COMBO TAPS

TC445 SERIES

M ISO Metric coarse threads DIN 13

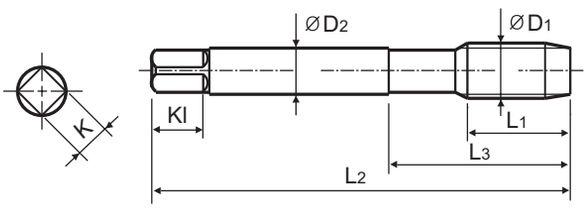
Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

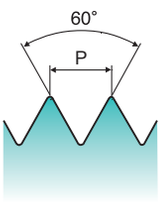
▶ For using multi-purpose and correct thread profiles & long tool life due to special tap geometry. YG-1 company has a patent.

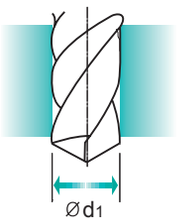
▶ Für vielfältigen Einsatz, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.

Hole type
3.0×D

Long Shank







Material groups **MU** | HSS-E | LONG | 6H | 60° | B | Bright

Machine taps
Maschinengewindebohrer

Recommended Cutting Page : P.117

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	Kl	Z	Ød1
M3	× 0.5	**TC445206**	11	100	18	3.5	2.7	6	3	2.5
M4	× 0.7	**TC445246**	13	125	21	4.5	3.4	6	3	3.3
M5	× 0.8	**TC445286**	15	140	25	6	4.9	8	3	4.2
M6	× 1	**TC445316**	17	160	30	6	4.9	8	3	5
M8	× 1.25	**TC445366**	20	180	35	6	4.9	8	3	6.8
M10	× 1.5	**TC445426**	22	200	39	7	5.5	8	3	8.5
M12	× 1.75	**TC445506**	24	220	44	9	7	10	3	10.2
M14	× 2	**TC445546**	26	220	44	11	9	12	3	12
M16	× 2	**TC445606**	27	220	44	12	9	12	3	14
M20	× 2.5	**TC445706**	32	280	54	16	12	15	4	17.5

* Coating(TiN, TiCN or TiAlN) or Surface Treatment(Steam Homo) is available on your request.

◎ : 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			◎			◎	◎	◎													

COMBO TAPS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TB744 TB754 TQ744 TQ754	TC814 TC854 TC834 TC874	TD814 TD854 TD834 TD874	TB814 TB854 TB834 TB874	TCJ05 TCJ09 TCJ01 TCJ02	TDJ05 TDJ09 TDJ01 TDJ02	TBJ05	TCJ06
					Vc (m/min)							
P	1	Non-alloy steel	125			15-20	20-25	15-20	15-20	20-25	15-20	15-20
	2		190	13	15-20	15-20	20-25	15-20	15-20	20-25	15-20	15-20
	3		250	25		12-18	18-24	12-18	12-18	18-24	12-18	12-18
	4		270	28	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15
	5		300	32		6-10	10-14	6-10	6-10	10-14	6-10	6-10
	6	Low alloy steel	180	10	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15
	7		275	29	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15
	8		300	32		6-10	10-14	6-10	6-10	10-14	6-10	6-10
	9		350	38		3-5	5-7	3-5	3-5	5-7	3-5	3-5
	10	High alloyed steel, and tool steel	200	15		3-5	5-7	3-5	3-5	5-7	3-5	3-5
	11		325	35								
M	12	Stainless steel	200	15	7-10	7-10	10-15	7-10	7-10	10-15	7-10	7-10
	13		240	23	5-8	5-8	8-11	5-8	5-8	8-11	5-8	5-8
	14		180	10	4-6	4-6	6-8	4-6	4-6	6-8	4-6	4-6
K	15	Grey cast iron	180	10		10-15	15-20	10-15	10-15	15-20	10-15	10-15
	16		260	26		5-8	8-11	5-8	5-8	8-11	5-8	5-8
	17	Nodular cast iron	160	3		10-15	15-20	10-15	10-15	15-20	10-15	10-15
	18		250	25		5-8	8-11	5-8	5-8	8-11	5-8	5-8
	19	Malleable cast iron	130									
	20		230	21								
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
	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
	27		90			8-12	12-17	8-12	8-12	12-17	8-12	8-12
	28		100		15-20	15-20	20-25	15-20	15-20	20-25	15-20	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								

