SYNCHRO TAPS

SYNCHRO TAPS

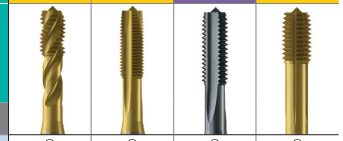
- For High Speed Tapping on Rigid CNC Machine
- Für Hochgeschwindigkeits-Gewindebohren auf starren CNC-Maschinen

SELECTION GUIDE

THREADING TOOLS

HSS-PM SYNCHRO TAPS

For High Speed Tapping on Rigid CNC Machine

HOLE TYPE			Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.0xD Blind/Through Hole	Max. 3.0xD Blind/Through Hole
TOOL MATERIAL			HSS-PM			
CHAMFER LEAD ACC. TO DIN2197			C	B	C	C
FLUTE TYPE			Spiral Flute	Spiral Point	Straight Flute	Cold Forming
SPIRAL FLUTE ANGLE			R45	-	-	-
SERIES	M	DIN371/376	TTS31 (P.65)	TTS33 (P.66)	TKS35 (P.67)	TTS37 (P.68)
		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				
	EG-UNC	DIN371/376				
	EG-UNF	DIN371/374				
SURFACE TREATMENT			TiN	TiN	TiCN	TiN
MODEL						

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : P.69

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				

SYNCHRO TAPS

TTS31 SERIES

M ISO metric coarse threads DIN 13

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

- ▶ Coated HSS-PM(Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- ▶ Up to 3 times faster in tapping compared to conventional taps
- ▶ For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- ▶ High precision threads

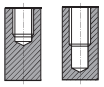
- ▶ Beschichtete HSS-PM-Gewindebohrer zum Hochgeschwindigkeitsgewindebohren auf starren CNC-Maschinen oder gleichwertige Maschinen
- ▶ Bis zu dreimal schnelleres Gewindeschneiden als bei herkömmlichen Gewindebohrern
- ▶ Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofutters zur Erhöhung der Werkzeugstandzeit und der Gewindequalität empfohlen
- ▶ Hoch präzise Gewinde

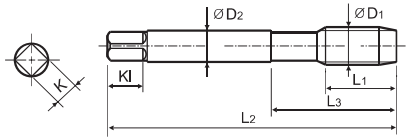
DIN 371

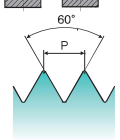
DIN 376

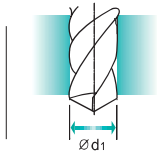
Hole type

2.5×D









Material groups: GS | HSS-PM | DIN 371/376 | 6H | 60° | C | TiN | R45

Machine taps
Maschinengewindebohrer

Recommended Cutting Page : P.69

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	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	TTS31206	6	56	18	3.5	2.7	6	3	2.5
M4	× 0.7	TTS31246	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	TTS31286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TTS31316	10	80	30	6	4.9	8	3	5
M8	× 1.25	TTS31366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TTS31426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TTS31506	18	110	44	9	7	10	3	10.2
M14	× 2	TTS31546	20	110	44	11	9	12	3	12
M16	× 2	TTS31606	20	110	44	12	9	12	3	14
M18	× 2.5	TTS31656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TTS31706	25	140	54	16	12	15	4	17.5

▶DIN 371(M3~M10) and DIN 376(M11~M20)
▶Coating(TiAlN) 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	400 Rm	1050 Rm	550	630	400	550
Recommended			◎	◎	◎	◎		○													

SYNCHRO TAPS

TTS33 SERIES

M ISO metric coarse threads DIN 13

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

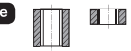
- Coated HSS-PM(Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- Up to 3 times faster in tapping compared to conventional taps
- For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- High precision threads

