

**YE22**  
**EUROPE**

2022 / 2023



**CUTTING TOOLS**



**THREADING**

**YG-1 CO., LTD.**

# THREADING TOOLS

SOLID CARBIDE THREAD MILLS (with & without Coolant Holes)

HSS-PM SYNCHRO TAPS (Spiral Flute, Spiral Point, Straight Flute & Cold Forming)

HSS-PM PRIME TAPS (Spiral Flute & Spiral Point Tap)

HSS-E & HSS-PM COMBO TAPS (Spiral Flute & Spiral Point Tap)

HSS & HSS-E YG TAP GENERAL

HSS-E & HSS-PM YG TAP STEEL

SOLID CARBIDE & HSS-E YG TAP HARDENED

HSS-E & HSS-PM YG TAP INOX

SOLID CARBIDE & HSS-E YG TAP CAST IRON

HSS-E YG TAP ALU

HSS-PM YG TAP Ti Ni

HSS-E & HSS-PM YG TAP FORMING

HSS-E NUT TAPS

HSS-E SCREW THREAD INSERT TAPS

HSS & HSS-E PIPE TAPS

## SOLID CARBIDE THREAD MILLS

## HSS-PM & HSS-E MACHINE TAPS

## HSS MACHINE & HAND TAPS

## HSS MACHINE TAPS

## SOLID CARBIDE & HSS MACHINE TAPS

## HSS MACHINE TAPS

## SOLID CARBIDE & HSS MACHINE TAPS

## HSS MACHINE TAPS

## HSS PIPE TAPS

## TECHNICAL DATA

**SOLID CARBIDE THREAD MILLS** (with & without Coolant Holes)  
Threading Large Diameter in High Quality / Available with Chamfer

**HSS-PM SYNCHRO TAPS** (Spiral Flute, Spiral Point, Straight Flute & Cold Forming)  
For High Speed Tapping on Rigid CNC Machine

**HSS-PM PRIME TAPS** (Spiral Flute & Spiral Point Tap)  
Excellent Performance on Various Work Materials

**HSS-E & HSS-PM COMBO TAPS** (Spiral Flute & Spiral Point Tap)  
For Multi Purpose Tapping

**HSS & HSS-E YG TAP GENERAL**  
Suitable for Tapping Blind / Through Holes due to Flute Geometry and Excellent Chip Evacuation

**HSS-E & HSS-PM YG TAP STEEL**  
For Steel Materials but also other Long Chip Forming Materials

**SOLID CARBIDE & HSS-E YG TAP HARDENED**  
For Hardened Steels Applications to Control the Continuous and Red-glowing Chips

**HSS-E & HSS-PM YG TAP INOX**  
For Stainless Steels with Lamellar, Irregular Chip Formation where the Cutting Forces are Higher

**SOLID CARBIDE & HSS-E YG TAP CAST IRON**  
For Cast Iron or Similar Work Materials

**HSS-E YG TAP ALU**  
For long-chipping Aluminum Wrought Alloys with Large Chip Gullets to Avoid Clogging in the Threading Operations

**HSS-PM YG TAP Ti Ni**  
For Heat Resistent Super Alloys and Titanium Alloys Applied with Cutting Edge Rake Angles and Thread Relief

**HSS-E & HSS-PM YG TAP FORMING**  
Tapping by Forming Soft Materials

**HSS-E NUT TAPS**  
Nut Tapping Machines

**HSS-E SCREW THREAD INSERT TAPS**  
Tapping STI Threads of Soft Materials

**HSS & HSS-E PIPE TAPS**  
Tapping Whitworth Pipe threads

## TECHNICAL DATA

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





# SELECTION GUIDE



## THREADING TOOLS

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	HB	HRC
P	1	Non-alloy steel	125	
	2		190	13
	3		250	25
	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
M	12	Stainless steel	200	15
	13		240	23
	14		180	10
K	15	Grey cast iron	180	10
	16	Nodular cast iron	260	26
	17		160	3
	18		250	25
	19	Malleable cast iron	130	
20	230		21	
N	21	Aluminum-wrought alloy	60	
	22		100	
	23		75	
	24	Aluminum-cast, alloyed	90	
	25		130	
	26		110	
	27	Copper and Copper Alloys (Bronze / Brass)	90	
	28		100	
	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		550	55

### COMBO TAPS

HOLE TYPE		Max. 3.0xD Through Hole									
TOOL MATERIAL		HSS-E									
CHAMFER LEAD ACC. TO DIN197		B	B	B	B	B	B	B	B	B	
FLUTE TYPE		Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	
SPIRAL FLUTE ANGLE		-	-	-	-	-	-	-	-	-	
SERIES	M	DIN371/376	TC814 (p.B104)	TD814 (p.B104)	TB814 (p.B104)	TCJ05 (p.B105)	TDJ05 (p.B105)	TBJ05 (p.B105)	TCJ06 (p.B106)	TDJ06 (p.B106)	
		DIN352									
		DIN371/LONG									
	MF	DIN374	TC854 (p.B109)	TD854 (p.B109)	TB854 (p.B109)	TCJ09 (p.B112)	TDJ09 (p.B112)				
		DIN2181									
	UNC	DIN371/376	TC834 (p.B119)	TD834 (p.B119)	TB834 (p.B119)	TCJ01 (p.B120)	TDJ01 (p.B120)				
		DIN351									
	UNF	DIN371/374	TC874 (p.B121)	TD874 (p.B121)	TB874 (p.B121)	TCJ02 (p.B122)	TDJ02 (p.B122)				
		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	Bright	TiN		
MODEL											

### COMBO TAPS

HOLE TYPE		Max. 3.0xD Through Hole										
TOOL MATERIAL		HSS-E										
CHAMFER LEAD ACC. TO DIN197		B	B	B	B	B	B	B	B	B	B	
FLUTE TYPE		Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point	
SPIRAL FLUTE ANGLE		-	-	-	-	-	-	-	-	-	-	
SERIES	M	DIN371/376	TC814 (p.B104)	TD814 (p.B104)	TB814 (p.B104)	TCJ05 (p.B105)	TDJ05 (p.B105)	TBJ05 (p.B105)	TCJ06 (p.B106)	TDJ06 (p.B106)		
		DIN352										
		DIN371/LONG										
	MF	DIN374	TC854 (p.B109)	TD854 (p.B109)	TB854 (p.B109)	TCJ09 (p.B112)	TDJ09 (p.B112)					
		DIN2181										
	UNC	DIN371/376	TC834 (p.B119)	TD834 (p.B119)	TB834 (p.B119)	TCJ01 (p.B120)	TDJ01 (p.B120)					
		DIN351										
	UNF	DIN371/374	TC874 (p.B121)	TD874 (p.B121)	TB874 (p.B121)	TCJ02 (p.B122)	TDJ02 (p.B122)					
		DIN2181										
	BSW	DIN2182/2183										
DIN351												
G(BSP)	DIN5156/5157											
EG-M	DIN371/376											
EG-UNC	DIN371/376											
EG-UNF	DIN371/374											
SURFACE TREATMENT		VAP	Bright	TiN	VAP	Bright	TiN	VAP	Bright	Bright	VAP	VAP
MODEL												

#### COMBO TAP SETS

##### Combo Spiral Flute Taps

TB804SET5	TC804SET7
VAP	Bright
5pcs	7pcs



##### Combo Spiral Flute Taps + Gold-P Drill

###### TD804SET7-GLP195

TiN

14pcs



P113



SELECTION GUIDE



THREADING TOOLS

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◎ : Excellent ○ : Good

Table with columns: YG TAP GENERAL, YG TAP STEEL, HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES, SURFACE TREATMENT, MODEL, ISO, VDI 3323, Material Description, HB, HRC.

Table with columns: YG TAP STEEL, Max. 2.5xD Blind Hole, Max. 3.0xD Through Hole, HSS-E, HSS-PM, HSS-E, C, B, Spiral Flute, Spiral Point, TD312, TB312, TY312, TB913, TQ863, TR863, TC422, TD422, TE422, TY422, TD413, TD174, TC263, TD263, TC244, TD244, TC254, TiN, VAP, TiAlN, Bright, TiN, Ni, TiAlN.



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	5		300	32
	6	180	10	
	7	Low alloy steel	275	29
	8		300	32
	9		350	38
	10	High alloyed steel, and tool steel	200	15
	11		325	35
M	12	Stainless steel	200	15
	13		240	23
	14		180	10
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	
N	21	Aluminum-wrought alloy	60	
	22		100	
	23	Aluminum-cast, alloyed	75	
	24		90	
	25		130	
	26	Copper and Copper Alloys (Bronze / Brass)	110	
	27		90	
	28		100	
	29	Non Metallic Materials		
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

### YG TAP HARDENED

HOLE TYPE	Max. 2.0xD Blind / Through Hole		Max. 2.5xD Blind Hole				Max. 3.0xD Through Hole		
	CARBIDE		HSS-E						
TOOL MATERIAL	CARBIDE		HSS-E						
CHAMFER LEAD ACC. TO DIN2197	C	D	C	C	C	B	B		
FLUTE TYPE	Straight Flute	Straight Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point		
SPIRAL FLUTE ANGLE	-	-	R40	R40	R40	-	-		
SERIES	M	DIN371/376	T0997-TIC (p.B202)	T0999-TIC (p.B203)	TC313 (p.B204)	TB313 (p.B205)	TY313 (p.B206)	TC283 (p.B207)	TY283 (p.B208)
		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	TiCN	TiCN	Bright	VAP	TiAlN	Bright	TiAlN		
MODEL									
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41	◎	◎	◎	◎	◎	◎	◎		

### YG TAP INOX

HOLE TYPE	Max. 2.0xD Blind Hole					Max. 2.5xD Blind Hole							
	HSS-E		HSS-PM			HSS-E			HSS-PM				
TOOL MATERIAL	HSS-E		HSS-PM			HSS-E			HSS-PM				
CHAMFER LEAD ACC. TO DIN2197	C	C	C	C	C	C	C	C	C	B	B		
FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point		
SPIRAL FLUTE ANGLE	R40	R40	R40	R40	R40	R40	R40	R40	R40	-	-		
SERIES	M	TB711 (p.B214)	TQ813 (p.B215)	TR813 (p.B216)	TB914 (p.B217)	TI914 (p.B217)	TBE15 (p.B218)	TBE16 (p.B219)	TBE17 (p.B220)	TBE18 (p.B221)	TCH14 (p.B222)	TQ853 (p.B223)	TR853 (p.B224)
	MF				TB183 (p.B227)								
	UNC				TB904 (p.B228)								
	UNF				TB924 (p.B229)								
	BSW												
G(BSP)													
EG-M													
EG-UNC													
EG-UNF													
SURFACE TREATMENT	VAP	VAP	Bright	VAP	TiCN	VAP	VAP	VAP	VAP	HardSlick	VAP	Bright	
MODEL													
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# CUTTING SPEED TABLE

**CUTTING SPEED TABLE** SCHNITTGESCHWINDIGKEITSTABELLE  
Cutting Speeds m/min. into revolutions per minute

Tool Dia.	TOOL R.P.M. (rev/min)															
	Cutting Speed (m/min)															
	1	2	3	4	5	6	8	10	12	15	20	25	30	40	50	60
1	318	637	955	1274	1592	1910	2548	3185	3822	4777	6396	7962	9554	12739	15924	19108
2	159	318	478	637	796	955	1274	1592	1911	2388	3185	3981	4777	6369	7962	9554
3	106	212	318	425	531	637	849	1062	1274	1592	2123	2654	3185	4246	5308	6369
4	80	159	239	318	398	478	637	796	955	1194	1592	1990	2389	3185	3981	4777
5	64	127	191	255	318	382	510	637	764	955	1274	1592	1911	2548	3185	3822
6	53	106	159	212	265	318	425	531	637	796	1062	1327	1592	2123	2653	3185
8	40	80	119	159	199	239	318	398	478	597	796	955	1194	1592	1990	2388
10	31	64	96	127	159	191	255	318	382	478	637	796	955	1274	1592	1911
12	26	53	80	106	133	159	212	265	318	398	531	663	796	1062	1327	1592
14	23	45	68	91	114	136	182	227	273	341	455	569	682	910	1137	1365
16	20	40	60	80	100	119	159	199	239	299	398	498	597	796	995	1194
18	18	35	53	71	88	106	142	177	212	265	354	442	531	708	885	1062
20	16	32	48	64	80	96	127	159	191	239	318	398	478	637	796	955
25	13	25	38	51	64	76	102	127	153	191	255	318	382	510	637	764
30	11	21	32	42	53	64	85	106	127	159	212	265	318	425	531	637
35	9	18	27	36	45	55	73	91	109	136	182	227	273	364	455	546
40	8	16	24	32	40	48	64	80	96	119	159	199	239	318	398	478

RPM = rev/min  
V = m/min  
D = Dia.(mm)

$$V = \frac{RPM \cdot \pi \cdot D}{1000}$$

$$RPM = \frac{1000 \cdot V}{\pi \cdot D}$$

# 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 Fe<sub>3</sub>O<sub>4</sub>-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  $\geq 600$ 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

# EXAMPLES FOR APPLICATION MATERIAL GROUPS

<b>11</b> Magnetic Soft Steels < 400 N/mm <sup>2</sup> 1.1013 RFe 100 1.1014 RFe 80 1.1015 RFe 60 1.0718 9 S MnPb 28	<b>12</b> Structure/Case Carburizing Steels < 700 N/mm <sup>2</sup> 1.0037 St 37-2 1.0050 St 50-2 1.0060 St 60-2 1.0070 St 70-2 1.0401 C 15 1.1141 Ck 15	<b>13</b> Plain Carbon Steels < 850 N/mm <sup>2</sup> 1.0501 C 35 1.0503 C 45 1.0535 C 55 1.0601 C 60 1.1181 Ck 35 1.1191 Ck 45	<b>14</b> Alloy Steels < 850 N/mm <sup>2</sup> 1.2080 X210Cr12 1.2363 X100CrMoV5-1 1.3243 S 6-5-2-5 1.3343 S 6-5-2 1.7218 25CrMo4 1.7220 34CrMo4
<b>15</b> Alloy, Hardened & Tempered Steels < 1,200 N/mm <sup>2</sup> 1.2581 X30WCrV9 3 1.2622 X60WCrMoV9 1.2550 60WCrV7 1.6580 30CrNiMo8 1.7361 32CrMo12 1.8515 31CrMo12	<b>16</b> Alloy, Hardened & Tempered Steels > 1,200 N/mm <sup>2</sup> To this group belong most of the materials of group 15, but present a higher tensile strength.	<b>21</b> Free machining stainless Steels < 850 N/mm <sup>2</sup> 1.4005 X12CrS13 1.4006 X10Cr13 1.4016 X6Cr17 1.4104 X12CrMoS17 1.4305 X10CrNiS18 9	<b>22</b> Austenitic stainless Steels < 850 N/mm <sup>2</sup> 1.4301 X5CrNi18 10 1.4406 X2CrNiMoN17 12 2 1.4435 X2CrNiMo18 14 3 1.4541 X6CrNiTi18 10 1.4571 X6CrNiMoTi17 12 2 1.4828 X15CrNiSi20 12
<b>23</b> Martensitic/Ferritic/Fer.-Aus. Stainless Steels < 1,000 N/mm <sup>2</sup> 1.4112 X90CrMoV18 1.4125 X105CrMo17 1.4002 X6CrAl13 1.4512 X6CrTi12 1.4582 X4CrNiMoNb25 7 1.4821 X20CrNiSi25 4	<b>31</b> Grey graphite cast irons < 500 N/mm <sup>2</sup> 0.6015 GG-15 0.6020 GG-20 0.6025 GG-25 0.6030 GG-30 0.6035 GG-35 0.6040 GG-40	<b>32</b> Grey graphite cast irons < 1,000 N/mm <sup>2</sup> 0.6020 GG-20 0.6025 GG-25 0.6030 GG-30 0.6035 GG-35 0.6040 GG-40	<b>33</b> Nodular graphite, Malleable cast irons < 700 N/mm <sup>2</sup> 0.7040 GGG-40 0.7043 GGG-40.3 0.7050 GGG-50 0.7060 GGG-60 0.7070 GGG-70 0.7080 GGG-80
<b>34</b> Nodular graphite, Malleable cast irons < 1,000 N/mm <sup>2</sup> 0.7040 GGG-40 0.7043 GGG-40.3 0.7050 GGG-50 0.7060 GGG-60 0.7070 GGG-70 0.7080 GGG-80	<b>41</b> Titanium unalloys < 700 N/mm <sup>2</sup> 3.7024 Ti99.5 3.7034 Ti99.7 3.7035 Ti2 3.7055 Ti99.4 3.7064 Ti99.2 3.7065 Ti4	<b>42</b> Titanium alloys < 900 N/mm <sup>2</sup> TiA14Mn4 3.7114 TiA15Sn2 3.7124 TiCu2 3.7164 TiA16V4 3.7174 TiA16V6Sn2	<b>43</b> Titanium alloys < 1,300 N/mm <sup>2</sup> 3.7124 TiCu2 3.7144 TiA16Sn2Zr4Mo2 3.7154 TiAl6Zr5 3.7164 TiA16V4 3.7174 TiA16V6Sn2 3.7184 TiAl4Mo4Sn2
<b>51</b> Nickel unalloys < 500 N/mm <sup>2</sup> 2.1504 NiAlBz 2.4042 Ni99CSi 2.4060 Ni99.6 2.4062 Ni99.4Fe	<b>52</b> Heat resisting Nickel alloys < 900 N/mm <sup>2</sup> 2.4360 Monel 400 2.4374 Monel 500 2.4665 Hastelloy X 2.4812 Hastelloy C 2.4816 Inconel 600 1.4876 Incoloy 800	<b>53</b> Heat resisting Nickel alloys < 1,400 N/mm <sup>2</sup> 2.4631 Nimonic80A 2.4632 Nimonic90 2.4634 Nimonic105 2.4662 Nimonic901 2.4668 Inconel 718 2.4669 Inconel X-750	<b>61</b> Copper unalloys < 350 N/mm <sup>2</sup> 2.0060 E-Cu57 2.0070 SE-Cu 2.0090 SF-Cu 2.1356 CuMn3 2.1522 CuSi2Mn
<b>62</b> Short chip Brass, Bronze copper alloys < 700N/mm <sup>2</sup> 2.0360 CuZn40 (Ms60) 2.0380 CuZn39Pb2 (Ms58) 2.0410 CuZn44Pb2 2.0580 CuZn40Mn1Pb 2.1086 G-CuSn10Zn 2.1096 G-CuSn5ZnPb	<b>63</b> Long chip Brass, Bronze copper alloys < 700 N/mm <sup>2</sup> 2.0250 CuZn20 2.0321 CuZn37 2.1020 CuSn6 2.1080 CuSn6Zn6 2.1245 CuBel.7 2.1293 CuCrZr	<b>64</b> Cu-Al-Fe alloys < 1,500 N/mm <sup>2</sup>	<b>71</b> Aluminum-Magnesium unalloys < 350 N/mm <sup>2</sup> 3.0250 Al99.5H 3.0280 Al99.8H 3.0305 Al99.9 3.3308 Al99.9Mg0.5
<b>72</b> Aluminum alloys, Si < 1.5% < 600 N/mm <sup>2</sup> 3.0515 AlMn1 3.0525 AlMn1Mg0.5 3.1325 AlCuMg1 3.3315 AlMg1 3.3241 G-AlMg3Si 3.3292 GD-AlMg9	<b>73</b> Aluminum alloys, 0.5-10% Si < 600 N/mm <sup>2</sup> 3.2134 G-AISi5Cu1Mg 3.2152 GD-AISi6Cu4 3.2162 GD-AISi8Cu3 3.2373 G-AISi9Mg	<b>74</b> Aluminum alloys, Si > 10% < 600 N/mm <sup>2</sup> 3.2381 G-AISi10Mg 3.2383 G-AISi10Mg(Cu) 3.2581 G-AISi12 3.2583 G-AISi12(Cu) 3.5662 G-MgA16 3.5812 G-MgA18Zn1	<b>81</b> Thermoplastics Delrin(POM) Teflon Nylon
<b>82</b> Thermosetting plastics Bakelit Novopan	<b>83</b> Reinforced plastics materials Glass fiber reinforced Thermo and Duroplastics	<b>Reference: DIN</b>	

## MATERIAL GROUP

### STANDARDS

GERMANY		FRANCE	GREAT BRITAIN	EN & OTHER	U.S.A.
W.Nr	DIN	AFNOR	B.S.	CLASSIFICATIONS	AISI

#### 10 - STEEL

##### 11 - Magnetic soft steels - Hardness < 120 HB 30 - Tensile strength < 400 N/mm<sup>2</sup>

1.1013	RFe 100		OSOA12	EN2	
1.1014	RFe 80				
1.1015	RFe 60		230Mo7	EN1	
1.0718	9 S MnPb 28				

##### 12 - Structural steels - Hardness < 200 HB 30 - Tensile strength < 700 N/mm<sup>2</sup>

###### 12.1 - Structural steels

1.0034	RSt 34-2	A34-2 EN	1449 34/20 HR		
1.0035	St 33	A33	Fe 310-0		
1.0036	St 37-2		060A35	EN3A,4,5,6,7,8	
1.0037	RSt 37-2				
1.0044	St 44-2				
1.0050	St 50-2		4360-50B	EN 207	
1.0060	St 60-2				
1.0070	St 70-2				
1.0116	St 37-3				
1.0144	St 44-3				

###### 12.2 - Case carburizing steels

1.0301	C 10	AF 34 C 10	040 A 10		M 1010
1.0401	C 15	AF 37 C 12	080 A 15		M 1015
1.1121	Ck 10	XC 10	040 A 10		1010
1.1141	Ck 15	XC 12	040 A 15		1015
1.5732	14 Ni Cr 10	14 NC 11			3415
1.7015	15 Cr 3	12 C 3	523 M 15		5015
1.7131	16 Mn Cr 5	16 MC 4	527 M 17	EN 32	5115
1.7147	20 Mn Cr 5	20 MC 5			5120

###### 12.3 - Free machining steels

1.0710	15 S 10				
1.0715	9 S Mn 28	S 250	230 M 07		1213
1.0718	9 S Mn Pb 28	S 250 Pb			12 L 13
1.0721	10 S 20	10 F 1	210 M 15		1108 1109
1.0722	10 S Pb 20	10 Pb F 2			11 L 08
1.0723	15 S 20	.....	210 A 15		
1.0726	35 S 20	35 MF 6	212 M 36		1140
1.0727	45 S 20	45 MF 4			1146
1.0736	9 S Mn 36	S 300			1215
1.0737	9 S Mn Pb 36	S 300 Pb			12 L 14

###### 12.4 - Cast structural steels

1.0416	GS - 38				
1.0446	GS - 45				
1.0552	GS - 52				
1.0553	GS - 60	E 36 - 3			
1.0554	GS - 70				

#### 13 - Plain carbon steels - tempered

##### 13.1 - Steels, tempered - Hardness < 250 HB 30 - Tensile strength < 850 N/mm<sup>2</sup>

1.0402	C 22	1 C 22	070 M 20		M 1023
1.0501	C 35	1 C 35	080 A 32		1035
1.0503	C 45	1 C 45	060 A 47		1045
1.0535	C 55	1 C 55	070 M 55		1055
1.0601	C 60	1 C 60	060 A 62	EN 43	1060
1.1157	40 Mn 4	35 M 5	150 M 36		1035 1041
1.1151	Ck 22	2 C 22	055 M 15		1020 1023
1.1181	Ck 35	2 C 35	080 A 35		1035 1038
1.1191	Ck 45	2 C 45	080 M 46	EN 9, 10	1045
1.1203	Ck 55	2 C 55	060 A 57		1055
1.1221	Ck 60	2 C 60	060 A 62		1060 1064