COMBO TAPS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

	TDJ06	TBJ06	TCJ07	TDJ07	TBJ07	TCJ08	TDJ08	TBJ08	TC814-IC	TC445	TB428 TB438	TQ428 TQ438
VDI 3323	Vc (m/min)											
1	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20		
2	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20	15-20
3	18-24	12-18	12-18	18-24	12-18	12-18	18-24	12-18	12-18	12-18		
4	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15	10-15
5	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10		
6	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15	10-15
7	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15	10-15
8	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10		
9	5-7	3-5	3-5	5-7	3-5	3-5	5-7	3-5	3-5	3-5		
10	5-7	3-5	3-5	5-7	3-5	3-5	5-7	3-5	3-5	3-5		
11												
12	10-15	7-10	7-10	10-15	7-10	7-10	10-15	7-10	7-10	7-10	7-10	7-10
13	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	5-8	5-8
14	6-8	4-6	4-6	6-8	4-6	4-6	6-8	4-6	4-6	4-6	4-6	4-6
15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15		
16	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8		
17	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15		
18	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8		
19												
20												
21												
22												
23	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20		
24												
25												
26	35-40	25-35	25-35	35-40	25-35	25-35	35-40	25-35	25-35	25-35		
27	12-17	8-12	8-12	12-17	8-12	8-12	12-17	8-12	8-12	8-12		
28	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20	15-20
29												
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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 ≥ 600m/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

YG THREADING TOOLS

HSS-E & HSS-PM COMBO TAPS

For Multi Purpose Tapping
YG-1's Patent

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.114

HOLE TYPE					Max. 3.0xD Through Hole						
TOOL MATERIAL					HSS-E						
CHAMFER LEAD ACC. TO DIN2197					B	B	B	B	B	B	
FLUTE TYPE					Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	
SPIRAL FLUTE ANGLE					-	-	-	-	-	-	
SERIES	M	DIN371/376			TC814 (P.95)	TD814 (P.95)	TB814 (P.95)	TCJ05 (P.96)	TDJ05 (P.96)	TBJ05 (P.96)	
		DIN352									
		DIN357/LONG									
	MF	DIN374			TC854 (P.100)	TD854 (P.100)	TB854 (P.100)	TCJ09 (P.102)	TDJ09 (P.102)		
		DIN2181									
	UNC	DIN371/376			TC834 (P.109)	TD834 (P.109)	TB834 (P.109)	TCJ01 (P.110)	TDJ01 (P.110)		
		DIN351									
	UNF	DIN371/374			TC874 (P.111)	TD874 (P.111)	TB874 (P.111)	TCJ02 (P.112)	TDJ02 (P.112)		
		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											

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	Malleable cast iron	Ferritic		130							
	20		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%		110		◎	◎	◎	◎	◎	◎
	27		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		Ni or Co Based	Annealed	250	25						
	34			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						

Max. 3.0xD
Through Hole

	HSS-E												HSS-PM	
	B	B	B	B	B	B	B	B	B	B	B	B	B	
	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	
	-	-	-	-	-	-	-	-	-	-	-	-	-	
	TCJ06 (P.97)	TDJ06 (P.97)	TBJ06 (P.97)	TCJ07 (P.98)	TDJ07 (P.98)	TBJ07 (P.98)	TCJ08 (P.99)	TDJ08 (P.99)	TBJ08 (P.99)	TC814-IC (P.104)		TB428 (P.106)	TQ428 (P.106)	M
											TC445 (P.105)			
												TB438 (P.108)	TQ438 (P.107)	MF
														UNC
														UNF
														BSW
														G(BSP)
														EG-M
														EG-UNC
														EG-UNF
	Bright	TiN	VAP	Bright	TiN	VAP	Bright	TiN	VAP	Bright	Bright	VAP	VAP	
														
1	○	○	○	○	○	○	○	○	○	○	○			P
2	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	
3	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
4	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	
5	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
6	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	
7	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	
8	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
9	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
10	○	○	○	○	○	○	○	○	○	○	○			
11														
12	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	M
13	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
14	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
15	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			K
16	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
17	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
18	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
19														
20														
21														N
22														
23	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
24														
25														
26	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
27	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎			
28	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	
29														
30														
31														S
32														
33														
34														
35														
36														
37														
38														H
39														
40														
41														

COMBO TAP SETS

Combo Spiral Flute Taps

TB804SET5	TC804SET7
VAP	Bright
5pcs	7pcs

Combo Spiral Flute Taps + Gold-P Drill

TD804SET7-GLP195

TiN

14pcs

P.493