



*x-treme thread cutting™*

# *X-treme Taps*



Inch

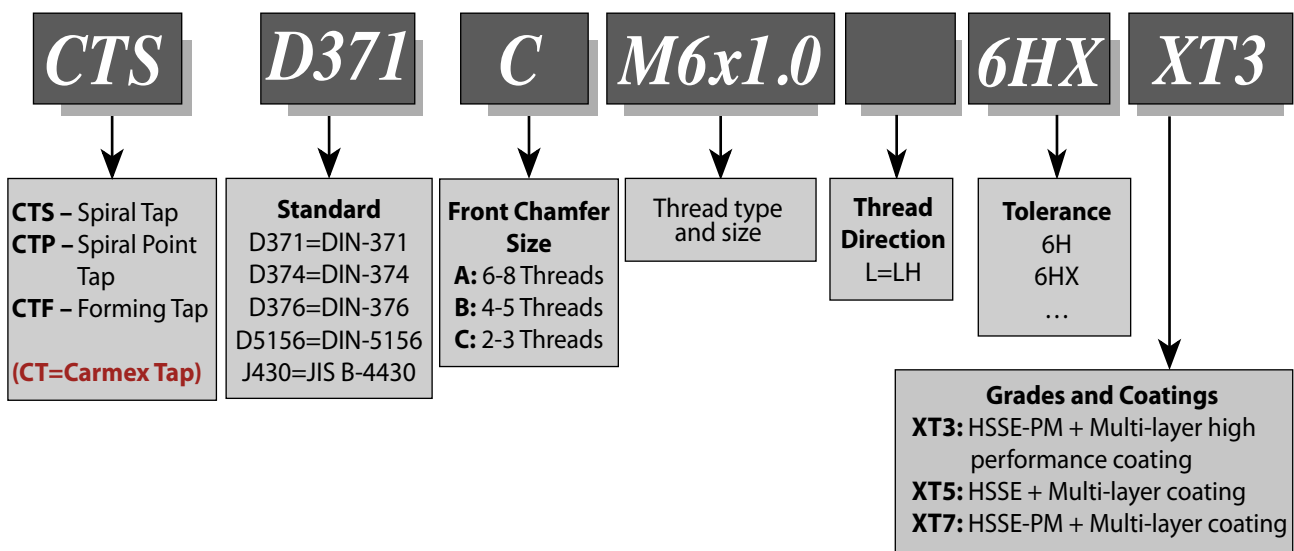
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## Key Features

- 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.

