO metric coarse M - DIN13



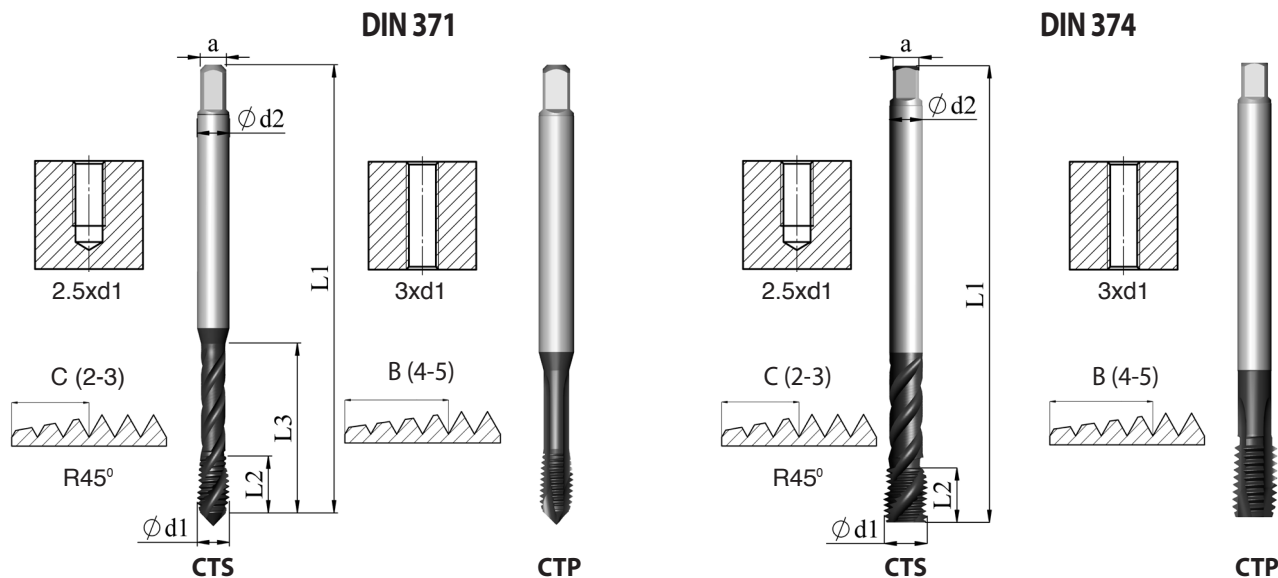
ISO	P	M	K	N	S	H
XT7 Grade	●	●		●		

d1	Pitch mm	Ordering Code	d2 mm	L1	L2	L3	a	
M3	0.5	CTF D371 C M3x0.5 6HX XT7	3.5	2.2	.39	.71	.106	.110
M3.5	0.6	CTF D371 C M3.5x0.6 6HX XT7	4.0	2.2	.47	.79	.118	.128
M4	0.7	CTF D371 C M4x0.7 6HX XT7	4.5	2.5	.27	.83	.134	.146
M5	0.8	CTF D371 C M5x0.8 6HX XT7	6.0	2.7	.31	.98	.193	.183
M6	1.0	CTF D371 C M6x1.0 6HX XT7	6.0	3.1	.39	1.18	.193	.220
M7	1.0	CTF D371 C M7x1.0 6HX XT7	7.0	3.1	.39	1.18	.216	.260
M8	1.25	CTF D371 C M8x1.25 6HX XT7	8.0	3.5	.51	1.38	.244	.293
M9	1.25	CTF D371 C M9x1.25 6HX XT7	9.0	3.5	.51	1.38	.276	.333
M10	1.5	CTF D371 C M10x1.5 6HX XT7	10.0	3.9	.59	1.53	.315	.368
M12	1.75	CTF D376 C M12x1.75 6HX XT7	9.0	4.3	.71	---	.276	.443
M14	2.0	CTF D376 C M14x2.0 6HX XT7	11.0	4.3	.79	---	.354	.516
M16	2.0	CTF D376 C M16x2.0 6HX XT7	12.0	4.3	.79	---	.354	.594

Order example: CTF D371 C M6x1.0 6HX XT7

HPC Taps

ISO metric fine MF - DIN13



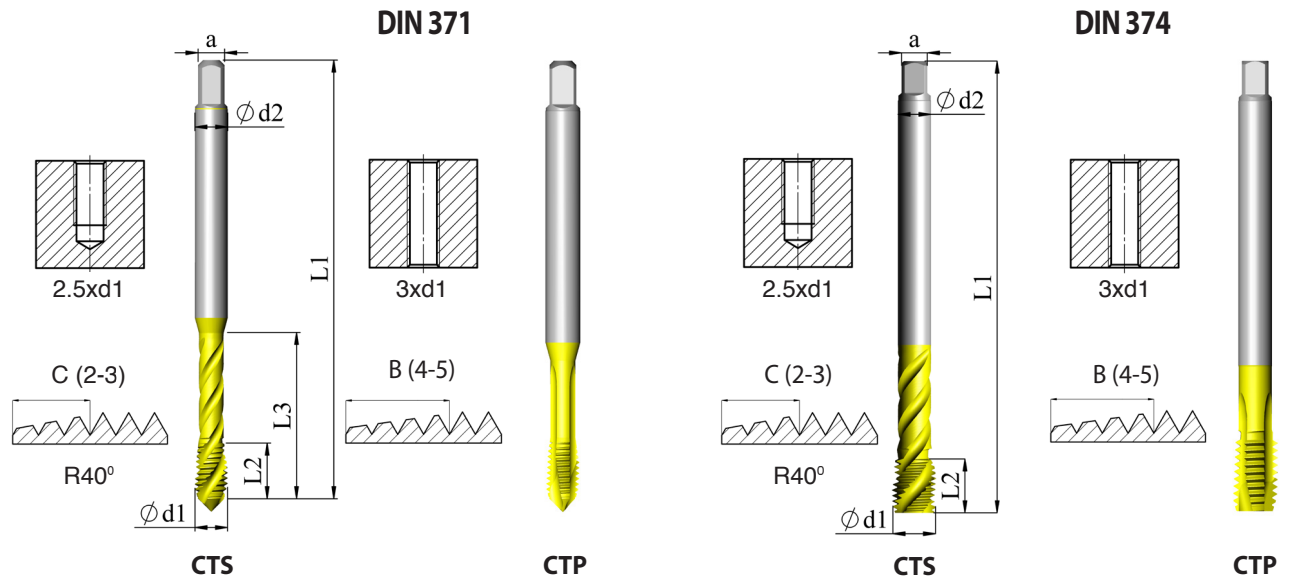
ISO	P	M	K	N	S	H
XT3 Grade	●	●	●	●	●	

CTF		Ordering Code	d2 mm	L1	L2	L3	a	
M8	1.0	CTS D371 C M8x1.0 6HX XT3	8.0	3.5	.51	1.38	.244	.276
		CTP D371 B M8x1.0 6HX XT3	8.0	3.5	.51	1.38	.244	.276
M10	1.0	CTS D371 C M10x1.0 6HX XT3	10.0	3.5	.51	1.38	.315	.354
		CTP D371 B M10x1.0 6HX XT3	10.0	3.5	.51	1.38	.315	.354
M12	1.25	CTS D374 C M12x1.25 6HX XT3	9.0	3.9	.59	---	.276	.425
		CTP D374 B M12x1.25 6HX XT3	9.0	3.9	.59	---	.276	.425