MATERIAL GROUP					
STANDARDS					
GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
<b>14 - Alloy steels - Hardness &lt; 250 HB 30, &lt; 25 HRC - Tensile strength &lt; 850 N/mm<sup>2</sup></b>					
<b>14.1 - Cold work tool steels</b>					
1.2056	90 Cr 3				
1.2067	100 Cr 6	Y 100 C 6	BL 3		L 1 L 3
1.2080	X 210 Cr 12	Z 200 C 12	BD 3		D3
1.2083	X 42 Cr 13	Z 40 C 14			420
1.2363	X 100 CrMoV5 1	Z 100 CDV 5	BA 2		A 2
1.2379	X 155 CrV Mo 12 1	Z 160 CDV 12	BD 2		D 2
1.2510	100 MnCrW 4	90 MWCV 5	BO 1		O1
1.2550	60 WCrV 7	55WC 20	BS 1		S1
1.2823	70 Si 7				
1.2826	60 Mn Si Cr 4				
1.2842	90 MnCrV 8	90 MV 8	BO 2		O 2
<b>14.2 - High speed steels</b>					
1.3202	S 12-4-4-5	Z 130 WKCVCV 12-05-04-04	BT 15		T 15
1.3207	S 10-4-3-10	Z130 WKCDV10-10-04-04-03	BT 42		T 42
1.3243	S 6-5-2-5	Z85 WDKCV 06-05-05-04-02	BM 35		M 35
1.3247	S 2-10-1-8	Z110 DKCVCV 09-08-04-02-01	BM 42		M 42
1.3343	S 6-5-2	Z 85 WDCV 06-05-04-02	BM 2		M 2
1.3344	S 6-5-3	Z 120 WDCV 06-05-04-03			M 3 / 2
1.3348	S 2-9-2	Z 100 DCVW 09-04-02-02			M 7
ASP 23	(S 6-5-3)				
ASP 30					
ASP 60					
<b>14.3 - Alloy steels</b>					
1.5919	GS-15Cr Ni 6	16 NC 6			3115
1.7218	GS-25Cr Mo 4	25 C D 4	70 8A 25		4130
1.7220	GS-34Cr Mo 4	35 C D 4	70 8A 37		4135 4137
1.7379	GS-18 Cr Mo 9 10				
<b>14.4 - Tempered steels</b>					
1.0503	C 45	1 C 45	060 A 47		1045
1.7220	34 Cr Mo 4	34 Cr Mo 4	708 A 37		4135, 4137
1.7225	42 Cr Mo 4	42 CD 4	708 A 42	EN 16, 17, 19	4140, 4142
1.7228	50 Cr Mo 4	50 Cr Mo 4	708 A 47		4150
<b>14.5 - Nitriding steels</b>					
1.7779	20 Cr Mo V 13.5				
1.8504	34 Cr Al 6				
1.8506	34 Cr Al S 5				
1.8507	34 Cr Al Mo 5	30 CAD 6.12			A 355 Cl.D
1.8509	41 Cr Al Mo 7	40 CAD 6.12	905 M 39		A 355 Cl.A
1.8515	31 Cr Mo 12	30 CD 12	722 M 24		
<b>15 - Alloy steels / Tempered steels - Hardness 250-350 HB 30, 25-38 HRC - Tensile strength 850-1,200 N/mm<sup>2</sup></b>					
<b>15.1 - Alloy steels for tools</b>					
1.2311	40 Cr Mn Mo 7				
1.2312	40 Cr Mn Mo S 86				
1.2436	X 210 Cr W 12	Z 200 CW 12			
1.2711	54 Ni Cr Mo V 6				
1.2713	55 Ni Cr Mo V 6	55 NCDV 7	826 M 40	S 95, S 97, S 98	L 6
1.2714	56 Ni Cr Mo V 7				
1.2743	60 Ni Cr Mo V 12 4				
1.2766	35 Ni Cr Mo 16				
<b>15.2 - Alloy steels for hot work</b>					
1.2343	X 38 Cr Mo V 5 1	Z 38 CDV 5	BH 11		H 11
1.2344	X 40 Cr Mo V 5 1	Z 40 CDV 5	BH 13		H 13
1.2365	X 32 Cr Mo V 3 3	32 DCV 28	BH 10		H 10
1.2367	X 40 Cr Mo V 5 3	Z 38 CDV 5.3			
1.2581	X 30 W Cr V 9 3	Z 30 WCV 9.3	BH 21		H 21
1.2622	X 60 W Cr Mo V 9				
1.2678	X 45 CoCrWV 5 5 5				
1.2550	60 WCr V 7	55 WC 20	BS 1		S 1
1.2567	X 30 W Cr V 5 3	Z 32 WCV 5			

MATERIAL GROUP					
STANDARDS					
GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
<b>15.3 - Hardened tempered steels - Hardness may be different according to presentation and dimensions of material</b>					
1.5864	35 Ni Cr 18				
1.6580	30 Cr Ni Mo 8	30 Cr Ni Mo 8			
1.7361	32 Cr Mo 12	30 CD 12	722 M 24		
1.7707	30 Cr Mo V 9				
1.8161	58 Cr V 4				
<b>15.4 - Nitriding steels</b>					
1.8515	31 Cr Mo 12	30 CD 12	722 M 24		
1.8519	31 Cr Mo V 9		830 M 31		
1.8523	39 Cr Mo V 13 9		897 M 39		
1.8550	34 Cr Al Ni 7		826 M 40		
<b>16 - Alloy steels / Hardened tempered steels - Hardness &gt; 38 HRC - Tensile strength &gt; 1,200 N/mm<sup>2</sup></b>					
To this group belong most of the materials of group 15, but present a higher tensile strength					
<b>20 - STAINLESS STEELS</b>					
<b>21 - Free machining stainless steels - Hardness &lt; 250 HB 30 - Tensile strength &lt; 850 N/mm<sup>2</sup></b>					
1.4104	X 12 Cr Mo S 17	Z 13 CF 17	416 S 37	EN 56	430 F
1.4305	X 10 Cr Ni S 18 09	Z 8 CNF 18-09	303 S 21	EN 60	303
<b>22 - Austenitic stainless steels - Hardness &lt; 250 HB 30 - Tensile strength &lt; 850 N/mm<sup>2</sup></b>					
1.4300	X 12 Cr Ni 18 8		320 S 12		
1.4301	X 5 Cr Ni 18 10	Z 6 CN 18-09	304 S 15	EN 80, EN 58 + C	304
1.4311	X 2 CrNiN 18 10	Z 3 CN 18-07 Az	304 S 61		304 LN
1.4406	X 2 CrNiMoN 17 12 2	Z 3 CND 17 11 02	316 S 61		316 LN
1.4433	X 2 CrNiMo 18 15		316 S		
1.4435	X 2 CrNiMo 18 14 3	Z3 CND 17-12-03	316 S 11		316 L
1.4539	X 1 CrNiMoCu 25 20 5	Z 1 NCDU 25-20	321 S 17		UNS N08904
1.4541	X 6 CrNiTi 18 10	Z 6 CNT 18 10	321 S 18	EN 58 J, 316	321
1.4571	X 6 CrNiMoTi 17 12 2	Z 6 CNDT 17 12	320 S 18		316 Ti
1.4573	X 10 CrNiMoTi 18 12		320 S 33		
1.4828	X 15 CrNiSi 20 12	Z 15 CNS 20-12	309 S 24		309
<b>22.1 - Cast austenitic stainless steels</b>					
1.4308	G-X 6 CrNi 18 9	Z 6 CN 18.10 M	304 C 15(LT196)		CF-8
1.4313	G-X 5 CrNi 13 4	Z 8 CD 17-01	425 C 12		CA 6 -NM
1.4408	G-X 6 CrNiMo 18 10		316 C 16(LT196)		CF-8M
1.4581	G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12M	318 C 17		
<b>23 - Martensitic stainless steels - Hardness &lt; 320 HB 30 - Tensile strength &lt; 1,000 N/mm<sup>2</sup></b>					
1.4021	X 20 Cr 13	Z 20 C 13	420 S 37		420
1.4034	X 46 Cr 13	Z 44 C 14	(420 S 45)		
1.4057	X 20 CrNi 17 2	Z 15 CN 16-02	431 S 29		431
1.4112	X 90 CrMoV 18				
1.4116	X 45 CrMoV 15			EN 58, b.e.j.t	
1.4125	X 105 CrMo 17	Z 100 CD 17		Duplex alloys	440 C
1.4718	X 45 CrSi 9 3	Z 45 CS 9	401 S 45		HNV 3
1.4747	X 80 CrNiSi 20	Z 80 CSN 20-02	443 S 65		HNV 6
1.4086	G-X 120 Cr 29				
1.4106	G-X 10 CrMo 13				
1.4138	G-X 120 CrMo 29 2				
<b>24 - Ferritic stainless steels - Hardness &lt; 320 HB 30 - Tensile strength &lt; 1,100 N/mm<sup>2</sup></b>					
1.4002	X 6 Cr Al 13	Z 8 CA 12	405 S 17		405
1.4006	X 10 Cr 13	Z 10 C 13	410 C 21		410
1.4016	X 6 Cr 17	Z 8 C 17	430 S 17		430
1.4510	X 6 Cr Ti 17	Z 8 CT 17			430 Ti
1.4512	X 6 Cr Ti 12	Z 6 CT 12	409 S 19		409
<b>25 - Ferritic-Austenitic stainless steels - Hardness &lt; 320 HB 30 - Tensile strength &lt; 1,100 N/mm<sup>2</sup></b>					
1.4460	X 8 CrNiMo 27 5	Z 5 CND 27-05 Az			329
1.4582	X 4 CrNiMoNb 25 7				
1.4821	X 20 CrNiSi 25 4				

MATERIAL GROUP					
STANDARDS					
GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
<b>30 - CAST IRONS</b>					
<b>31 - Grey graphite cast irons - Hardness &lt; 150 HB 30 - Tensile strength &lt; 500 N/mm<sup>2</sup></b>					
0.6010	GG-10	Ft 10 D			A 48-20 B
0.6015	GG-15	Ft 20 D	Grade 150	Grey cast iron soft	A 48-25 B
0.6020	GG-20	Ft 25 D	Grade 220		A 48-30 B
0.6025	GG-25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG-30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG-35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG-40	Ft 40 D	Grade 400		A 48-60 B
<b>31.1 - Meehanite - Hardness &lt; 150 HB 30 - Tensile strength &lt; 500 N/mm<sup>2</sup></b>					
.....	GF - 150				
.....	GD - 260				
<b>32 - Grey graphite cast irons - Hardness 150 - 300 HB 30 - Tensile strength 500 - 1,000 N/mm<sup>2</sup></b>					
0.6020	GG - 20	Ft 25 D	Grade 220	Grey cast iron hard	A 48-30 B
0.6025	GG - 25	Ft 30 D	Grade 260		A 48-40 B
0.6030	GG - 30	Ft 30 D	Grade 300		A 48-45 B
0.6035	GG - 35	Ft 35 D	Grade 350		A 48-50 B
0.6040	GG - 40	Ft 40 D	Grade 400		A 48-60 B
<b>32.1 - Meehanite - Hardness 150-300 HB 30 - Tensile strength 500-1,000 N/mm<sup>2</sup></b>					
.....	GF - 150				
.....	GD - 260				
<b>15 - Alloy steels / Tempered steels - Hardness 250-350 HB 30, 25-38 HRC - Tensile strength 850-1,200 N/mm<sup>2</sup></b>					
0.7033	GGG-35.3				
0.7040	GGG-40	FGS 400-12	420 / 12		60-40-18
0.7043	GGG-40.3	FGS 370-17	370 / 17		
0.7050	GGG-50	FGS 500-7	500 / 7		65-45-12
0.7060	GGG-60	FGS 600-3	600 / 3	S.G.iron, Meehanite	80-55-06
0.8035	GTW-35		700/2,30g/72	Black & White Heart	
0.8040	GTW-40				
0.8045	GTW-45				
0.8065	GTW-65				
0.8135	GTS-35				
0.8145	GTS-45				
0.8155	GTS-55				
0.8165	GTS-65				
<b>33.1 - Meehanite - Hardness &lt; 200 HB 30 - Tensile strength &lt; 700 N/mm<sup>2</sup></b>					
SF 400					
SPF 600					
<b>34 - Nodular graphite, tempered malleable cast irons - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm<sup>2</sup></b>					
0.7070	GGG-70	FGS 700-2	700 / 2	S.G.iron, Meehanite	100-70-03
0.7080	GGG-80	FGS 800-2	800 / 2	Black & White Heart	120-90-02
And materials from group 33 tempered					
<b>34.1 - Meehanite - Hardness 200-300 HB 30 - Tensile strength 700-1,000 N/mm<sup>2</sup></b>					
	SH 800		420/12, P 440/7		
	SH 1000				
<b>40 - TITANIUM</b>					
<b>41 - Titanium, unalloys - Hardness &lt; 200 HB 30 - Tensile strength &lt; 700 N/mm<sup>2</sup></b>					
3.7024.1LN	Ti 99.5				
3.7034.1LN	Ti 99.7				
3.7035	Ti 2				
3.7055	Ti 99.4		TA 1-9	Ti 99.0	
3.7064.1LN	Ti 99.2				
3.7065	Ti 4				
3.7255	Ti 3 Pd				

MATERIAL GROUP					
STANDARDS					
GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
<b>42 - Titanium, alloys - Hardness &lt; 270 HB 30 - Tensile strength &lt; 900 N/mm<sup>2</sup></b>					
	Ti Al 4 Mn 4				
3.7144 LN	Ti Al 5 Sn 2				
3.7124 LN	Ti Cu 2		TA 10-14, TA 17	Ti - 2AL	
3.7164 LN	Ti Al 6 V 4		TA 18		
3.7174 LN	Ti Al 6 V 6 Sn 2				
<b>43 - Titanium, alloys - Hardness 270-300 HB 30 - Tensile strength 900-1,300 N/mm<sup>2</sup></b>					
3.7124 LN	Ti Cu 2				
3.7144 LN	Ti Al 6 Sn 2 Zr4 Mo2			Ti AL	
3.7154 LN	Ti Al 6 Zr 5		TA 10-13, TA 28	3.7174LN, 3.7148LN	
3.7164 LN	Ti Al 6 V 4				
3.7174 LN	Ti Al 6 V Sn 2				
3.7184 LN	Ti Al 4 Mo 4 Sn 2				
<b>50 - NICKEL</b>					
<b>51 - Nickel, unalloys - Hardness &lt; 150 HB 30 - Tensile strength &lt; 500 N/mm<sup>2</sup></b>					
2.1504 LN	Ni Al Bz				
2.4042	Ni 99 CSI		NA 11, NA 12	Nickel 200	
2.4060	Ni 99.6			Nickel 270	
2.4062	Ni 99.4 Fe				
<b>52 - Heat resisting nickel alloys - Hardness &lt; 270 HB 30 - Tensile strength &lt; 900 N/mm<sup>2</sup></b>					
2.4360 LN	Monel 400				
2.4374 LN	Monel 500				
2.4617	Hastelloy B 2			Nimonic 75	
2.4665	Hastelloy X		HR 203		
2.4812	Hastelloy C		3027-76	Hastelloy C	
2.4816	Inconel 600			Haynes Alloys 263	
1.4876	Incoloy 800				
2.4983	Udimet 500				
<b>53 - Heat resisting nickel alloys - Hardness 270-410 HB 30 - Tensile strength 900-1,400 N/mm<sup>2</sup></b>					
2.4631	Nimonic 80 A			Nimonic 80	
2.4632	Nimonic 90				
2.4634	Nimonic 105				
2.4662	Nimonic 901		HR 8		
2.4668	Inconel 718		HR 401, 601	Rene 41	
2.4669	Inconel X-750				
2.4670 LN	Nimocast 713				
2.4674 LN	Nimocast PK 24				
2.4856	Inconel 625				
2.6554 LN	Waspaloy				
<b>60 - COPPER</b>					
<b>61 - Copper, unalloys - Hardness &lt; 100 HB 30 - Tensile strength &lt; 350 N/mm<sup>2</sup></b>					
2.0060	E - Cu 57				
2.0070	SE - Cu			Commercially Pure	
2.0090	SF - Cu		C 101		
2.1356	Cu Mn 3				
2.1522	Cu Si 2 Mn				
<b>62 - Short chip copper alloys - Hardness &lt; 200 HB 30 - Tensile strength &lt; 700 N/mm<sup>2</sup></b>					
<b>62.1 - Brass</b>					
2.0360	Cu Zn 40(MS 60)				
2.0380	Cu Zn 39 Pb 2 (MS 58)		CZ120, CZ109		
2.0410	Cu Zn 44 Pb 2		PB104		
2.0561	Cu Zn 40 Al 1			2.1030, 2.1080	
2.0580	Cu Zn 40 Mn 1 Pb				
2.0771	Cu Ni 7 Zn 39 Mn 5 Pb3				
<b>62.2 - Bronzes</b>					
2.1086	G-Cu Sn 10 Zn				
2.1093	G-Cu Sn 6 Zn Ni				
2.1096	G-Cu Sn 5 Zn Pb				



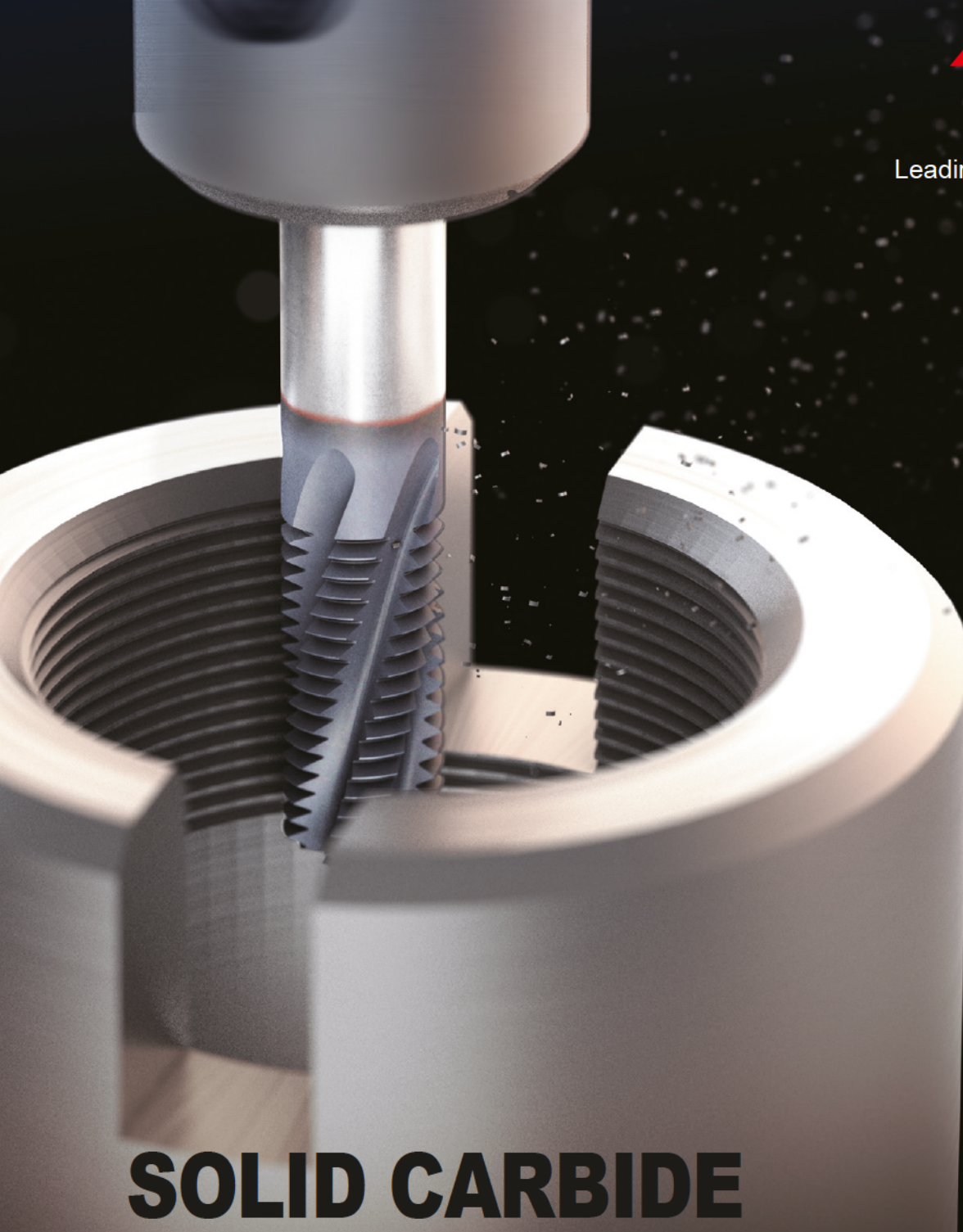
# MATERIAL GROUP

## STANDARDS

GERMANY		FRANCE AFNOR	GREAT BRITAIN B.S.	EN & OTHER CLASSIFICATIONS	U.S.A. AISI
W.Nr	DIN				
<b>63 - Long chip copper alloys - Hardness &lt; 200 HB 30 - Tensile strength &lt; 700 N/mm<sup>2</sup></b>					
<b>63.1 - Brass</b>					
2.0250	Cu Zn 20				
2.0265	Cu Zn 30				
2.0321	Cu Zn 37		CZ108, CZ106		
2.0335	Cu Zn 36 (Ms 63)				
<b>63.2 - Bronzes</b>					
2.1020	Cu Sn 6				
2.1030	Cu Sn 8				
2.1080	Cu Sn 6 Zn 6				
<b>63.3 - Copper alloys tempered by forging</b>					
2.1245	Cu Be 1.7				
2.1247	Cu Be 2				
2.1293	Cu Cr Zr				
<b>64 - Cu - Al - Fe alloys Hardness &lt; 440 HB 30 - Tensile strength &lt; 1,500 N/mm<sup>2</sup></b>					
<b>70 - ALUMINIUM - MAGNESIUM</b>					
<b>71 - Aluminum - Magnesium, unalloys - Hardness &lt; 100 HB 30 - Tensile strength &lt; 350 N/mm<sup>2</sup></b>					
3.0250	Al 99.5 H				
3.0280	Al 99.8 H				
3.0305	Al 99.9				
3.3308	Al 99.9 Mg 0.5				
<b>72 - Aluminum alloys, Si &lt; 1.5% - Hardness &lt; 180 HB 30 - Tensile strength &lt; 600 N/mm<sup>2</sup></b>					
<b>72.1 - Forging aluminum alloys</b>					
3.0515	Al Mn 1				
3.0516	S-Al Mn				
3.0525	Al Mn 1 Mg 0.5				
3.0615	Al Mg Si Pb				
3.1325	Al Cu Mg 1				
3.1355	Al Cu Mg 2				
3.3315	Al Mg 1				
3.3535	Al Mg 3				
3.4365	Al Zn Mg Cu 1.5				
<b>72.2 - Cast aluminum alloys</b>					
3.1841	G - Al Cu 4 Ti				
3.3241	G - Al Mg 3 Si				
3.3292	GD - Al Mg 9				
<b>73 - Aluminum alloys, 0.5-10% Si - Hardness &lt; 180 HB 30 - Tensile strength &lt; 600 N/mm<sup>2</sup></b>					
<b>73.1 - Cast aluminum alloys</b>					
3.2134	G - Al Si 5 Cu 1 Mg				
3.2152	GD - Al Si 6 Cu 4				
3.2162	GD - Al Si 8 Cu 3				
3.2373	G - Al Si 9 Mg				
<b>74 - Aluminum alloys, Si &gt; 10% - Hardness &lt; 180 HB 30 - Tensile strength &lt; 600 N/mm<sup>2</sup></b>					
<b>74.1 - Cast aluminum alloys</b>					
3.2381	G - Al Si 10 Mg				
3.2383	G - Al Si 10 Mg (Cu)				
3.2581	G - Al Si 12				
3.2583	G - Al Si 12 (Cu)				
3.2982	GD - Al Si 12 (Cu)				
<b>74.2 - Cast aluminum - magnesium alloys</b>					
3.5106	G - Mg Ag 3 SE 2 Zr 1				
3.5662	G - Mg Al 6				
3.5812	G - Mg Al 8 Zn 1				
3.5912	G - Mg Al 9 Zn 1				



Leading Through Innovation



**SOLID CARBIDE**

# THREAD MILLS

## GEWINDEFRÄSER

- Threading Large Diameter in High Quality  
Available with Chamfer
- Zur Fertigung von Gewinden mit großen Durchmessern in hoher Qualität,  
verfügbar mit Fase



