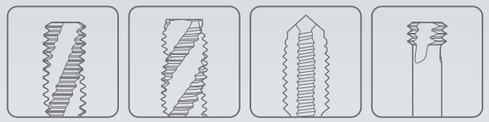
Global Cutting Tool Leader **YG-1**



THREADING

Leading Through Innovation

HSS-E

YG TAP ALU

YG TAP Aluminium

- **For long-chipping Aluminum Wrought Alloys with Large Chip Gullets to Avoid Clogging in the Threading Operations**
- **Für langspanende Aluminium-Knetlegierungen mit großen Spanabständen zur Vermeidung von Verstopfungen beim Gewindeschneiden.**

SELECTION GUIDE

YG THREADING TOOLS

HSS-E YG TAP ALU

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

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B260

			Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole		Max. 2.0xD Blind/Through Hole			
HOLE TYPE										
TOOL MATERIAL			HSS-E							
CHAMFER LEAD ACC. TO DIN2197			C	C	B	B	C	C	C	
FLUTE TYPE			Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Straight Flute	Straight Flute	Straight Flute	
SPIRAL FLUTE ANGLE			R45	R40	-	-	-	-	-	
SERIES	M	DIN371/376	TC163 (p.B250)	TE953 (p.B251)	TC622 (p.B255)	TE943 (p.B256)	TC433 (p.B257)	TE443 (p.B258)	TY433 (p.B259)	M
		DIN352								
		DIN357/LONG								
	MF	DIN374	TC963 (p.B252)							MF
		DIN2181								
	UNC	DIN371/376	TC169 (p.B253)							UNC
		DIN351								
	UNF	DIN371/374	TC170 (p.B254)							UNF
		DIN2181								
	BSW	DIN2182/2183								BSW
		DIN351								
	G(BSP)	DIN5156/5157								G(BSP)
	EG-M	DIN371/376								EG-M
	EG-UNC	DIN371/376								EG-UNC
	EG-UNF	DIN371/374								EG-UNF
SURFACE TREATMENT			Bright	Nitride	Bright	Nitride	Bright	Nitride	TiAlN	
MODEL										

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc								
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○						1	P
	2		About 0.45% C	Annealed	190	13	○						2	
	3		About 0.45% C	Quenched & Tempered	250	25	○	○	○	○			3	
	4		About 0.75% C	Annealed	270	28							4	
	5		About 0.75% C	Quenched & Tempered	300	32							5	
	6	Low alloy steel		Annealed	180	10							6	
	7			Quenched & Tempered	275	29							7	
	8			Quenched & Tempered	300	32							8	
	9			Quenched & Tempered	350	38							9	
	10	High alloyed steel, and tool steel		Annealed	200	15							10	
	11			Quenched & Tempered	325	35							11	
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15							12	M
	13		Martensitic	Quenched & Tempered	240	23							13	
	14		Austenitic		180	10							14	
K	15	Grey cast iron	Pearlitic / ferritic		180	10							15	K
	16		Pearlitic (Martensitic)		260	26							16	
	17	Nodular cast iron	Ferritic		160	3							17	
	18		Pearlitic		250	25							18	
	19	Malleable cast iron	Ferritic		130								19	
	20		Pearlitic		230	21							20	
N	21	Aluminum-wrought alloy	Not Curable		60		◎	○	◎	○			21	N
	22		Curable	Hardened	100		◎	○	◎	○			22	
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎	○	◎	○			23	
	24		≤ 12% Si, Curable	Hardened	90		◎	○	◎	○			24	
	25		> 12% Si, Not Curable		130			○		◎			25	
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110				◎	◎	◎		26	
	27		CuZn, CuSnZn (Brass)		90		○		○	○	○		27	
	28		CuSn, lead-free copper and electrolytic copper		100				○		○		28	
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic										29	
	30		Rubber, Wood, etc.										30	
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15							31	S
	32			Cured	280	30							32	
	33		Ni or Co Based	Annealed	250	25							33	
	34			Cured	350	38							34	
	35			Cast	320	34							35	
	36	Titanium Alloys	Pure Titanium		400 Rm								36	
	37		Alpha + Beta Alloys	Hardened	1050 Rm								37	
H	38	Hardened steel		Hardened	550	55							38	H
	39			Hardened	630	60							39	
	40	Chilled Cast Iron		Cast	400	42							40	
	41	Hardened Cast Iron		Hardened	550	55							41	

CARBIDE
HSS
THREAD MILLS
SYNCHRO TAPS
PRIME TAPS
COMBO TAPS
YG TAP GENERAL
YG TAP STEEL
YG TAP HARDENED
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP Ti Ni
YG TAP FORMING
NUT TAPS
STI TAPS
PIPE TAPS
TECHNICAL DATA

YG TAP ALU

TC170 SERIES

UNF — Unified fine threads

- Unified Feingewinde
- UNF
- Unificato passo grosso

Machine taps
Maschinengewindebohrer

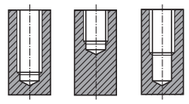
▶ Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