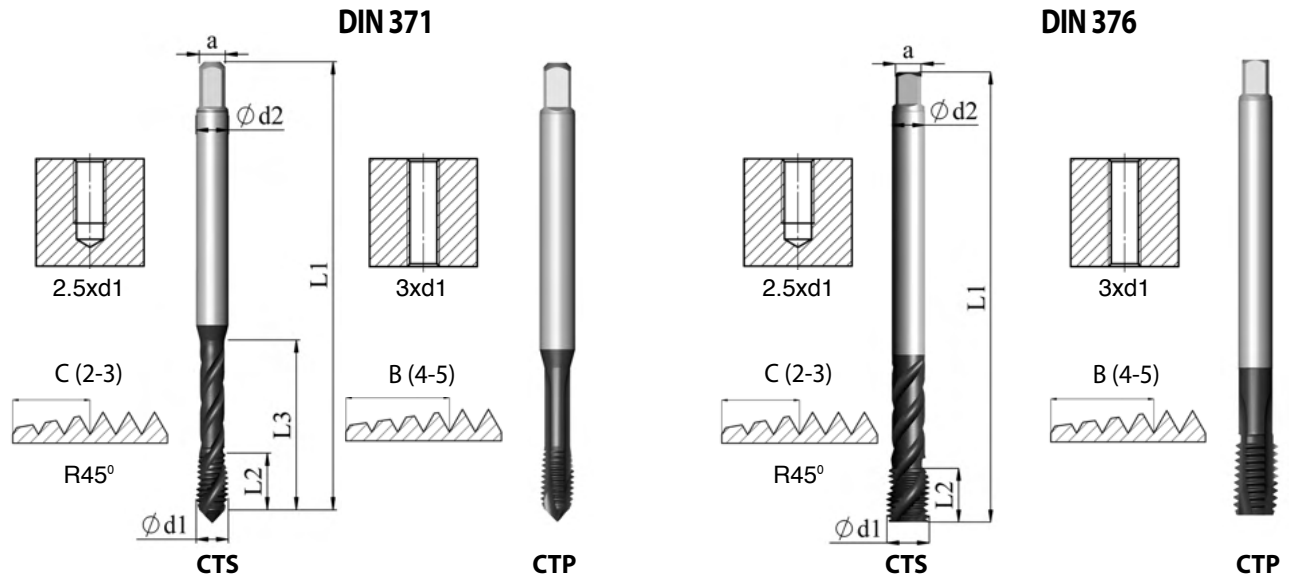
## Product Identification

### Ordering Codes




## HPC Taps

ISO metric coarse M - DIN13



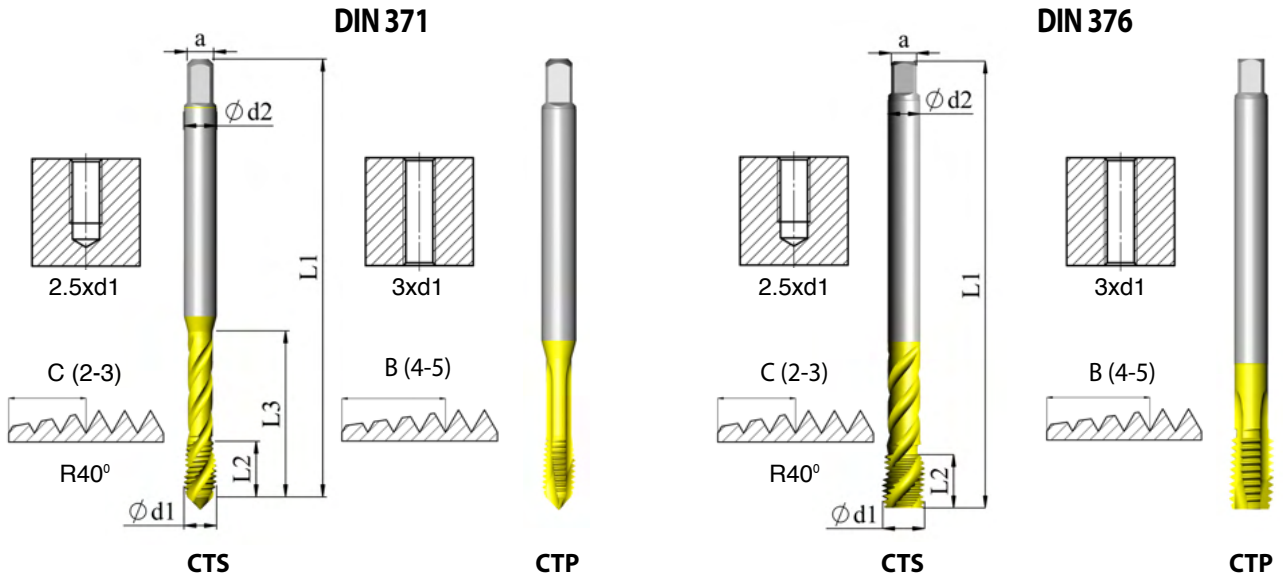
ISO	P	M	K	N	S	H
XT3 Grade	●	●	●	●	●	

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

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

## Machine Taps

ISO metric coarse M - DIN13



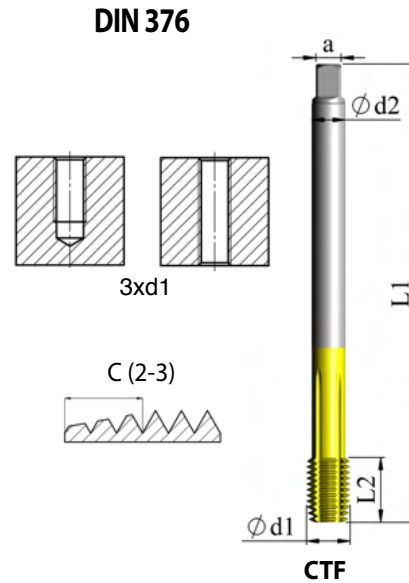
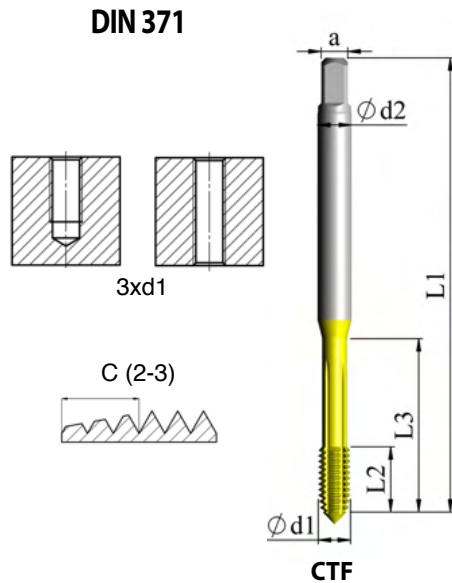
ISO	P	M	K	N	S	H
XT5 Grade	●	●	●	●		

