

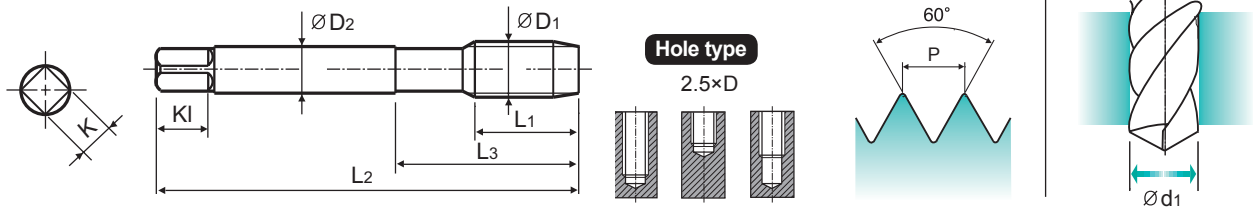
UNF

Unified fine threads

- Unified Grobgewinde
- UNF
- Unificato passo fine

► For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

► Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeit dank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



HSS-E DIN 371/374 3B 60° C Bright TiN R40

Machine taps
Maschinengewindebohrer

Recommended Cutting Page : P.114

Unit : mm

SIZE	TPI	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
		Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 48UNF		TCE02182	TDE02182	6	56	18	3.5	2.7	6	3	2.4
#5 - 44UNF		TCE02222	TDE02222	7	56	18	3.5	2.7	6	3	2.7
#6 - 40UNF		TCE02262	TDE02262	7	56	20	4	3	6	3	3
#8 - 36UNF		TCE02302	TDE02302	8	63	21	4.5	3.4	6	3	3.5
#10 - 32UNF		TCE02342	TDE02342	10	70	25	6	4.9	8	3	4.1
#12 - 28UNF		TCE02382	TDE02382	10	80	30	6	4.9	8	3	4.7
1/4 - 28UNF		TCE02422	TDE02422	10	80	30	7	5.5	8	3	5.5
5/16 - 24UNF		TCE02462	TDE02462	10	90	35	8	6.2	9	3	6.9
3/8 - 24UNF		TCE02502	TDE02502	10	100	39	9	7	10	3	8.5
7/16 - 20UNF		TCE02542	TDE02542	13	100	40	8	6.2	9	3	9.9
1/2 - 20UNF		TCE02582	TDE02582	13	100	40	9	7	10	3	11.5
9/16 - 18UNF		TCE02622	TDE02622	15	100	40	11	9	12	3	12.9
5/8 - 18UNF		TCE02662	TDE02662	15	100	40	12	9	12	3	14.5
3/4 - 16UNF		TCE02722	TDE02722	17	110	44	14	11	14	4	17.5
7/8 - 14UNF		TCE02762	TDE02762	17	125	50	18	14.5	17	4	20.5
1 - 12UNF		TCE02802	TDE02802	20	140	54	20	16	19	4	23.25

► DIN 371(#4~3/8) and DIN 374(7/16~1)

* The other coating(TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : Excellent ○ : Good

ISO	P										M				K						
	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					
	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			◎			◎	◎	◎													



COMBO TAPS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

THREAD MILLS	SYNCHRO TAPS	COMBO TAPS	ISO	VDI 3323	Material Description	HB	HRc	TC804	TD804	TB804	TCE05	TDE05	TBE05	TCE06	TDE06	
								TC844	TD844	TB844	TCE09	TDE09				
								TC824	TD824	TB824	TCE01	TDE01				
								TC864	TD864	TB864	TCE02	TDE02				
								Vc (m/min)								
YG TAP GENERAL	P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20	20-25	
		2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25			
		3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	18-24			
		4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20			
		5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14			
		6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20			
		7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20			
		8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14			
		9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7			
		10		High alloyed steel, and tool steel	200	15	3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7		
		11			325	35										
YG TAP CAST IRON	M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	10-15			
		13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11			
		14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	4-6	6-8			
YG TAP ALU	K	15	Grey cast iron	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20			
		16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11			
		17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20			
		18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11			
		19		130												
20	Malleable cast iron	230	21													
NUT TAPS	N	21	Aluminum-wrought alloy	60												
		22		100												
		23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25			
		24		90												
		25		130												
		26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	35-40			
		27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	12-17			
		28		100		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25			
		29	Non Metallic Materials													
		30														
PIPE TAPS	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												
TECHNICAL DATA	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 & HSS-PM COMBO TAPS

For Multi Purpose Tapping
YG-1's Patent

HOLE TYPE		Max. 2.5xD Blind Hole						
TOOL MATERIAL		HSS-E						
CHAMFER LEAD ACC. TO DIN2197		C	C	C	C	C	C	
FLUTE TYPE		Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	
SPIRAL FLUTE ANGLE		R40	R40	R40	R40	R40	R40	
SERIES	M	DIN371/376	TC804 (P.76)	TD804 (P.76)	TB804 (P.76)	TCE05 (P.77)	TDE05 (P.77)	TBE05 (P.77)
		DIN352						
		DIN357/LONG						
	MF	DIN374	TC844 (P.81)	TD844 (P.81)	TB844 (P.81)	TCE09 (P.83)	TDE09 (P.83)	
		DIN2181						
	UNC	DIN371/376	TC824 (P.91)	TD824 (P.91)	TB824 (P.91)	TCE01 (P.92)	TDE01 (P.92)	
		DIN351						
	UNF	DIN371/374	TC864 (P.93)	TD864 (P.93)	TB864 (P.93)	TCE02 (P.94)	TDE02 (P.94)	
		DIN2181						
	BSW	DIN2182/2183						
		DIN351						
	G(BSP)	DIN5156/5157						
	EG-M	DIN371/376						
	EG-UNC	DIN371/376						
EG-UNF	DIN371/374							
SURFACE TREATMENT		Bright	TiN	VAP	Bright	TiN	VAP	
MODEL								



Please visit
globalyg1.com/mat
for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.114

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	Bright	TiN	VAP	Bright	TiN	VAP
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						