# SOLID CARBIDE THREAD MILLS

Threading Large Diameter in High Quality  
Available with Chamfer

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B52

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		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	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		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				

TYPE	Thread Mill without Coolant Hole			
	M	MF	UNC	UNF
THREAD FORM				
HOLE TYPE	Max. 2.0xD Blind/Through Hole	Max. 1.5xD Blind/Through Hole	Max. 2.0xD Blind/Through Hole	Max. 2.0xD Blind/Through Hole
TOOL MATERIAL	CARBIDE			
FLUTE TYPE	Helix			
HELIX ANGLE	R15			
SERIES NO.	L1211 (p.B34)	L1212 (p.B35)	L1213 (p.B36)	L1214 (p.B37)
SURFACE TREATMENT	TiAIN	TiAIN	TiAIN	TiAIN
MODEL				

Thread Mill with Coolant Hole			Thread Mill with Coolant Hole & Chamfer					Miniature Thread Mill		Miniature Thread Mill for Hard Materials		Drill & Thread Mill with Chamfer
M	MF	BSP(G)	M	MF	UNC	UNF	NPT	M	UNC	M	UNC	M
Max. 2.0xD Blind/Through Hole	Max. 1.5xD Blind/Through Hole	-	Max. 2.0xD Blind/Through Hole	Max. 1.5xD Blind/Through Hole	Max. 2.0xD Blind/Through Hole	Max. 2.0xD Blind/Through Hole	-	Max. 2.0xD Blind/Through Hole	Max. 2.0xD Blind/Through Hole	Max. 2.0xD Blind/Through Hole	Max. 2.0xD Blind/Through Hole	Max. 2.0xD Blind/Through Hole
CARBIDE												
Helix			Helix					Helix	Straight		Helix	
R15			R15					R15	-		R25	
L4211 (p.B38)	L4212 (p.B39)	L6215 (p.B40)	L4271 (p.B41)	L4272 (p.B42)	L4273 (p.B43)	L4274 (p.B44)	L4276 (p.B45)	L12D1 (p.B46)	L12D3 (p.B47)	L19E1 (p.B48)	L19E3 (p.B49)	L41A1/L42A1 (p.B50)
TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	TiAIN	AlTiN	AlTiN	Bright / TiAIN

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# YG THREAD MILLS

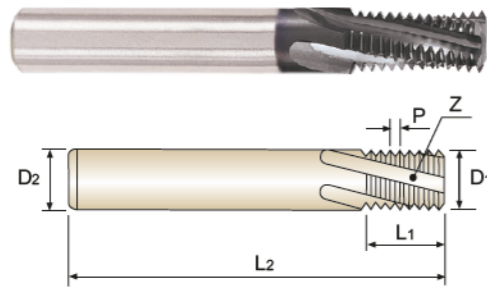
## L1211 SERIES

### M Solid Carbide Thread Mill for ISO Metric Internal Thread - DIN 13

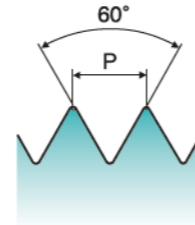
- VOLLHARTMETALL GEWINDEFÄHRER für ISO METRISCHES INNENGEWINDE - DIN 13
- FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE ISO INTER MÉTRIQUE - DIN13
- Filettature interne, ISO metriche, passo grosso - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SH-RINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN	D	P	D1	D2	L1	L2	Z
L1211200	M3	0.5	2.2	6	5	57	3
L1211240	M4	0.7	2.9	6	7	57	3
L1211280	M5	0.8	3.8	6	8	57	3
L1211310	M6	1.0	4.5	6	13	57	3
L1211360	M8	1.25	6.0	6	17.5	65	3
L1211420	M10	1.5	7.5	8	21	72	4
L1211500	M12	1.75	9.5	10	26.25	80	4
L1211540	M14	2.0	10.0	10	30	83	4
L1211600	M16	2.0	12.0	12	34	92	4
L1211650	M18	2.5	14.0	14	37.5	92	5
L1211700	M20	2.5	16.0	16	42.5	105	5

\* Other coatings are 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

# YG THREAD MILLS

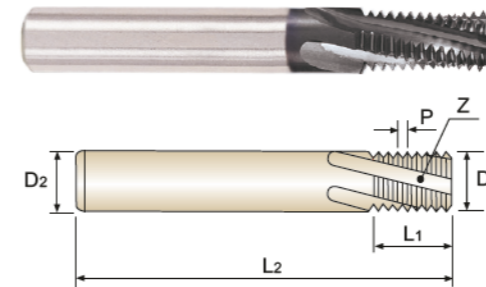
## L1212 SERIES

### MF Solid Carbide Thread Mill for ISO Metric Internal Thread - DIN 13

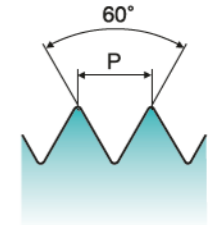
- VOLLHARTMETALL GEWINDEFÄHRER für ISO METRISCH - FEIN INNENGEWINDE - DIN 13
- FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE ISO INTER MÉTRIQUE - DIN13
- Filettature interne, ISO metriche, passo grosso - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
1.5×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SH-RINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN	D	P	D1	D2	L1	L2	Z
L1212370	M8	1.0	6.0	6	13	57	3
L1212380	M8	0.75	6.0	6	12.75	57	3
L1212440	M10	1.0	8.0	8	16	63	4
L1212510	M12	1.5	9.5	10	19.5	72	4
L1212520	M12	1.25	9.5	10	18.75	72	4
L1212530	M12	1.0	9.5	10	19	72	4
L1212550	M14	1.5	10.0	10	22.5	83	4
L1212570	M14	1.0	10.0	10	22	83	4
L1212610	M16	1.5	12.0	12	25.5	83	4
L1212620	M16	1.0	12.0	12	25	83	4
L1212670	M18	1.5	14.0	14	28.5	92	5
L1212680	M18	1.0	14.0	14	28	92	5
L1212720	M20	1.5	16.0	16	31.5	92	5
L1212730	M20	1.0	16.0	16	31	92	5

\* Other coatings are 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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					
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

# YG THREAD MILLS

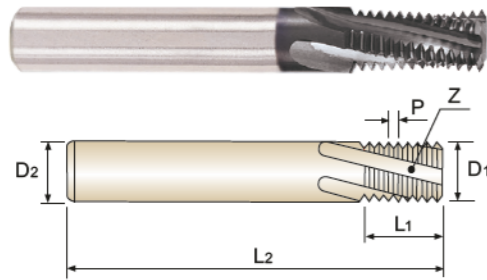
## L1213 SERIES

### UNC Solid Carbide Thread Mill for UNC Internal Thread - ANSI B 1.1

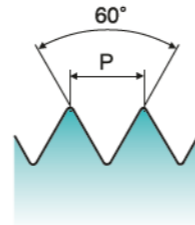
● VOLLHARTMETALL GEWINDEFÄHRER für UNC INNENGEWINDE, ANSI B 1.1  
● FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE INTER UNC - ANSI B 1.1  
● Filettature interne, unificato, passo grosso - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Recommended ToolHolder	Flat Shank		Plain Shank	
	Page	Page	Page	Page
⊙	END MILL HOLDER D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER D15-46 D47-72		
⊙	POWER MILLING CHUCK		D161-176	
⊙	ER COLLET CHUCK SK SLIM CHUCK		D73-115 D183-201	

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	No. of Flute Z
L1213400	1/4	20	4.5	6	14	57	3
L1213440	5/16	18	5.8	6	16.9	65	3
L1213480	3/8	16	7.0	8	20.6	72	4
L1213520	7/16	14	8.0	8	23.6	72	4
L1213560	1/2	13	9.5	10	27.4	80	4
L1213600	9/16	12	10.0	10	31.8	83	4
L1213640	5/8	11	12.0	12	34.6	92	4
L1213700	3/4	10	14.0	14	40.6	104	5

\* Other coatings are 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	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○	○	○

# YG THREAD MILLS

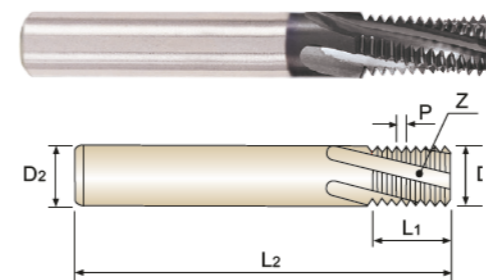
## L1214 SERIES

### UNF Solid Carbide Thread Mill for UNF Internal Thread - ANSI B 1.1

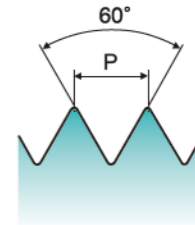
● VOLLHARTMETALL GEWINDEFÄHRER für UNF INNENGEWINDE, ANSI B 1.1  
● FRAISES A FILETER CARBURE MONOBLOC POUR FILETAGE INTER UNC - ANSI B 1.1  
● Filettature interne, unificato, passo grosso - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Recommended ToolHolder	Flat Shank		Plain Shank	
	Page	Page	Page	Page
⊙	END MILL HOLDER D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER D15-46 D47-72		
⊙	POWER MILLING CHUCK		D161-176	
⊙	ER COLLET CHUCK SK SLIM CHUCK		D73-115 D183-201	

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	No. of Flute Z
L1214420	1/4	28	5.0	6	13.6	57	3
L1214460	5/16	24	6.0	6	16.9	65	3
L1214500	3/8	24	8.0	8	20.1	72	4
L1214540	7/16	20	8.0	8	24.1	72	4
L1214580	1/2	20	10.0	10	26.7	80	4
L1214620	9/16	18	12.0	12	29.6	83	4
L1214660	5/8	18	12.0	12	33.9	92	4
L1214720	3/4	16	14.0	14	39.7	104	5

\* Other coatings are 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	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○	○	○

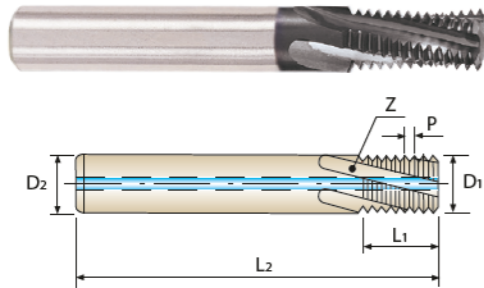
# YG THREAD MILLS

L4211 SERIES

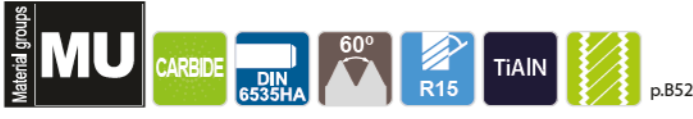
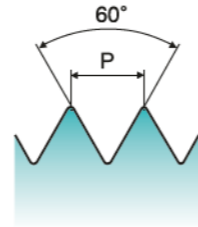
**M** Solid Carbide Thread Mill with Coolant Hole for ISO Metric Internal Thread - DIN 13  
 VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL für ISO METRISCHES INNENGEWINDE - DIN 13  
 FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL POUR FILETAGE ISO INTER MÉTRIQUE - DIN13  
 Con fori di lubrificazione, Filettature interne, ISO metriche, passo grosso - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SH-RINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN	D	P	D1	D2	L1	L2	Z
L4211310	M6	1.0	4.5	6	13.0	57	3
L4211360	M8	1.25	6.0	6	17.5	65	3
L4211420	M10	1.5	7.5	8	21.0	72	4
L4211500	M12	1.75	9.5	10	26.25	80	4
L4211540	M14	2.0	10.0	10	30.0	83	4
L4211600	M16	2.0	12.0	12	34.0	92	4
L4211700	M20	2.5	16.0	16	42.5	105	5

\* Other coatings are 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	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

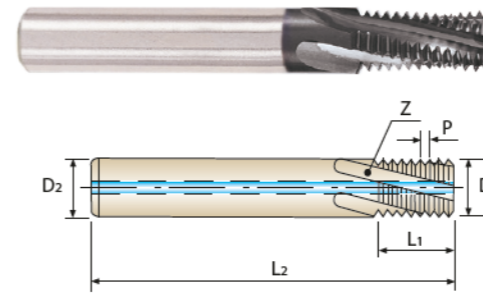
# YG THREAD MILLS

L4212 SERIES

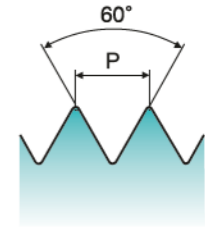
**MF** Solid Carbide Thread Mill with Coolant Hole for ISO Metric Internal Thread - DIN 13  
 VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL für ISO METRISCH - FEIN INNENGEWINDE - DIN 13  
 FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL POUR FILETAGE ISO INTER MÉTRIQUE - DIN13  
 Con fori di lubrificazione, Filettature interne, ISO metriche, passo grosso - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
1.5×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SH-RINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Overall Length	No. of Flute
TiAlN	D	P	D1	D2	L1	L2	Z
L4212370	M8	1.0	6.0	6	13.0	57	3
L4212380	M8	0.75	6.0	6	12.75	57	3
L4212440	M10	1.0	8.0	8	16.0	63	4
L4212510	M12	1.5	9.5	10	19.5	72	4
L4212520	M12	1.25	9.5	10	18.75	72	4
L4212530	M12	1.0	9.5	10	19.0	72	4
L4212550	M14	1.5	10.0	10	22.5	83	4
L4212570	M14	1.0	10.0	10	22.0	83	4
L4212610	M16	1.5	12.0	12	25.5	83	4
L4212620	M16	1.0	12.0	12	25.0	83	4
L4212670	M18	1.5	14.0	14	28.5	92	5
L4212680	M18	1.0	14.0	14	28.0	92	5
L4212720	M20	1.5	16.0	16	31.5	92	5
L4212730	M20	1.0	16.0	16	31.0	92	5

\* Other coatings are 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	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

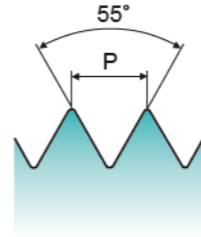
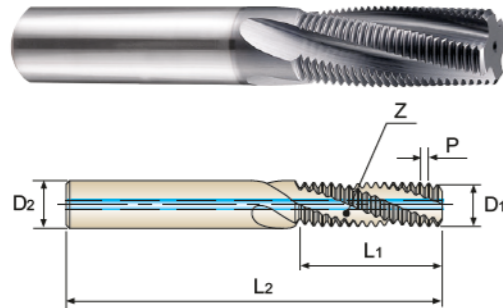
# YG THREAD MILLS

L6215 SERIES

**BSP(G)** Solid Carbide Thread Mill with Coolant Hole for BSP(G) Internal/External Thread  
 ● VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL für BSP (G) INNEN- /AUSSENGEWINDE  
 ● FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL POUR FILETAGE INTERNE/EXTERNE BSP(G)  
 ● Fresa con fori di lubrificazione, filettature interne ed esterne, BSP(G)

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Recommended ToolHolder	Flat Shank		Plain Shank	
	Page	Page	Page	Page
⊙	END MILL HOLDER D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER D15-46 D47-72		
⊙	POWER MILLING CHUCK D161-176			
⊙	ER COLLET CHUCK SK SLIM CHUCK D73-115 D183-201			

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	No. of Flute Z
L6215020	1/16	28	5.9	6	16.3	65	3
L6215200	1/8	28	7.9	8	20.0	70	4
L6215400	1/4	19	9.9	10	26.7	80	4
L6215480	3/8	19	13.9	14	33.4	92	4
L6215560	1/2	14	15.9	16	43.5	104	5
L6215700	3/4	14	17.9	18	34.5	100	5
L6215780	1	11	19.9	20	34.6	100	5

\* Other coatings are 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	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○	○	○

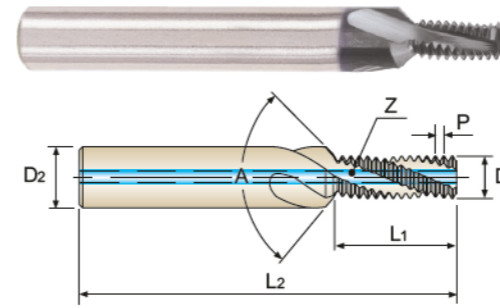
# YG THREAD MILLS

L4271 SERIES

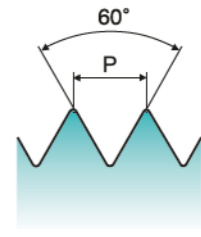
**M** Solid Carbide Thread Mill with Coolant Hole & Chamfer for ISO Metric Internal Thread - DIN 13  
 ● VOLLHARTMETALL GEWINDEFÄSER mit KÜHLKANAL & FASE für METRISCHES INNENGEWINDE - DIN 13  
 ● FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE ISO INTER MÉTRIQUE DIN13  
 ● Con fori di lubrificazione e taglianti per smussi, filettature interne, ISO metriche - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Recommended ToolHolder	Flat Shank		Plain Shank	
	Page	Page	Page	Page
⊙	END MILL HOLDER D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER D15-46 D47-72		
⊙	POWER MILLING CHUCK D161-176			
⊙	ER COLLET CHUCK SK SLIM CHUCK D73-115 D183-201			

EDP No.	Nominal Diameter [D]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	Angle A	No. of Flute Z
L4271310	M6	1.0	4.8	8	12.4	62	90°	3
L4271360	M8	1.25	6.5	10	16.8	74	90°	3
L4271420	M10	1.5	8.2	12	20.15	80	90°	4
L4271500	M12	1.75	9.9	14	25.25	90	90°	4
L4271540	M14	2.0	11.6	16	28.85	100	90°	4
L4271600	M16	2.0	13.6	18	32.85	102	90°	4

\* Other coatings are 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	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○	○	○	○	○	○	○	○

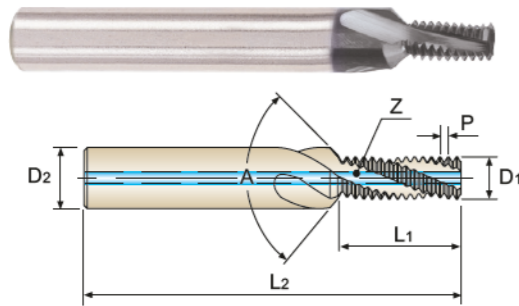
# YG THREAD MILLS

## L4272 SERIES

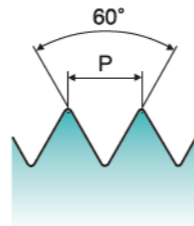
**MF** Solid Carbide Thread Mill with Coolant Hole & Chamfer for ISO Metric Internal Thread - DIN 13  
 ● VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL & FASE für METRISCH - FEIN INNENGEWINDE - DIN 13  
 ○ FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE ISO INTER MÉTRIQUE DIN13  
 ○ Con fori di lubrificazione e taglienti per smussi, filettature interne, ISO metriche, passo fine - DIN 13

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
1.5×D



Material groups: **MU** CARBIDE DIN 6535HA 60° R15 TiAlN p.B52

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	Angle A	Unit : mm	
								No. of Flute Z	
L4272370	M8	1.0	6.7	10	12.4	74	90°	3	
L4272430	M10	1.25	8.3	12	15.9	80	90°	4	
L4272440	M10	1.0	8.7	12	15.4	80	90°	4	
L4272510	M12	1.5	10.0	14	18.65	90	90°	4	
L4272520	M12	1.25	10.3	14	18.3	80	90°	4	
L4272530	M12	1.0	10.7	14	18.4	90	90°	4	
L4272550	M14	1.5	12.0	16	21.65	100	90°	4	
L4272610	M16	1.5	14.0	18	24.65	102	90°	5	

\* Other coatings are 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

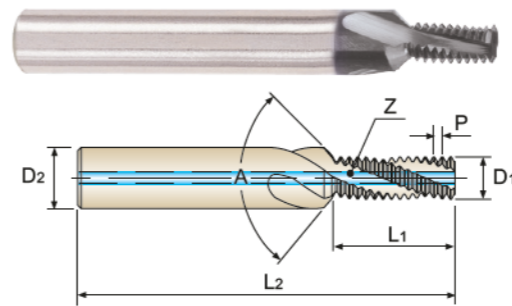
# YG THREAD MILLS

## L4273 SERIES

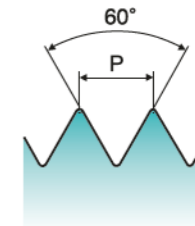
**UNC** Solid Carbide Thread Mill with Coolant Hole & Chamfer for UNC Internal Thread - ANSI B 1.1  
 ● VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL & FASE für UNC INNENGEWINDE - ANSI B 1.1  
 ○ FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE INTER UNC - ANSI B 1.1  
 ○ Con fori di lubrificazione e taglienti per smussi, filettature interne, unificato, passo grosso - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2×D



Material groups: **MU** CARBIDE DIN 6535HA 60° R15 TiAlN p.B53

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK SK SLIM CHUCK			D73 - 115 D183 - 201

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	Angle A	Unit : mm	
								No. of Flute Z	
L4273400	1/4	20	4.8	8	13.3	62	90°	3	
L4273440	5/16	18	6.2	10	16.18	74	90°	3	
L4273480	3/8	16	7.6	12	19.8	80	90°	4	
L4273520	7/16	14	8.9	12	22.62	80	90°	4	
L4273560	1/2	13	10.3	14	26.32	90	90°	4	
L4273600	9/16	12	11.7	16	30.63	100	90°	4	
L4273640	5/8	11	13.1	18	33.41	102	90°	4	
L4273700	3/4	10	16.0	20	39.29	110	90°	5	

\* Other coatings are 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



# YG THREAD MILLS

L4274 SERIES

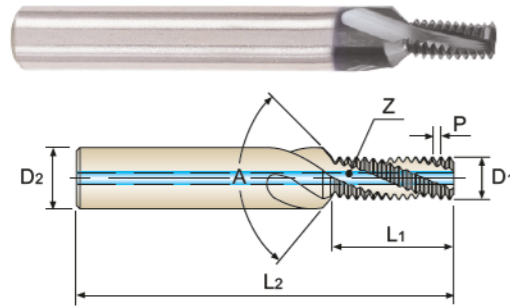
## UNF

Solid Carbide Thread Mill with Coolant Hole & Chamfer for UNF Internal Thread - ANSI B 1.1

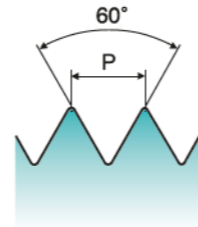
- VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL & FASE für UNF INNENGEWINDE - ANSI B 1.1
- FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE INTER UNC - ANSI B 1.1
- Con fori di lubrificazione e taglienti per smussi, filettature interne, unificato, passo fine - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Thread Depth  
2xD



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK			D73 - 115 D183 - 201
SK SLIM CHUCK			

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	Angle A	No. of Flute Z
L4274420	1/4	28	5.1	8	13.21	62	90°	3
L4274460	5/16	24	6.5	10	16.37	74	90°	3
L4274500	3/8	24	8.1	12	19.54	80	90°	4
L4274540	7/16	20	9.4	12	22.19	80	90°	4
L4274580	1/2	20	11.0	14	26	90	90°	4
L4274620	9/16	18	12.4	16	28.88	100	90°	4
L4274660	5/8	18	14.0	18	33.12	102	90°	5
L4274720	3/4	16	17.0	20	38.86	110	90°	5

\* Other coatings are 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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	19	21	3	25	3	25	21	3	25	3	25	21	15	30	25	38	34	55	60	42	55	42	55
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	160	250	130	230	160	250	130	230	200	280	250	350	320	400Rm	1050Rm	550	630	400	550		
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

# YG THREAD MILLS

L4276 SERIES

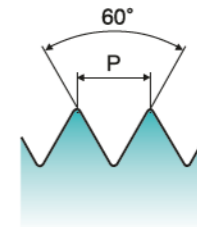
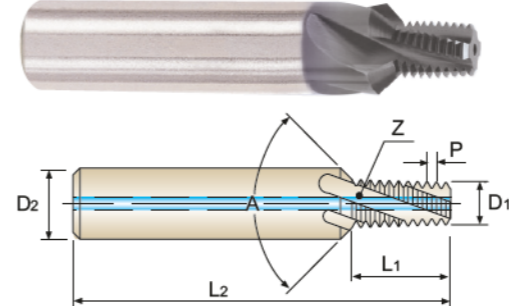
## NPT

Solid Carbide Thread Mill with Coolant Hole & Chamfer for NPT Thread - ANSI B 1.20.1

- VOLLHARTMETALL GEWINDEFÄHRER mit KÜHLKANAL & FASE für NPT INNENGEWINDE - ANSI B 1.20.1
- FRAISES A FILETER CARBURE MONOBLOC AVEC ARROSAGE CENTRAL ET CHANFREIN POUR FILETAGE INTER NPT - ANSI B 1.20.1
- Con fori di lubrificazione e taglienti per smussi, filettature interne, unificato, passo fine - ANSI B 1.1

► Easy to cut threads even for exotic materials like Nickel, Titanium and their alloys.