Order example: CTP D374 B M12x1.25 6HX XT3

Machine Taps

ISO metric fine MF - DIN13



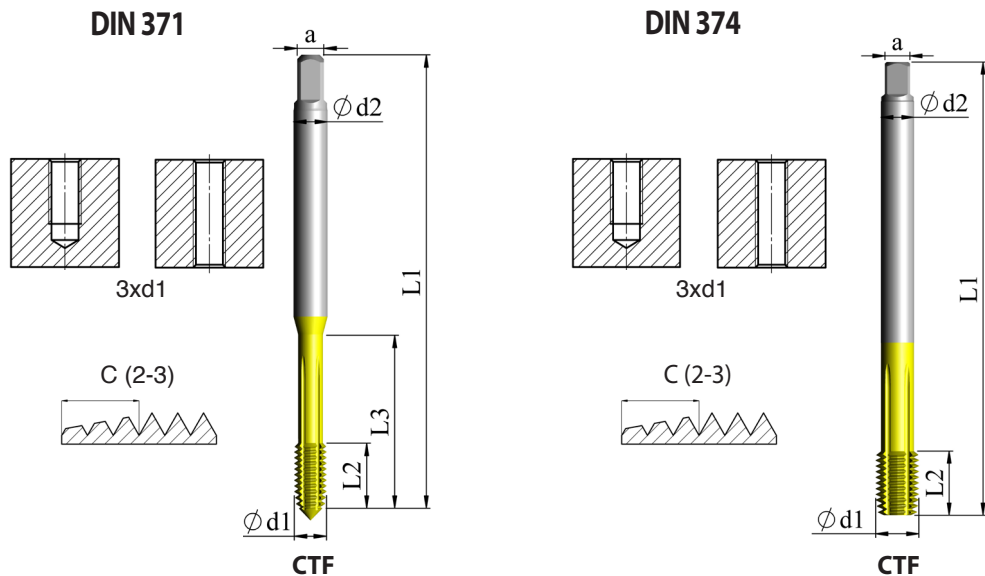
ISO	P	M	K	N	S	H
XT5 Grade	●	●	●	●		

d1	Pitch mm	Ordering Code	d2 mm	L1	L2	L3	a	
M8	1.0	CTS D371 C M8x1.0 6H XT5	8.0	3.5	.51	1.38	.244	.276
		CTP D371 B M8x1.0 6H XT5	8.0	3.5	.79	1.38	.244	.276
M10	1.0	CTS D371 C M10x1.0 6H XT5	10.0	3.5	.51	1.38	.315	.354
		CTP D371 B M10x1.0 6H XT5	10.0	3.5	.79	1.38	.315	.354
M12	1.25	CTS D374 C M12x1.25 6H XT5	9.0	3.9	.59	---	.276	.425
		CTP D374 B M12x1.25 6H XT5	9.0	3.9	.79	---	.276	.425


Order example: CTP D371 B M10x1.0 6H XT5

Forming Taps

ISO metric fine MF - DIN13



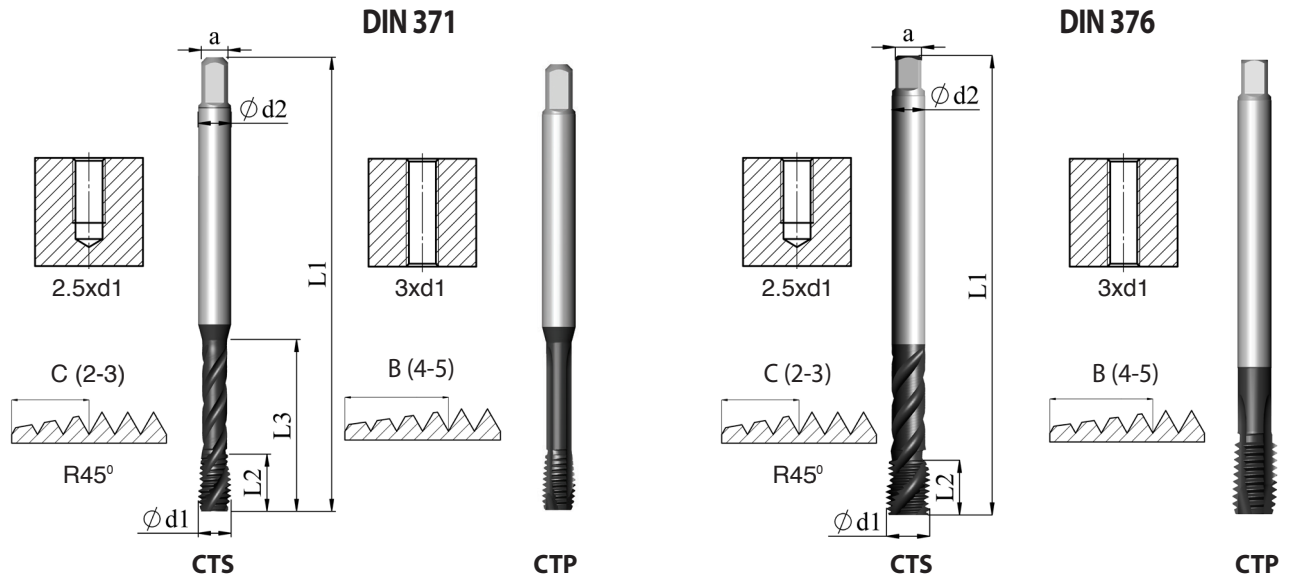
ISO	P	M	K	N	S	H
XT7 Grade	●	●		●		

d1	Pitch mm	Ordering Code	d2 mm	L1	L2	L3	a	
M8	1.0	CTF D371 C M8x1.0 6HX XT7	8.0	3.5	.51	1.38	.244	.299
M10	1.0	CTF D371 C M10x1.0 6HX XT7	9.0	3.5	.51	1.38	.276	.378
M10	1.0	CTF D374 C M10x1.0 6HX XT7	7.0	3.5	.39	---	.216	.378
M12	1.0	CTF D374 C M12x1.0 6HX XT7	9.0	3.9	.39	---	.276	.457
M12	1.5	CTF D374 C M12x1.5 6HX XT7	9.0	3.9	.59	---	.276	.447
M16	1.5	CTF D374 C M16x1.5 6HX XT7	12.0	3.9	.59	---	.354	.604