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



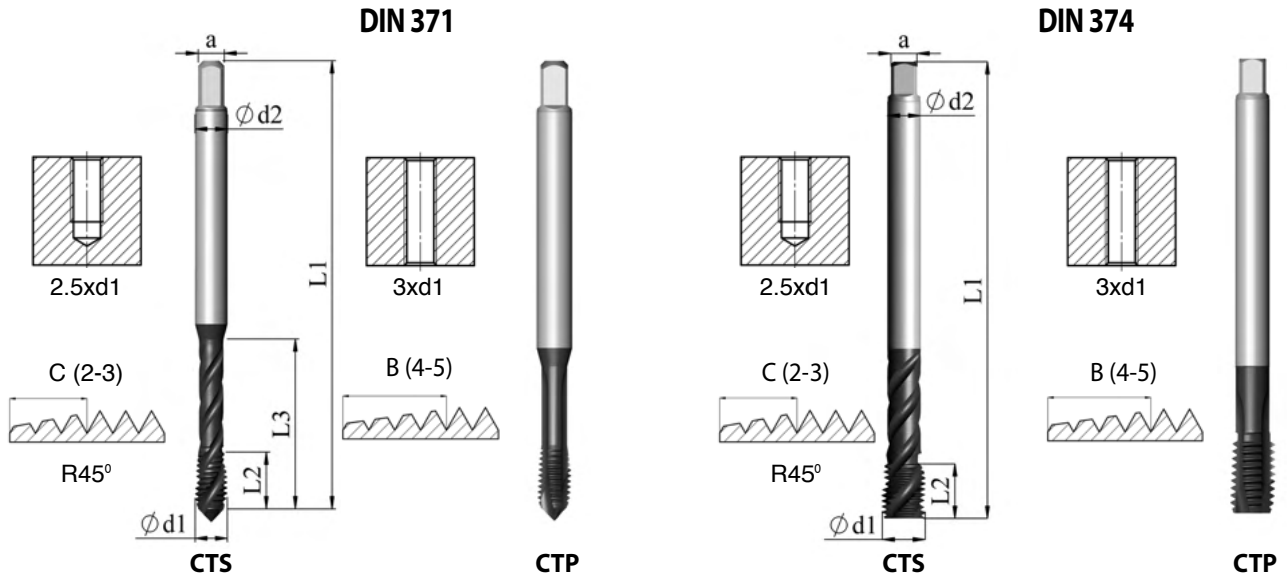
ISO	P	M	K	N	S	H
XT7 Grade	●	●		●		

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


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

## HPC Taps

ISO metric fine MF - DIN13



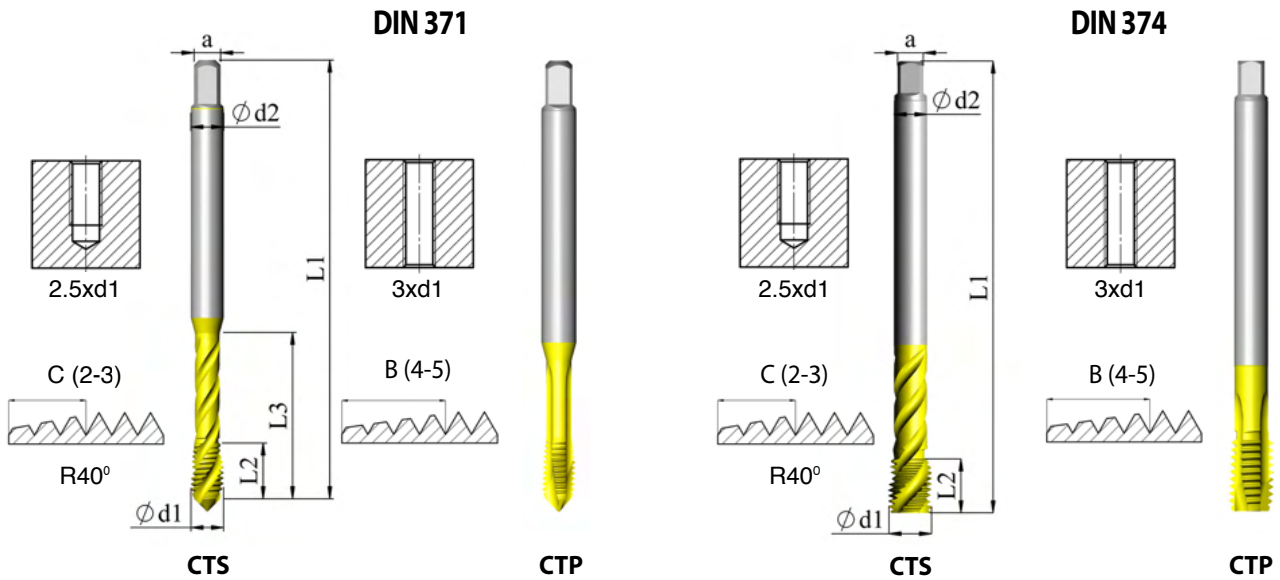
ISO	P	M	K	N	S	H
XT3 Grade	●	●	●	●	●	

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

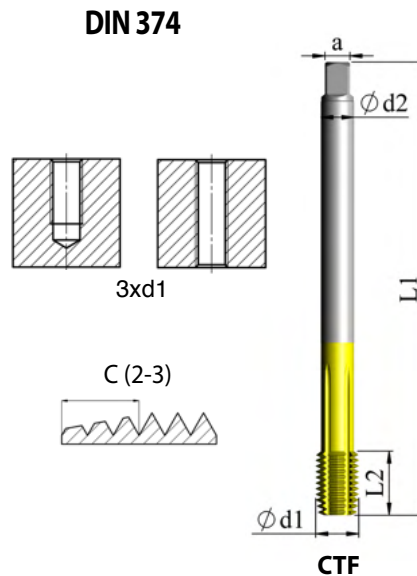
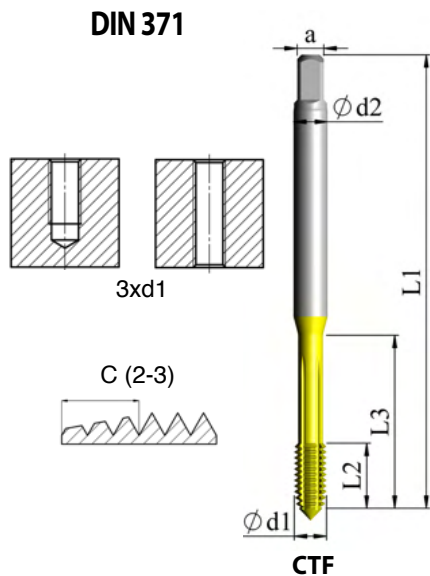
d1	Pitch mm	Ordering Code	d2 mm	L1	L2	L3	a	
M8	1.0	<b>CTS D371 C M8x1.0 6H XT5</b>	8.0	3.5	.51	1.38	.244	.276
		<b>CTP D371 B M8x1.0 6H XT5</b>	8.0	3.5	.79	1.38	.244	.276
M10	1.0	<b>CTS D371 C M10x1.0 6H XT5</b>	10.0	3.5	.51	1.38	.315	.354
		<b>CTP D371 B M10x1.0 6H XT5</b>	10.0	3.5	.79	1.38	.315	.354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

