



SCREW THREAD INSERT TAPS

TC973 SERIES

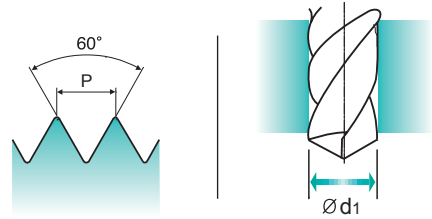
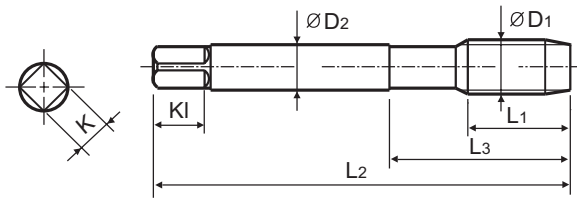
EG-M

ISO metric coarse threads for Screw Thread insert

- Metrisches ISO Regelgew.f.Gew. Drahteins
- ISO MÉTRIQUE DIN13 POUR FILETS RAPPORTÉS
- ISO Metrico passo grosso per Helicoil

► Wire insert threads are used for increasing fastening strength in soft materials.

► Gewinde mit Drahteinsätzen werden verwendet um größere Drehmomente in weichen Werkstoffen zu erreichen.



Material groups: **AI** HSS-E DIN 371/376 6H Mod. 60° B Bright

Machine taps
Maschinengewindebohrer

Recommended Cutting Page : P.298

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
M2.5 × 0.45		TC973176	11	56	18	3.5	2.7	6	3	2.65
M3 × 0.5		TC973206	10	63	21	4.5	3.4	6	3	3.15
M3.5 × 0.6		TC973226	14	70	25	6	4.9	8	3	3.7
M4 × 0.7		TC973246	13	70	25	6	4.9	8	3	4.2
M5 × 0.8		TC973286	13	80	30	6	4.9	8	3	5.25
M6 × 1		TC973316	17	90	35	8	6.2	9	3	6.3
M8 × 1.25		TC973366	18	100	39	10	8	11	3	8.4
M10 × 1.5		TC973426	22	110	44	9	7	10	3	10.4
M12 × 1.75		TC973506	26	110	44	11	9	12	3	12.5
M14 × 2		TC973546	27	110	44	12	9	12	3	14.5
M16 × 2		TC973606	30	125	50	14	11	14	4	16.5
M18 × 2.5		TC973656	32	140	54	18	14.5	17	4	18.75
M20 × 2.5		TC973706	34	160	60	18	14.5	17	4	20.75

►DIN 371(M2.5~M8) and DIN 376(M10~M20)

◎ : 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		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					
	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	◎	◎	◎	◎			◎														



SCREW THREAD INSERT TAPS

RECOMMENDED CUTTING CONDITIONS EMPFOHLENE SCHNEIDKONDITIONEN

THREAD MILLS						TC909 TC944		TC973 TC934 TC954	
SYNCHRO TAPS						Vc (m/min)			
COMBO TAPS	ISO	VDI 3323	Material Description	HB	HRC				
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	
		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	
		22		100		10-15		10-15	
		23	Aluminum-cast, alloyed	75		15-20		15-20	
		24		90		15-20		15-20	
		25		130					
		26	Copper and Copper Alloys (Bronze / Brass)	110					
		27		90		8-12		8-12	
		28		100					
		29	Non Metallic Materials						
		30							
STI 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					
PIPE TAPS	H	38	Hardened steel	550	55				
		39		630	60				
		40	Chilled Cast Iron	400	42				
		41	Hardened Cast Iron	550	55				
TECHNICAL DATA									

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 ≥ 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 SCREW THREAD INSERT TAPS

Tapping STI Threads of Soft Materials



Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.298

HOLE TYPE		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole
TOOL MATERIAL		HSS-E	
CHAMFER LEAD ACC. TO DIN2197		C	B
FLUTE TYPE		Spiral Flute	Spiral Point
SPIRAL FLUTE ANGLE		R40	-
SERIES	M	DIN371/376	
		DIN352	
		DIN357/LONG	
	MF	DIN374	
		DIN2181	
	UNC	DIN371/376	
		DIN351	
	UNF	DIN371/374	
		DIN2181	
	BSW	DIN2182/2183	
DIN351			
G(BSP)	DIN5156/5157		
EG-M	DIN371/376	TC909 (P.293)	TC973 (P.294)
EG-UNC	DIN371/376	TC944 (P.295)	TC934 (P.296)
EG-UNF	DIN371/374		TC954 (P.297)
SURFACE TREATMENT		Bright	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	Low alloy steel	About 0.75% C Annealed	270	28		
	5		About 0.75% C Quenched & Tempered	300	32		
	6		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	Non Metallic Materials	CuZn, CuSnZn (Brass)	90		◎	◎
	28		CuSn, lead-free copper and electrolytic copper	100			
	29		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		