Order example: CTF D371 C M8x1.0 6HX XT7


HPC Taps

UN Coarse ANSI B-1.1



ISO	P	M	K	N	S	H
XT3 Grade	●	●	●	●	●	

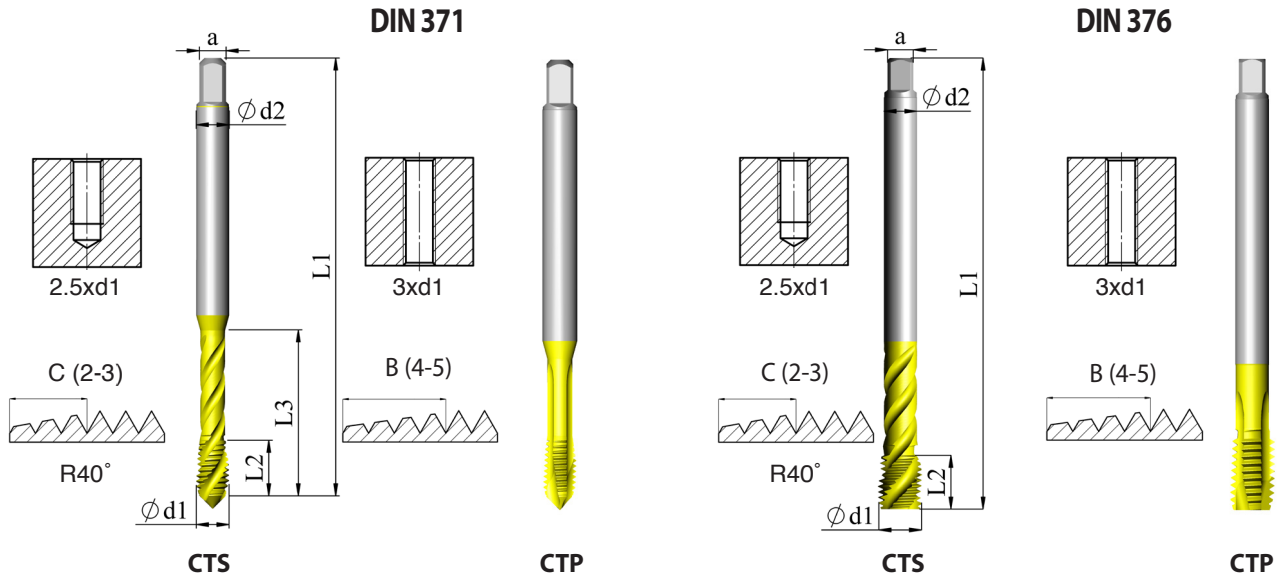
UNC	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
2-56	.086	56	CTS D371 C 2-56UNC 2BX XT3	2.8	1.8	.39	.51	.083	.073
			CTP D371 B 2-56UNC 2BX XT3	2.8	1.8	.39	.51	.083	.073
4-40	.112	40	CTS D371 C 4-40UNC 2BX XT3	3.5	2.2	.20	.71	.106	.093
			CTP D371 B 4-40UNC 2BX XT3	3.5	2.2	.20	.71	.106	.093
5-40	.125	40	CTS D371 C 5-40UNC 2BX XT3	3.5	2.2	.28	.71	.106	.104
			CTP D371 B 5-40UNC 2BX XT3	3.5	2.2	.28	.71	.106	.104
6-32	.138	32	CTS D371 C 6-32UNC 2BX XT3	4.0	2.2	.24	.79	.118	.112
			CTP D371 B 6-32UNC 2BX XT3	4.0	2.2	.24	.79	.118	.112
8-32	.164	32	CTS D371 C 8-32UNC 2BX XT3	4.5	2.5	.28	.83	.134	.138
			CTP D371 B 8-32UNC 2BX XT3	4.5	2.5	.28	.83	.134	.138
10-24	.190	24	CTS D371 C 10-24UNC 2BX XT3	6.0	2.8	.31	.98	.193	.154
			CTP D371 B 10-24UNC 2BX XT3	6.0	2.8	.31	.98	.193	.154
12-24	.216	24	CTS D371 C 12-24UNC 2BX XT3	6.0	3.1	.39	1.18	.193	.177
			CTP D371 B 12-24UNC 2BX XT3	6.0	3.1	.39	1.18	.193	.177

UNC	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
1/4-20	.250	20	CTS D371 C 0250-20UNC 2BX XT3	7.0	3.1	.51	1.18	.217	.201
			CTP D371 B 0250-20UNC 2BX XT3	7.0	3.1	.51	1.18	.217	.201
5/16-18	.313	18	CTS D371 C 0312-18UNC 2BX XT3	8.0	3.5	.51	1.38	.236	.260
			CTP D371 B 0312-18UNC 2BX XT3	8.0	3.5	.51	1.38	.236	.260
3/8-16	.375	16	CTS D371 C 0375-16UNC 2BX XT3	10.0	3.9	.59	1.54	.315	.315
			CTP D371 B 0375-16UNC 2BX XT3	10.0	3.9	.59	1.54	.315	.315
7/16-14	.438	14	CTS D376 C 0437-14UNC 2BX XT3	8.0	3.9	.59	---	.244	.370
			CTP D376 B 0437-14UNC 2BX XT3	8.0	3.9	.59	---	.244	.370
1/2-13	.500	13	CTS D376 C 0500-13UNC 2BX XT3	9.0	4.3	.71	---	.276	.425
			CTP D376 B 0500-13UNC 2BX XT3	9.0	4.3	.71	---	.276	.425
9/16-12	.563	12	CTS D376 C 0562-12UNC 2BX XT3	11.0	4.3	.79	---	.354	.480
			CTP D376 B 0562-12UNC 2BX XT3	11.0	4.3	.79	---	.354	.480
5/8-11	.625	11	CTS D376 C 0625-11UNC 2BX XT3	12.0	4.3	.87	---	.354	.531
			CTP D376 B 0625-11UNC 2BX XT3	12.0	4.3	.87	---	.354	.531


Order example: CTS D376 C 0562-12UNC 2BX XT3

Machine Taps

UN Coarse ANSI B-1.1




ISO	P	M	K	N	S	H
XT5 Grade	●	●	●	●		

UNC	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
2-56	.086	56	CTS D371 C 2-56UNC 2B XT5	2.8	1.8	.39	.51	.083	.073
			CTP D371 B 2-56UNC 2B XT5	2.8	1.8	.39	.51	.083	.073
4-40	.112	40	CTS D371 C 4-40UNC 2B XT5	3.5	2.2	.20	.71	.106	.093
			CTP D371 B 4-40UNC 2B XT5	3.5	2.2	.39	.71	.106	.093
5-40	.125	40	CTS D371 C 5-40UNC 2B XT5	3.5	2.2	.28	.71	.106	.104
			CTP D371 B 5-40UNC 2B XT5	3.5	2.2	.39	.71	.106	.104
6-32	.138	32	CTS D371 C 6-32UNC 2B XT5	4.0	2.2	.24	.79	.118	.112
			CTP D371 B 6-32UNC 2B XT5	4.0	2.2	.47	.79	.118	.112
8-32	.164	32	CTS D371 C 8-32UNC 2B XT5	4.5	2.5	.28	.83	.134	.138
			CTP D371 B 8-32UNC 2B XT5	4.5	2.5	.47	.83	.134	.138
10-24	.190	24	CTS D371 C 10-24UNC 2B XT5	6.0	2.8	.31	.98	.193	.154
			CTP D371 B 10-24UNC 2B XT5	6.0	2.8	.55	.98	.193	.154
12-24	.216	24	CTS D371 C 12-24UNC 2B XT5	6.0	3.1	.39	1.18	.193	.177
			CTP D371 B 12-24UNC 2B XT5	6.0	3.1	.71	1.18	.193	.177