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




## Forming Taps

ISO metric fine MF - DIN13



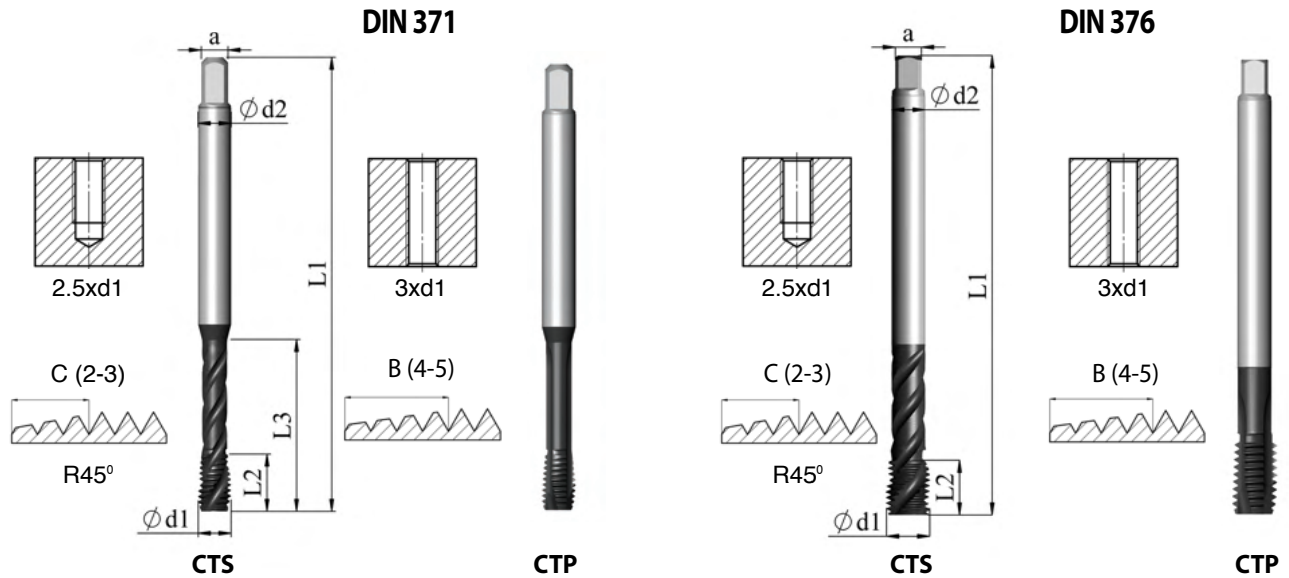
ISO	P	M	K	N	S	H
XT7 Grade	●	●		●		

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

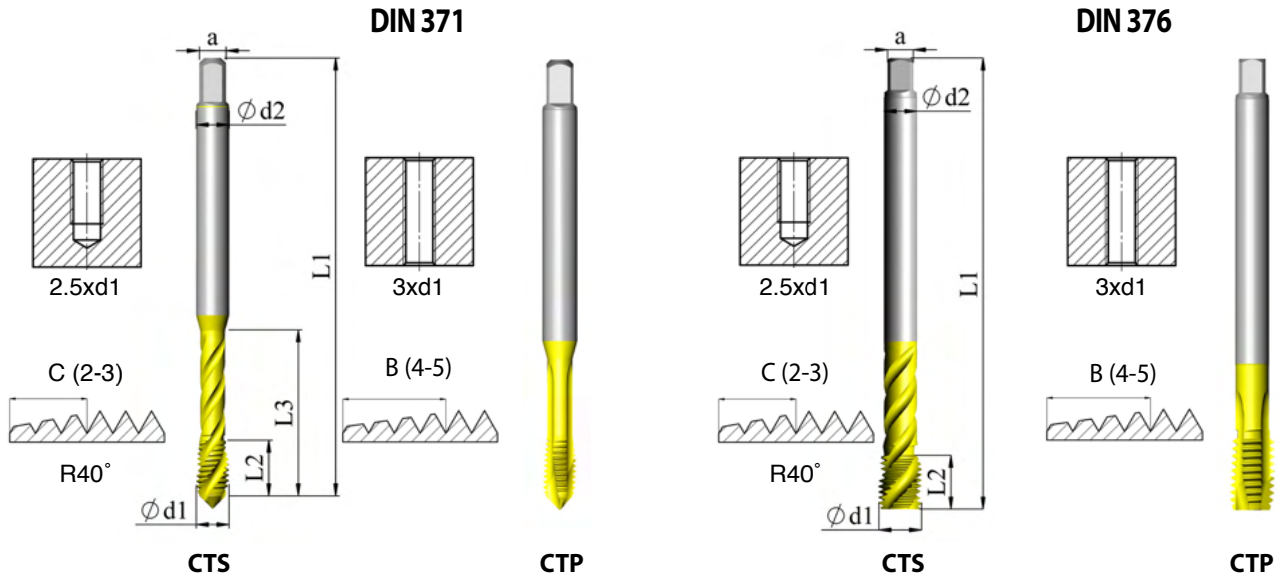
UNC	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
2-56	.086	56	<b>CTS D371 C 2-56UNC 2BX XT3</b>	2.8	1.8	.39	.51	.083	.073
			<b>CTP D371 B 2-56UNC 2BX XT3</b>	2.8	1.8	.39	.51	.083	.073
4-40	.112	40	<b>CTS D371 C 4-40UNC 2BX XT3</b>	3.5	2.2	.20	.71	.106	.093
			<b>CTP D371 B 4-40UNC 2BX XT3</b>	3.5	2.2	.20	.71	.106	.093
5-40	.125	40	<b>CTS D371 C 5-40UNC 2BX XT3</b>	3.5	2.2	.28	.71	.106	.104
			<b>CTP D371 B 5-40UNC 2BX XT3</b>	3.5	2.2	.28	.71	.106	.104
6-32	.138	32	<b>CTS D371 C 6-32UNC 2BX XT3</b>	4.0	2.2	.24	.79	.118	.112
			<b>CTP D371 B 6-32UNC 2BX XT3</b>	4.0	2.2	.24	.79	.118	.112
8-32	.164	32	<b>CTS D371 C 8-32UNC 2BX XT3</b>	4.5	2.5	.28	.83	.134	.138
			<b>CTP D371 B 8-32UNC 2BX XT3</b>	4.5	2.5	.28	.83	.134	.138
10-24	.190	24	<b>CTS D371 C 10-24UNC 2BX XT3</b>	6.0	2.8	.31	.98	.193	.154
			<b>CTP D371 B 10-24UNC 2BX XT3</b>	6.0	2.8	.31	.98	.193	.154
12-24	.216	24	<b>CTS D371 C 12-24UNC 2BX XT3</b>	6.0	3.1	.39	1.18	.193	.177
			<b>CTP D371 B 12-24UNC 2BX XT3</b>	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	<b>CTS D371 C 0250-20UNC 2BX XT3</b>	7.0	3.1	.51	1.18	.217	.201
			<b>CTP D371 B 0250-20UNC 2BX XT3</b>	7.0	3.1	.51	1.18	.217	.201
5/16-18	.313	18	<b>CTS D371 C 0312-18UNC 2BX XT3</b>	8.0	3.5	.51	1.38	.236	.260
			<b>CTP D371 B 0312-18UNC 2BX XT3</b>	8.0	3.5	.51	1.38	.236	.260
3/8-16	.375	16	<b>CTS D371 C 0375-16UNC 2BX XT3</b>	10.0	3.9	.59	1.54	.315	.315
			<b>CTP D371 B 0375-16UNC 2BX XT3</b>	10.0	3.9	.59	1.54	.315	.315
7/16-14	.438	14	<b>CTS D376 C 0437-14UNC 2BX XT3</b>	8.0	3.9	.59	---	.244	.370
			<b>CTP D376 B 0437-14UNC 2BX XT3</b>	8.0	3.9	.59	---	.244	.370
1/2-13	.500	13	<b>CTS D376 C 0500-13UNC 2BX XT3</b>	9.0	4.3	.71	---	.276	.425
			<b>CTP D376 B 0500-13UNC 2BX XT3</b>	9.0	4.3	.71	---	.276	.425
9/16-12	.563	12	<b>CTS D376 C 0562-12UNC 2BX XT3</b>	11.0	4.3	.79	---	.354	.480
			<b>CTP D376 B 0562-12UNC 2BX XT3</b>	11.0	4.3	.79	---	.354	.480
5/8-11	.625	11	<b>CTS D376 C 0625-11UNC 2BX XT3</b>	12.0	4.3	.87	---	.354	.531
			<b>CTP D376 B 0625-11UNC 2BX XT3</b>	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	<b>CTS D371 C 2-56UNC 2B XT5</b>	2.8	1.8	.39	.51	.083	.073
			<b>CTP D371 B 2-56UNC 2B XT5</b>	2.8	1.8	.39	.51	.083	.073
4-40	.112	40	<b>CTS D371 C 4-40UNC 2B XT5</b>	3.5	2.2	.20	.71	.106	.093
			<b>CTP D371 B 4-40UNC 2B XT5</b>	3.5	2.2	.39	.71	.106	.093
5-40	.125	40	<b>CTS D371 C 5-40UNC 2B XT5</b>	3.5	2.2	.28	.71	.106	.104
			<b>CTP D371 B 5-40UNC 2B XT5</b>	3.5	2.2	.39	.71	.106	.104
6-32	.138	32	<b>CTS D371 C 6-32UNC 2B XT5</b>	4.0	2.2	.24	.79	.118	.112
			<b>CTP D371 B 6-32UNC 2B XT5</b>	4.0	2.2	.47	.79	.118	.112
8-32	.164	32	<b>CTS D371 C 8-32UNC 2B XT5</b>	4.5	2.5	.28	.83	.134	.138
			<b>CTP D371 B 8-32UNC 2B XT5</b>	4.5	2.5	.47	.83	.134	.138
10-24	.190	24	<b>CTS D371 C 10-24UNC 2B XT5</b>	6.0	2.8	.31	.98	.193	.154
			<b>CTP D371 B 10-24UNC 2B XT5</b>	6.0	2.8	.55	.98	.193	.154
12-24	.216	24	<b>CTS D371 C 12-24UNC 2B XT5</b>	6.0	3.1	.39	1.18	.193	.177
			<b>CTP D371 B 12-24UNC 2B XT5</b>	6.0	3.1	.71	1.18	.193	.177