► Problemloses Gewindeschneiden sogar in exotischen Werkstoffen, wie Nickel, Titan und ihre Legierungen.



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK			D161 - 176
ER COLLET CHUCK			D73 - 115 D183 - 201
SK SLIM CHUCK			

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Overall Length L2	Angle A	No. of Flute Z
L4276020	NPT1/16	27	5.9	10	8.9	64	90°	3
L4276200	NPT1/8	27	7.8	12	8.9	70	90°	4
L4276400	NPT1/4	18	10.05	16	13.4	81	90°	4
L4276480	NPT3/8	18	13.45	18	13.4	81	90°	4

\* Other coatings are 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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	19	21	3	25	3	25	21	3	25	3	25	21	15	30	25	38	34	55	60	42	55	42	55
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	160	250	130	230	160	250	130	230	200	280	250	350	320	400Rm	1050Rm	550	630	400	550		
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

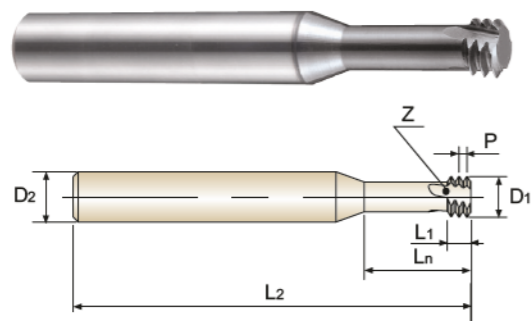
# Y/G THREAD MILLS

## L12D1 SERIES

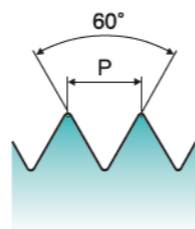
**M** Solid Carbide Miniature Thread Mill for ISO Metric Internal Thread - DIN13  
 ● VOLLHARTMETALL MINI-GEWINDEFÄRÄSER für ISO METRISCHE INNENGEWINDE - DIN13  
 ● FRAISES A FILETER À TOUBILLONNER CARBURE MONOBLOC POUR FILETAGE ISO INTER MÉTRIQUE - DIN13  
 ● Mini frese per filettature interne ISO metriche passo grosso - DIN 13

▶ Short thread length

▶ Kurze Gewindelänge



Thread Depth  
2×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK			D161-176
ER COLLET CHUCK			D73-115 D183-201
SK SLIM CHUCK			

EDP No.	Nominal Diameter [D]	Pitch	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
TiAlN	[D]	P	D1	D2	L1	Ln	L2	Z
L12D1010	M1	0.25	0.70	3	0.75	2.1	30	3
L12D1050	M1.2	0.25	0.90	3	0.75	2.5	30	3
L12D1070	M1.4	0.3	1.04	3	0.90	2.9	30	3
L12D1090	M1.6	0.35	1.18	3	1.05	3.4	30	3
L12D1130	M2	0.4	1.52	6	1.2	4.2	57	3
L12D1150	M2.2	0.45	1.66	6	1.35	4.6	57	3
L12D1170	M2.5	0.45	1.96	6	1.35	5.3	57	3
L12D1200	M3	0.5	2.4	6	1.5	6.3	57	3
L12D1240	M4	0.7	3.16	6	2.1	8.4	57	3
L12D1280	M5	0.8	4.04	6	2.4	10.5	57	3
L12D1310	M6	1.0	4.8	6	3.0	12.6	57	3
L12D1360	M8	1.25	6.5	8	3.75	16.8	63	3
L12D1420	M10	1.5	8.2	10	4.5	21.0	73	3
L12D1500	M12	1.75	9.9	10	5.25	25.2	73	3

\* Other coatings are 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	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	19	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

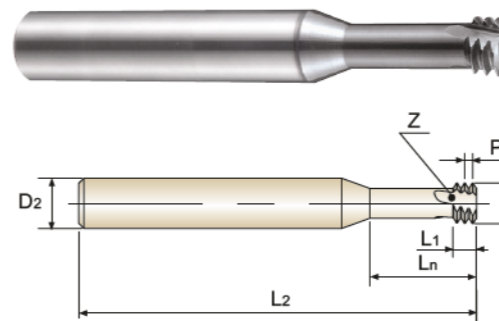
# Y/G THREAD MILLS

## L12D3 SERIES

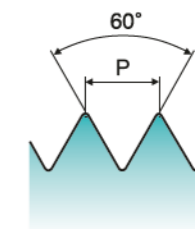
**UNC** Solid Carbide Miniature Thread Mill for UNC Internal Thread - ANSI B 1.1  
 ● VOLLHARTMETALL MINI-GEWINDEFÄRÄSER für UNC INNENGEWINDE - ANSI B 1.1  
 ● FRAISES A FILETER À TOUBILLONNER CARBURE MONOBLOC POUR FILETAGE POUR FILETAGE INTER UNC-ANSI B 1.1  
 ● Mini frese per filettature interne unificato passo grosso - ANSI B 1.1

▶ Short thread length

▶ Kurze Gewindelänge



Thread Depth  
2×D



Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
POWER MILLING CHUCK			D161-176
ER COLLET CHUCK			D73-115 D183-201
SK SLIM CHUCK			

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter	Shank Diameter	Thread Length	Neck Length	Overall Length	No. of Flute
TiAlN	[D]		D1	D2	L1	Ln	L2	Z
L12D3040	#1	64	1.38	6	1.19	3.9	57	3
L12D3080	#2	56	1.64	6	1.36	4.6	57	3
L12D3160	#4	40	2.08	6	1.91	6.0	57	3
L12D3240	#6	32	2.55	6	2.38	7.4	57	3
L12D3280	#8	32	3.21	6	2.38	8.7	57	3
L12D3320	#10	24	3.56	6	3.18	10.1	57	3
L12D3360	#12	24	4.22	6	3.18	11.5	57	3
L12D3400	1/4	20	4.83	6	3.81	13.3	57	3
L12D3440	5/16	18	6.24	8	4.23	16.7	63	3
L12D3480	3/8	16	7.62	8	4.76	20.0	63	3
L12D3520	7/16	14	8.94	10	5.44	23.3	73	3

\* Other coatings are 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	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	19	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

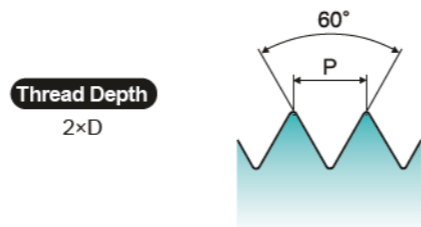
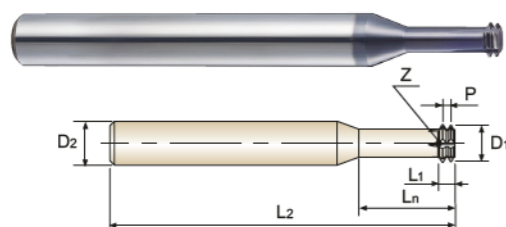
# YG THREAD MILLS

## L19E1 SERIES

**M** Solid Carbide Miniature Thread Mill for Hard Materials, ISO Metric Internal Thread - DIN13  
 VOLLHARTMETALL MINI-GEWINDEFÄHRER für GEHÄRTETE MATERIALIEN, ISO METRISCHE INNENGEWINDE - DIN13  
 FRAISES À TOURBILLONNER CARBURE MONOBLOC POUR MATÉRIEAUX DURS, FILETAGE ISO INTER MÉTRIQUE - DIN13  
 Mini frese per acciai temprati ISO metriche passo grosso - DIN 13

- ▶ Short thread length
- ▶ Straight Flute
- ▶ Left hand Cut (CNC code : M04)
- ▶ The work direction is from top to bottom (Climb Milling)
- ▶ For hard materials up to HRC62

- ▶ Kurze Gewindelänge
- ▶ Linksschneidend, geradegenutet
- ▶ Linksschneidend (CNC Befehl : M04)
- ▶ Die Fräsrichtung ist von oben nach unten (Gleichlauf)
- ▶ Für gehärtete Materialien bis zu HRC62



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
⊙	POWER MILLING CHUCK		D161-176	
○	ER COLLET CHUCK SK SLIM CHUCK		D73-115 D183-201	

EDP No.	Nominal Diameter [D]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Neck Length Ln	Overall Length L2	Unit : mm	
								No. of Flute Z	
L19E1130	M2	0.4	1.52	6	0.8	4.2	57	4	
L19E1150	M2.2	0.45	1.66	6	0.9	4.6	57	4	
L19E1170	M2.5	0.45	1.96	6	0.9	5.3	57	4	
L19E1200	M3	0.5	2.4	6	1.0	6.3	57	4	
L19E1240	M4	0.7	3.16	6	1.4	8.4	57	4	
L19E1280	M5	0.8	4.04	6	1.6	10.5	57	4	
L19E1310	M6	1.0	4.8	6	2.0	12.6	57	5	
L19E1360	M8	1.25	6.5	8	2.5	16.8	63	5	
L19E1420	M10	1.5	8.2	10	3.0	21.0	73	6	
L19E1500	M12	1.75	9.9	10	3.5	25.2	73	6	

\* Other coatings are 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended						○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

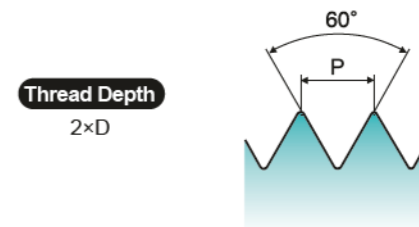
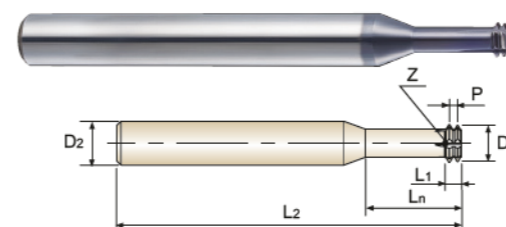
# YG THREAD MILLS

## L19E3 SERIES

**UNC** Solid Carbide Miniature Thread Mill for Hard Materials, UNC Internal Thread - ANSI B 1.1  
 VOLLHARTMETALL MINI-GEWINDEFÄHRER für GEHÄRTETE MATERIALIEN, UNC INNENGEWINDE - ANSI B 1.1  
 FRAISES À TOURBILLONNER CARBURE MONOBLOC POUR MATÉRIEAUX DURS POUR FILETAGE INTER UNC - ANSI B 1.1  
 Mini frese per acciai temprati unificato passo grosso - ANSI B 1.1

- ▶ Short thread length
- ▶ Straight Flute
- ▶ Left hand Cut (CNC code : M04)
- ▶ The work direction is from top to bottom (Climb Milling)
- ▶ For hard materials up to HRC62

- ▶ Kurze Gewindelänge
- ▶ Linksschneidend, geradegenutet
- ▶ Linksschneidend (CNC Befehl : M04)
- ▶ Die Fräsrichtung ist von oben nach unten (Gleichlauf)
- ▶ Für gehärtete Materialien bis zu HRC62



Recommended ToolHolder	Flat Shank	Page	Plain Shank	Page
⊙	END MILL HOLDER	D117-137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15-46 D47-72
⊙	POWER MILLING CHUCK		D161-176	
○	ER COLLET CHUCK SK SLIM CHUCK		D73-115 D183-201	

EDP No.	Nominal Diameter [D]	T.P.I	Cutter Diameter D1	Shank Diameter D2	Thread Length L1	Neck Length Ln	Overall Length L2	Unit : mm	
								No. of Flute Z	
L19E3080	#2	56	1.64	6	0.91	4.6	57	4	
L19E3160	#4	40	2.08	6	1.27	6.0	57	4	
L19E3240	#6	32	2.55	6	1.59	7.4	57	4	
L19E3280	#8	32	3.21	6	1.59	8.7	57	4	
L19E3320	#10	24	3.56	6	2.12	10.1	57	4	
L19E3360	#12	24	4.22	6	2.12	11.5	57	4	
L19E3400	1/4	20	4.83	6	2.54	13.3	57	5	
L19E3440	5/16	18	6.24	8	2.82	16.7	63	5	
L19E3480	3/8	16	7.62	8	3.18	20.0	63	6	
L19E3520	7/16	14	8.94	10	3.63	23.3	73	6	

\* Other coatings are 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended						○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

# YG THREAD MILLS

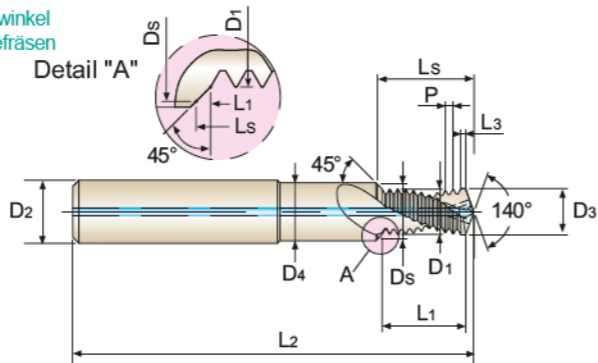
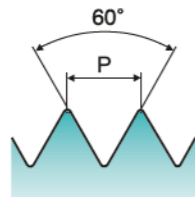
UNCOATED **L41A1** SERIES  
 TiAIN **L42A1** SERIES

**M** Solid Carbide Drill and Thread Mill with Chamfer for ISO Metric Internal Thread - DIN 13  
 VOLLHARTMETALL BOHRGEWINDEFÄRÄSER MIT SENKFÄSE für ISO METRISCHE INNENGEWINDE - DIN 13  
 FRAISES À FILETER ET À PERCER CARBURE MONOBLOC AVEC CHANFREIN POUR FILETAGE INTER - DIN13  
 Fresa fora, fileta e smussa , filettature interne, ISO metriche passo grosso - DIN 13

- No. of Flute : 2
- Drill Point : 140° / Countersink : 90°
- Drilling, Chamfering and Thread milling
- Anz. der Nuten : 2
- 140° Spitzenwinkel, 90° Senkwinkel
- Bohren, Senken und Gewindefräsen



Thread Depth  
2xD



Material groups: **GG** **AI** CARBIDE DIN 6535HA 60° Bright TiAIN p.B53

Flat Shank	Page	Plain Shank	Page
END MILL HOLDER	D117 - 137	HYDRAULIC CHUCK SHRINK FIT HOLDER	D15 - 46 D47 - 72
POWER MILLING CHUCK		ER COLLET CHUCK SK SLIM CHUCK	D161 - 176 D73 - 115 D183 - 201

Recommended Toolholder

EDP No.		Nominal Diameter [ D ]	Pitch P	Cutter Diameter D1	Shank Diameter D2	Effect. Diameter Ds	Drill Diameter D3	Max. C'sink D4	Thread Length L1	Effect. Length Ls	Drill Length L3	Overall Length L2
L41A1310	L42A1310	M6	1.0	4.75	8	6.3	5.00	6.6	13.00	14.68	1.00	62
L41A1360	L42A1360	M8	1.25	6.35	10	8.3	6.75	9.0	16.27	18.48	1.25	74
L41A1420	L42A1420	M10	1.5	7.95	12	10.3	8.50	11.0	21.05	23.77	1.50	79
L41A1500	L42A1500	M12	1.75	9.95	14	12.3	10.25	13.5	24.21	27.25	1.50	89
L41A1540	L42A1540	M14	2.0	11.20	16	14.3	12.00	15.5	29.58	33.32	1.50	102

\* Other coatings are 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
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21	
HRC	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
HB																					
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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
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	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 THREAD MILLS

RECOMMENDED CUTTING CONDITIONS  
 EMPFOHLENE SCHNEIDKONDITIONEN

## For Thread Mills

unit : mm

Materials	Hardness (HB)	Strength (N/mm <sup>2</sup> )	Feed per Tooth (fz)	
			Cutter Diameter ≤Ø8.0	Cutter Diameter >Ø8.0
Low Carbon Steels	≤ 200	≤ 700	0.02 - 0.04	0.04 - 0.10
Medium Carbon Steels High Carbon Steels	≤ 250	≤ 850	0.02 - 0.04	0.04 - 0.10
Alloy Steels	≤ 250	≤ 850	0.02 - 0.04	0.04 - 0.10
Heat Treated Steels	≤ 400	≤ 1400	0.02 - 0.04	0.04 - 0.10
Stainless Steels	≤ 300	≤ 1000	0.01 - 0.02	0.02 - 0.06
Cast Iron	≤ 300	≤ 1000	0.02 - 0.04	0.04 - 0.10
Chrome-Nickel Alloys Titanium Alloys	≤ 350	≤ 1200	0.01 - 0.02	0.02 - 0.06
Non Ferrous Materials	≤ 200	≤ 700	0.03 - 0.07	0.05 - 0.10

## For Drill and Thread Mills

unit : mm

Material	Hardness (HB)	Strength (N/mm <sup>2</sup> )	Fz(Threading) - Feed per Tooth		Fdr(Drilling) - Feed per revolution	
			Cutter Diameter ≤Ø8.0	Cutter Diameter >Ø8.0	Cutter Diameter ≤Ø8.0	Cutter Diameter >Ø8.0
Cast Iron	≤ 200	≤ 700	0.03-0.08	0.08-0.12	0.10-0.20	0.20-0.25
Aluminium Aluminium-alloy Magnesium	≤ 180	≤ 600	0.05-0.10	0.10-0.15	0.10-0.20	0.20-0.30
Plastics	-	-	0.05-0.10	0.10-0.15	0.10-0.20	0.20-0.30

## For Hard Material Miniature Thread Mills

unit : mm

Material	Hardness	Strength (N/mm <sup>2</sup> )	Feed(mm/tooth)	
			Cutter Diameter ≤Ø6.0	Cutter Diameter >Ø6.0
Alloy Steel	295-415HB	1000-1400	0.02-0.04	0.04-0.06
Stainless Steel	280-415HB	950-1250	0.02-0.04	0.04-0.06
Cast Iron	≤ HB300	≤ 1000	0.03-0.05	0.05-0.07
Chrome-Nickel Alloys Titanium Alloys	≤ HB445	≤ 1500	0.02-0.03	0.03-0.05
Hardened Material	45-50HRC		0.03-0.05	0.05-0.07
	51-55HRC		0.02-0.04	0.04-0.06
	56-62HRC		0.01-0.03	0.03-0.05



**RECOMMENDED CUTTING CONDITIONS  
EMPFOLHENE SCHNEIDKONDITIONEN**

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)									
					L1211	L1212	L1213	L1214	L4211	L4212	L6215	L4271	L4272	
P	1	Non-alloy steel	125		80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	2		190	13	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	3		250	25	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	4		270	28	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	5		300	32	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	6	Low alloy steel	180	10	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	7		275	29	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	8		300	32	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	9		350	38	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	10		High alloyed steel, and tool steel	200	15	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120
	11	325		35	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
M	12	Stainless steel	200	15	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	
	13		240	23	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	
	14		180	10	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80	
K	15	Grey cast iron	180	10	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	
	16		260	26	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	
	17	Nodular cast iron	160	3	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	
	18		250	25	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	
	19		Malleable cast iron	130		50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100
20	230	21		50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100		
N	21	Aluminum-wrought alloy	60		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	22		100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	23	Aluminum-cast, alloyed	75		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	24		90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	25		130		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	26		Copper and Copper Alloys (Bronze / Brass)	110		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	27			90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	28			100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	29					100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	30		Non Metallic Materials			100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
S	31	Heat Resistant Super Alloys	200	15	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	32		280	30	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	33		250	25	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	34		350	38	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	35		320	34	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	36	Titanium Alloys	400Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	37		1050Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
H	38	Hardened steel	550	55						25-60	25-60			
	39		630	60						25-50	25-50			
	40	Chilled Cast Iron	400	42						25-70	25-70			
	41	Hardened Cast Iron	550	55						25-60	25-60			



**RECOMMENDED CUTTING CONDITIONS  
EMPFOLHENE SCHNEIDKONDITIONEN**

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)									
					L4273	L4274	L4276	L12D1	L12D3	L19E1	L19E3	L41A1 L42A1		
P	1	Non-alloy steel	125		80-120	80-120	80-120	80-120	80-120					
	2		190	13	80-120	80-120	80-120	80-120	80-120					
	3		250	25	80-120	80-120	80-120	80-120	80-120					
	4		270	28	80-120	80-120	80-120	80-120	80-120					
	5		300	32	80-120	80-120	80-120	80-120	80-120					
	6	Low alloy steel	180	10	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
	7		275	29	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
	8		300	32	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
	9		350	38	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
	10		High alloyed steel, and tool steel	200	15	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120	
	11	325		35	80-120	80-120	80-120	80-120	80-120	80-120	80-120	80-120		
M	12	Stainless steel	200	15	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80		
	13		240	23	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80		
	14		180	10	40-80	40-80	40-80	40-80	40-80	40-80	40-80	40-80		
K	15	Grey cast iron	180	10	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150	
	16		260	26	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150	
	17	Nodular cast iron	160	3	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150	
	18		250	25	50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150	
	19		Malleable cast iron	130		50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150
20	230	21		50-100	50-100	50-100	50-100	50-100	50-100	50-100	50-100	80-150		
N	21	Aluminum-wrought alloy	60		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	22		100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	23	Aluminum-cast, alloyed	75		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	24		90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	25		130		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	
	26		Copper and Copper Alloys (Bronze / Brass)	110		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	27			90		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	28			100		100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300
	29					100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	80-150
	30		Non Metallic Materials			100-300	100-300	100-300	100-300	100-300	100-300	100-300	100-300	80-150
S	31	Heat Resistant Super Alloys	200	15	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	32		280	30	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	33		250	25	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	34		350	38	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	35		320	34	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	36	Titanium Alloys	400Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
	37		1050Rm		20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	20-60	
H	38	Hardened steel	550	55								25-60	25-60	
	39		630	60								25-50	25-50	
	40	Chilled Cast Iron	400	42								25-70	25-70	
	41	Hardened Cast Iron	550	55								25-60	25-60	

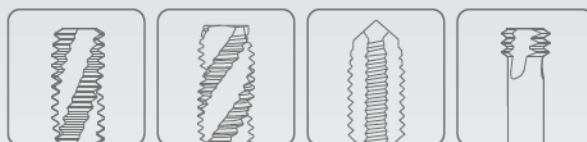
**TO CALCULATE SPEED & FEED RATES  
SCHNITTGESCHWINDIGKEIT & VORSCHUB KALKULIEREN**

Calculate R.P.M of Cutter	Calculate Feed per Revolution	Finally Calculate Feed at Tool Center Line
$n = \frac{1000 \times V}{d \times \pi}$	$F_1 = F_z \times Z \times N$	$F_2 = \frac{F_1 \times (D - d)}{D}$

- N** RPM
- V** Recommended Cutting Speed
- d** Diameter of Cutter
- Fz** Recommended Feed per Tooth
- Z** Number of Teeth
- F2** Feed at Center Line of Cutting
- F1** Feed at Cutting Edge
- D** Major Diameter of Component



Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation



**HSS-PM**

# SYNCHRO TAPS

## Synchro Gewindebohrer

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

SELECTION GUIDE



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.B57)	TTS33 (p.B58)	TKS35 (p.B59)	TTS37 (p.B60)
		DIN352				
MF	DIN374					
	DIN2181					
UNC	DIN371/376					
	DIN351					
UNF	DIN371/374					
	DIN2181					
BSW	DIN2182/2183					
	DIN351					
G(BSP)	DIN156/5157					
EG-M	DIN371/376					
EG-UNC	DIN371/376					
EG-UNF	DIN371/374					
SURFACE TREATMENT		TiN	TiN	TiCN	TiN	
MODEL						

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B61

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	TTS31	TTS33	TKS35	TTS37
P	1	Non-alloy steel	About 0.15% C	Annealed	125	◎	◎	○	◎
	2		About 0.45% C	Annealed	190	◎	◎	○	◎
	3		About 0.45% C	Quenched & Tempered	250	◎	◎	○	◎
	4		About 0.75% C	Annealed	270	◎	◎	○	◎
	5	About 0.75% C	Quenched & Tempered	300	◎	◎	○	◎	
	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	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		Annealed	250	25				
	34	Titanium Alloys	Ni or Co Based	Cured	350	38			
	35		Cast	320	34				
36	Pure Titanium		400 Rm						
37	Alpha + Beta Alloys	Hardened	1050 Rm						
H	38	Hardened steel	Hardened		550	55			
	39		Hardened		630	60			
	40	Hardened Cast Iron	Cast		400	42			
	41		Hardened		550	55			

SYNCHRO TAPS

TTS31 SERIES

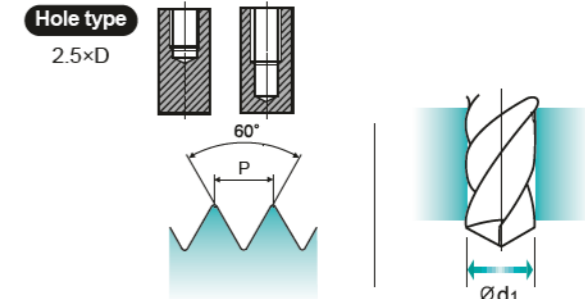
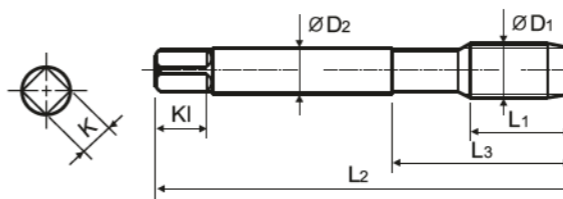
ISO metric coarse threads DIN 13

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

Machine taps Maschinengewindebohrer

- 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



Material groups: GS, HSS PM, DIN 371/376, 6H, 60°, C, R45, TiN, p.B61

Recommended ToolHolder: SYNCHROTAPPING CHUCK D203-210

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	K1	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.