Machine Taps

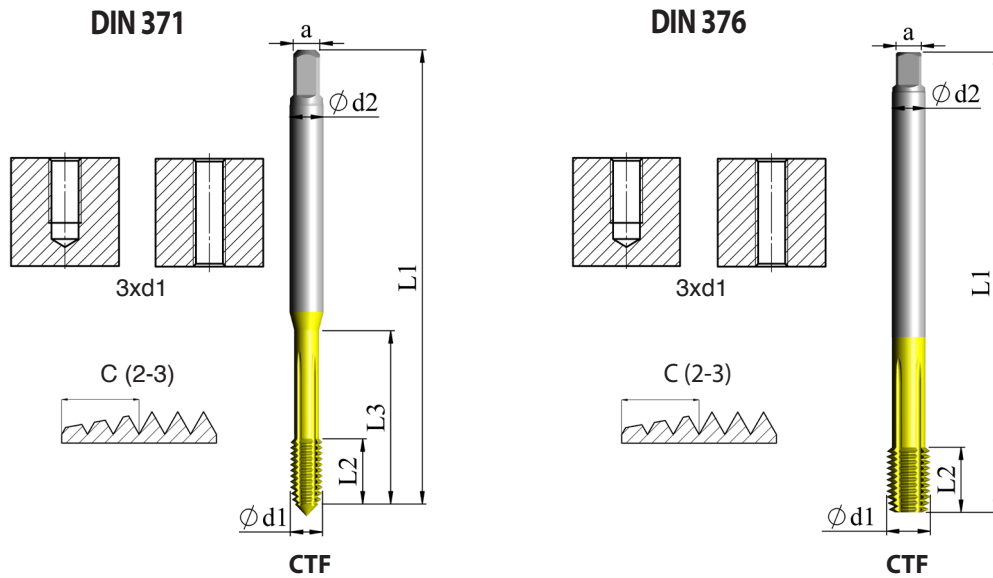
UN Coarse ANSI B-1.1

UNC	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
1/4-20	.250	20	CTS D371 C 0250-20UNC 2B XT5	7.0	3.1	.51	1.18	.217	.201
			CTP D371 B 0250-20UNC 2B XT5	7.0	3.1	.71	1.18	.217	.201
5/16-18	.313	18	CTS D371 C 0312-18UNC 2B XT5	8.0	3.5	.51	1.38	.236	.260
			CTP D371 B 0312-18UNC 2B XT5	8.0	3.5	.79	1.38	.236	.260
3/8-16	.375	16	CTS D371 C 0375-16UNC 2B XT5	10.0	3.9	.59	1.54	.315	.315
			CTP D371 B 0375-16UNC 2B XT5	10.0	3.9	.79	1.54	.315	.315
7/16-14	.438	14	CTS D376 C 0437-14UNC 2B XT5	8.0	3.9	.59	---	.244	.370
			CTP D376 B 0437-14UNC 2B XT5	8.0	3.9	.87	---	.244	.370
1/2-13	.500	13	CTS D376 C 0500-13UNC 2B XT5	9.0	4.3	.71	---	.276	.425
			CTP D376 B 0500-13UNC 2B XT5	9.0	4.3	.94	---	.276	.425
9/16-12	.563	12	CTS D376 C 0562-12UNC 2B XT5	11.0	4.3	.79	---	.354	.480
			CTP D376 B 0562-12UNC 2B XT5	11.0	4.3	.98	---	.354	.480
5/8-11	.625	11	CTS D376 C 0625-11UNC 2B XT5	12.0	4.3	.87	---	.354	.531
			CTP D376 B 0625-11UNC 2B XT5	12.0	4.3	1.26	---	.354	.531
3/4-10	.750	10	CTS D376 C 0750-10UNC 2B XT5	14.0	4.9	.98	---	.433	.650
			CTP D376 B 0750-10UNC 2B XT5	14.0	4.9	1.26	---	.433	.650
7/8-9	.875	9	CTS D376 C 0875-9UNC 2B XT5	18.0	5.5	1.18	---	.571	.768
			CTP D376 B 0875-9UNC 2B XT5	18.0	5.5	1.26	---	.571	.768
1-8	1.000	8	CTS D376 C 1-8UNC 2B XT5	20.0	6.3	1.18	---	.630	.876
			CTP D376 B 1-8UNC 2B XT5	20.0	6.3	1.50	---	.630	.876


Order example: CTS D376 C 0562-12UNC 2B XT5

Forming Taps

UN Coarse ANSI B-1.1



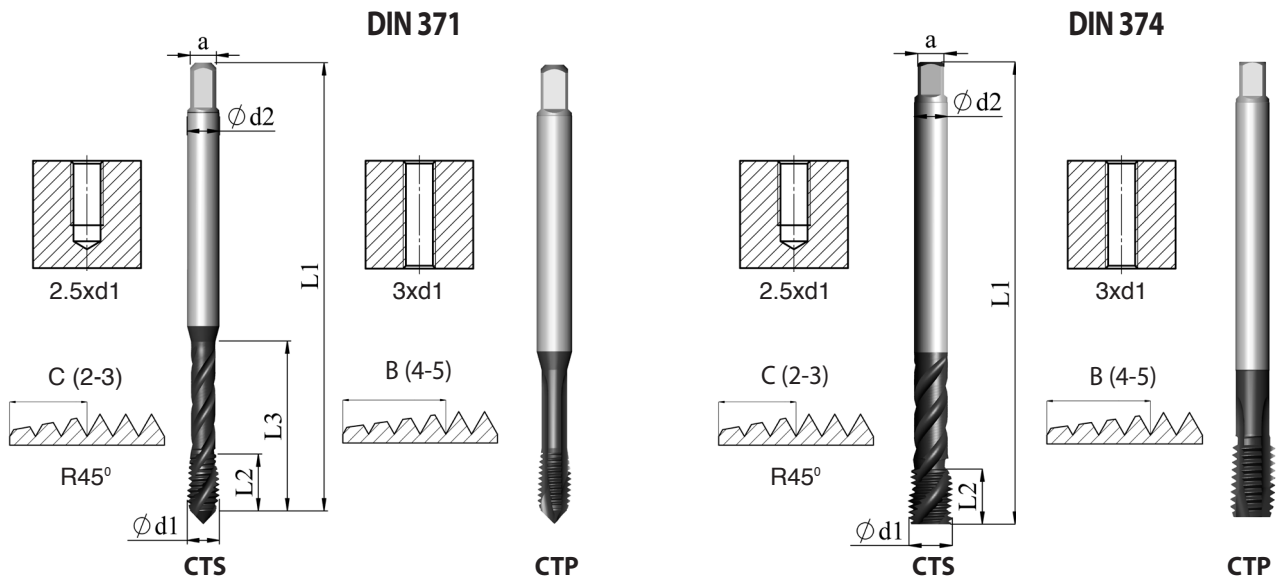
ISO	P	M	K	N	S	H
XT7 Grade	●	●		●		

UNC	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
5-40	.125	40	CTF D371 C 5-40UNC 2BX XT7	3.5	2.2	.28	.71	.106	.114
6-32	.138	32	CTF D371 C 6-32UNC 2BX XT7	4.0	2.2	.24	.79	.118	.124
8-32	.164	32	CTF D371 C 8-32UNC 2BX XT7	4.5	2.5	.28	.83	.134	.150
10-24	.190	24	CTF D371 C 10-24UNC 2BX XT7	6.0	2.8	.31	.98	.193	.171
12-24	.216	24	CTF D371 C 12-24UNC 2BX XT7	6.0	3.1	.39	1.18	.193	.197
1/4-20	.250	20	CTF D371 C 0250-20UNC 2BX XT7	7.0	3.1	.51	1.18	.217	.226
5/16-18	.313	18	CTF D371 C 0312-18UNC 2BX XT7	8.0	3.5	.51	1.38	.236	.287
3/8-16	.375	16	CTF D371 C 0375-16UNC 2BX XT7	10.0	3.9	.59	1.54	.315	.346
7/16-14	.438	14	CTF D376 C 0437-14UNC 2BX XT7	8.0	3.9	.59	---	.244	.404
1/2-13	.500	13	CTF D376 C 0500-13UNC 2BX XT7	9.0	4.3	.71	---	.276	.465
5/8-11	.625	11	CTF D376 C 0625-11UNC 2BX XT7	12.0	4.3	.79	---	.354	.583