## Machine Taps

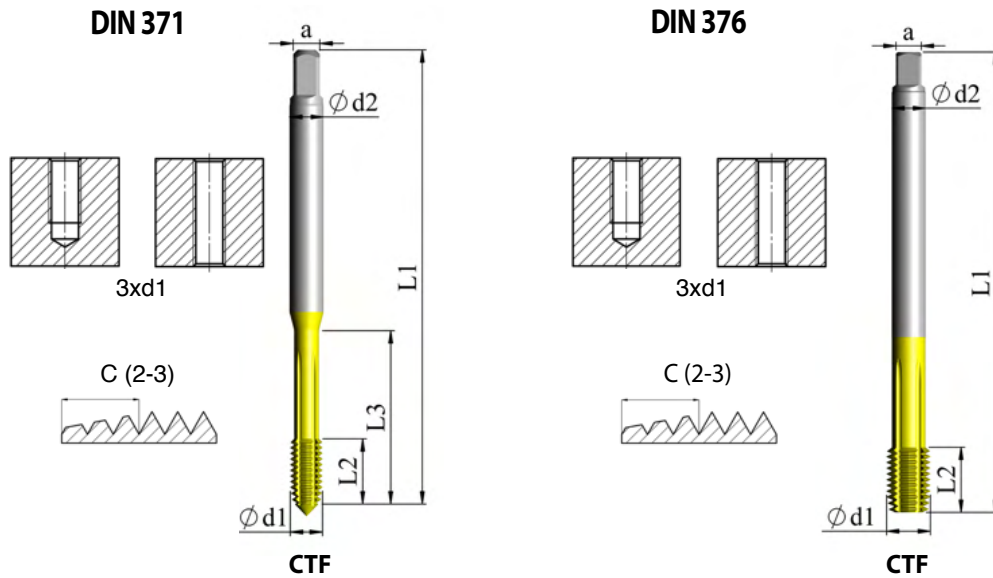
### UN Coarse ANSI B-1.1

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



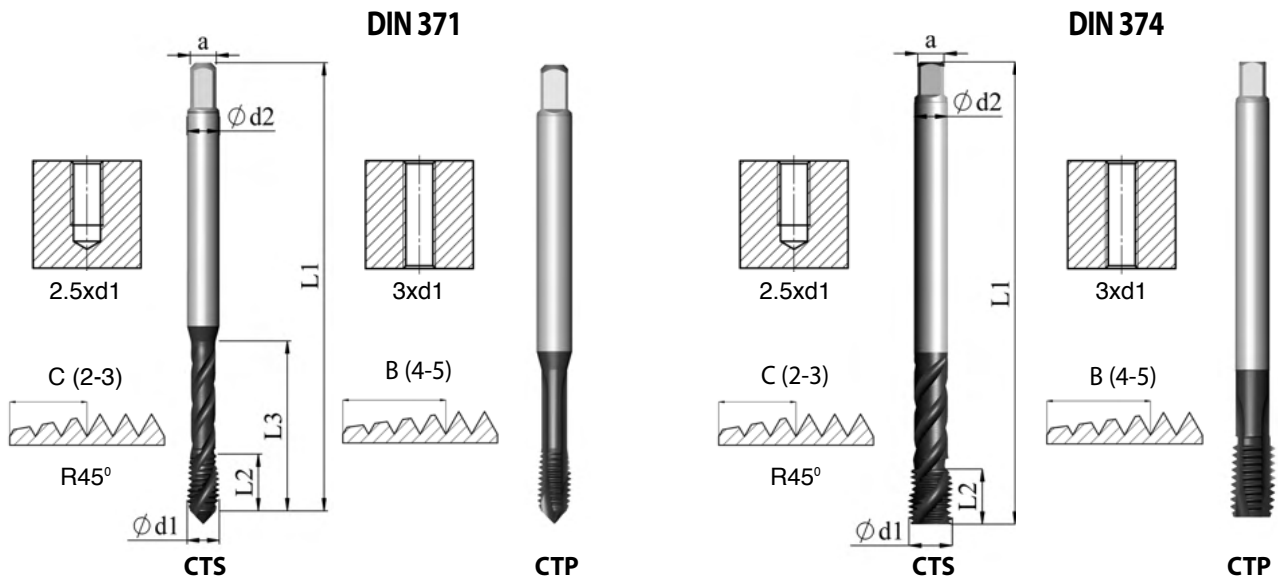
ISO	P	M	K	N	S	H
XT7 Grade	●	●		●		

UNC	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
5-40	.125	40	<b>CTF D371 C 5-40UNC 2BX XT7</b>	3.5	2.2	.28	.71	.106	.114
6-32	.138	32	<b>CTF D371 C 6-32UNC 2BX XT7</b>	4.0	2.2	.24	.79	.118	.124
8-32	.164	32	<b>CTF D371 C 8-32UNC 2BX XT7</b>	4.5	2.5	.28	.83	.134	.150
10-24	.190	24	<b>CTF D371 C 10-24UNC 2BX XT7</b>	6.0	2.8	.31	.98	.193	.171
12-24	.216	24	<b>CTF D371 C 12-24UNC 2BX XT7</b>	6.0	3.1	.39	1.18	.193	.197
1/4-20	.250	20	<b>CTF D371 C 0250-20UNC 2BX XT7</b>	7.0	3.1	.51	1.18	.217	.226
5/16-18	.313	18	<b>CTF D371 C 0312-18UNC 2BX XT7</b>	8.0	3.5	.51	1.38	.236	.287
3/8-16	.375	16	<b>CTF D371 C 0375-16UNC 2BX XT7</b>	10.0	3.9	.59	1.54	.315	.346
7/16-14	.438	14	<b>CTF D376 C 0437-14UNC 2BX XT7</b>	8.0	3.9	.59	---	.244	.404
1/2-13	.500	13	<b>CTF D376 C 0500-13UNC 2BX XT7</b>	9.0	4.3	.71	---	.276	.465
5/8-11	.625	11	<b>CTF D376 C 0625-11UNC 2BX XT7</b>	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	<b>CTS D371 C 4-48UNF 2BX XT3</b>	3.5	2.2	.20	.71	.106	.094
			<b>CTP D371 B 4-48UNF 2BX XT3</b>	3.5	2.2	.20	.71	.106	.094
5-44	.125	44	<b>CTS D371 C 5-44UNF 2BX XT3</b>	3.5	2.2	.28	.71	.106	.106
			<b>CTP D371 B 5-44UNF 2BX XT3</b>	3.5	2.2	.28	.71	.106	.106
6-40	.138	40	<b>CTS D371 C 6-40UNF 2BX XT3</b>	4.0	2.2	.24	.79	.118	.116
			<b>CTP D371 B 6-40UNF 2BX XT3</b>	4.0	2.2	.24	.79	.118	.116