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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	10	29	32	38	15	35	15	23	10	10	26	160	250	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	21
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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41				
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550				
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550				
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				

◎ : Excellent ○ : Good





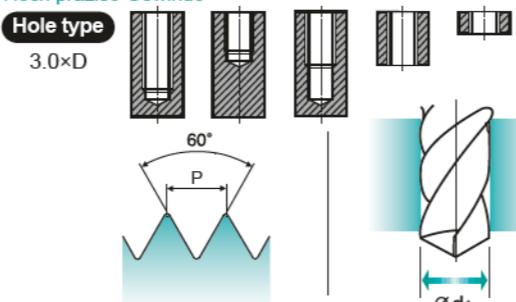
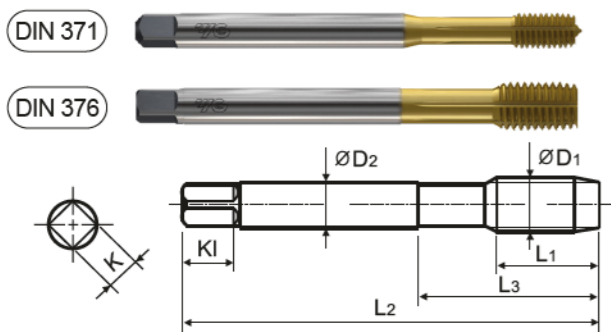
**M ISO metric coarse threads DIN 13**

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

Cold forming taps  
Gewindeformer

- 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



Material groups: **GV** HSS PM DIN 371/376 6HX 60° C TiN p.B61

Recommended ToolHolder: SYNCHROTAPPING CHUCK D203-210

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	KI	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					
	Non-alloy steel					Low alloy steel					High alloyed steel and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

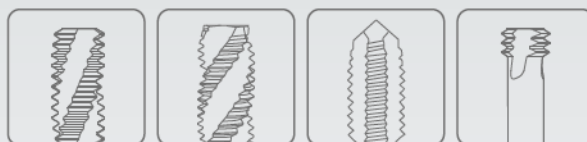
  

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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
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



Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation

**HSS-PM**

# PRIME TAPS

## PRIME GEWINDEBOHRER

- Premium Spiral Point and Spiral Flute Taps for CNC Machines
- High and Reliable Performance on Various Ductile Materials
- Premium Gerade- und Spiralgenutete Gewindebohrer
- Ausgezeichnete und zuverlässige Leistung in verschiedenen Werkstoffen

SELECTION GUIDE



HSS-PM  
**PRIME TAPS**

Premium Spiral Point and Spiral Flute Taps for CNC Machines  
High and Reliable Performance on Various Ductile Materials

HOLE TYPE	Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole	
	HSS-PM			
TOOL MATERIAL	C	E	B	
CHAMFER LEAD ACC. TO DIN2197				
FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Point	
SPIRAL FLUTE ANGLE	R45	R45	-	
M	DIN371/376	TRE30 (p.B65)	TRE34 (p.B66)	TRJ15 (p.B71)
	DIN352			
	DIN357/LONG			
MF	DIN374	TRE31 (p.B67)		TRJ16 (p.B72)
	DIN2181			
UNC	DIN371/376	TRE32 (p.B69)		TRJ17 (p.B74)
	DIN351			
UNF	DIN371/374	TRE33 (p.B70)		TRJ18 (p.B75)
	DIN2181			
BSW	DIN2182/2183			
	DIN351			
G(BSP)	DIN5156/5157			
EG-M	DIN371/376			
EG-UNC	DIN371/376			
EG-UNF	DIN371/374			

SURFACE TREATMENT X-coating



MODEL

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B76

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		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			

**YG PRIME TAPS**

**TRE30 SERIES**

**M**

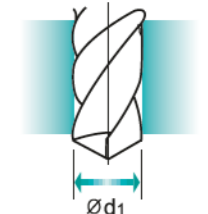
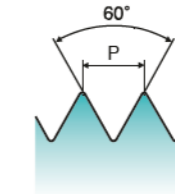
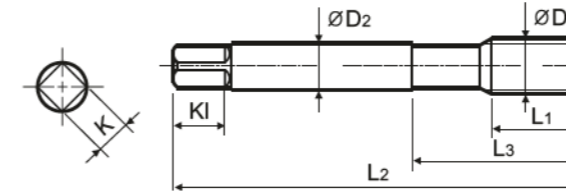
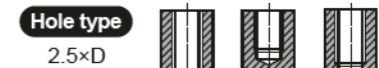
ISO Metric Coarse Threads DIN13

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

Machine taps  
Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Material groups: **MU** HSS PM DIN 371/376 6HX 60° C R45 X Coating p.B76

Recommended Toolholder: Plain Shank Page D203-210 D215-220 D221-228 D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 x 0.4		TRE30136GS	3.2	45.0	13.0	2.8	2.1	5.0	2	1.6
M2.5 x 0.45		TRE30176GS	3.6	50.0	15.0	2.8	2.1	5.0	2	2.1
M3 x 0.5		TRE30206GS	4.0	56.0	18.0	3.5	2.7	6.0	3	2.5
M3.5 x 0.6		TRE30226GS	4.8	56.0	20.0	4.0	3.0	6.0	3	2.9
M4 x 0.7		TRE30246GS	5.6	63.0	21.0	4.5	3.4	6.0	3	3.3
M5 x 0.8		TRE30286GS	6.4	70.0	25.0	6.0	4.9	8.0	3	4.2
M6 x 1.0		TRE30316GS	8.0	80.0	30.0	6.0	4.9	8.0	3	5.0
M7 x 1.0		TRE30346GS	10.0	80.0	30.0	7.0	5.5	8.0	3	6.0
M8 x 1.25		TRE30366GS	13.0	90.0	35.0	8.0	6.2	9.0	3	6.8
M9 x 1.25		TRE30396GS	13.0	90.0	35.0	9.0	7.0	10.0	3	7.8
M10 x 1.5		TRE30426GS	15.0	100.0	39.0	10.0	8.0	11.0	3	8.5
M12 x 1.75		TRE30506GS	18.0	110.0	44.0	9.0	7.0	10.0	3	10.3
M14 x 2.0		TRE30546GS	20.0	110.0	44.0	11.0	9.0	12.0	3	12.0
M16 x 2.0		TRE30606GS	20.0	110.0	44.0	12.0	9.0	12.0	3	14.0
M18 x 2.5		TRE30656GS	25.0	125.0	50.0	14.0	11.0	14.0	4	15.5
M20 x 2.5		TRE30706GS	25.0	140.0	54.0	16.0	12.0	15.0	4	17.5
M22 x 2.5		TRE30746GS	25.0	140.0	54.0	18.0	14.5	17.0	4	19.5
M24 x 3.0		TRE30786GS	30.0	160.0	60.0	18.0	14.5	17.0	4	21.0

►DIN 371(M2~M10) and DIN 376(M12~M24)

◎ : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	3	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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	◎	◎	○	◎	◎	◎														

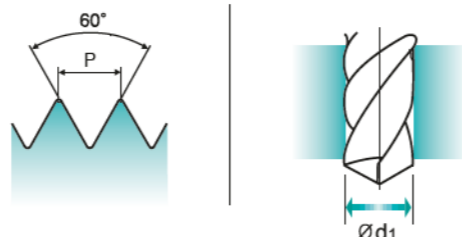
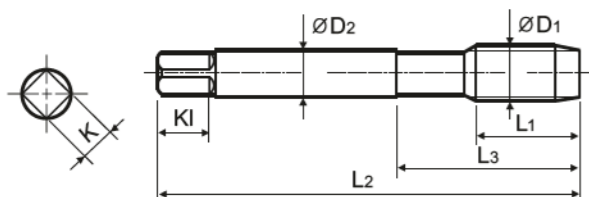
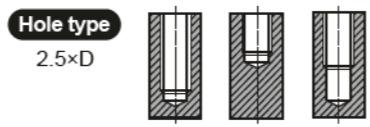
**M ISO Metric Coarse Threads DIN13**

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

Machine taps  
Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Material groups: **MU** HSS PM DIN 371/376 6HX 60° E R45 X Coating p.B76

Plain Shank Page  
Recommended ToolHolder  
SYNCHRO TAPPING CHUCK D203-210  
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	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	x 0.4	TRE34136GS	3.2	45.0	13.0	2.8	2.1	5.0	2	1.6
M3	x 0.5	TRE34206GS	4.0	56.0	18.0	3.5	2.7	6.0	3	2.5
M4	x 0.7	TRE34246GS	5.6	63.0	21.0	4.5	3.4	6.0	3	3.3
M5	x 0.8	TRE34286GS	6.4	70.0	25.0	6.0	4.9	8.0	3	4.2
M6	x 1.0	TRE34316GS	8.0	80.0	30.0	6.0	4.9	8.0	3	5.0
M8	x 1.25	TRE34366GS	13.0	90.0	35.0	8.0	6.2	9.0	3	6.8
M10	x 1.5	TRE34426GS	15.0	100.0	39.0	10.0	8.0	11.0	3	8.5
M12	x 1.75	TRE34506GS	18.0	110.0	44.0	9.0	7.0	10.0	3	10.3
M14	x 2.0	TRE34546GS	20.0	110.0	44.0	11.0	9.0	12.0	3	12.0
M16	x 2.0	TRE34606GS	20.0	110.0	44.0	12.0	9.0	12.0	3	14.0
M20	x 2.5	TRE34706GS	25.0	140.0	54.0	16.0	12.0	15.0	4	17.5

► DIN 371(M2~M10) and DIN 376(M12~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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

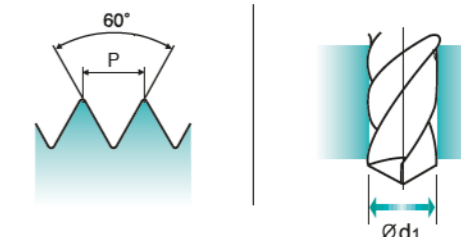
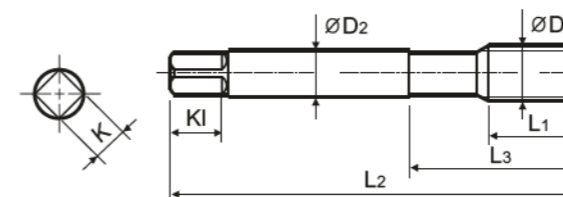
**MF ISO Metric Fine Threads DIN13**

- MMetrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



Material groups: **MU** HSS PM DIN 374 6HX 60° C R45 X Coating p.B76

Plain Shank Page  
Recommended ToolHolder  
SYNCHRO TAPPING CHUCK D203-210  
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	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	x 0.5	TRE31256GS	5.6	63.0	21.0	2.8	2.1	5.0	3	3.5
M4	x 0.35	TRE31696GS	5.6	63.0	21.0	2.8	2.1	5.0	3	3.7
M5	x 0.5	TRE31296GS	6.4	70.0	25.0	3.5	2.7	6.0	3	4.5
M6	x 0.75	TRE31326GS	8.0	80.0	30.0	4.5	3.4	6.0	3	5.3
M6	x 0.5	TRE31336GS	8.0	80.0	30.0	4.5	3.4	6.0	3	5.5
M8	x 1.0	TRE31376GS	10.0	90.0	36.0	6.0	4.9	8.0	3	7.0
M8	x 0.75	TRE31386GS	10.0	80.0	30.0	6.0	4.9	8.0	3	7.3
M9	x 1.0	TRE31406GS	10.0	90.0	36.0	7.0	5.5	8.0	3	8.0
M9	x 0.75	TRE31416GS	10.0	80.0	30.0	7.0	5.5	8.0	3	8.3
M10	x 1.25	TRE31436GS	13.0	100.0	40.0	7.0	5.5	8.0	3	8.8
M10	x 1.0	TRE31446GS	10.0	90.0	36.0	7.0	5.5	8.0	3	9.0
M10	x 0.75	TRE31456GS	10.0	90.0	36.0	7.0	5.5	8.0	3	9.3
M12	x 1.5	TRE31516GS	15.0	100.0	40.0	9.0	7.0	10.0	3	10.5
M12	x 1.25	TRE31526GS	15.0	100.0	40.0	9.0	7.0	10.0	3	10.8
M12	x 1.0	TRE31536GS	15.0	100.0	40.0	9.0	7.0	10.0	3	11.0
M14	x 1.5	TRE31556GS	15.0	100.0	40.0	11.0	9.0	12.0	3	12.5
M14	x 1.25	TRE31566GS	15.0	100.0	40.0	11.0	9.0	12.0	3	12.8
M14	x 1.0	TRE31576GS	15.0	100.0	40.0	11.0	9.0	12.0	3	13.0
M16	x 1.5	TRE31616GS	15.0	100.0	40.0	12.0	9.0	12.0	3	14.5
M16	x 1.0	TRE31626GS	15.0	100.0	40.0	12.0	9.0	12.0	3	15.0

► NEXT PAGE

© : 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**MF ISO Metric Fine Threads DIN13**

**MF** **Metrisches ISO-Feingewinde DIN 13**  
**ISO MÉTRIQUE PAS FINS DIN13**  
**ISO Metrico passo fine DIN 13**

Machine taps  
Maschinengewindebohrer

- ▶ High performance on various ductile materials
- ▶ Specially designed to prevent oversized threads and reduce gauging problems

- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- ▶ Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

**DIN 374**

**Hole type** 2.5×D

**Material groups** **MU** **HSS PM** **DIN 374** **6HX** **60°** **C** **R45** **X Coating** **p.B76**

**Recommended ToolHolder** Plain Shank Page  
 SYNCHRO TAPPING CHUCK D203-210  
 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	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M18 x 2.0	2.0	TRE31666GS	20.0	125.0	50.0	14.0	11.0	14.0	4	16.0
M18 x 1.5	1.5	TRE31676GS	15.0	110.0	44.0	14.0	11.0	14.0	4	16.5
M18 x 1.0	1.0	TRE31686GS	15.0	110.0	44.0	14.0	11.0	14.0	4	17.0
M20 x 2.0	2.0	TRE31716GS	20.0	140.0	54.0	16.0	12.0	15.0	4	18.0
M20 x 1.5	1.5	TRE31726GS	15.0	125.0	50.0	16.0	12.0	15.0	4	18.5
M20 x 1.0	1.0	TRE31736GS	15.0	125.0	50.0	16.0	12.0	15.0	4	19.0
M22 x 2.0	2.0	TRE31756GS	20.0	140.0	54.0	18.0	14.5	17.0	4	20.0
M22 x 1.5	1.5	TRE31766GS	15.0	125.0	50.0	18.0	14.5	17.0	4	20.5
M22 x 1.0	1.0	TRE31776GS	15.0	125.0	50.0	18.0	14.5	17.0	4	21.0
M24 x 2.0	2.0	TRE31796GS	20.0	140.0	54.0	18.0	14.5	17.0	4	22.0
M24 x 1.5	1.5	TRE31806GS	15.0	140.0	54.0	18.0	14.5	17.0	4	22.5
M24 x 1.0	1.0	TRE31816GS	15.0	140.0	54.0	18.0	14.5	17.0	4	23.0

◎ : 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	◎	◎	◎	◎			○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

**UNC Unified Coarse Threads**

**UNC** **Unified Grobgewinde**  
**UNC**  
**Unificato passo fine**

Machine taps  
Maschinengewindebohrer

- ▶ High performance on various ductile materials
- ▶ Specially designed to prevent oversized threads and reduce gauging problems

- ▶ Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- ▶ Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.

**DIN 371**

**Hole type** 2.5×D

**Material groups** **MU** **HSS PM** **DIN 371/376** **2BX** **60°** **C** **R45** **X Coating** **p.B76**

**Recommended ToolHolder** Plain Shank Page  
 SYNCHRO TAPPING CHUCK D203-210  
 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		X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 40 UNC	40	TRE32162GS	5.1	56.0	18.0	3.5	2.7	6.0	2	2.30
#5 - 40 UNC	40	TRE32202GS	5.1	56.0	18.0	3.5	2.7	6.0	3	2.60
#6 - 32 UNC	32	TRE32242GS	6.4	56.0	20.0	4.0	3.0	6.0	3	2.80
#8 - 32 UNC	32	TRE32282GS	6.4	63.0	21.0	4.5	3.4	6.0	3	3.40
#10 - 24 UNC	24	TRE32322GS	8.5	70.0	25.0	6.0	4.9	8.0	3	3.90
#12 - 24 UNC	24	TRE32362GS	8.5	80.0	30.0	6.0	4.9	8.0	3	4.50
1/4 - 20 UNC	20	TRE32402GS	10.2	80.0	30.0	7.0	5.5	8.0	3	5.10
5/16 - 18 UNC	18	TRE32442GS	14.2	90.0	35.0	8.0	6.2	9.0	3	6.60
3/8 - 16 UNC	16	TRE32482GS	15.9	100.0	39.0	9.0	7.0	10.0	3	8.00
7/16 - 14 UNC	14	TRE32522GS	18.2	100.0	40.0	8.0	6.2	9.0	3	9.40
1/2 - 13 UNC	13	TRE32562GS	19.6	110.0	44.0	9.0	7.0	10.0	3	10.80
9/16 - 12 UNC	12	TRE32602GS	21.2	110.0	44.0	11.0	9.0	12.0	3	12.20
5/8 - 11 UNC	11	TRE32642GS	23.1	110.0	44.0	12.0	9.0	12.0	3	13.60
3/4 - 10 UNC	10	TRE32702GS	25.4	125.0	50.0	14.0	11.0	14.0	4	16.50
7/8 - 9 UNC	9	TRE32742GS	28.3	140.0	54.0	18.0	14.5	17.0	4	19.50
1 - 8 UNC	8	TRE32782GS	31.8	160.0	60.0	20.0	16.0	19.0	4	22.20

▶ DIN 371(#4~3/8) and DIN 376(7/16~1)

◎ : 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	260	160	250	130	230	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	◎	◎	◎	◎			○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎

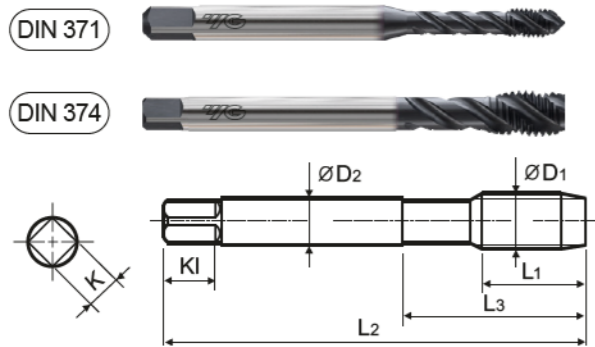
**UNF** Unified Fine Threads

- Unified Grobgewinde
- UNF
- Unificato passo fine

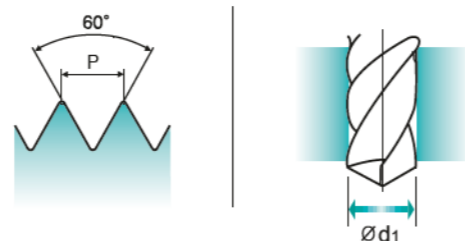
Machine taps  
Maschinengewindebohrer

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Hole type  
2.5×D



Material groups: **MU** HSS PM DIN 371/374 2BX 60° C R45 X Coating p.B76

Plain Shank	Page
SYNCHROTAPPING CHUCK	D203-210
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		X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 48 UNF		TRE33182GS	5.1	56.0	18.0	3.5	2.7	6.0	2	2.40
#5 - 44 UNF		TRE33222GS	5.1	56.0	18.0	3.5	2.7	6.0	3	2.70
#6 - 40 UNF		TRE33262GS	6.4	56.0	20.0	4.0	3.0	6.0	3	2.90
#8 - 36 UNF		TRE33302GS	6.4	63.0	21.0	4.5	3.4	6.0	3	3.50
#10 - 32 UNF		TRE33342GS	8.5	70.0	25.0	6.0	4.9	8.0	3	4.10
#12 - 28 UNF		TRE33382GS	8.5	80.0	30.0	6.0	4.9	8.0	3	4.60
1/4 - 28 UNF		TRE33422GS	10.2	80.0	30.0	7.0	5.5	8.0	3	5.50
5/16 - 24 UNF		TRE33462GS	10.6	90.0	35.0	8.0	6.2	9.0	3	6.90
3/8 - 24 UNF		TRE33502GS	10.6	100.0	39.0	9.0	7.0	10.0	3	8.50
7/16 - 20 UNF		TRE33542GS	12.7	100.0	40.0	8.0	6.2	9.0	3	9.90
1/2 - 20 UNF		TRE33582GS	12.7	100.0	40.0	9.0	7.0	10.0	3	11.50
9/16 - 18 UNF		TRE33622GS	14.2	100.0	40.0	11.0	9.0	12.0	3	12.90
5/8 - 18 UNF		TRE33662GS	14.2	100.0	40.0	12.0	9.0	12.0	3	14.50
3/4 - 16 UNF		TRE33722GS	15.9	110.0	44.0	14.0	11.0	14.0	4	17.50
7/8 - 14 UNF		TRE33762GS	18.2	125.0	50.0	18.0	14.5	17.0	4	20.50
1 - 12 UNF		TRE33802GS	21.2	140.0	54.0	20.0	16.0	19.0	4	23.20

► DIN 371(#4~3/8) and DIN 374(7/16~1)