Order example: CTF D371 C 0312-18UNC 2BX XT7


HPC Taps

UN Fine ANSI B-1.1



ISO	P	M	K	N	S	H
XT3 Grade	●	●	●	●	●	

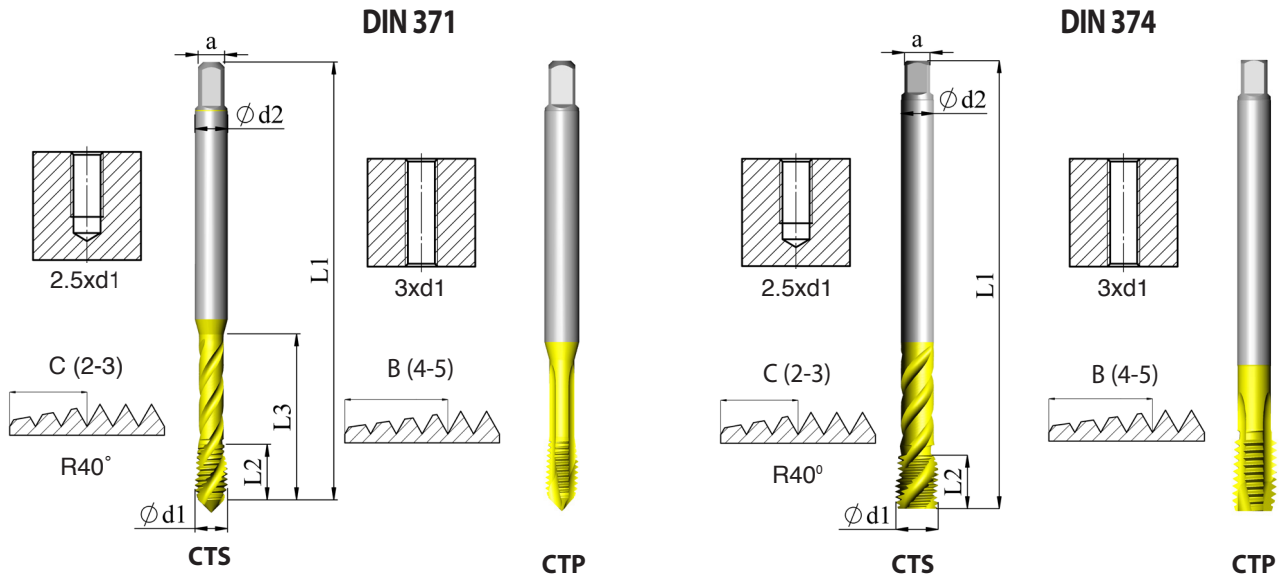
UNF	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
4-48	.112	48	CTS D371 C 4-48UNF 2BX XT3	3.5	2.2	.20	.71	.106	.094
			CTP D371 B 4-48UNF 2BX XT3	3.5	2.2	.20	.71	.106	.094
5-44	.125	44	CTS D371 C 5-44UNF 2BX XT3	3.5	2.2	.28	.71	.106	.106
			CTP D371 B 5-44UNF 2BX XT3	3.5	2.2	.28	.71	.106	.106
6-40	.138	40	CTS D371 C 6-40UNF 2BX XT3	4.0	2.2	.24	.79	.118	.116
			CTP D371 B 6-40UNF 2BX XT3	4.0	2.2	.24	.79	.118	.116
8-36	.164	36	CTS D371 C 8-36UNF 2BX XT3	4.5	2.5	.28	.83	.134	.138
			CTP D371 B 8-36UNF 2BX XT3	4.5	2.5	.28	.83	.134	.138
10-32	.190	32	CTS D371 C 10-32UNF 2BX XT3	6.0	2.8	.31	.98	.193	.161
			CTP D371 B 10-32UNF 2BX XT3	6.0	2.8	.31	.98	.193	.161
12-28	.216	28	CTS D371 C 12-28UNF 2BX XT3	6.0	3.1	.39	1.18	.193	.181
			CTP D371 B 12-28UNF 2BX XT3	6.0	3.1	.39	1.18	.193	.181
1/4-28	.250	28	CTS D371 C 0250-28UNF 2BX XT3	7.0	3.1	.39	1.18	.217	.217
			CTP D371 B 0250-28UNF 2BX XT3	7.0	3.1	.39	1.18	.217	.217
5/16-24	.313	24	CTS D371 C 0312-24UNF 2BX XT3	8.0	3.5	.51	1.38	.236	.272
			CTP D371 B 0312-24UNF 2BX XT3	8.0	3.5	.51	1.38	.236	.272

UNF	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
3/8-24	.375	24	CTS D371 C 0375-24UNF 2BX XT3	10.0	3.9	.59	1.54	.315	.335
			CTP D371 B 0375-24UNF 2BX XT3	10.0	3.9	.59	1.54	.315	.335
7/16-20	.438	20	CTS D374 C 0437-20UNF 2BX XT3	8.0	3.9	.59	---	.244	.390
			CTP D374 B 0437-20UNF 2BX XT3	8.0	3.9	.59	---	.244	.390
1/2-20	.500	20	CTS D374 C 0500-20UNF 2BX XT3	9.0	3.9	.59	---	.276	.453
			CTP D374 B 0500-20UNF 2BX XT3	9.0	3.9	.59	---	.276	.453
9/16-18	.563	18	CTS D374 C 0562-18UNF 2BX XT3	11.0	3.9	.59	---	.354	.508
			CTP D374 B 0562-18UNF 2BX XT3	11.0	3.9	.59	---	.354	.508
5/8-18	.625	18	CTS D374 C 0625-18UNF 2BX XT3	12.0	3.9	.59	---	.354	.571
			CTP D374 B 0625-18UNF 2BX XT3	12.0	3.9	.59	---	.354	.571

Order example: CTP D371 B 0375-24UNF 2BX XT3


Machine Taps

UN Fine ANSI B-1.1



ISO	P	M	K	N	S	H
XT5 Grade	●	●	●	●		

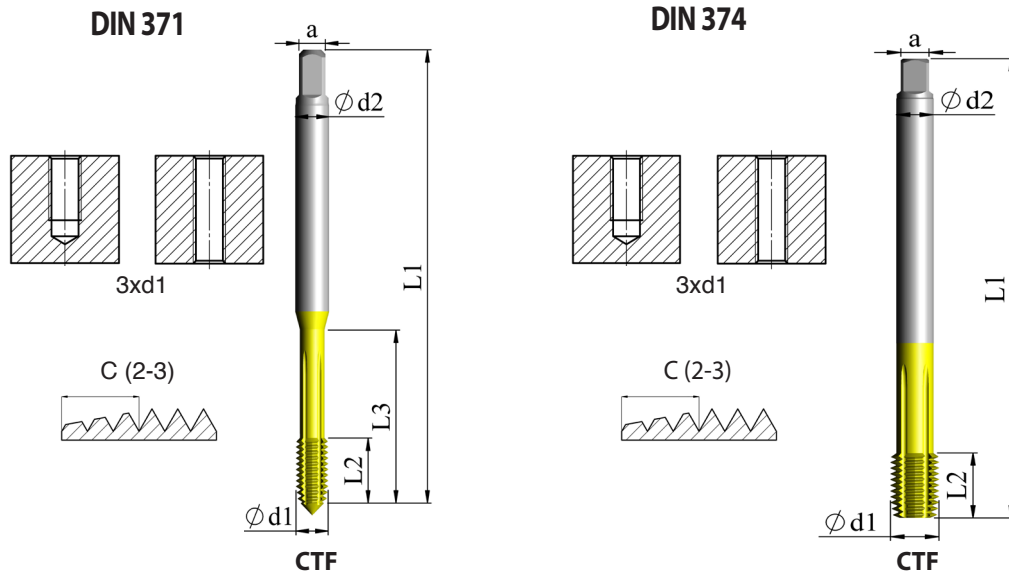
UNF	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
6-40	.138	40	CTS D371 C 6-40UNF 2B XT5	4.0	2.2	.24	.79	.118	.116
			CTP D371 B 6-40UNF 2B XT5	4.0	2.2	.47	.79	.118	.116
8-36	.164	36	CTS D371 C 8-36UNF 2B XT5	4.5	2.5	.28	.83	.134	.138
			CTP D371 B 8-36UNF 2B XT5	4.5	2.5	.47	.83	.134	.138
10-32	.190	32	CTS D371 C 10-32UNF 2B XT5	6.0	2.8	.31	.98	.193	.161
			CTP D371 B 10-32UNF 2B XT5	6.0	2.8	.55	.98	.193	.161
12-28	.216	28	CTS D371 C 12-28UNF 2B XT5	6.0	3.1	.39	1.18	.193	.181
			CTP D371 B 12-28UNF 2B XT5	6.0	3.1	.71	1.18	.193	.181
1/4-28	.250	28	CTS D371 C 0250-28UNF 2B XT5	7.0	3.1	.39	1.18	.217	.217
			CTP D371 B 0250-28UNF 2B XT5	7.0	3.1	.71	1.18	.217	.217
5/16-24	.313	24	CTS D371 C 0312-24UNF 2B XT5	8.0	3.5	.51	1.38	.236	.272
			CTP D371 B 0312-24UNF 2B XT5	8.0	3.5	.79	1.38	.236	.272
3/8-24	.375	24	CTS D371 C 0375-24UNF 2B XT5	10.0	3.9	.59	1.54	.315	.335
			CTP D371 B 0375-24UNF 2B XT5	10.0	3.9	.79	1.54	.315	.335
7/16-20	.438	20	CTS D374 C 0437-20UNF 2B XT5	8.0	3.9	.59	---	.244	.390
			CTP D374 B 0437-20UNF 2B XT5	8.0	3.9	.79	---	.244	.390

