

**M ISO metric coarse threads DIN 13**

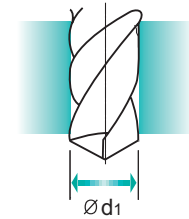
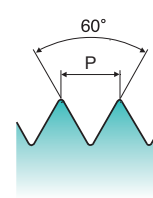
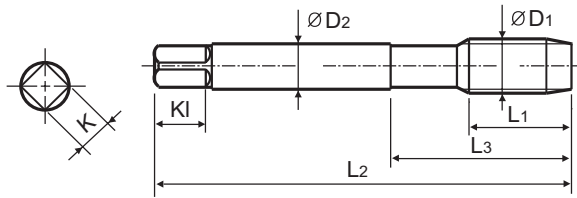
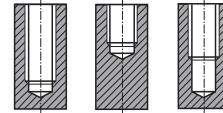
- **Metrisches ISO-Gewinde DIN 13**
- **ISO MÉTRIQUE DIN13**
- **ISO Metrico passo grosso DIN 13**

► 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**  
2.5×D



HSS-E

DIN 371/376

6H



Bright



Machine taps  
Maschinengewindebohrer

Recommended Cutting Page : P.161

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2 × 0.4		TC711136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC711196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC711496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC711206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC711226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TC711246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC711266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC711286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TC711316	10	80	30	6	4.9	8	3	5
M7 × 1		TC711346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TC711366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC711396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TC711426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TC711466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC711506	18	110	44	9	7	10	3	10.2
M14 × 2		TC711546	20	110	44	11	9	12	3	12
M16 × 2		TC711606	20	110	44	12	9	12	3	14
M18 × 2.5		TC711656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TC711706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TC711746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TC711786	30	160	60	18	14.5	17	4	21
M27 × 3		TC711866	30	160	60	20	16	19	4	24
M30 × 3.5		TC711946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO	P										M				K					
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc																				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	○	◎	◎	○				○	○				◎	◎		

ISO	N					S					H										
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc																					
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○		○	○	◎	○		◎													



**RECOMMENDED CUTTING CONDITIONS**  
**EMPFOHLENE SCHNEIDKONDITIONEN**

ISO	VDI 3323	Material Description	HB	HRC	TC711 TC411 TC144 TC124 TC134	TD711 TD411	TC517 TC612	TC127 TC122 TC222 TC214 TC234 TC224	TD127 TD222	TC227	TD227	TC211	TC463 TC473 TC424	
														Vc (m/min)
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	15-20	
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	15-20	
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	18-24	12-18	12-18	
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15	
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	10-14	6-10	6-10	
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15	
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15	
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	10-14	6-10	6-10	
	9		350	38										
	10		High alloyed steel, and tool steel	200	15									
	11	325		35										
M	12	Stainless steel	200	15	7-10	10-13	7-10	7-10	10-13	7-10	10-13	7-10	7-10	
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	8-11	5-8	5-8	
	14		180	10										
K	15	Grey cast iron	180	10									10-15	
	16		260	26									5-8	
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15	
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	8-11	5-8	5-8	
	19		Malleable cast iron	130										
20	230	21												
N	21	Aluminum-wrought alloy	60		10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15		
	22		100											
	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20		
	24		90		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20		
	25		130		10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15	
	26		Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	35-40	25-35	25-35
	27			90										8-12
	28	100			15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20		
	29	Non Metallic Materials												
	30													
S	31	Heat Resistant Super Alloys	200	15										
	32		280	30										
	33		250	25										
	34		350	38										
	35		320	34										
	36	Titanium Alloys	400 Rm											
	37		1050 Rm											
H	38	Hardened steel	550	55										
	39		630	60										
	40	Chilled Cast Iron	400	42										
	41	Hardened Cast Iron	550	55										

# SURFACE TREATMENT AND COATING

The applied High Speed Steels holds a grant of good wear resistance and toughness. Therefore YG-1 normally delivers taps with bright and unfinished surface. For certain materials, various surface treatments provide higher advantage in machining.

## STEAM TEMPERED - Vap

Steam Tempered is a Fe<sub>3</sub>O<sub>4</sub>-oxyd-coating which reduces friction between the tool and workpiece, also preventing cold welding.

## NITRIDING - NI

Recommend surface treatment for machining materials that affect wear abrasion, such as grey cast iron, alu-alloys with high Si-percentages (more than 10%).

Below are the various surface treatments for excellent finish surfaces suitable for many applications. The surface treatments are produced and developed within the company.

## TiN-COATING

TiN-coating yields a hardness of approx. 2,300 HV and also a heat resistant up to approx. 600°C. The current coating is an excellent all-round coating for normal applications.

Colour : Golden Coefficient of friction against steel : 0.4

## TiCN-COATING

TiCN takes place of TiN when the conditions require the coating to have a different hardness and toughness.