8-36	.164	36	<b>CTS D371 C 8-36UNF 2BX XT3</b>	4.5	2.5	.28	.83	.134	.138
			<b>CTP D371 B 8-36UNF 2BX XT3</b>	4.5	2.5	.28	.83	.134	.138
10-32	.190	32	<b>CTS D371 C 10-32UNF 2BX XT3</b>	6.0	2.8	.31	.98	.193	.161
			<b>CTP D371 B 10-32UNF 2BX XT3</b>	6.0	2.8	.31	.98	.193	.161
12-28	.216	28	<b>CTS D371 C 12-28UNF 2BX XT3</b>	6.0	3.1	.39	1.18	.193	.181
			<b>CTP D371 B 12-28UNF 2BX XT3</b>	6.0	3.1	.39	1.18	.193	.181
1/4-28	.250	28	<b>CTS D371 C 0250-28UNF 2BX XT3</b>	7.0	3.1	.39	1.18	.217	.217
			<b>CTP D371 B 0250-28UNF 2BX XT3</b>	7.0	3.1	.39	1.18	.217	.217
5/16-24	.313	24	<b>CTS D371 C 0312-24UNF 2BX XT3</b>	8.0	3.5	.51	1.38	.236	.272
			<b>CTP D371 B 0312-24UNF 2BX XT3</b>	8.0	3.5	.51	1.38	.236	.272

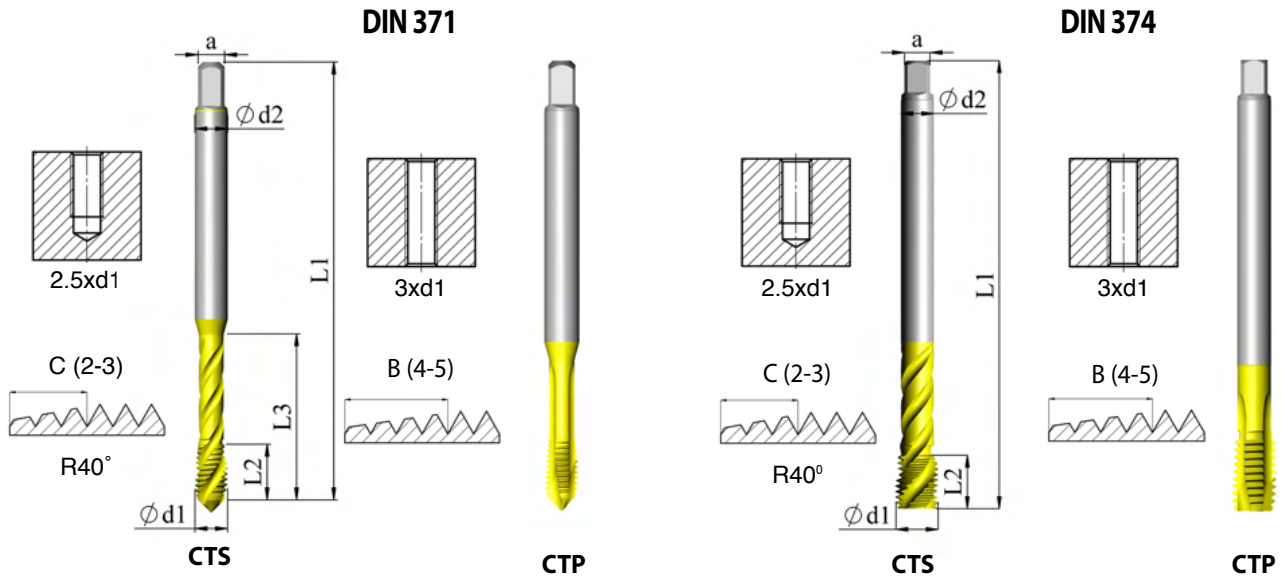
UNF	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
3/8-24	.375	24	<b>CTS D371 C 0375-24UNF 2BX XT3</b>	10.0	3.9	.59	1.54	.315	.335
			<b>CTP D371 B 0375-24UNF 2BX XT3</b>	10.0	3.9	.59	1.54	.315	.335
7/16-20	.438	20	<b>CTS D374 C 0437-20UNF 2BX XT3</b>	8.0	3.9	.59	---	.244	.390
			<b>CTP D374 B 0437-20UNF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

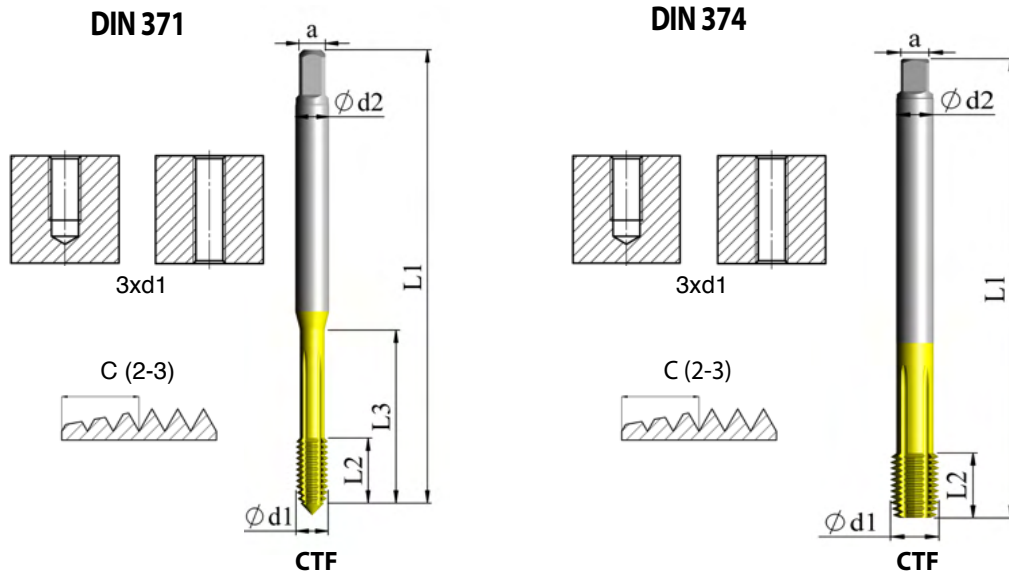
UNF	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	L3	a	
6-40	.138	40	<b>CTS D371 C 6-40UNF 2B XT5</b>	4.0	2.2	.24	.79	.118	.116
			<b>CTP D371 B 6-40UNF 2B XT5</b>	4.0	2.2	.47	.79	.118	.116
8-36	.164	36	<b>CTS D371 C 8-36UNF 2B XT5</b>	4.5	2.5	.28	.83	.134	.138
			<b>CTP D371 B 8-36UNF 2B XT5</b>	4.5	2.5	.47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

