SPIRAL FLUTE TAPS

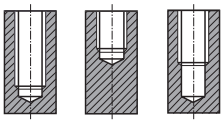
TD312 SERIES

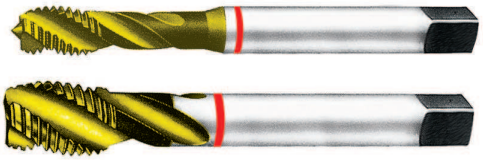
M ISO metric coarse threads DIN 13
Metrisches ISO-Gewinde DIN 13

▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

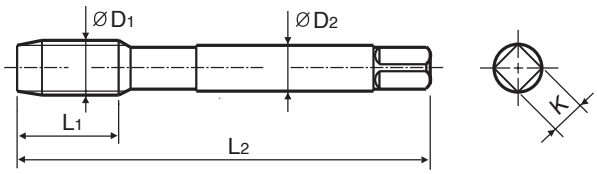
Hole type

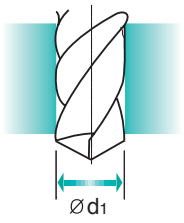




Material groups **VG** | HSS-E | DIN 371/376 | 6H | 60° | C | TiN | R40

Machine taps
Maschinengewindebohrer





Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Shank Diameter	Square Size	Tapping Drill Diameter
ØD1	P		L1	L2	ØD2	K	Ød1
M2	× 0.4	TD312136	8	45	2.8	2.1	1.6
M2.2	× 0.45	TD312156	8	45	2.8	2.1	1.75
✳ M2.3	× 0.4	TD312196	8	45	2.8	2.1	1.9
M2.5	× 0.45	TD312176	9	50	2.8	2.1	2.05
✳ M2.6	× 0.45	TD312496	9	50	2.8	2.1	2.1
M3	× 0.5	TD312206	6	56	3.5	2.7	2.5
M3.5	× 0.6	TD312226	7	56	4	3	2.9
M4	× 0.7	TD312246	7	63	4.5	3.4	3.3
M4.5	× 0.75	TD312266	8	70	6	4.9	3.7
M5	× 0.8	TD312286	8	70	6	4.9	4.2
M6	× 1	TD312316	10	80	6	4.9	5
M7	× 1	TD312346	10	80	7	5.5	6
M8	× 1.25	TD312366	13	90	8	6.2	6.8
M9	× 1.25	TD312396	13	90	9	7	7.8
M10	× 1.5	TD312426	15	100	10	8	8.5
M11	× 1.5	TD312466	17	100	8	6.2	9.5
M12	× 1.75	TD312506	18	110	9	7	10.2
M14	× 2	TD312546	20	110	11	9	12
M16	× 2	TD312606	20	110	12	9	14
M18	× 2.5	TD312656	25	125	14	11	15.5
M20	× 2.5	TD312706	25	140	16	12	17.5
M22	× 2.5	TD312746	25	140	18	14.5	19.5
M24	× 3	TD312786	30	160	18	14.5	21
M27	× 3	TD312866	30	160	20	16	24
M30	× 3.5	TD312946	35	180	22	18	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)
▶ ✳ DIN profile not ISO

Unit : N/mm²

◎ : Excellent ○ : Good

Steel < 400	Steel < 700	Steel < 850	St. Alloy < 850	St. Alloy ≤ 1200	St. Alloy > 1200	INOX Free < 850	INOX Aust. < 850	INOX < 1000	GG Cast < 500	GG Cast < 1000	GGG Cast < 700	GGG Cast < 1000	Ti < 700	Ti Alloy < 900
			○	◎				○						○

Ti Alloy ≤ 1300	Ni < 500	Ni Alloy < 900	Ni Alloy ≤ 1400	Cu < 350	Cu Alloy Short	Cu Alloy Long	Cu-Al-Fe < 1500	Al / Mg < 350	Al Wrought	Al Si≤10%	Al Si>10%	Plastic Thermosoft	Plastic Thermoset	Plastic FRP
		○												