The TiCN brings advantages for machining very difficult steels or cutting interrupted bores.

The TiCN-coating has a hardness of approx. 3,000 HV, but is heat resistance only holds up to approx. 400°C, meaning that the TiCN needs an excellent cooling system for a long service life.

Colour : Blue-Grey Coefficient of friction against steel : 0.4

## TiAlN-COATING

A special coating for machining abrasive materials such as grey cast iron, alu-alloys with silicon, fiber reinforced plastics, etc., or machining at high temperatures with insufficient cooling, or at high speeds  $\geq 600$ m/min. TiAlN has a hardness of approx. 3,000 HV and is heat resistant up to approx. 800°C.

Colour : Violet-Grey Coefficient of friction against steel : 0.4

## Hardslick-COATING

Hardslick combines the advantages of an extremely hard, thermally stable TiAlN-coating with the sliding and lubricating properties of an outer WC/C(Tungsten carbide/carbon)-coating in a novel way. The Hardslick coating has a hardness of approx. 3,000 HV and is temperature-resistant up to approx. 800°C.

Colour : Violet-Grey Coefficient of friction against steel : 0.2

SELECTION GUIDE



**HSS & HSS-E  
YG TAP  
GENERAL**

Suitable for Tapping Blind / Through Holes due to Flute Geometry and Excellent Chip Evacuation



Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.161

HOLE TYPE		Max. 2.5xD Blind Hole			
TOOL MATERIAL		HSS-E			
CHAMFER LEAD ACC. TO DIN2197		C	C	C	
FLUTE TYPE		Spiral Flute	Spiral Flute	Spiral Flute	
SPIRAL FLUTE ANGLE		R40	R40	R20	
SERIES	M	DIN371/376	TC711 (P.124)	TD711 (P.125)	TC517 (P.133) TC612 (P.134)
		DIN352			
		DIN357/LONG			
	MF	DIN374	TC411 (P.126)	TD411 (P.128)	
		DIN2181			
	UNC	DIN371/376	TC144 (P.130)		
		DIN351			
	UNF	DIN371/374	TC124 (P.131)		
		DIN2181			
	BSW	DIN2182/2183	TC134 (P.132)		
		DIN351			
	G(BSP)	DIN5156/5157			
EG-M	DIN371/376				
EG-UNC	DIN371/376				
EG-UNF	DIN371/374				
SURFACE TREATMENT		Bright	TIN	Bright	
MODEL					

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc			
P	1	Non-alloy steel	About 0.15% C Annealed	125		○	○	○
	2		About 0.45% C Annealed	190	13	◎	◎	◎
	3		About 0.45% C Quenched & Tempered	250	25	◎	◎	◎
	4		About 0.75% C Annealed	270	28	◎	◎	◎
	5	About 0.75% C Quenched & Tempered	300	32	○	○	○	
	6	Low alloy steel	Annealed	180	10	◎	◎	◎
	7		Quenched & Tempered	275	29	◎	◎	◎
	8		Quenched & Tempered	300	32	○	○	○
	9		Quenched & Tempered	350	38			
	10		High alloyed steel, and tool steel	Annealed	200	15		
	11		Quenched & Tempered	325	35			
M	12	Stainless steel	Ferritic / Martensitic Annealed	200	15	○	○	○
	13		Martensitic Quenched & Tempered	240	23	○	○	○
	14	Austenitic	180	10				
K	15	Grey cast iron	Pearlitic / ferritic	180	10			
	16		Pearlitic (Martensitic)	260	26			
	17	Nodular cast iron	Ferritic	160	3	◎	◎	◎
	18		Pearlitic	250	25	◎	◎	◎
	19		Ferritic	130				
20	Malleable cast iron	Pearlitic	230	21				
N	21	Aluminum-wrought alloy	Not Curable	60		○	○	○
	22		Curable Hardened	100				
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○	○	○
	24		≤ 12% Si, Curable Hardened	90		○	○	○
	25		> 12% Si, Not Curable	130		◎	◎	◎
	26		Cutting Alloys, PB>1%	110		○	○	○
	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90				
	28		CuSn, lead-free copper and electrolytic copper	100		◎	◎	◎
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					
S	31	Heat Resistant Super Alloys	Fe Based Annealed	200	15			
	32		Cured	280	30			
	33		Annealed	250	25			
	34		Ni or Co Based Cured	350	38			
	35		Cast	320	34			
	36	Titanium Alloys	Pure Titanium	400 Rm				
	37		Alpha + Beta Alloys Hardened	1050 Rm				
H	38	Hardened steel	Hardened	550	55			
	39		Hardened	630	60			
	40	Chilled Cast Iron	Cast	400	42			
	41	Hardened Cast Iron	Hardened	550	55			