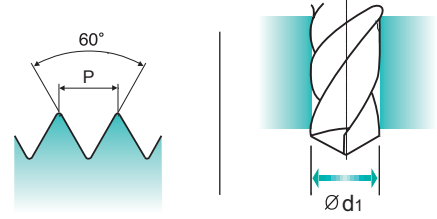
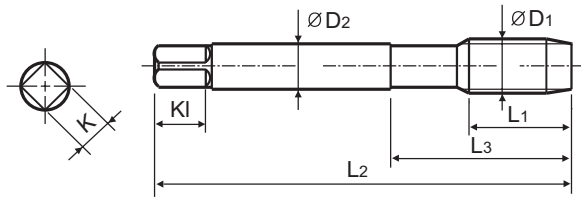
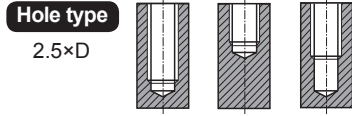


**MF** ISO metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo grosso DIN 13

► 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 **VG** HSS-E DIN 374 6H 60° C Bright R40

Machine taps  
Maschinengewindebohrer

Recommended Cutting Page : P.189

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD <sub>1</sub>	P	Bright	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	ØD <sub>2</sub>	K	K1	Z	Ød <sub>1</sub>
M4 × 0.5		TC413256	5	63	21	2.8	2.1	5	3	3.5
M5 × 0.5		TC413296	5	70	25	3.5	2.7	6	3	4.5
M6 × 0.75		TC413326	8	80	30	4.5	3.4	6	3	5.2
M6 × 0.5		TC413336	5	80	30	4.5	3.4	6	3	5.5
M7 × 0.75		TC413356	10	80	30	5.5	4.3	7	3	6.2
M8 × 1		TC413376	10	90	36	6	4.9	8	3	7
M8 × 0.75		TC413386	8	80	30	6	4.9	8	3	7.2
M10 × 1.25		TC413436	16	100	40	7	5.5	8	3	8.8
M10 × 1		TC413446	10	90	36	7	5.5	8	3	9
M10 × 0.75		TC413456	10	90	36	7	5.5	8	3	9.2
M12 × 1.5		TC413516	15	100	40	9	7	10	3	10.5
M12 × 1.25		TC413526	15	100	40	9	7	10	3	10.8
M12 × 1		TC413536	11	100	40	9	7	10	3	11
M14 × 1.5		TC413556	15	100	40	11	9	12	3	12.5
M14 × 1.25		TC413566	15	100	40	11	9	12	3	12.8
M16 × 1.5		TC413616	15	100	40	12	9	12	3	14.5
M18 × 1.5		TC413676	17	110	44	14	11	14	4	16.5
M20 × 1.5		TC413726	17	125	50	16	12	15	4	18.5
M22 × 1.5		TC413766	17	125	50	18	14.5	17	4	20.5
M24 × 1.5		TC413806	20	140	54	18	14.5	17	4	22.5

◎ : 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**

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)												
					TQ823	TR823	TC312 TC413 TC174 TC184	TD312 TD413 TD174	TB312	TY312	TB913	TQ863	TR863	TC422 TC263 TC244 TC254	TD422 TD263 TD244	TE422	TY422
P	1	Non-alloy steel	125														
	2		190	13	15-20	15-20	15-20	20-25	15-20	20-25	15-20	15-20	15-20	15-20	15-20	20-25	20-25
	3		250	25	12-18	12-18	12-18	18-24	12-18	18-24	12-18	12-18	12-18	12-18	12-18	18-24	18-24
	4		270	28	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20
	5		300	32	6-10	6-10	6-10	10-14	6-10	10-14	6-10	6-10	6-10	6-10	6-10	10-14	10-14
	6	Low alloy steel	180	10	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20
	7		275	29	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20
	8		300	32	6-10	6-10	6-10	10-14	6-10	10-14	6-10	6-10	6-10	6-10	6-10	10-14	10-14
	9		350	38	3-5	3-5	3-5	5-7	3-5	5-7	3-5	3-5	3-5	3-5	3-5	5-7	5-7
	10		High alloyed steel, and tool steel	200	15	3-5	3-5	3-5	5-7	3-5	5-7	3-5	3-5	3-5	3-5	3-5	5-7
	11	325		35													
M	12	Stainless steel	200	15								7-10	7-10	7-10	7-10	10-15	10-15
	13		240	23								5-8	5-8	5-8	5-8	8-11	8-11
	14		180	10	4-6	4-6	4-6	6-8	4-6	6-8	4-6	4-6	4-6	4-6	4-6	6-8	6-8
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															
N	21	Aluminum-wrought alloy	60														
	22		100														
	23	Aluminum-cast, alloyed	75														
	24		90														
	25		130														
	26		110														
	27	Copper and Copper Alloys (Bronze / Brass)	90														
	28		100														
	29		Non Metallic Materials														
	30																
S	31	Heat Resistant Super Alloys	200	15	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20
	32		280	30													
	33		250	25													
	34		350	38													
	35		320	34													
	36	Titanium Alloys	400Rm		10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	15-20	15-20
	37		1050Rm														
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-E & HSS-PM  
YG TAP  
STEEL**

For Steel Materials but also other Long Chip Forming Materials



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

◎ : Excellent ○ : Good

Recommended cutting conditions : P.189

HOLE TYPE		Max. 2.5xD Blind Hole				
TOOL MATERIAL		HSS-PM		HSS-E		
CHAMFER LEAD ACC. TO DIN2197		C	C	C	C	
FLUTE TYPE		Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	
SPIRAL FLUTE ANGLE		R40	R40	R40	R40	
SERIES	M	DIN371/376	TQ823 (P.166)	TR823 (P.167)	TC312 (P.168)	TD312 (P.169)
		DIN352				
		DIN357/LONG				
	MF	DIN374			TC413 (P.172)	TD413 (P.173)
		DIN2181				
	UNC	DIN371/376			TC174 (P.174)	TD174 (P.175)
		DIN351				
	UNF	DIN371/374			TC184 (P.176)	
		DIN2181				
	BSW	DIN2182/2183				
		DIN351				
	G(BSP)	DIN5156/5157				
	EG-M	DIN371/376				
EG-UNC	DIN371/376					
EG-UNF	DIN371/374					
SURFACE TREATMENT		VAP	Bright	Bright	TIN	
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				