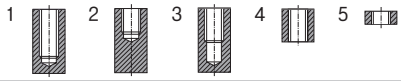
MACHINE TAPS

RECOMMENDATION TABLE

USE

◎ = EXCELLENT

○ = GOOD



MATERIAL GROUPS			GS	GS
DIN 371/376	**M**	EDP No. (Page)	TC517 (p.403)	TC711 (p.404)
DIN 371/376	**EG-M**	EDP No. (Page)		
DIN 352	**M**	EDP No. (Page)	TC612 (p.401)	
DIN 374	**MF**	EDP No. (Page)		TC411 (p.429)
DIN 371/376	**UNC**	EDP No. (Page)		TC144 (p.437)
DIN 371/376	**EG-UNC**	EDP No. (Page)		
DIN 371/374	**UNF**	EDP No. (Page)		TC124 (p.442)
DIN 371/376	**EG-UNF**	EDP No. (Page)		
DIN 2182/2183	**BSW**	EDP No. (Page)		TC134 (p.446)
DIN 357/5156	**M/G(BSP)**	EDP No. (Page)		TC728 (p.549)
LONG	**M**	EDP No. (Page)		
SURFACE TREATMENT / COATING			Bright	Bright
SPIRAL FLUTE ANGLE			R20	R40
CHAMFER LEAD ACC. DIN 2197			C	C
HOLE TYPE			2-3	1-2-3

COOLANT

A = Cutting Oil
T = Oil Emulsion
X = Cutting Oil/Oil Emulsion
S = Dry
Z = Dry/Oil Emulsion

MATERIAL GROUPS			LIST OF MATERIALS	HARDNESS HB	TENSILE STRENGTH Rm N/mm²	CHIP	CUTTING SPEED Vc m/min	COOLANT		
10. STEELS	**11**	Steel < 400	Magnetic soft steels	< 120	< 400	Extra long	15-20	T		
	12	Steel < 700	Structure steels	< 200	< 700	Medium/long	15-20	T	◎	◎
	13	Steel < 850	Plain carbon steels	< 250	< 850	Long	12-18	T	◎	◎
	14	St. Alloy < 850	Alloy steels	< 250	< 850	Long	10-15	X	◎	◎
	15	St. Alloy ≤ 1,200	Alloy steels, Hardened steels	< 350	≤1,200	Long	6-10	X		
	16	St. Alloy > 1,200	Alloy steels, Hardened steels	> 350	> 1,200	Long	3-5	A		
20. STAINLESS STEELS	**21**	INOX Free < 850	Free machining	< 250	< 850	Medium	7-10	A		
	22	INOX Aust.< 850	Austenitic	< 250	< 850	Long	5-8	A		
	23	INOX < 1,100	Ferritic, Ferritic+Austenitic, Martensitic	< 300	< 1,100	Long	4-6	A		
30. CAST IRON	**31**	GG Cast < 500	Grey cast iron	< 150	< 500	Extra short	10-15	X		
	32	GG Cast < 1,000	Grey cast iron	< 300	< 1,000	Extra short	5-8	T		
	33	GGG Cast < 700	Nodular graphite, Malleable cast iron	< 200	< 700	Short	10-15	X	◎	◎
	34	GGG Cast < 1,000	Nodular graphite, Malleable cast iron	< 300	< 1,000	Short	5-8	X	◎	◎
40. TITANIUM	**41**	Ti < 700	Titanium, Unalloyed	< 200	< 700	Extra long	10-15	T	○	○
	42	Ti Alloy < 900	Titanium, Alloyed	< 270	< 900	Medium/Short	8-12	A		
	43	Ti Alloy ≤ 1,300	Titanium, Alloyed	< 350	≤1,300	Medium/Short	4-6	A		
50. NICKEL	**51**	Ni < 500	Nickel, Unalloyed	< 150	< 500	Extra long	8-12	A	○	○
	52	Ni Alloy < 900	Nickel, Alloyed	< 270	< 900	Long	10-15	A		
	53	Ni Alloy ≤ 1,400	Nickel, Alloyed	< 410	≤1,400	Long	2-4	A		
60. COPPER, BRASS, BRONZE	**61**	Cu < 350	Copper, Unalloyed	< 100	< 350	Extra long	8-12	T	○	○
	62	Cu Alloy (Short)	Short chip Brass, Bronze, Copper	< 200	< 700	Medium/Short	25-35	T		
	63	Cu Alloy (Long)	Long chip Brass, Bronze, Copper	< 200	< 700	Long	15-20	T	◎	◎
	64	Cu-Al-Fe < 1,500	Cu-Al-Fe alloys	< 470	< 1,500	Short	3-5	A		
70. ALUMINUM	**71**	Al/Mg < 350	Aluminum, Magnesium, Unalloyed	< 100	< 350	Extra long	10-15	T	○	○
	72	Al Wrought	Aluminum, Alloyed Si < 0.5%	< 150	< 500	Medium	25-35	T	○	○
	73	Al (Si ≤ 10%)	Aluminum, Alloyed, Si ≤ 10%	< 120	< 400	Medium/Short	15-20	T	○	○
	74	Al (Si > 10%)	Aluminum, Alloyed, Si > 10%	< 120	< 400	Short	10-15	T	◎	◎
80. PLASTICS	**81**	Thermosoft.	Thermoplastics			Extra long	20-30	T	○	○
	82	Thermoset.	Thermosseting Plastics			Short	8-12	Z		
	83	FRP	Fiber Reinforced Plastics			Extra short	5-7	Z		