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



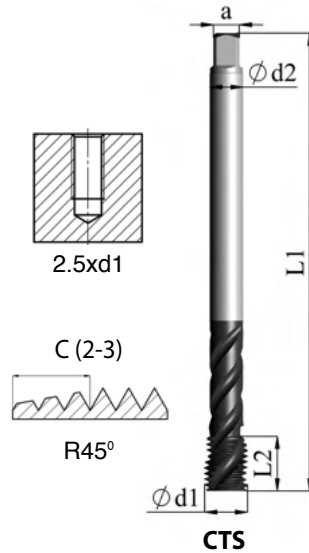
ISO	P	M	K	N	S	H
XT7 Grade	●	●		●		

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

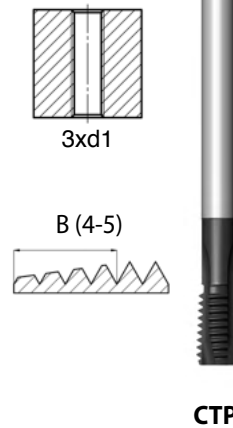
**Order example:** CTF D371 C 10-32UNF 2BX XT7

## HPC Taps


Whitworth pipe thread G, DIN-ISO 228



DIN 5156



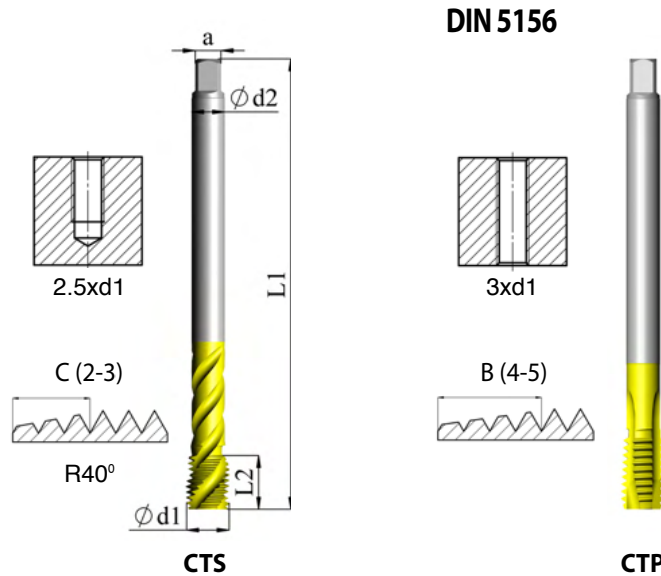
ISO	P	M	K	N	S	H
XT3 Grade	●	●	●	●	●	

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

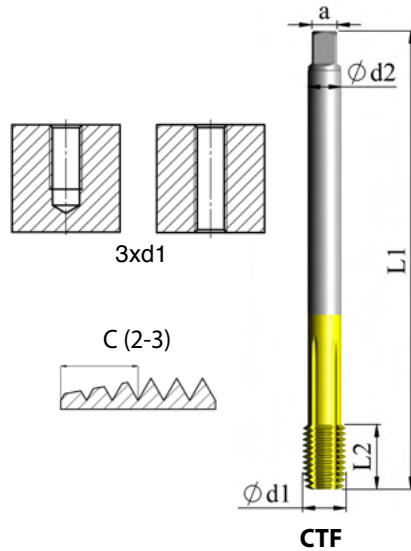
G	d1	Pitch TPI	Ordering Code	d2 mm	L1	L2	a	
G1/8	.383	28	<b>CTS D5156 C G1/8 XT5</b>	7.0	3.5	.39	.217	.346
			<b>CTP D5156 B G1/8 XT5</b>	7.0	3.5	.71	.217	.346
G1/4	.518	19	<b>CTS D5156 C G1/4 XT5</b>	11.0	3.9	.55	.354	.465
			<b>CTP D5156 B G1/4 XT5</b>	11.0	3.9	.87	.354	.465
G3/8	.656	19	<b>CTS D5156 C G3/8 XT5</b>	12.0	3.9	.59	.354	.600
			<b>CTP D5156 B G3/8 XT5</b>	12.0	3.9	.87	.354	.600
G1/2	.825	14	<b>CTS D5156 C G1/2 XT5</b>	16.0	4.9	.67	.472	.748
			<b>CTP D5156 B G1/2 XT5</b>	16.0	4.9	.98	.472	.748
G3/4	1.041	14	<b>CTS D5156 C G3/4 XT5</b>	20.0	5.5	.79	.630	.965
			<b>CTP D5156 B G3/4 XT5</b>	20.0	5.5	1.10	.630	.965
G1	1.309	11	<b>CTS D5156 C G1 XT5</b>	25.0	6.3	.94	.787	1.211
			<b>CTP D5156 B G1 XT3</b>	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	<b>CTF D5156 C G1/8 XT7</b>	7.0	3.5	.51	.217	.364
G1/4	.518	19	<b>CTF D5156 C G1/4 XT7</b>	11.0	3.9	.63	.354	.494
G3/8	.656	19	<b>CTF D5156 C G3/8 XT7</b>	12.0	3.9	.63	.354	.632
G1/2	.825	14	<b>CTF D5156 C G1/2 XT7</b>	16.0	4.9	.71	.472	.791
G3/4	1.041	14	<b>CTF D5156 C G3/4 XT7</b>	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
<b>P</b>	Low & Medium Carbon Steels <0.55%C	15-150	15-130	35-115
	High Carbon Steels ≥0.55%C			
	Alloy Steels, Treated Steels			
<b>M</b>	Stainless Steel-Free Cutting	15-65	15-65	35-100
	Stainless Steel-Austenitic			
	Cast Steels			
<b>K</b>	Cast Iron	35-115	15-100	-
<b>N</b>	Aluminum ≤12%Si, Copper	35-115	35-115	50-150
	Aluminum >12%Si			
	Synthetics, duroplastics, thermoplastics			
<b>S</b>	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.