UNF	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
1/2-20	.500	20	CTS D374 C 0500-20UNF 2B XT5	9.0	3.9	.59	---	.276	.453
			CTP D374 B 0500-20UNF 2B XT5	9.0	3.9	.79	---	.276	.453
9/16-18	.563	18	CTS D374 C 0562-18UNF 2B XT5	11.0	3.9	.59	---	.354	.508
			CTP D374 B 0562-18UNF 2B XT5	11.0	3.9	.79	---	.354	.508
5/8-18	.625	18	CTS D374 C 0625-18UNF 2B XT5	12.0	3.9	.59	---	.354	.571
			CTP D374 B 0625-18UNF 2B XT5	12.0	3.9	.79	---	.354	.571
3/4-16	.750	16	CTS D374 C 0750-16UNF 2B XT5	14.0	4.3	.67	---	.433	.689
			CTP D374 B 0750-16UNF 2B XT5	14.0	4.3	.94	---	.433	.689
7/8-14	.875	14	CTS D374 C 0875-14UNF 2B XT5	18.0	4.9	.67	---	.571	.803
			CTP D374 B 0875-14UNF 2B XT5	18.0	4.9	.94	---	.571	.803
1-12	1.000	12	CTS D374 C 1-12UNF 2B XT5	18.0	5.5	.79	---	.571	.915
			CTP D374 BS 1-12UNF 2B XT5	18.0	5.5	1.06	---	.571	.915


Order example: CTP D374 B 0875-14UNF 2B XT5

Forming Taps

UN Fine ANSI B-1.1



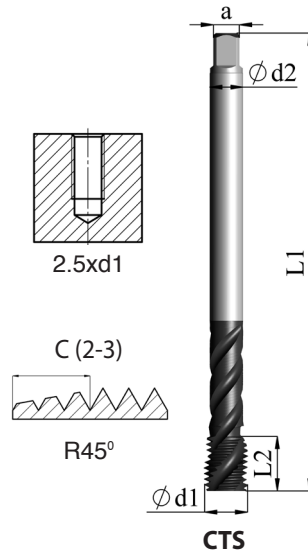
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XT7 Grade	●	●		●		

UNF	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
5-44	.125	44	CTF D371 C 5-44UNF 2BX XT7	3.5	2.2	.28	.71	.106	.115
6-40	.138	40	CTF D371 C 6-40UNF 2BX XT7	4.0	2.2	.24	.79	.118	.127
8-36	.164	36	CTF D371 C 8-36UNF 2BX XT7	4.5	2.5	.28	.83	.134	.152
10-32	.190	32	CTF D371 C 10-32UNF 2BX XT7	6.0	2.8	.31	.98	.193	.175
12-28	.216	28	CTF D371 C 12-28UNF 2BX XT7	6.0	3.1	.39	1.18	.193	.201
1/4-28	.250	28	CTF D371 C 0250-28UNF 2BX XT7	6.0	3.1	.39	1.18	.193	.234
5/16-24	.313	24	CTF D371 C 0312-24UNF 2BX XT7	8.0	3.5	.51	1.38	.244	.293
3/8-24	.375	24	CTF D371 C 0375-24UNF 2BX XT7	10.0	3.9	.59	1.54	.315	.356
7/16-20	.438	20	CTF D374 C 0437-20UNF 2BX XT7	8.0	3.9	.59	---	.244	.415
1/2-20	.500	20	CTF D374 C 0500-20UNF 2BX XT7	9.0	4.3	.59	---	.276	.478
5/8-18	.625	18	CTF D374 C 0625-18UNF 2BX XT7	12.0	4.3	.59	---	.354	.600
3/4-16	.750	16	CTF D374 C 0750-16UNF 2BX XT7	14.0	4.7	.67	---	.433	.722

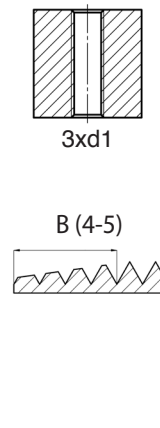
Order example: CTF D371 C 10-32UNF 2BX XT7

HPC Taps


Whitworth pipe thread G, DIN-ISO 228



DIN 5156



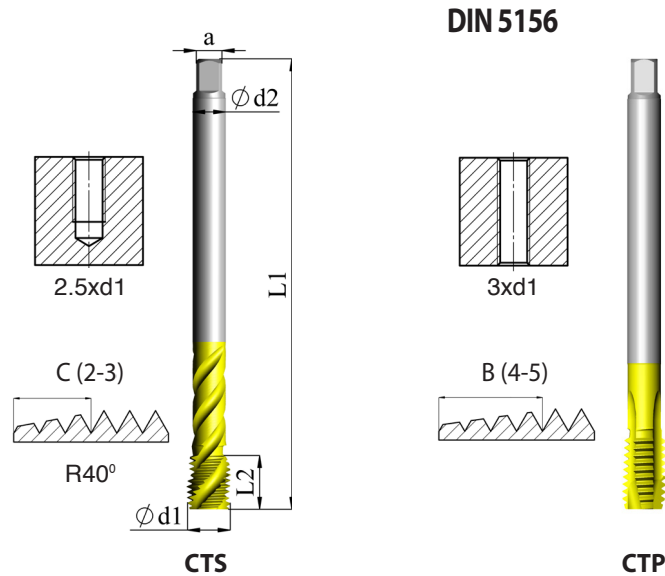
ISO	P	M	K	N	S	H
XT3 Grade	●	●	●	●	●	

G	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	a	
G1/8	.383	28	CTS D5156 C G1/8 XT3	7.0	3.5	.39	.217	.346
			CTP D5156 B G1/8 XT3	7.0	3.5	.39	.217	.346
G1/4	.518	19	CTS D5156 C G1/4 XT3	11.0	3.9	.55	.354	.465
			CTP D5156 B G1/4 XT3	11.0	3.9	.55	.354	.465
G3/8	.656	19	CTS D5156 C G3/8 XT3	12.0	3.9	.59	.354	.600
			CTP D5156 B G3/8 XT3	12.0	3.9	.59	.354	.600
G1/2	.825	14	CTS D5156 C G1/2 XT3	16.0	4.9	.67	.472	.748
			CTP D5156 B G1/2 XT3	16.0	4.9	.67	.472	.748
G3/4	1.041	14	CTS D5156 C G3/4 XT3	20.0	5.5	.79	.630	.965
			CTP D5156 B G3/4 XT3	20.0	5.5	.79	.630	.965
G1	1.309	11	CTS D5156 C G1 XT3	25.0	6.3	.94	.787	1.211
			CTP D5156 B G1 XT3	25.0	6.3	.94	.787	1.211


Order example: CTS D5156 C G1 XT3

Machine Taps

Whitworth pipe thread G, DIN-ISO 228



ISO	P	M	K	N	S	H
XT5 Grade	●	●	●	●		

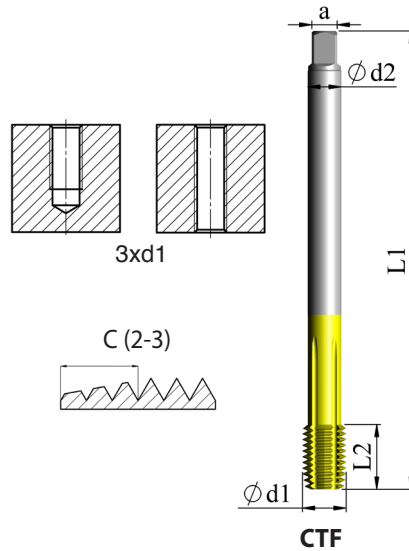
G	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	a	
G1/8	.383	28	CTS D5156 C G1/8 XT5	7.0	3.5	.39	.217	.346
			CTP D5156 B G1/8 XT5	7.0	3.5	.71	.217	.346
G1/4	.518	19	CTS D5156 C G1/4 XT5	11.0	3.9	.55	.354	.465
			CTP D5156 B G1/4 XT5	11.0	3.9	.87	.354	.465
G3/8	.656	19	CTS D5156 C G3/8 XT5	12.0	3.9	.59	.354	.600
			CTP D5156 B G3/8 XT5	12.0	3.9	.87	.354	.600
G1/2	.825	14	CTS D5156 C G1/2 XT5	16.0	4.9	.67	.472	.748
			CTP D5156 B G1/2 XT5	16.0	4.9	.98	.472	.748
G3/4	1.041	14	CTS D5156 C G3/4 XT5	20.0	5.5	.79	.630	.965
			CTP D5156 B G3/4 XT5	20.0	5.5	1.10	.630	.965
G1	1.309	11	CTS D5156 C G1 XT5	25.0	6.3	.94	.787	1.211
			CTP D5156 B G1 XT3	25.0	6.3	.94	.787	1.211