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	◎	◎	◎	◎													

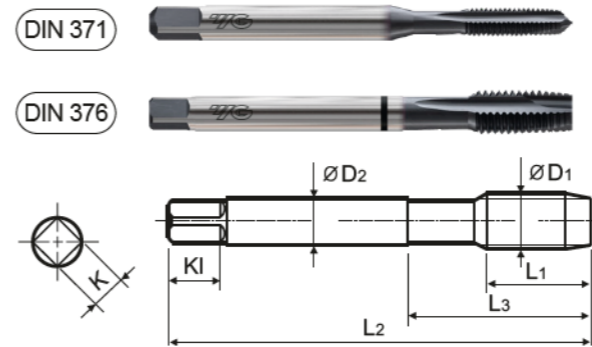
**M** ISO Metric Coarse Threads DIN 13

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

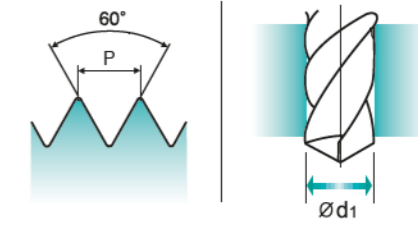
Machine taps  
Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
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Hole type  
3.0×D



Material groups: **MU** HSS PM DIN 371/376 6HX 60° B X Coating p.B76

Plain Shank	Page
SYNCHROTAPPING CHUCK	D203-210
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	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 x 0.4		TRJ15136GS	8.0	45.0	13.0	2.8	2.1	5.0	2	1.6
M2.5 x 0.45		TRJ15176GS	9.0	50.0	15.0	2.8	2.1	5.0	2	2.1
M3 x 0.5		TRJ15206GS	11.0	56.0	18.0	3.5	2.7	6.0	3	2.5
M3.5 x 0.6		TRJ15226GS	12.0	56.0	20.0	4.0	3.0	6.0	3	2.9
M4 x 0.7		TRJ15246GS	13.0	63.0	21.0	4.5	3.4	6.0	3	3.3
M5 x 0.8		TRJ15286GS	15.0	70.0	25.0	6.0	4.9	8.0	3	4.2
M6 x 1.0		TRJ15316GS	17.0	80.0	30.0	6.0	4.9	8.0	3	5.0
M7 x 1.0		TRJ15346GS	17.0	80.0	30.0	7.0	5.5	8.0	3	6.0
M8 x 1.25		TRJ15366GS	20.0	90.0	35.0	8.0	6.2	9.0	3	6.8
M9 x 1.25		TRJ15396GS	20.0	90.0	35.0	9.0	7.0	10.0	3	7.8
M10 x 1.5		TRJ15426GS	22.0	100.0	39.0	10.0	8.0	11.0	3	8.5
M12 x 1.75		TRJ15506GS	24.0	110.0	44.0	9.0	7.0	10.0	3	10.3
M14 x 2.0		TRJ15546GS	26.0	110.0	44.0	11.0	9.0	12.0	3	12.0
M16 x 2.0		TRJ15606GS	27.0	110.0	44.0	12.0	9.0	12.0	3	14.0
M18 x 2.5		TRJ15656GS	30.0	125.0	50.0	14.0	11.0	14.0	3	15.5
M20 x 2.5		TRJ15706GS	32.0	140.0	54.0	16.0	12.0	15.0	3	17.5
M22 x 2.5		TRJ15746GS	32.0	140.0	54.0	18.0	14.5	17.0	3	19.5
M24 x 3.0		TRJ15786GS	34.0	160.0	60.0	18.0	14.5	17.0	3	21.0

► DIN 371(M2~M10) and DIN 376(M12~M24)

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	◎	◎	◎	◎													



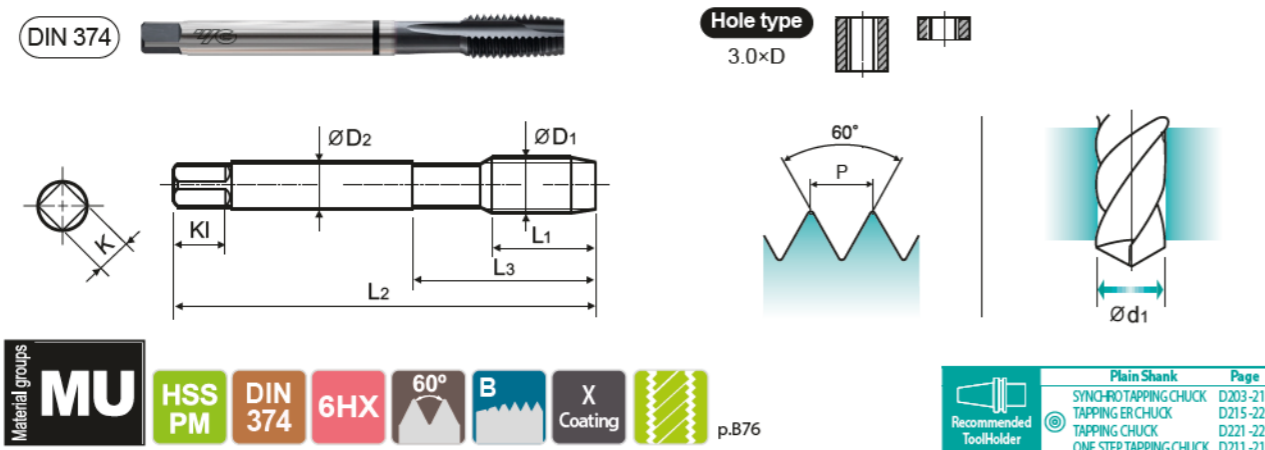
**MF ISO Metric Fine Threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

- High performance on various ductile materials
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- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



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	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4 x 0.5		TRJ16256GS	10.0	63.0	21.0	2.8	2.1	5.0	3	3.5
M4 x 0.35		TRJ16696GS	10.0	63.0	21.0	2.8	2.1	5.0	3	3.7
M5 x 0.5		TRJ16296GS	11.0	70.0	25.0	3.5	2.7	6.0	3	4.5
M6 x 0.75		TRJ16326GS	13.0	80.0	30.0	4.5	3.4	6.0	3	5.3
M6 x 0.5		TRJ16336GS	13.0	80.0	30.0	4.5	3.4	6.0	3	5.5
M8 x 1.0		TRJ16376GS	17.0	90.0	36.0	6.0	4.9	8.0	3	7.0
M8 x 0.75		TRJ16386GS	14.0	80.0	30.0	6.0	4.9	8.0	3	7.3
M9 x 1.0		TRJ16406GS	20.0	90.0	36.0	7.0	5.5	8.0	3	8.0
M9 x 0.75		TRJ16416GS	17.0	80.0	36.0	7.0	5.5	8.0	3	8.3
M10 x 1.25		TRJ16436GS	22.0	100.0	40.0	7.0	5.5	8.0	3	8.8
M10 x 1.0		TRJ16446GS	18.0	90.0	36.0	7.0	5.5	8.0	3	9.0
M10 x 0.75		TRJ16456GS	18.0	90.0	36.0	7.0	5.5	8.0	3	9.3
M12 x 1.5		TRJ16516GS	22.0	100.0	40.0	9.0	7.0	10.0	3	10.5
M12 x 1.25		TRJ16526GS	22.0	100.0	40.0	9.0	7.0	10.0	3	10.8
M12 x 1.0		TRJ16536GS	18.0	100.0	40.0	9.0	7.0	10.0	3	11.0
M14 x 1.5		TRJ16556GS	22.0	100.0	40.0	11.0	9.0	12.0	3	12.5
M14 x 1.25		TRJ16566GS	22.0	100.0	40.0	11.0	9.0	12.0	3	12.8
M14 x 1.0		TRJ16576GS	18.0	100.0	40.0	11.0	9.0	12.0	3	13.0
M16 x 1.5		TRJ16616GS	22.0	100.0	40.0	12.0	9.0	12.0	3	14.5
M16 x 1.0		TRJ16626GS	18.0	100.0	40.0	12.0	9.0	12.0	3	15.0

▶ NEXT PAGE

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	○	○	◎	◎	◎	◎	◎	◎														

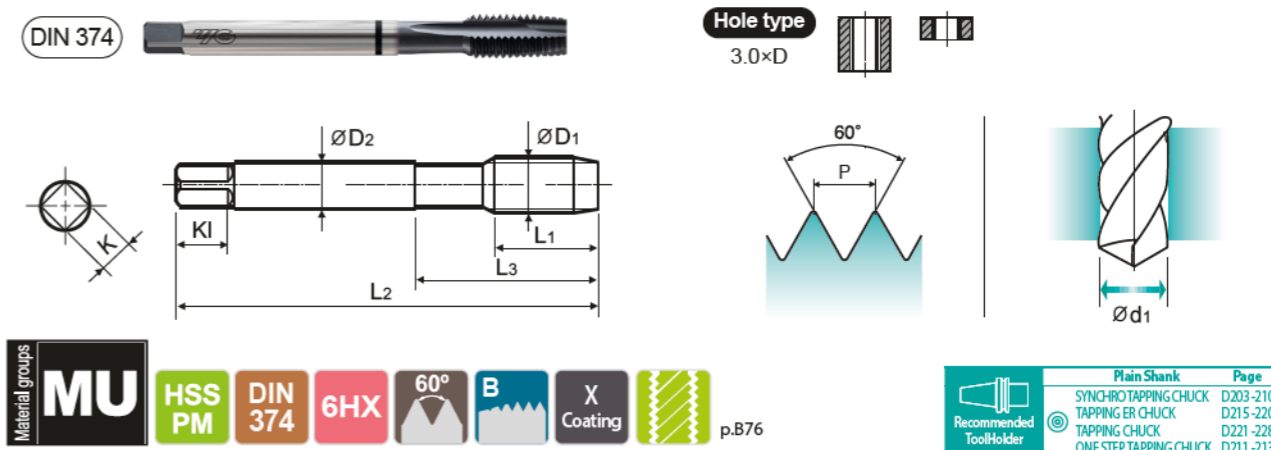
**MF ISO Metric Fine Threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

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- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



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	X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
M18 x 2.0		TRJ16666GS	26.0	125.0	50.0	14.0	11.0	14.0	3	16.0
M18 x 1.5		TRJ16676GS	25.0	110.0	44.0	14.0	11.0	14.0	3	16.5
M18 x 1.0		TRJ16686GS	20.0	110.0	44.0	14.0	11.0	14.0	3	17.0
M20 x 2.0		TRJ16716GS	27.0	140.0	54.0	16.0	12.0	15.0	3	18.0
M20 x 1.5		TRJ16726GS	25.0	125.0	50.0	16.0	12.0	15.0	3	18.5
M20 x 1.0		TRJ16736GS	20.0	125.0	50.0	16.0	12.0	15.0	3	19.0
M22 x 2.0		TRJ16756GS	27.0	140.0	54.0	18.0	14.5	17.0	3	20.0
M22 x 1.5		TRJ16766GS	25.0	125.0	50.0	18.0	14.5	17.0	3	20.5
M22 x 1.0		TRJ16776GS	20.0	125.0	50.0	18.0	14.5	17.0	3	21.0
M24 x 2.0		TRJ16796GS	27.0	140.0	54.0	18.0	14.5	17.0	3	22.0
M24 x 1.5		TRJ16806GS	27.0	140.0	54.0	18.0	14.5	17.0	3	22.5
M24 x 1.0		TRJ16816GS	20.0	140.0	54.0	18.0	14.5	17.0	3	23.0

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

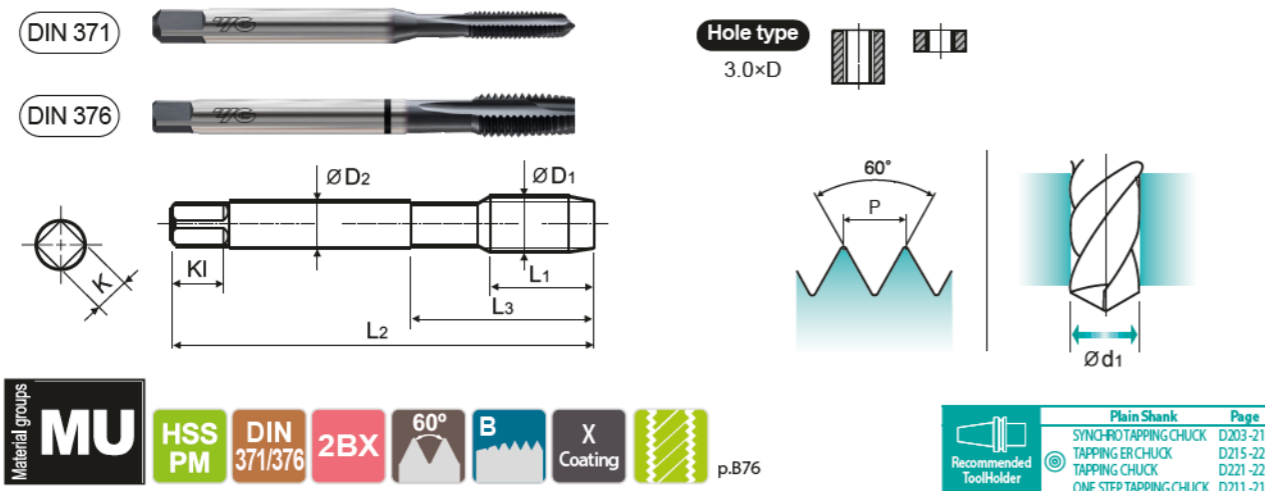
ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	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	○	○	◎	◎	◎	◎	◎	◎														

**UNC** Unified Coarse Threads  
 Unified Grobgewinde  
 UNC  
 Unificato passo fine

Machine taps  
 Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



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		X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 40 UNC	40	TRJ17162GS	11.0	56.0	18.0	3.5	2.7	6.0	2	2.30
#5 - 40 UNC	40	TRJ17202GS	11.0	56.0	18.0	3.5	2.7	6.0	3	2.60
#6 - 32 UNC	32	TRJ17242GS	12.0	56.0	20.0	4.0	3.0	6.0	3	2.80
#8 - 32 UNC	32	TRJ17282GS	13.0	63.0	21.0	4.5	3.4	6.0	3	3.40
#10 - 24 UNC	24	TRJ17322GS	15.0	70.0	25.0	6.0	4.9	8.0	3	3.90
#12 - 24 UNC	24	TRJ17362GS	16.0	80.0	30.0	6.0	4.9	8.0	3	4.50
1/4 - 20 UNC	20	TRJ17402GS	17.0	80.0	30.0	7.0	5.5	8.0	3	5.10
5/16 - 18 UNC	18	TRJ17442GS	20.0	90.0	35.0	8.0	6.2	9.0	3	6.60
3/8 - 16 UNC	16	TRJ17482GS	22.0	100.0	39.0	9.0	7.0	10.0	3	8.00
7/16 - 14 UNC	14	TRJ17522GS	22.0	100.0	40.0	8.0	6.2	9.0	3	9.40
1/2 - 13 UNC	13	TRJ17562GS	25.0	110.0	44.0	9.0	7.0	10.0	3	10.80
9/16 - 12 UNC	12	TRJ17602GS	26.0	110.0	44.0	11.0	9.0	12.0	3	12.20
5/8 - 11 UNC	11	TRJ17642GS	27.0	110.0	44.0	12.0	9.0	12.0	3	13.60
3/4 - 10 UNC	10	TRJ17702GS	30.0	125.0	50.0	14.0	11.0	14.0	3	16.50
7/8 - 9 UNC	9	TRJ17742GS	32.0	140.0	54.0	18.0	14.5	17.0	3	19.50
1 - 8 UNC	8	TRJ17782GS	36.0	160.0	60.0	20.0	16.0	19.0	3	22.20

►DIN371 (#4~3/8) and DIN376 (7/16~1)

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25						
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230				
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

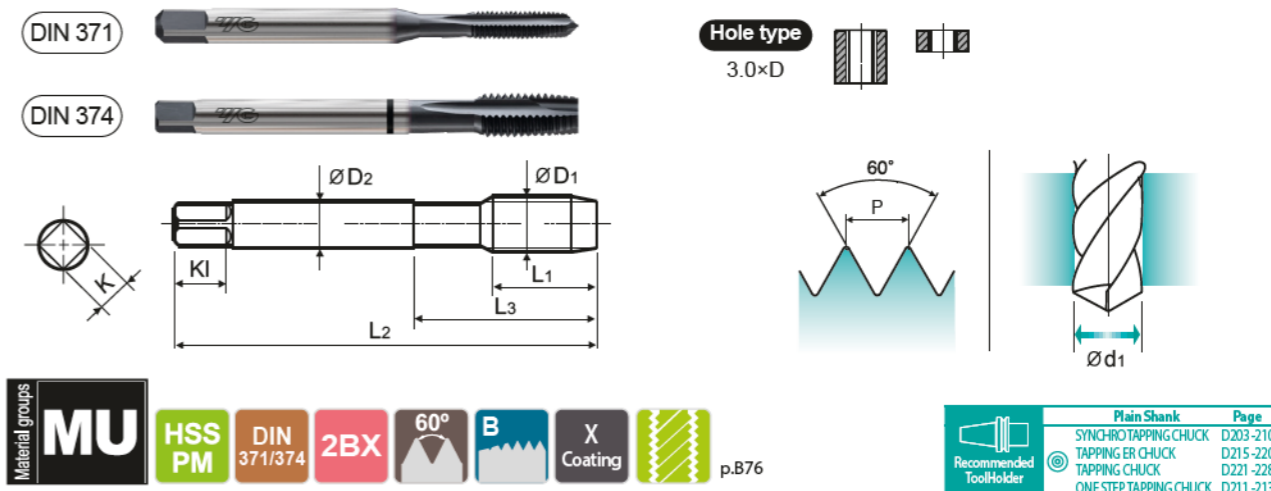
ISO	N										S						H							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)				Non Metallic Materials				Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	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	○	○	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**UNF** Unified Fine Threads  
 Unified Grobgewinde  
 UNF  
 Unificato passo fine

Machine taps  
 Maschinengewindebohrer

- High performance on various ductile materials
- Specially designed to prevent oversized threads and reduce gauging problems

- Ausgezeichnete Leistung bei verschiedenen Werkstoffen.
- Speziell entwickelt, um zu große Gewindedurchmesser zu vermeiden und Messprobleme zu reduzieren.



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		X-coating	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 48 UNF	48	TRJ18182GS	11.0	56.0	18.0	3.5	2.7	6.0	2	2.40
#5 - 44 UNF	44	TRJ18222GS	11.0	56.0	18.0	3.5	2.7	6.0	3	2.70
#6 - 40 UNF	40	TRJ18262GS	12.0	56.0	20.0	4.0	3.0	6.0	3	2.90
#8 - 36 UNF	36	TRJ18302GS	13.0	63.0	21.0	4.5	3.4	6.0	3	3.50
#10 - 32 UNF	32	TRJ18342GS	15.0	70.0	25.0	6.0	4.9	8.0	3	4.10
#12 - 28 UNF	28	TRJ18382GS	16.0	80.0	30.0	6.0	4.9	8.0	3	4.60
1/4 - 28 UNF	28	TRJ18422GS	17.0	80.0	30.0	7.0	5.5	8.0	3	5.50
5/16 - 24 UNF	24	TRJ18462GS	17.0	90.0	35.0	8.0	6.2	9.0	3	6.90
3/8 - 24 UNF	24	TRJ18502GS	18.0	100.0	39.0	9.0	7.0	10.0	3	8.50
7/16 - 20 UNF	20	TRJ18542GS	22.0	100.0	40.0	8.0	6.2	9.0	3	9.90
1/2 - 20 UNF	20	TRJ18582GS	22.0	100.0	40.0	9.0	7.0	10.0	3	11.50
9/16 - 18 UNF	18	TRJ18622GS	22.0	100.0	40.0	11.0	9.0	12.0	3	12.90
5/8 - 18 UNF	18	TRJ18662GS	22.0	100.0	40.0	12.0	9.0	12.0	3	14.50
3/4 - 16 UNF	16	TRJ18722GS	25.0	110.0	44.0	14.0	11.0	14.0	3	17.50
7/8 - 14 UNF	14	TRJ18762GS	26.0	125.0	50.0	18.0	14.5	17.0	3	20.50
1" - 12 UNF	12	TRJ18802GS	28.0	140.0	54.0	20.0	16.0	19.0	3	23.20

►DIN371 (#4~3/8) and DIN374 (7/16~1)

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25						
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	○	○	◎	◎	◎	◎	◎	◎			◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



					TRE30, TRE31, TRE32 TRE33, TRE34	TRJ15, TRJ16 TRJ17, TRJ18	
ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)		
P	1	Non-alloy steel	125		5-20	15-45	
	2		190	13	10-50	10-55	
	3		250	25	10-50	10-55	
	4		270	28	15-40	15-50	
	5		300	32	15-40	15-50	
	6	Low alloy steel	180	10	8-30	8-30	
	7		275	29	8-30	8-30	
	8		300	32	8-30	8-30	
	9		350	38	8-30	8-30	
	10		High alloyed steel, and tool steel	200	15	8-30	8-30
	11	325		35	8-30	8-30	
M	12	Stainless steel	200	15	5-15	8-20	
	13		240	23	5-15	8-20	
	14		180	10	5-15	8-20	
K	15	Grey cast iron	180	10	15-35	15-35	
	16		260	26	15-35	15-35	
	17	Nodular cast iron	160	3	15-35	15-35	
	18		250	25	15-35	15-35	
N	21	Aluminum- wrought alloy	60		15-35	15-35	
	22		100		15-35	15-35	
	23	Aluminum- cast, alloyed	75		15-35	15-35	
	24		90		15-35	15-35	
	25		130		15-35	15-35	
	26		110		15-35	15-35	
	27		Copper and Copper Alloys (Bronze / Brass)	90		15-35	15-35
	28			100		15-35	15-35



Leading Through Innovation



**HSS-E & HSS-PM**

# COMBO TAPS

## COMBO GEWINDEBOHRER

- For Multi Purpose Tapping
- Für Mehrbereichs-Gewindebohren



HSS-E & HSS-PM COMBO TAPS

For Multi Purpose Tapping

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B110

Table with columns: ISO, VDI 3323, Material Description, Composition / Structure / Heat Treatment, HB, HRC, and a grid of performance indicators (circles) for various materials and tap types.

Table with columns: HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, and a grid of product codes (TC, TD, TB, TCE, TDE, TBE) for different series (M, MF, UNC, UNF, BSW, G(BSP), EG-M, EG-UNC, EG-UNF).

Table with columns: SURFACE TREATMENT (Bright, TiN, VAP) and MODEL, with corresponding images of tap models.

Table with columns: HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, and a grid of product codes for HSS-E and HSS-PM series.

Table with columns: SURFACE TREATMENT (Bright, TiN, VAP) and MODEL, with corresponding images of tap models.



HSS-E & HSS-PM COMBO TAPS

For Multi Purpose Tapping

Please visit globalyg1.com/mat for material search. Recommended cutting conditions : p.B110

Table with columns: ISO, VDI 3323, Material Description, Composition / Structure / Heat Treatment, HB, HRC, and a grid of suitability circles for various tap types and materials.

Table with columns: HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, and a grid of tap models (TC, TD, TB, TCJ, TDJ, TBQ) for HSS-E and HSS-PM.

Table with columns: SURFACE TREATMENT, MODEL, and a grid of tap models (TC, TD, TB, TCJ, TDJ, TBQ) for HSS-E and HSS-PM.

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

Table with columns: HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, and a grid of tap models (TC, TD, TB, TCJ, TDJ, TBQ) for HSS-E and HSS-PM.

Table with columns: SURFACE TREATMENT, MODEL, and a grid of tap models (TC, TD, TB, TCJ, TDJ, TBQ) for HSS-E and HSS-PM.