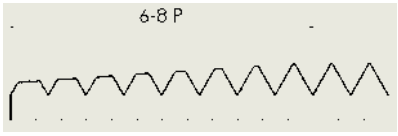


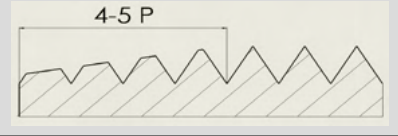

**XT7**- best solution for chip-free materials, high hardness and toughness grade provides smooth thread finish and allow high working parameters.



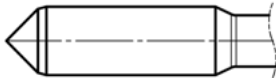
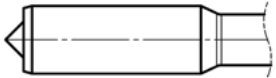
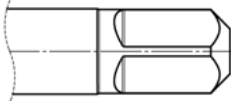

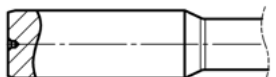
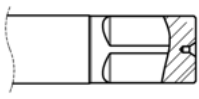
## Taps standards

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)
<b>A</b>		6-8 P
<b>B</b>		4-5 P
<b>C</b>		2-3 P
<b>D</b> (straight flute taps only)		4-5 P
<b>E</b>		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)

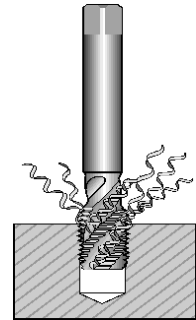
## Length of Solid Cones

(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

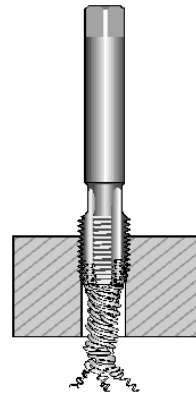
## Types of Thread Taps

### *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*

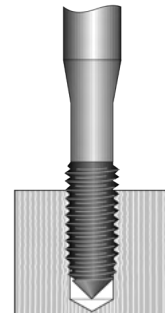


Spiral point taps have straight flutes with a spiral point.

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

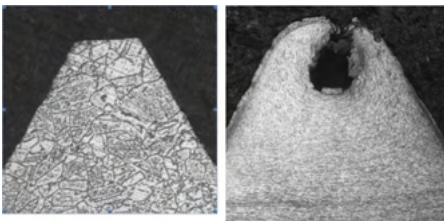


Forming taps make thread by method of plastic deformation instead of cutting it. These taps are suitable for ductile materials.

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

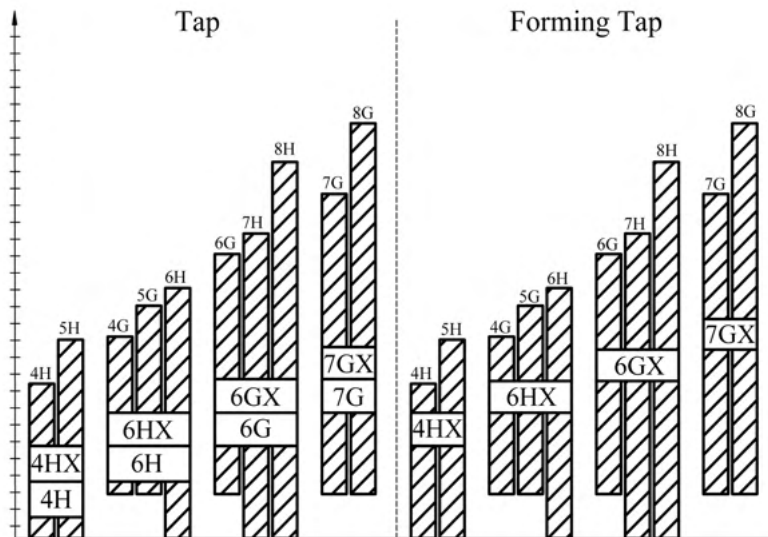
- + The same tool is suitable for both blind and through holes
- + No chips – eliminates problems with chip evacuation
- + Able to tap at higher speeds than cutting taps.
- + No flutes, larger core diameter – stronger tool.
- + Longer tool life.
- + Smoother thread surface.

### 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.

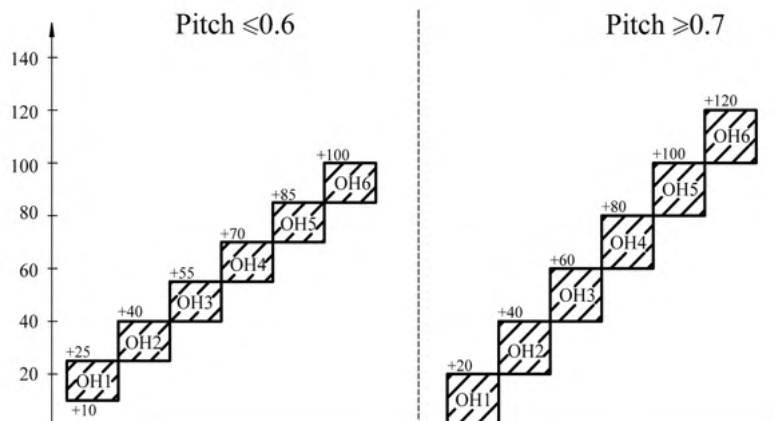
## Tolerances

### Metric internal thread



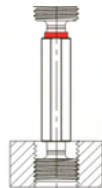
Tap tolerance According to DIN 802	Tolerance field of internal thread				
4H	4H	5H	-	-	-
6H	4G	5G	6H	-	-
6G	-	-	6G	7H	8H
7G	-	-	-	7G	8G

### OH internal thread

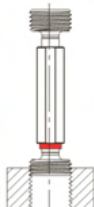


## Thread gauges

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:**





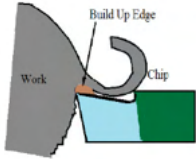
Mori Seiki NV5000.  
Coolant: emulsion 5%

**Test Results:**


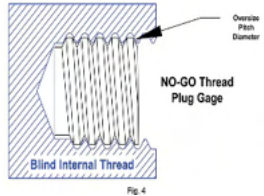
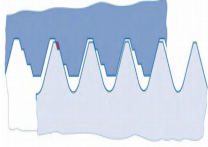
Tool life: 1720 threads  
Cycle time: 3 sec



## Troubleshooting

Problem	Possible cause	Possible Solution	
<b>Chipped teeth</b>	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	
<b>High tap wear</b>	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	
<b>Chips fill up flutes</b>	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	
<b>Poor finish on workpiece</b>	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	
<b>Built-up edge</b>	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	
<b>Tap breakage</b>	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	
<b>Oversized thread</b>	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	
<b>Undersized thread</b>	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	
<b>Excessive power requirement</b>	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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Carmex Supercut Taps inch 08/2021

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