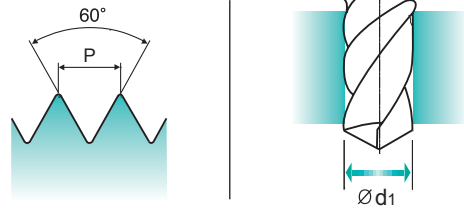
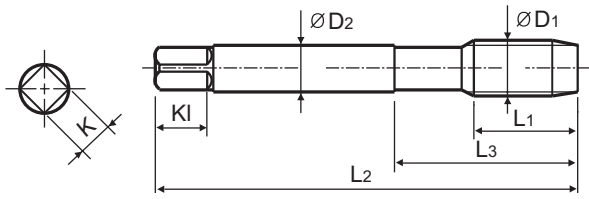
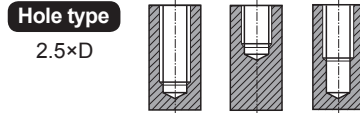


ISO metric coarse threads DIN 13

- M** **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.



Material groups: **AI** **HSS-E** **DIN 371/376** **6H** **60°** **C** **Bright** **R45** **Machine taps Maschinengewindebohrer**

Recommended Cutting Page : P.252

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	KI	Z	Ød1
M2 × 0.4		TC163136	8	45	13	2.8	2.1	5	2	1.6
M2.2 × 0.45		TC163156	8	45	13	2.8	2.1	5	2	1.75
*M2.3 × 0.4		TC163196	8	45	13	2.8	2.1	5	2	1.9
M2.5 × 0.45		TC163176	9	50	15	2.8	2.1	5	2	2.05
*M2.6 × 0.45		TC163496	9	50	15	2.8	2.1	5	2	2.1
M3 × 0.5		TC163206	6	56	18	3.5	2.7	6	2	2.5
M3.5 × 0.6		TC163226	7	56	20	4	3	6	2	2.9
M4 × 0.7		TC163246	7	63	21	4.5	3.4	6	2	3.3
M4.5 × 0.75		TC163266	8	70	25	6	4.9	8	2	3.7
M5 × 0.8		TC163286	8	70	25	6	4.9	8	2	4.2
M6 × 1		TC163316	10	80	30	6	4.9	8	2	5
M7 × 1		TC163346	10	80	30	7	5.5	8	2	6
M8 × 1.25		TC163366	13	90	35	8	6.2	9	2	6.8
M9 × 1.25		TC163396	13	90	35	9	7	10	2	7.8
M10 × 1.5		TC163426	15	100	39	10	8	11	2	8.5
M11 × 1.5		TC163466	17	100	40	8	6.2	9	2	9.5
M12 × 1.75		TC163506	18	110	44	9	7	10	2	10.2
M14 × 2		TC163546	20	110	44	11	9	12	3	12
M16 × 2		TC163606	20	110	44	12	9	12	3	14
M18 × 2.5		TC163656	25	125	50	14	11	14	3	15.5
M20 × 2.5		TC163706	25	140	54	16	12	15	3	17.5
M22 × 2.5		TC163746	25	140	54	18	14.5	17	3	19.5
M24 × 3		TC163786	30	160	60	18	14.5	17	3	21
M27 × 3		TC163866	30	160	60	20	16	19	3	24
M30 × 3.5		TC163946	35	180	70	22	18	21	3	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		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
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											15	30	25	38	34			55	60	42	55
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

					TC163 TC963 TC169 TC170	TE953	TC622	TE943	TC433	TE433	TY433
THREAD MILLS											
SYNCHRO TAPS											
COMBO TAPS	ISO	VDI 3323	Material Description	HB	HRC	Vc (m/min)					
YG TAP GENERAL	P	1	Non-alloy steel	125		15-20		15-20			
		2		190	13	15-20		15-20			
		3		250	25	12-18	12-18	12-18	12-18		
		4		270	28						
		5		300	32						
		6	Low alloy steel	180	10						
		7		275	29						
		8		300	32						
		9		350	38						
		10		High alloyed steel, and tool steel	200	15					
		11	325		35						
YG TAP CAST IRON	M	12	Stainless steel	200	15						
13		240		23							
14		180		10							
YG TAP ALU	K	15	Grey cast iron	180	10						
		16		260	26						
		17	Nodular cast iron	160	3						
		18		250	25						
		19		Malleable cast iron	130						
20	230	21									
NUT TAPS	N	21	Aluminum-wrought alloy	60		10-15	10-15	10-15	10-15		
		22		100		10-15	10-15	10-15	10-15		
STI TAPS	N	23	Aluminum-cast, alloyed	75		15-20	15-20	15-20	15-20		
		24		90		15-20	15-20	15-20	15-20		
		25		130		10-15		10-15			
PIPE TAPS	N	26	Copper and Copper Alloys (Bronze / Brass)	110					25-35	25-35	35-40
		27		90		8-12		8-12	8-12	8-12	12-16
		28		100					15-20		20-25
TECHNICAL DATA	N	29	Non Metallic Materials								
		30									
YG TAP ALU	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							
YG TAP ALU	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 Fe₃O₄-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 $\geq 600\text{m/min}$. 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-E
YG TAP
ALU**

For long-chipping Aluminum Wrought Alloys with Large Chip Gullets to Avoid Clogging in the Threading Operations

HOLE TYPE		Max. 2.5xD Blind Hole		
TOOL MATERIAL		HSS-E		
CHAMFER LEAD ACC. TO DIN2197		C	C	
FLUTE TYPE		Spiral Flute	Spiral Flute	
SPIRAL FLUTE ANGLE		R45	R40	
SERIES	M	DIN371/376	TC163 (P.242)	TE953 (P.243)
		DIN352		
		DIN357/LONG		
	MF	DIN374	TC963 (P.244)	
		DIN2181		
	UNC	DIN371/376	TC169 (P.245)	
		DIN351		
	UNF	DIN371/374	TC170 (P.246)	
		DIN2181		
	BSW	DIN2182/2183		
		DIN351		
	G(BSP)	DIN5156/5157		
EG-M	DIN371/376			
EG-UNC	DIN371/376			
EG-UNF	DIN371/374			
SURFACE TREATMENT		Bright	NI	
MODEL				



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.252

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		Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1% CuZn, CuSnZn (Brass) CuSn, lead-free copper and electrolytic copper	110 90 100		○
	27						
	28						
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic Rubber, Wood, etc.				
	30						
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		