Order example: CTP D5156 B G1/2 XT5


Forming Taps

Whitworth pipe thread G, DIN-ISO 228

DIN 5156



ISO	P	M	K	N	S	H
XT7 Grade	●	●		●		

G	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	a	
G1/8	.383	28	CTF D5156 C G1/8 XT7	7.0	3.5	.51	.217	.364
G1/4	.518	19	CTF D5156 C G1/4 XT7	11.0	3.9	.63	.354	.494
G3/8	.656	19	CTF D5156 C G3/8 XT7	12.0	3.9	.63	.354	.632
G1/2	.825	14	CTF D5156 C G1/2 XT7	16.0	4.9	.71	.472	.791
G3/4	1.041	14	CTF D5156 C G3/4 XT7	20.0	5.5	.87	.630	1.008

Order example: CTF D5156 C G1/4 XT7

Technical Section

Cutting data

ISO Standard	Materials Class	Vc [SFM]		
		Grades		
		XT3	XT5	XT7
P	Low & Medium Carbon Steels <0.55%C	15-150	15-130	35-115
	High Carbon Steels ≥0.55%C			
	Alloy Steels, Treated Steels			
M	Stainless Steel-Free Cutting	15-65	15-65	35-100
	Stainless Steel-Austenitic			
	Cast Steels			
K	Cast Iron	35-115	15-100	-
N	Aluminum ≤12%Si, Copper	35-115	35-115	50-150
	Aluminum >12%Si			
	Synthetics, duroplastics, thermoplastics			
S	Nickel alloys, Titanium alloys	5-35	-	-

$$\text{Rotation speed (rpm): } n = \frac{12 \cdot v_c}{\pi \cdot d_1}$$

$$\text{Feed (ipm): } f = \frac{n}{p} \quad (\text{when } p \text{ is given in TPI})$$

$$\text{Feed (ipm): } f = \frac{n \cdot p}{25.4} \quad (\text{when } p \text{ is given in mm})$$

d_1 – nominal diameter (inch)

v_c – cutting speed (SFM)

n – spindle rotating speed

p – thread pitch

f – feed

Taps Grades and material used

Carmex Grades	Material Symbol	Coatings	Hardness	Toughness	Temperature resistance	Cutting edge Stability
XT3	HSSE-PM	Multi-layer high performance coating	++	++	++	++
XT5	HSSE	Multi-layer coating	+	+	+	+
XT7	HSSE-PM	Multi-layer coating	++	++	+	++

Grades application:

XT3- high performance grade, with high hardness and high temperature resistance, for tough and difficult to cut materials. High edge stability.

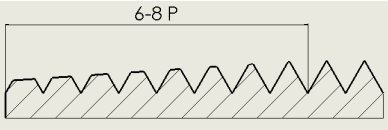

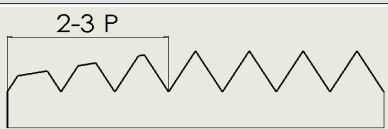


XT5- excellent solution for wide range of materials and applications can be used with unstable conditions. High wear resistance thanks to the multi-layer smooth and polished coating.

XT7- best solution for chip-free materials, high hardness and toughness grade provides smooth thread finish and allow high working parameters.

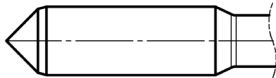
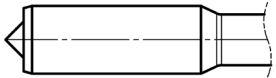
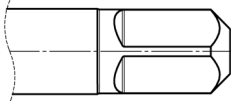
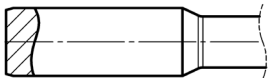
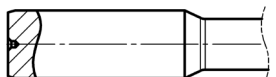
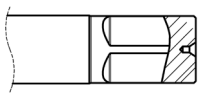
Taps standards

Symbol	Description
DIN-371	Machine taps with reinforced shank for metric coarse and fine threads up to M10 and for UNC and UNF threads up to 3/8" nominal diameter
DIN-376	Machine taps with reduced shank diameter for metric coarse threads and for UNC threads
DIN-374	Machine taps with reduced shank diameter for metric fine threads and for UNF threads
DIN-5156	Machine taps with reduced shank diameter for G threads

Types of front chamfers

Symbol	Sketch	Chamfer length (No. of threads)
A		6-8 P
B		4-5 P
C		2-3 P
D (straight flute taps only)		4-5 P
E		1.5-2 P

Tap Center

Working Part		Shank
Solid Cone/Male center (1)		
Half center (2)		 (5) Chamfer
Chamfer without center hole (3)		
Internal center hole (4)		 (6) Internal Center Hole

Standard	External thread Diameter (mm)	Type of center cone/hole			Type of center hole on shank side
		Chamfers A,C,D	Chamfer B	Chamfer E	
DIN-371	≤7.2	(1)	(1)	(3)	(5)
	7.2-8.2	(2)	(1)	(3)	(5)
	8.2-10.2	(2)	(2)	(3)	(5)
DIN-374	≤7.2	(1)	(1)	(3)	(5)
DIN-376 DIN-5156	>7.2	(4)	(4)	(3)	(6)

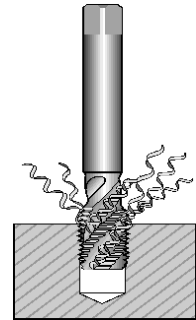
Length of Solid Cones

(Length of stepped cone is .071 for all Taps)

M		MF	
M1	.024	M2.5x0.35	.075
M1.2	.031	M2.6x0.35	.075
M1.4	.039	M3x0.35	.051
M1.6	.043	M3.5x0.35	.063
M1.7	.047	M4x0.5	.071
M1.8	.051	M5x0.5	.091
M2	.055	M6x0.75	.102
M2.5	.071	M7x0.75	.122
M2.6	.071		
M3	.051		
M3.5	.059		
M4	.067		
M4.5	.075		
M5	.083		
M6	.098		
M7	.118		
UNC		UNF	
4-40	.079	4-48	.083
5-40	.051	5-44	.055
6-32	.055	6-40	.059
8-32	.071	8-36	.071
10-24	.079	10-32	.083
12-24	.091	12-28	.091
1/4-20	.102	1/4-28	.110
5/16-18	.130	5/16-24	.138

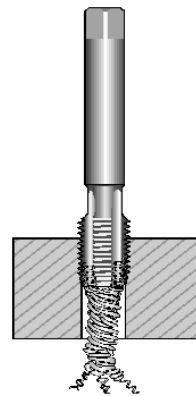
Types of Thread Taps

Spiral fluted taps



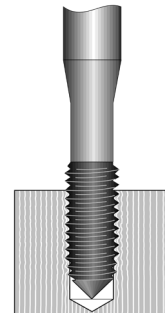
Spiral fluted taps are suitable for threading blind hole applications. The spiral flute drives the chip towards the shank and out of the hole. The spiral fluted taps are not suitable for tapping through holes.

Spiral point Taps



Spiral point taps have straight flutes with a spiral point. The spiral point drives the chip in the direction of feed, that makes spiral point taps ideal for threading through hole applications as chips are evacuated through the hole. Because of this design spiral point taps are not suitable for blind hole applications. Moreover, when tapping a through hole, the tap must go through until the spiral point has passed the hole.