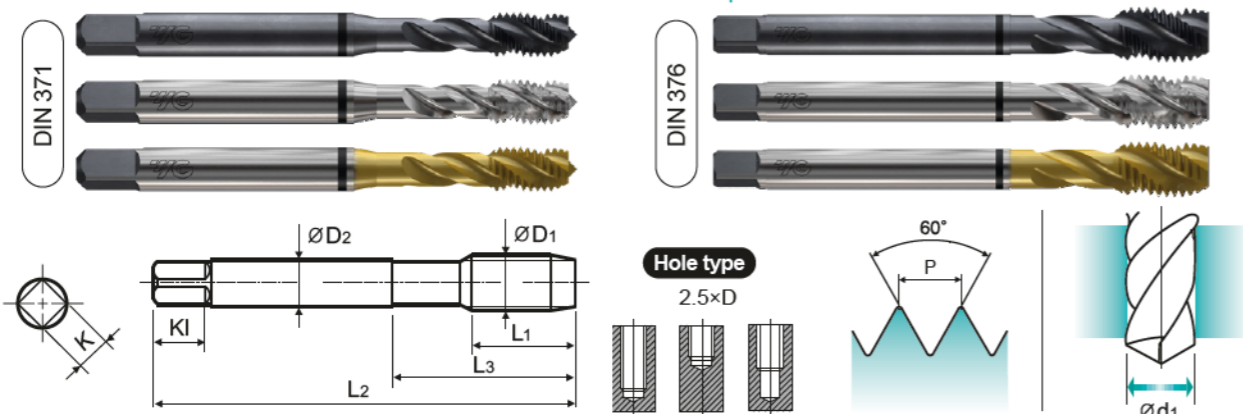
**M ISO Metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 6H 60° C R40 Vap Bright TiN p.B124

Recommended ToolHolder: Plain Shank 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
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4		TB804136	TC804136	TD804136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TB804156	TC804156	TD804156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TB804196	TC804196	TD804196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TB804176	TC804176	TD804176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TB804496	TC804496	TD804496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TB804206	TC804206	TD804206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TB804226	TC804226	TD804226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TB804246	TC804246	TD804246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TB804266	TC804266	TD804266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TB804286	TC804286	TD804286	8	70	25	6	4.9	8	3	4.2
M6 × 1.0		TB804316	TC804316	TD804316	10	80	30	6	4.9	8	3	5
M7 × 1.0		TB804346	TC804346	TD804346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TB804366	TC804366	TD804366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TB804396	TC804396	TD804396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TB804426	TC804426	TD804426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TB804466	TC804466	TD804466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TB804506	TC804506	TD804506	18	110	44	9	7	10	3	10.2
M14 × 2.0		TB804546	TC804546	TD804546	20	110	44	11	9	12	3	12
M16 × 2.0		TB804606	TC804606	TD804606	20	110	44	12	9	12	3	14
M18 × 2.5		TB804656	TC804656	TD804656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TB804706	TC804706	TD804706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TB804746	TC804746	TD804746	25	140	54	18	14.5	17	4	19.5
M24 × 3.0		TB804786	TC804786	TD804786	30	160	60	18	14.5	17	4	21
M27 × 3.0		TB804866	TC804866	TD804866	30	160	60	20	16	19	4	24

► DIN 371(M2~M10) and DIN 376(M11~M52)  
\* The other coating(TiCN or TiAlN) is available on your request.

► NEXT PAGE

◎ : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	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						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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						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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

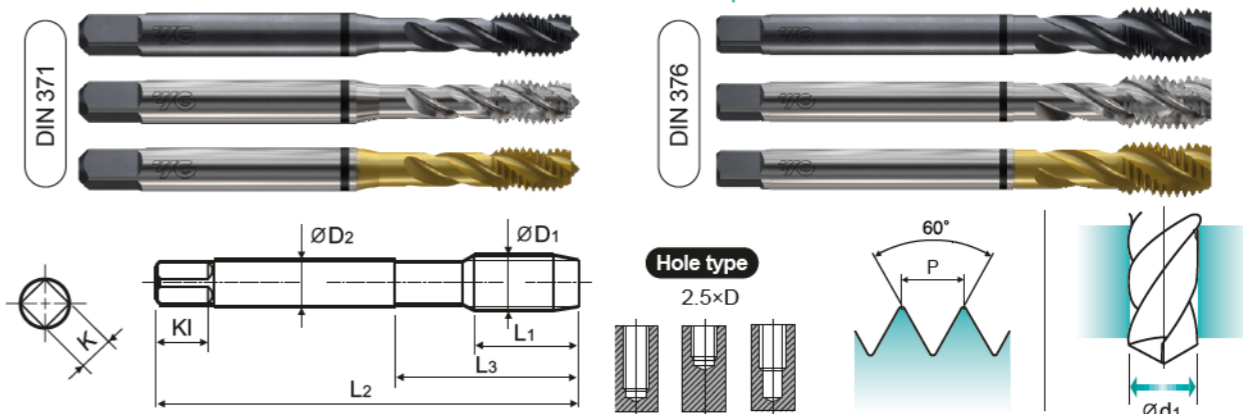
**M ISO Metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 6H 60° C R40 Vap Bright TiN p.B124

Recommended ToolHolder: Plain Shank 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
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M30 × 3.5		TB804946	TC804946	TD804946	35	180	70	22	18	21	4	26.5
M33 × 3.5		-	TC804A46	TD804A46	35	180	70	25	20	23	4	29.5
M36 × 4.0		-	TC804B36	TD804B36	40	200	80	28	22	25	4	32.0
M39 × 4.0		-	TC804C06	TD804C06	40	200	80	32	24	27	4	35.0
M42 × 4.5		-	TC804C86	TD804C86	45	200	85	32	24	27	4	37.5
M45 × 4.5		-	TC804D56	TD804D56	45	220	85	36	29	32	4	40.5
M48 × 5.0		-	TC804E26	TD804E26	50	250	90	36	29	32	4	43.0
M52 × 5.0		-	TC804F36	TD804F36	50	250	90	40	32	35	4	47.0

► DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) is available on your request.

► The other coating(TiCN or TiAlN) is available on your request.

► DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	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						
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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						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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎





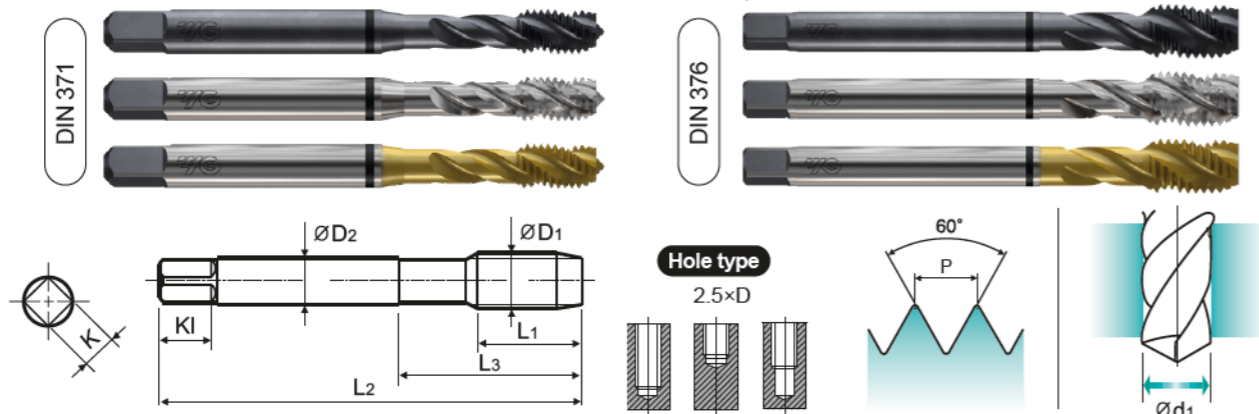
**M ISO Metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 6G 60° C R40 Vap Bright TiN p.B124

Recommended ToolHolder: Plain Shank 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
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4		TBE07136	TCE07136	TDE07136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBE07156	TCE07156	TDE07156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBE07196	TCE07196	TDE07196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBE07176	TCE07176	TDE07176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBE07496	TCE07496	TDE07496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBE07206	TCE07206	TDE07206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBE07226	TCE07226	TDE07226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TBE07246	TCE07246	TDE07246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBE07266	TCE07266	TDE07266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBE07286	TCE07286	TDE07286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TBE07316	TCE07316	TDE07316	10	80	30	6	4.9	8	3	5
M7 × 1		TBE07346	TCE07346	TDE07346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TBE07366	TCE07366	TDE07366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBE07396	TCE07396	TDE07396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TBE07426	TCE07426	TDE07426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TBE07466	TCE07466	TDE07466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBE07506	TCE07506	TDE07506	18	110	44	9	7	10	3	10.2
M14 × 2		TBE07546	TCE07546	TDE07546	20	110	44	11	9	12	3	12
M16 × 2		TBE07606	TCE07606	TDE07606	20	110	44	12	9	12	3	14
M18 × 2.5		TBE07656	TCE07656	TDE07656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TBE07706	TCE07706	TDE07706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TBE07746	TCE07746	TDE07746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TBE07786	TCE07786	TDE07786	30	160	60	18	14.5	17	4	21
M27 × 3		TBE07866	TCE07866	TDE07866	30	160	60	20	16	19	4	24
M30 × 3.5		TBE07946	TCE07946	TDE07946	35	180	70	22	18	21	4	26.5

►DIN 371(M2~M10) and DIN 376(M11~M30)

\* The other coating(TiCN or TiAlN) 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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						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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

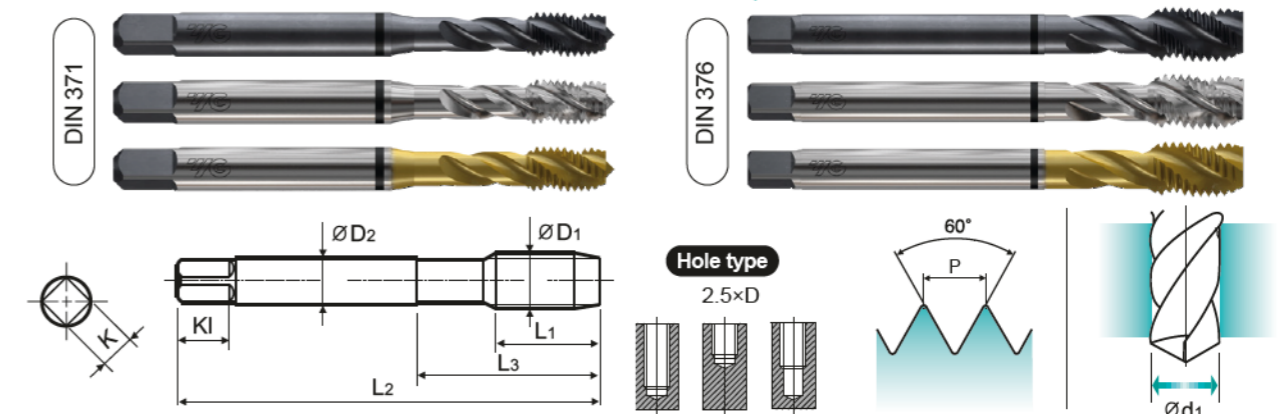
**M ISO Metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 7G 60° C R40 Vap Bright TiN p.B124

Recommended ToolHolder: Plain Shank 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
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M2 × 0.4		TBE08136	TCE08136	TDE08136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBE08156	TCE08156	TDE08156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBE08196	TCE08196	TDE08196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBE08176	TCE08176	TDE08176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBE08496	TCE08496	TDE08496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBE08206	TCE08206	TDE08206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBE08226	TCE08226	TDE08226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TBE08246	TCE08246	TDE08246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBE08266	TCE08266	TDE08266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBE08286	TCE08286	TDE08286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TBE08316	TCE08316	TDE08316	10	80	30	6	4.9	8	3	5
M7 × 1		TBE08346	TCE08346	TDE08346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TBE08366	TCE08366	TDE08366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBE08396	TCE08396	TDE08396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TBE08426	TCE08426	TDE08426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TBE08466	TCE08466	TDE08466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBE08506	TCE08506	TDE08506	18	110	44	9	7	10	3	10.2
M14 × 2		TBE08546	TCE08546	TDE08546	20	110	44	11	9	12	3	12
M16 × 2		TBE08606	TCE08606	TDE08606	20	110	44	12	9	12	3	14
M18 × 2.5		TBE08656	TCE08656	TDE08656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TBE08706	TCE08706	TDE08706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TBE08746	TCE08746	TDE08746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TBE08786	TCE08786	TDE08786	30	160	60	18	14.5	17	4	21
M27 × 3		TBE08866	TCE08866	TDE08866	30	160	60	20	16	19	4	24
M30 × 3.5		TBE08946	TCE08946	TDE08946	35	180	70	22	18	21	4	26.5

►DIN 371(M2~M10) and DIN 376(M11~M30)

\* The other coating(TiCN or TiAlN) 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

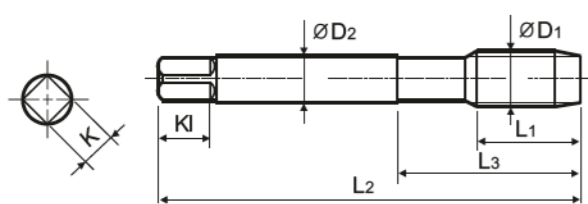
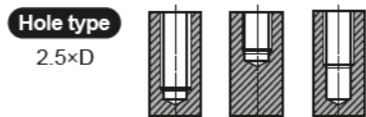
ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34						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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**MF** ISO Metric fine threads DIN 13  
Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► 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.



Material groups **MU** HSS-E DIN 374 6H 60° C R40 Vap Bright TiN p.B124

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	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4 × 0.5		TB844256	TC844256	TD844256	5	63	21	2.8	2.1	5	3	3.5
M5 × 0.5		TB844296	TC844296	TD844296	5	70	25	3.5	2.7	6	3	4.5
M6 × 0.75		TB844326	TC844326	TD844326	8	80	30	4.5	3.4	6	3	5.2
M6 × 0.5		TB844336	TC844336	TD844336	5	80	30	4.5	3.4	6	3	5.5
M7 × 0.75		TB844356	TC844356	TD844356	10	80	30	5.5	4.3	7	3	6.2
M8 × 1.0		TB844376	TC844376	TD844376	10	90	36	6	4.9	8	3	7
M8 × 0.75		TB844386	TC844386	TD844386	8	80	30	6	4.9	8	3	7.2
M10 × 1.25		TB844436	TC844436	TD844436	16	100	40	7	5.5	8	3	8.8
M10 × 1.0		TB844446	TC844446	TD844446	10	90	36	7	5.5	8	3	9
M10 × 0.75		TB844456	TC844456	TD844456	10	90	36	7	5.5	8	3	9.2
M12 × 1.5		TB844516	TC844516	TD844516	15	100	40	9	7	10	3	10.5
M12 × 1.25		TB844526	TC844526	TD844526	15	100	40	9	7	10	3	10.8
M12 × 1.0		TB844536	TC844536	TD844536	11	100	40	9	7	10	3	11
M14 × 1.5		TB844556	TC844556	TD844556	15	100	40	11	9	12	3	12.5
M14 × 1.25		TB844566	TC844566	TD844566	15	100	40	11	9	12	3	12.8
M14 × 1.0		TB844576	TC844576	TD844576	11	100	40	11	9	12	3	13
M16 × 1.5		TB844616	TC844616	TD844616	15	100	40	12	9	12	3	14.5
M16 × 1.0		TB844626	TC844626	TD844626	12	100	40	12	9	12	3	15
M18 × 1.5		TB844676	TC844676	TD844676	17	110	44	14	11	14	4	16.5
M18 × 1.0		TB844686	TC844686	TD844686	13	110	44	14	11	14	4	17
M20 × 1.5		TB844726	TC844726	TD844726	17	125	50	16	12	15	4	18.5
M20 × 1.0		TB844736	TC844736	TD844736	14	125	50	16	12	15	4	19
M22 × 1.5		TB844766	TC844766	TD844766	17	125	50	18	14.5	17	4	20.5
M22 × 1.0		TB844776	TC844776	TD844776	14	125	50	18	14.5	17	4	21

\* The other coating (TiCN or TiAlN) is available on your request.

► NEXT PAGE

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

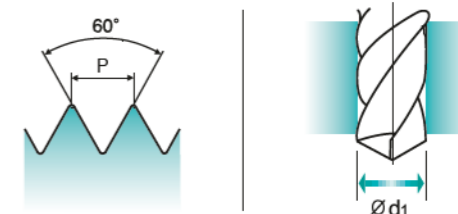
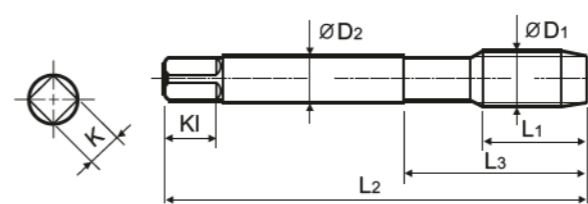
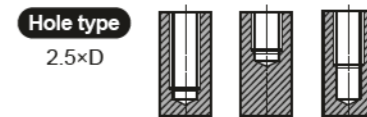
ISO	N					S					H														
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	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			◎			◎	◎	◎																	

**MF** ISO Metric fine threads DIN 13  
Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► 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.



Material groups **MU** HSS-E DIN 374 6H 60° C R40 Vap Bright TiN p.B124

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	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M24 × 2.0		TB844796	TC844796	TD844796	20	140	54	18	14.5	17	4	22
M24 × 1.5		TB844806	TC844806	TD844806	20	140	54	18	14.5	17	4	22.5
M26 × 1.5		TB844856	TC844856	TD844856	20	140	54	18	14.5	17	4	24.5
M27 × 2.0		TB844876	TC844876	TD844876	20	140	54	20	16	19	4	25
M27 × 1.5		TB844886	TC844886	TD844886	20	140	54	20	16	19	4	25.5
M28 × 1.5		TB844916	TC844916	TD844916	20	140	54	20	16	19	4	26.5
M30 × 2		TB844966	TC844966	TD844966	22	150	57	22	18	21	4	28
M30 × 1.5		TB844976	TC844976	TD844976	22	150	57	22	18	21	4	28.5
M32 × 2.0		-	TC844A16	TD844A16	22	150	57	22	18	21	4	30.0
M32 × 1.5		-	TC844A26	TD844A26	22	150	57	22	18	21	4	30.5
M33 × 2.0		-	TC844A66	TD844A66	24	160	60	25	20	23	4	31.0
M33 × 1.5		-	TC844A76	TD844A76	24	160	60	25	20	23	4	31.5
M34 × 1.5		-	TC844A96	TD844A96	24	170	70	28	22	25	4	32.5
M35 × 1.5		-	TC844B16	TD844B16	24	170	70	28	22	25	4	33.5
M36 × 3.0		-	TC844B46	TD844B46	30	200	80	28	22	25	4	33.0
M36 × 2.0		-	TC844B56	TD844B56	24	170	70	28	22	25	4	34.0
M36 × 1.5		-	TC844B66	TD844B66	24	170	70	28	22	25	4	34.5
M38 × 1.5		-	TC844B86	TD844B86	24	170	70	28	22	25	4	36.5
M39 × 1.5		-	TC844C36	TD844C36	25	170	70	32	24	27	4	37.5
M40 × 1.5		-	TC844C66	TD844C66	25	170	70	32	24	27	4	38.5
M42 × 3.0		-	TC844D06	TD844D06	30	200	80	32	24	27	4	39.0
M42 × 2.0		-	TC844D16	TD844D16	25	170	70	32	24	27	4	40.0
M42 × 1.5		-	TC844D26	TD844D26	25	170	70	32	24	27	4	40.5
M45 × 1.5		-	TC844D96	TD844D96	26	180	80	36	29	32	4	43.5

\* The other coating (TiCN or TiAlN) is available on your request.

► NEXT PAGE

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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 COMBO TAPS

Bright **TCE09** SERIES  
TIN **TDE09** SERIES

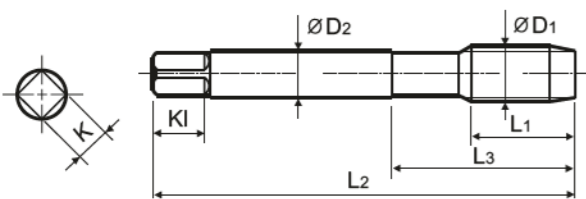
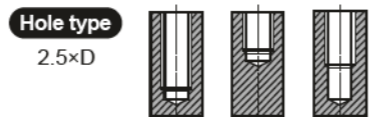
## MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 374 6G 60° C R40 Bright TiN p.B124

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	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M24 × 2		TCE09796	TDE09796	20	140	54	18	14.5	17	4	22
M24 × 1.5		TCE09806	TDE09806	20	140	54	18	14.5	17	4	22.5
M26 × 1.5		TCE09856	TDE09856	20	140	54	18	14.5	17	4	24.5
M27 × 2		TCE09876	TDE09876	20	140	54	20	16	19	4	25
M27 × 1.5		TCE09886	TDE09886	20	140	54	20	16	19	4	25.5
M28 × 1.5		TCE09916	TDE09916	20	140	54	20	16	19	4	26.5
M30 × 2		TCE09966	TDE09966	22	150	57	22	18	21	4	28
M30 × 1.5		TCE09976	TDE09976	22	150	57	22	18	21	4	28.5

\* 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	240	180	240	180	260	160	250	130	230	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			◎			◎	◎	◎														

# YG COMBO TAPS

**TC804-IC** SERIES

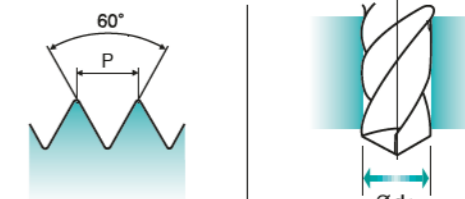
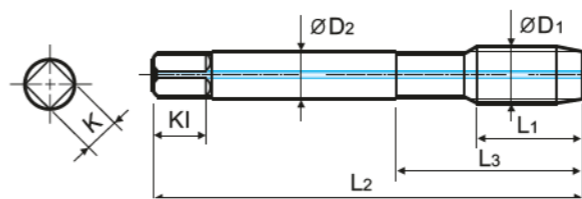
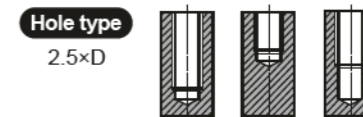
## M ISO Metric coarse threads DIN 13

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

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 6H 60° C R40 Bright p.B124

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	KI	Z	Ød1
M6 × 1		TC804316IC	10	80	30	6	4.9	8	3	5
M8 × 1.25		TC804366IC	13	90	35	8	6.2	9	3	6.8
M10 × 1.5		TC804426IC	15	100	39	10	8	11	3	8.5
M12 × 1.75		TC804506IC	18	110	44	9	7	10	3	10.2
M14 × 2		TC804546IC	20	110	44	11	9	12	3	12
M16 × 2		TC804606IC	20	110	44	12	9	12	3	14
M18 × 2.5		TC804656IC	25	125	50	14	11	14	4	15.5
M20 × 2.5		TC804706IC	25	140	54	16	12	15	4	17.5

► DIN 371(M6~M10) and DIN 376(M12~M20)

\* Coating(TiN, 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	240	180	240	180	260	160	250	130	230	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			◎			◎	◎	◎														

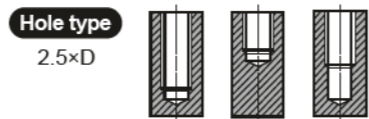
**M ISO Metric coarse threads DIN 13**

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

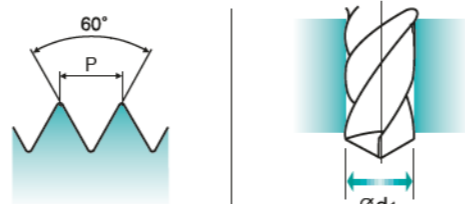
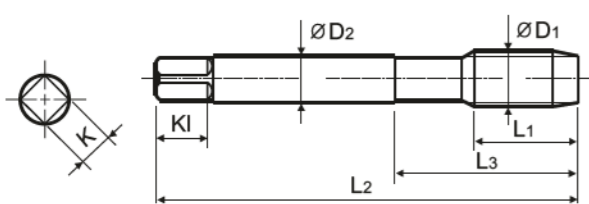
Machine taps  
Maschinengewindebohrer

► 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.