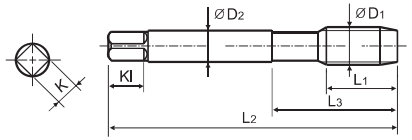
- Beschichtete HSS-PM-Gewindebohrer zum Hochgeschwindigkeitsgewindebohren auf starren CNC-Maschinen oder gleichwertige Maschinen
- Bis zu dreimal schnelleres Gewindeschneiden als bei herkömmlichen Gewindebohrern
- Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofutters zur Erhöhung der Werkzeugstandzeit und der Gewindequalität empfohlen
- Hoch präzise Gewinde

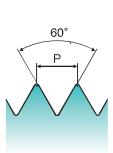
DIN 371

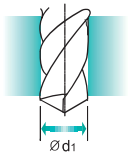
DIN 376

Hole type
3.0×D









Material groups **GS** | HSS-PM | DIN 371/376 | 6HX | 60° | B | TiN

Machine taps
Maschinengewindebohrer

Recommended Cutting Page : P.69

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	TiN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	**TTS33206**	5	56	18	3.5	2.7	6	3	2.5
M4	× 0.7	**TTS33246**	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	**TTS33286**	8	70	25	6	4.9	8	3	4.2
M6	× 1	**TTS33316**	10	80	30	6	4.9	8	3	5
M8	× 1.25	**TTS33366**	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	**TTS33426**	15	100	39	10	8	11	3	8.5
M12	× 1.75	**TTS33506**	18	110	44	9	7	10	4	10.2
M14	× 2	**TTS33546**	20	110	44	11	9	12	4	12
M16	× 2	**TTS33606**	20	110	44	12	9	12	4	14
M18	× 2.5	**TTS33656**	25	125	50	14	11	14	4	15.5
M20	× 2.5	**TTS33706**	25	140	54	16	12	15	4	17.5

▶DIN 371(M3~M10) and DIN 376(M11~M20)
▶Coating(TiAlN) is available on your request.

◎ : Excellent ○ : Good

ISO	P																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K 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			◎	◎	◎	◎		○													

SYNCHRO TAPS

TKS35 SERIES

M ISO metric coarse threads DIN 13

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

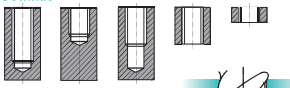
- Coated HSS-PM(Powder Metallurgy) Taps for high-speed tapping on rigid CNC machines or equivalent machines
- Up to 3 times faster in tapping compared to conventional taps
- For high-speed synchro tapping, synchro holder for increasing tool life and thread quality is recommended
- High precision threads

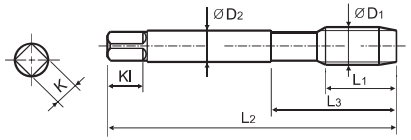
- Beschichtete HSS-PM-Gewindebohrer zum Hochgeschwindigkeitsgewindebohren auf starren CNC-Maschinen oder gleichwertige Maschinen
- Bis zu dreimal schnelleres Gewindeschneiden als bei herkömmlichen Gewindebohrern
- Beim Hochgeschwindigkeits-Gewindebohren wird die Verwendung eines Synchrofutters zur Erhöhung der Werkzeugstandzeit und der Gewindequalität empfohlen
- Hoch präzise Gewinde

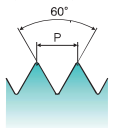
DIN 371

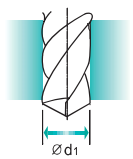
DIN 376

Hole type
2.0×D









Material groups **GS** | HSS-PM | DIN 371/376 | 6HX | 60° | C | TiCN

Machine taps
Maschinengewindebohrer

Recommended Cutting Page : P.69

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	TiCN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	**TKS35206**	5	56	18	3.5	2.7	6	3	2.5
M4	× 0.7	**TKS35246**	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	**TKS35286**	8	70	25	6	4.9	8	3	4.2
M6	× 1	**TKS35316**	10	80	30	6	4.9	8	3	5
M8	× 1.25	**TKS35366**	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	**TKS35426**	15	100	39	10	8	11	4	8.5
M12	× 1.75	**TKS35506**	18	110	44	9	7	10	4	10.2
M14	× 2	**TKS35546**	20	110	44	11	9	12	4	12
M16	× 2	**TKS35606**	20	110	44	12	9	12	4	14
M18	× 2.5	**TKS35656**	25	125	50	14	11	14	4	15.5
M20	× 2.5	**TKS35706**	25	140	54	16	12	15	4	17.5

▶DIN 371(M3~M10) and DIN 376(M11~M20)
▶Coating(TiAlN) is available on your reqest.