GS	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	HR	HR	HR	HR	HR	HR
TD711 (p.405)	TQ863 (p.456)	TR863 (p.457)	TC422 (p.458)	TE422 (p.459)	TD422 (p.460)	TY422 (p.461)	TQ823 (p.406)	TR823 (p.407)	TC312 (p.410)	TB312 (p.408)	TD312 (p.411)	TY312 (p.412)	TB913 (p.409)	T0997 (p.556)	T0999 (p.556)	TC283 (p.464)	TY283 (p.465)	TC313 (p.416)	TB313 (p.415)
TD411 (p.431)			TC263 (p.480)		TD263 (p.481)				TC413 (p.433)		TD413 (p.434)								
			TC244 (p.484)		TD244 (p.485)				TC174 (p.438)		TD174 (p.439)								
			TC254 (p.488)						TC184 (p.443)										
			TC729 (p.550)																
TiN	Vap	Bright	Bright	NI	TiN	TiAlN	Vap	Bright	Bright	Vap	TiN	TiAlN	Vap	TiCN	TiCN	Bright	TiAlN	Bright	Vap
R40							R40	R40	R40	R40	R40	R40	R40					R40	R40
C	B	B	B	B	B	B	C	C	C	C	C	C	C	C	D	B	B	C	C
1-2-3	4-5	4-5	4-5	4-5	4-5	4-5	1-2-3	1-2-3	1-2-3	1-2-3	1-2-3	1-2-3	1-2-3	1-2-3 4-5	1-2-3 4-5	4-5	4-5	1-2-3	1-2-3
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CUTTING SPEED TABLE SCHNITTGESCHWINDIGKEITSTABELLE
Cutting Speeds m/min. into revolutions per minute

TOOL R.P.M.(rev/min)																
Tool Dia.	Cutting Speed (m/min)															
	1	2	3	4	5	6	8	10	12	15	20	25	30	40	50	60
1	318	637	955	1274	1592	1910	2548	3185	3822	4777	6396	7962	9554	12739	15924	19108
2	159	318	478	637	796	955	1274	1592	1911	2388	3185	3981	4777	6369	7962	9554
3	106	212	318	425	531	637	849	1062	1274	1592	2123	2654	3185	4246	5308	6369
4	80	159	239	318	398	478	637	796	955	1194	1592	1990	2389	3185	3981	4777
5	64	127	191	255	318	382	510	637	764	955	1274	1592	1911	2548	3185	3822
6	53	106	159	212	265	318	425	531	637	796	1062	1327	1592	2123	2653	3185
8	40	80	119	159	199	239	318	398	478	597	796	955	1194	1592	1990	2388
10	31	64	96	127	159	191	255	318	382	478	637	796	955	1274	1592	1911
12	26	53	80	106	133	159	212	265	318	398	531	663	796	1062	1327	1592
14	23	45	68	91	114	136	182	227	273	341	455	569	682	910	1137	1365
16	20	40	60	80	100	119	159	199	239	299	398	498	597	796	995	1194
18	18	35	53	71	88	106	142	177	212	265	354	442	531	708	885	1062
20	16	32	48	64	80	96	127	159	191	239	318	398	478	637	796	955
25	13	25	38	51	64	76	102	127	153	191	255	318	382	510	637	764
30	11	21	32	42	53	64	85	106	127	159	212	265	318	425	531	637
35	9	18	27	36	45	55	73	91	109	136	182	227	273	364	455	546
40	8	16	24	32	40	48	64	80	96	119	159	199	239	118	398	478

RPM = rev/min
V = m/min
D = Dia.(mm)

$$V = \frac{RPM \cdot \pi \cdot D}{1000}$$

$$RPM = \frac{1000 \cdot V}{\pi \cdot D}$$