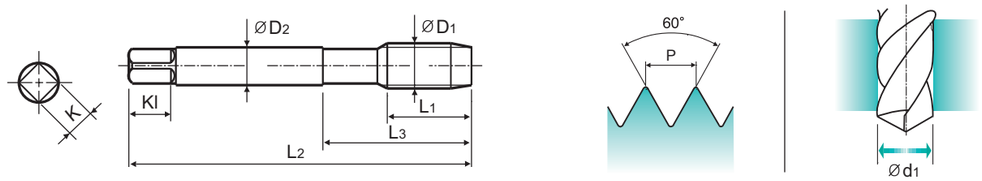
▶ Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 374

Hole type
2.5×D





Material groups: Al

HSS-E | DIN 371/374 | 2B | 60° | C | R45 | Bright

p.B260

Recommended Toolholder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
◎	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1		Bright	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	- 48UNF	TC170182	6	56	18	3.5	2.7	6	2	2.4
#5	- 44UNF	TC170222	7	56	18	3.5	2.7	6	2	2.7
#6	- 40UNF	TC170262	7	56	20	4	3	6	2	3
#8	- 36UNF	TC170302	8	63	21	4.5	3.4	6	2	3.5
#10	- 32UNF	TC170342	10	70	25	6	4.9	8	2	4.1
#12	- 28UNF	TC170382	10	80	30	6	4.9	8	2	4.7
1/4	- 28UNF	TC170422	10	80	30	7	5.5	8	2	5.5
5/16	- 24UNF	TC170462	10	90	35	8	6.2	9	2	6.9
3/8	- 24UNF	TC170502	10	100	39	9	7	10	2	8.5
7/16	- 20UNF	TC170542	13	100	40	8	6.2	9	2	9.9
1/2	- 20UNF	TC170582	13	100	40	9	7	10	2	11.5
9/16	- 18UNF	TC170622	15	100	40	11	9	12	3	12.9
5/8	- 18UNF	TC170662	15	100	40	12	9	12	3	14.5
3/4	- 16UNF	TC170722	17	110	44	14	11	14	3	17.5
7/8	- 14UNF	TC170762	17	125	50	18	14.5	17	3	20.5
1	- 12UNF	TC170802	20	140	54	18	14.5	17	3	23.25
1-1/8	- 12UNF	TC170842	22	150	60	22	18	21	3	26.5

▶DIN 371(#4~3/8) and DIN 374(7/16~1-1/8)

◎ : 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	◎	◎	◎	◎			○														

YG TAP ALU

TC622 SERIES

M-Az — ISO metric coarse threads DIN 13

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

Machine taps
Maschinengewindebohrer

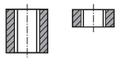
▶ Interrupted tap to reduce contact area and tapping torque, and to give more chip space.

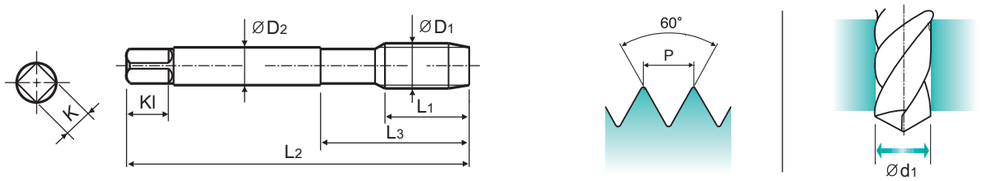
▶ Gewindebohrer mit ausgesetzten Zähnen um die Kontaktzone mit dem Werkstuck und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.

DIN 371

DIN 376

Hole type
3.0×D





Material groups: Al

HSS-E | DIN 371/376 | 6H | 60° | B | Bright

p.B260

Recommended Toolholder

	Plain Shank	Page
◎	TAPPING ER CHUCK	D215 -220
◎	TAPPING CHUCK	D221 -228
	ONE STEP TAPPING CHUCK	D211 -213

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
M2	× 0.4	TC622136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC622156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC622196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC622176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC622496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC622206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC622226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC622246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC622266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC622286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC622316	17	80	30	6	4.9	8	3	5
M7	× 1	TC622346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC622366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC622396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC622426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC622466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC622506	24	110	44	9	7	10	3	10.2
M14	× 2	TC622546	26	110	44	11	9	12	3	12
M16	× 2	TC622606	27	110	44	12	9	12	3	14
M18	× 2.5	TC622656	30	125	50	14	11	14	3	15.5
M20	× 2.5	TC622706	32	140	54	16	12	15	3	17.5
M22	× 2.5	TC622746	32	140	54	18	14.5	17	3	19.5
M24	× 3	TC622786	34	160	60	18	14.5	17	3	21
M27	× 3	TC622866	36	160	60	20	16	19	3	24
M30	× 3.5	TC622946	40	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	◎	◎	◎	◎			○														

YG TAP ALU

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

					TC163 TC963 TC169 TC170	TE953	TC622	TE943	TC433	TE443	TY433
ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)						
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			
N	21	Aluminum-wrought alloy	60		10-15	10-15	10-15	10-15			
	22		100		10-15	10-15	10-15	10-15			
	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			
	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