◎ : Excellent ○ : Good

ISO	P																				
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		M Stainless steel			K 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			○	○	○																

CARBIDE
HSS
THREAD MILLS
SYNCHRO 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

SYNCHRO TAPS

TTS37 SERIES

M ISO metric coarse threads DIN 13

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

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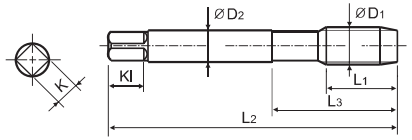
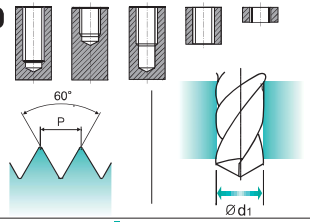
- Hoch präzise Gewinde

DIN 371

DIN 376



Hole type
3.0×D



Material groups **GV** | HSS-PM | DIN 371/376 | 6HX | 60° | C | TiN

Cold forming taps
Gewindeformer

Recommended cutting : P.69

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	Kl	Ød1
M3	× 0.5	TTS37206	5	56	18	3.5	2.7	6	2.8
M4	× 0.7	TTS37246	7	63	21	4.5	3.4	6	3.7
M5	× 0.8	TTS37286	8	70	25	6	4.9	8	4.65
M6	× 1	TTS37316	10	80	30	6	4.9	8	5.55
M8	× 1.25	TTS37366	13	90	35	8	6.2	9	7.4
M10	× 1.5	TTS37426	15	100	39	10	8	11	9.3
M12	× 1.75	TTS37506	18	110	44	9	7	10	11.2

▶DIN 371(M3~M10) and DIN 376(M11~M12)

◎ : 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	◎	◎	◎	◎	○			◎													

SYNCHRO TAPS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	TTS31	TTS33	TKS35	TTS37
					Vc (m/min)			
P	1	Non-alloy steel	125		41-46	41-46	41-46	41-46
	2		190	13	41-46	41-46	41-46	41-46
	3		250	25	35-40	35-40	35-40	35-40
	4		270	28	28-33	28-33	28-33	28-33
	5		300	32				
	6	Low alloy steel	180	10	28-33	28-33	28-33	28-33
	7		275	29	28-33	28-33	28-33	28-33
	8		300	32				
	9		350	38				
	10	High alloyed steel, and tool steel	200	15				
	11		325	35				
M	12	Stainless steel	200	15	18-23	18-23		18-23
	13		240	23	13-18	13-18		13-18
	14		180	10	10-14	10-14		10-14
K	15	Grey cast iron	180	10	28-33	28-33	28-33	
	16		260	26			13-18	
	17	Nodular cast iron	160	3	28-33	28-33	28-33	
	18		250	25			13-18	
	19	Malleable cast iron	130				28-33	
	20		230	21			13-18	
N	21	Aluminum-wrought alloy	60					28-33
	22		100					28-33
	23	Aluminum-cast, alloyed	75		41-46	41-46	41-46	41-46
	24		90		41-46	41-46	41-46	41-46
	25		130		30-35	30-35	30-35	30-35
	26	Copper and Copper Alloys (Bronze / Brass)	110		45-50	45-50		
	27		90					
	28		100		25-30	25-30		25-30
	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				

CARBIDE
HSS
THREAD MILLS
SYNCHRO 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