Forming Taps

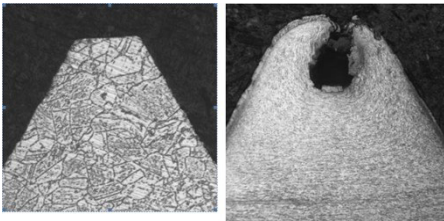


Forming taps make thread by method of plastic deformation instead of cutting it. These taps are suitable for ductile materials.

Rule of thumb is if the material produces continuous stringy chip it is probably a good candidate for thread forming. Forming is ideal when absolutely chip free production is desired.

Note that the bore diameter required for formed thread is greater than bore diameter for cut thread.

Cut thread vs. formed thread



Advantages of forming taps/formed threads

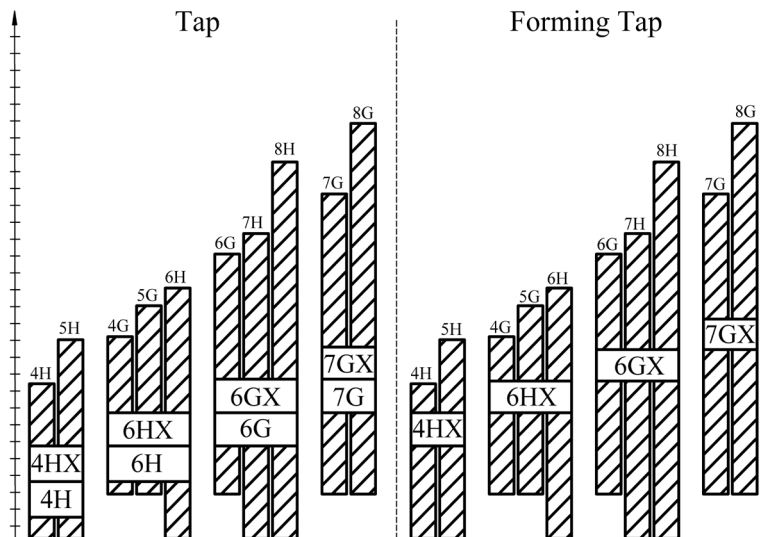
- + The same tool is suitable for both blind and through holes
- + No chips – eliminates problems with chip evacuation
- + Able to tap at higher speeds than cutting taps.
- + No flutes, larger core diameter – stronger tool.
- + Longer tool life.
- + Smoother thread surface.

Disadvantages of forming taps/formed threads

- Greater working torque required.
- Incomplete formation of the thread top, as can be seen on the photo above, which can make the thread more prone to cross-threading.
- Limited to ductile materials.

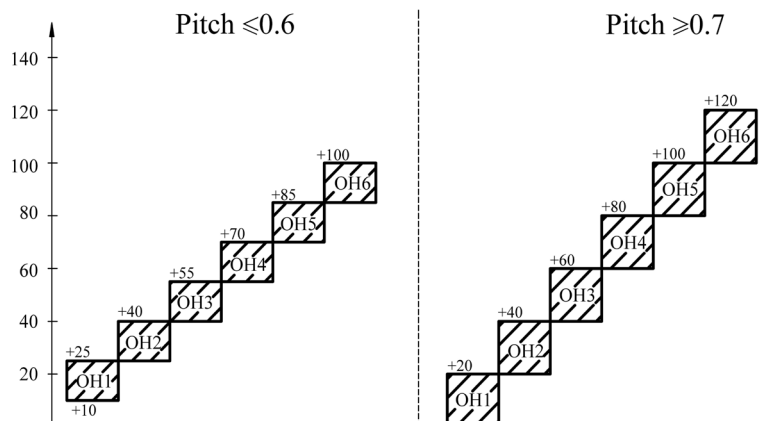
Tolerances

Metric internal thread



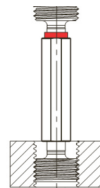
Tap tolerance According to DIN 802	Tolerance field of internal thread				
4H	4H	5H	-	-	-
6H	4G	5G	6H	-	-
6G	-	-	6G	7H	8H
7G	-	-	-	7G	8G

OH internal thread

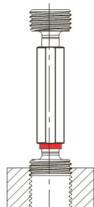


Thread gauges

Go and no-go thread gauges are used to check internal threads. The go gauge should be manually screwed freely for the whole length of the thread.



The no-go gauge should not go in further than two thread pitches when screwed manually.



Test Report

Application:

Internal right hand thread: M6x1
Thread depth: .63
Bore size: Ø5mm, blind hole

Workpiece Material:

Steel SAE 4340 Hardened to: 17HRc

Tool Description:

CTS D371 C M6x1.0 6HX XT3
Shank diameter: Ø6mm
Max. thread length: 2.5xD
Chamfer size: 2-3 threads

Cutting conditions:

Cutting speed: 65 SFM
Rotational speed: 1060 rpm

Machine:


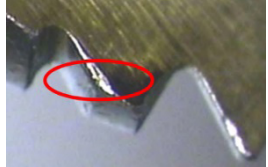


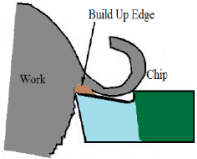
Mori Seiki NV5000.
Coolant: emulsion 5%


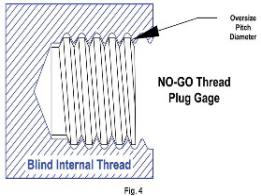
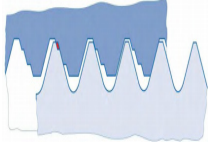
Test Results:

Tool life: 1720 threads
Cycle time: 3 sec



Troubleshooting

Problem	Possible cause	Possible Solution	
Chipped teeth	High tool run out	Use grip with better mounting precision	
	Too high cutting speed	Decrease cutting speed	
	Drill hole is too small	Use recommended drill size	
High tap wear	Too high cutting speed	Decrease cutting speed	
	Poor coolant flow to the cutting area	Adjust direction of coolant flow into the hole	
	High tool run out	Use grip with better mounting precision	
Chips fill up flutes	Change tool selection	If work conditions/material suitable, try forming tap instead of cutting tap	
	Too low cutting speed	Increase cutting speed	
	Poor chips flow	Apply internal cooling	
Poor finish on workpiece	Tap is worn out	Replace tap	
	Built-up edge	Replace tool and check "built-up edge" section for solution	
	Poor coolant flow to the cutting area	Adjust direction of coolant flow into the hole	
	Wrong cutting parameters	Use recommended cutting parameters	
Built-up edge	Too low cutting speed	Increase cutting speed	
	Poor coolant flow to the cutting area	Adjust direction of coolant flow into the hole	
	Worn out cutting edges	Replace tap	

Problem	Possible cause	Possible Solution	
Tap breakage	Mismatch between Tap location and hole	Correct alignment between tap and hole	
	Drilled hole not deep enough	Check actual hole depth	
	Excessive runout	Use grip with better mounting precision	
	Flutes filled up with chips	Check “chips fill up flutes” section on this table	
	Built-up edge	Replace tool, check “built-up” edge section for solution	
	Drill hole is too small	Use recommended drill size	
	Too high cutting speed	Decrease cutting speed	
Oversized thread	Tap tolerance and requested workpiece tolerance don't fit	Choose different tap with suitable tolerance	
	Flutes filled up with chips	Remove chips and check “chips fill up flutes” section to prevent the problem from returning	
	Built-up edge	Replace tool, check “built-up” edge section for solution	
	Too high cutting speed	Decrease cutting speed	
	Unstable tool	Increase cutting speed – may improve tool stability	
Undersized thread	Worn out tap	Replace tap	
	Tap tolerance and requested workpiece tolerance don't fit	Choose different tap with suitable tolerance	
	Drill hole is too small	Use recommended size drill	
Excessive power requirement	Worn out tap	Replace tap	
	Poor coolant flow to the cutting area	Adjust direction of coolant flow into the hole	
	Drill hole is too small	Use recommended size drill	



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