Short Chamfer



Material groups: **MU** HSS-E DIN 371/376 6H 60° E R40 Bright p.B124

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M2 × 0.4		TC807136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC807156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TC807196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC807176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TC807496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC807206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC807226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TC807246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC807266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC807286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TC807316	10	80	30	6	4.9	8	3	5
M7 × 1		TC807346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TC807366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC807396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TC807426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TC807466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC807506	18	110	44	9	7	10	3	10.2
M14 × 2		TC807546	20	110	44	11	9	12	3	12
M16 × 2		TC807606	20	110	44	12	9	12	3	14
M18 × 2.5		TC807656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TC807706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TC807746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TC807786	30	160	60	18	14.5	17	4	21
M27 × 3		TC807866	30	160	60	20	16	19	4	24
M30 × 3.5		TC807946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

\* Coating(TiN, 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

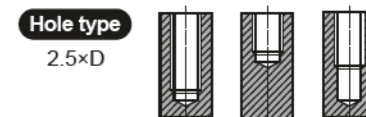
**M ISO Metric coarse threads DIN 13**

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

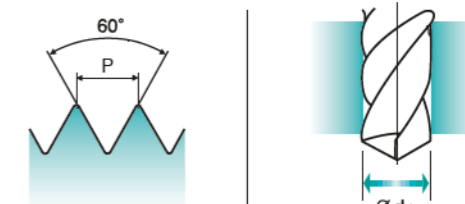
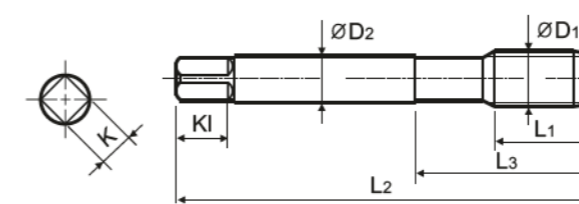
Machine taps  
Maschinengewindebohrer

► 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.



Long Shank



Material groups: **MU** HSS-E LONG 6H 60° C R40 Bright p.B124

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M3 × 0.5		TC633206	11	100	18	3.5	2.7	6	3	2.5
M4 × 0.7		TC633246	13	125	21	4.5	3.4	6	3	3.3
M5 × 0.8		TC633286	15	140	25	6	4.9	8	3	4.2
M6 × 1		TC633316	17	160	30	6	4.9	8	3	5
M8 × 1.25		TC633366	20	180	35	6	4.9	8	3	6.8
M10 × 1.5		TC633426	22	200	39	7	5.5	8	3	8.5
M12 × 1.75		TC633506	24	220	44	9	7	10	3	10.2
M14 × 2		TC633546	26	220	44	11	9	12	3	12
M16 × 2		TC633606	27	220	44	12	9	12	3	14
M20 × 2.5		TC633706	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					
	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	40	55	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

# YG COMBO TAPS

TQ744 SERIES  
TB744 SERIES

## M ISO Metric coarse threads DIN 13

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

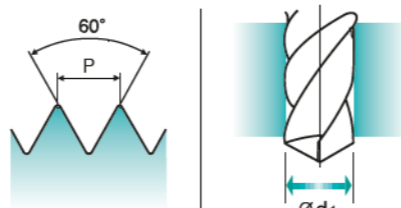
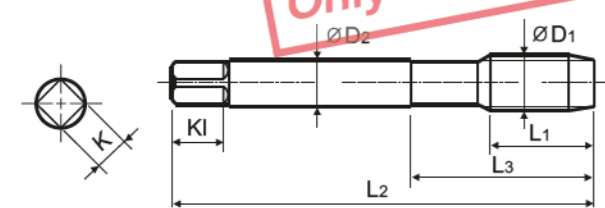
Machine taps  
Maschinengewindebohrer

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

► Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



**Only available till stock runs out**



Material groups: **VA** up to M12 over M12, HSS PM, HSS-E, DIN 371/376, 6H, 60°, E, R45, Vap, p.B125. Recommended ToolHolder.

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	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M2 × 0.4		TQ744136	8	45	13	2.8	2.1	5	2	1.6
▲ M2.2 × 0.45		TQ744156	8	45	13	2.8	2.1	5	2	1.75
▲ M2.3 × 0.4		TQ744196	8	45	13	2.8	2.1	5	2	1.9
▲ M2.5 × 0.45		TQ744176	9	50	15	2.8	2.1	5	2	2.05
▲ M2.6 × 0.45		TQ744496	9	50	15	2.8	2.1	5	2	2.1
▲ M3 × 0.5		TQ744206	6	56	18	3.5	2.7	6	3	2.5
▲ M3.5 × 0.6		TQ744226	7	56	20	4	3	6	3	2.9
▲ M4 × 0.7		TQ744246	7	63	21	4.5	3.4	6	3	3.3
▲ M4.5 × 0.75		TQ744266	8	70	25	6	4.9	8	3	3.7
▲ M5 × 0.8		TQ744286	8	70	25	6	4.9	8	3	4.2
▲ M6 × 1		TQ744316	10	80	30	6	4.9	8	3	5
▲ M7 × 1		TQ744346	10	80	30	7	5.5	8	3	6
▲ M8 × 1.25		TQ744366	13	90	35	8	6.2	9	3	6.8
▲ M9 × 1.25		TQ744396	13	90	35	9	7	10	3	7.8
▲ M10 × 1.5		TQ744426	15	100	39	10	8	11	3	8.5
▲ M11 × 1.5		TQ744466	17	100	40	8	6.2	9	3	9.5
▲ M12 × 1.75		TQ744506	18	110	44	9	7	10	3	10.2
▲ M14 × 2		TB744546	20	110	44	11	9	12	3	12
▲ M16 × 2		TB744606	20	110	44	12	9	12	3	14
▲ M18 × 2.5		TB744656	25	125	50	14	11	14	4	15.5
▲ M20 × 2.5		TB744706	25	140	54	16	12	15	4	17.5
▲ M22 × 2.5		TB744746	25	140	54	18	14.5	17	4	19.5
▲ M24 × 3		TB744786	30	160	60	18	14.5	17	4	21
▲ M27 × 3		TB744866	30	160	60	20	16	19	4	24
▲ M30 × 3.5		TB744946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► HSS-PM(M2~M12/TQ744) and HSS-E(M14~M30/TB744)  
\* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

# YG COMBO TAPS

TQ754 SERIES

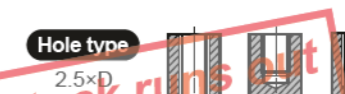
## MF ISO Metric fine threads DIN 13

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

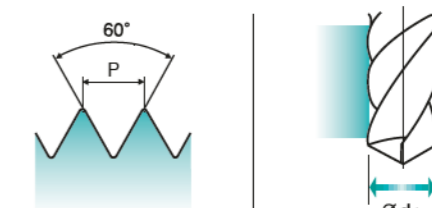
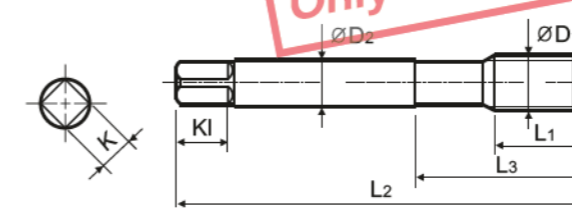
Machine taps  
Maschinengewindebohrer

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

► Für rostfreie stähle, genaue Gewindeprofile und lange Standzeitendank einer besonderen Schneidengeometrie. Von YG-1 patentiert.



**Only available till stock runs out**



Material groups: **VA** up to M12 over M12, HSS PM, DIN 374, 6H, 60°, C, R45, Vap, p.B125. Recommended ToolHolder.

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	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M4 × 0.5		TQ754256	5	63	21	2.8	2.1	5	3	3.5
▲ M5 × 0.5		TQ754296	5	70	25	3.5	2.7	6	3	4.5
▲ M6 × 0.75		TQ754326	8	80	30	4.5	3.4	6	3	5.2
▲ M6 × 0.5		TQ754336	5	80	30	4.5	3.4	6	3	5.5
▲ M7 × 0.75		TQ754356	10	80	30	5.5	4.3	7	3	6.2
▲ M8 × 1		TQ754376	10	90	36	6	4.9	8	3	7
▲ M8 × 0.75		TQ754386	8	80	30	6	4.9	8	3	7.2
▲ M10 × 1.25		TQ754436	16	100	40	7	5.5	8	3	8.8
▲ M10 × 1		TQ754446	10	90	36	7	5.5	8	3	9
▲ M10 × 0.75		TQ754456	10	90	36	7	5.5	8	3	9.2
▲ M12 × 1.5		TQ754516	15	100	40	9	7	10	3	10.5
▲ M12 × 1.25		TQ754526	15	100	40	9	7	10	3	10.8
▲ M12 × 1		TQ754536	11	100	40	9	7	10	3	11

\* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

**MF ISO Metric fine threads DIN 13**  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

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

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



**Only available till stock runs out!**

Material groups: **VA** HSS-E DIN 374 6H 60° C R45 Vap p.B125

Recommended ToolHolder: Plain Shank Page D215-220 TAPPING ER-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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
▲ M14 × 1.5		TB754556	15	100	40	11	9	12	3	12.5
▲ M14 × 1.25		TB754566	15	100	40	11	9	12	3	12.8
▲ M14 × 1		TB754576	11	100	40	11	9	12	3	13
▲ M16 × 1.5		TB754616	15	100	40	12	9	12	3	14.5
▲ M16 × 1		TB754626	12	100	40	12	9	12	3	15
▲ M18 × 1.5		TB754676	17	110	44	14	11	14	4	16.5
▲ M18 × 1		TB754686	13	110	44	14	11	14	4	17
▲ M20 × 1.5		TB754726	17	125	50	16	12	15	4	18.5
▲ M20 × 1		TB754736	14	125	50	16	12	15	4	19
▲ M22 × 1.5		TB754766	17	125	50	18	14.5	17	4	20.5
▲ M22 × 1		TB754776	14	125	50	18	14.5	17	4	21
▲ M24 × 2		TB754796	20	140	54	18	14.5	17	4	22
▲ M24 × 1.5		TB754806	20	140	54	18	14.5	17	4	22.5
▲ M26 × 1.5		TB754856	20	140	54	18	14.5	17	4	24.5
▲ M27 × 2		TB754876	20	140	54	20	16	19	4	25
▲ M27 × 1.5		TB754886	20	140	54	20	16	19	4	25.5
▲ M28 × 1.5		TB754916	20	140	54	20	16	19	4	26.5
▲ M30 × 2		TB754966	22	150	57	22	18	21	4	28
▲ M30 × 1.5		TB754976	22	150	57	22	18	21	4	28.5

\* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		

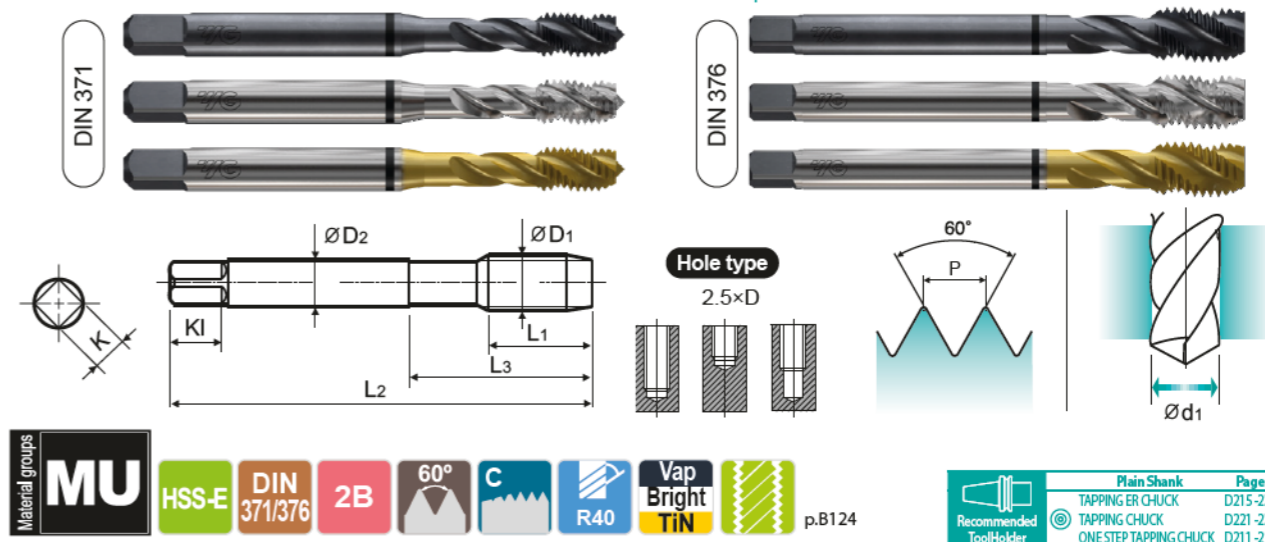
ISO	N										S						H								
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials				Heat Resistant Super Alloys		Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41				
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	40	55	60	42	55	55				
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550				
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				

**UNC Unified coarse threads**  
 ● Unified Grobgewinde  
 ○ UNC  
 ○ Unificato passo fine

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 2B 60° C R40 Vap Bright TiN p.B124

Recommended ToolHolder: Plain Shank Page D215-220 TAPPING ER-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		Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 - 40 UNC		TB824162	TC824162	TD824162	6	56	18	3.5	2.7	6	3	2.3
#5 - 40 UNC		TB824202	TC824202	TD824202	7	56	18	3.5	2.7	6	3	2.6
#6 - 32 UNC		TB824242	TC824242	TD824242	7	56	20	4	3	6	3	2.85
#8 - 32 UNC		TB824282	TC824282	TD824282	8	63	21	4.5	3.4	6	3	3.5
#10 - 24 UNC		TB824322	TC824322	TD824322	10	70	25	6	4.9	8	3	3.9
#12 - 24 UNC		TB824362	TC824362	TD824362	10	80	30	6	4.9	8	3	4.5
1/4 - 20 UNC		TB824402	TC824402	TD824402	13	80	30	7	5.5	8	3	5.2
5/16 - 18 UNC		TB824442	TC824442	TD824442	14	90	35	8	6.2	9	3	6.6
3/8 - 16 UNC		TB824482	TC824482	TD824482	16	100	39	9	7	10	3	8
7/16 - 14 UNC		TB824522	TC824522	TD824522	17	100	40	8	6.2	9	3	9.4
1/2 - 13 UNC		TB824562	TC824562	TD824562	20	110	44	9	7	10	3	10.75
9/16 - 12 UNC		TB824602	TC824602	TD824602	20	110	44	11	9	12	3	12.25
5/8 - 11 UNC		TB824642	TC824642	TD824642	22	110	44	12	9	12	3	13.5
3/4 - 10 UNC		TB824702	TC824702	TD824702	25	125	50	14	11	14	4	16.5
7/8 - 9 UNC		TB824742	TC824742	TD824742	27	140	54	18	14.5	17	4	19.5
1 - 8 UNC		TB824782	TC824782	TD824782	30	160	60	20	16	19	4	22.25

► DIN 371(#4~3/8) and DIN 376(7/16~1)

\* The other coating(TiCN or TiAlN) 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	40	55	60	42	55	55				
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550				
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				



Bright **TCE01** SERIES  
TIN **TDE01** SERIES

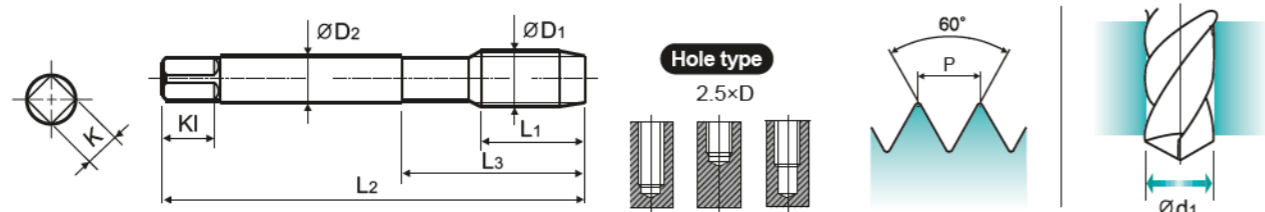
# UNC Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo fine

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 3B 60° C R40 Bright TiN p.B124

Recommended ToolHolder: Plain Shank Page 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
		Bright	TiN								
ØD1		L1	L2	L3	ØD2	K	KI	Z	Ød1		
#4	- 40 UNC	TCE01162	TDE01162	6	56	18	3.5	2.7	6	3	2.3
#5	- 40 UNC	TCE01202	TDE01202	7	56	18	3.5	2.7	6	3	2.6
#6	- 32 UNC	TCE01242	TDE01242	7	56	20	4	3	6	3	2.85
#8	- 32 UNC	TCE01282	TDE01282	8	63	21	4.5	3.4	6	3	3.5
#10	- 24 UNC	TCE01322	TDE01322	10	70	25	6	4.9	8	3	3.9
#12	- 24 UNC	TCE01362	TDE01362	10	80	30	6	4.9	8	3	4.5
1/4	- 20 UNC	TCE01402	TDE01402	13	80	30	7	5.5	8	3	5.2
5/16	- 18 UNC	TCE01442	TDE01442	14	90	35	8	6.2	9	3	6.6
3/8	- 16 UNC	TCE01482	TDE01482	16	100	39	9	7	10	3	8
7/16	- 14 UNC	TCE01522	TDE01522	17	100	40	8	6.2	9	3	9.4
1/2	- 13 UNC	TCE01562	TDE01562	20	110	44	9	7	10	3	10.75
9/16	- 12 UNC	TCE01602	TDE01602	20	110	44	11	9	12	3	12.25
5/8	- 11 UNC	TCE01642	TDE01642	22	110	44	12	9	12	3	13.5
3/4	- 10 UNC	TCE01702	TDE01702	25	125	50	14	11	14	4	16.5
7/8	- 9 UNC	TCE01742	TDE01742	27	140	54	18	14.5	17	4	19.5
1	- 8 UNC	TCE01782	TDE01782	30	160	60	20	16	19	4	22.25

► DIN 371(#4~3/8) and DIN 376(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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	30	25	38	34	15	30	25	38	34	55	60	42	55			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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



Vap **TB864** SERIES  
Bright **TC864** SERIES  
TiN **TD864** SERIES

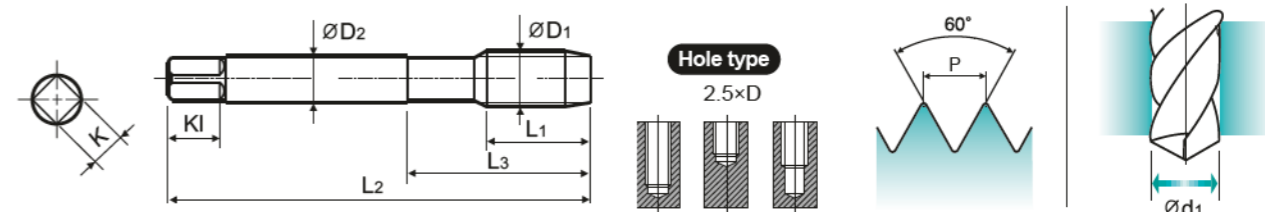
# UNF Unified fine threads

- Unified Grobgewinde
- UNF
- Unificato passo fine

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 2B 60° C R40 Vap Bright TiN p.B124

Recommended ToolHolder: Plain Shank Page 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
		Vap	Bright	TiN								
ØD1		L1	L2	L3	ØD2	K	KI	Z	Ød1			
#4	-48UNF	TB864182	TC864182	TD864182	6	56	18	3.5	2.7	6	3	2.4
#5	-44UNF	TB864222	TC864222	TD864222	7	56	18	3.5	2.7	6	3	2.7
#6	-40UNF	TB864262	TC864262	TD864262	7	56	20	4	3	6	3	3
#8	-36UNF	TB864302	TC864302	TD864302	8	63	21	4.5	3.4	6	3	3.5
#10	-32UNF	TB864342	TC864342	TD864342	10	70	25	6	4.9	8	3	4.1
#12	-28UNF	TB864382	TC864382	TD864382	10	80	30	6	4.9	8	3	4.7
1/4	-28UNF	TB864422	TC864422	TD864422	10	80	30	7	5.5	8	3	5.5
5/16	-24UNF	TB864462	TC864462	TD864462	10	90	35	8	6.2	9	3	6.9
3/8	-24UNF	TB864502	TC864502	TD864502	10	100	39	9	7	10	3	8.5
7/16	-20UNF	TB864542	TC864542	TD864542	13	100	40	8	6.2	9	3	9.9
1/2	-20UNF	TB864582	TC864582	TD864582	13	100	40	9	7	10	3	11.5
9/16	-18UNF	TB864622	TC864622	TD864622	15	100	40	11	9	12	3	12.9
5/8	-18UNF	TB864662	TC864662	TD864662	15	100	40	12	9	12	3	14.5
3/4	-16UNF	TB864722	TC864722	TD864722	17	110	44	14	11	14	4	17.5
7/8	-14UNF	TB864762	TC864762	TD864762	17	125	50	18	14.5	17	4	20.5
1	-12UNF	TB864802	TC864802	TD864802	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) 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	30	25	38	34	15	30	25	38	34	55	60	42	55			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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

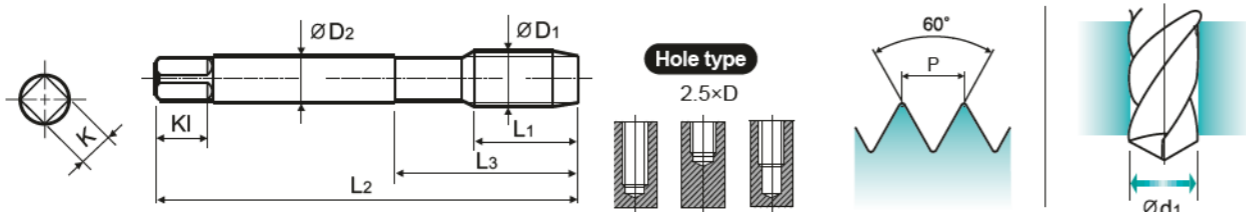


**UNF** Unified fine threads  
 Unified Grobgewinde  
 UNF  
 Unificato passo fine

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 3B 60° C R40 Bright TiN p.B124

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
		Bright	TiN								
#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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

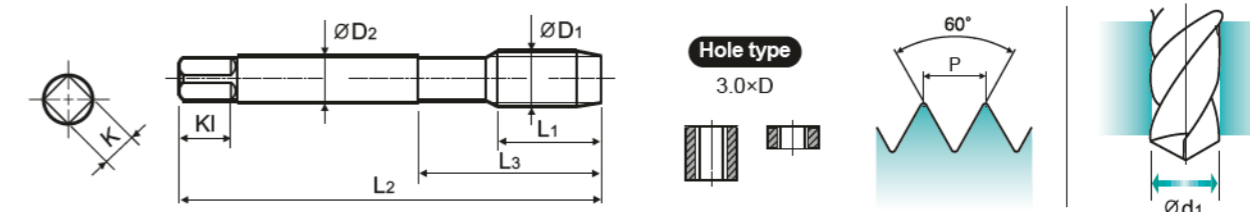
ISO	N										S						H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	55	60	42	55	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550		
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

**M** ISO Metric coarse threads DIN 13  
 Metrisches ISO-Gewinde DIN 13  
 ISO MÉTRIQUE DIN13  
 ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 6H 60° B Vap Bright TiN p.B125

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
		Vap	Bright	TiN								
M2 × 0.4		TB814136	TC814136	TD814136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TB814156	TC814156	TD814156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TB814196	TC814196	TD814196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TB814176	TC814176	TD814176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TB814496	TC814496	TD814496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TB814206	TC814206	TD814206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TB814226	TC814226	TD814226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TB814246	TC814246	TD814246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TB814266	TC814266	TD814266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TB814286	TC814286	TD814286	15	70	25	6	4.9	8	3	4.2
M6 × 1.0		TB814316	TC814316	TD814316	17	80	30	6	4.9	8	3	5
M7 × 1.0		TB814346	TC814346	TD814346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TB814366	TC814366	TD814366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TB814396	TC814396	TD814396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TB814426	TC814426	TD814426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TB814466	TC814466	TD814466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TB814506	TC814506	TD814506	24	110	44	9	7	10	3	10.2
M14 × 2.0		TB814546	TC814546	TD814546	26	110	44	11	9	12	3	12
M16 × 2.0		TB814606	TC814606	TD814606	27	110	44	12	9	12	3	14
M18 × 2.5		TB814656	TC814656	TD814656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TB814706	TC814706	TD814706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TB814746	TC814746	TD814746	32	140	54	18	14.5	17	4	19.5

► DIN 371(M2~M10) and DIN 376(M11~M52)  
 \* The other coating(TiCN or TiAlN) is available on your request.

► NEXT PAGE

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550		
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

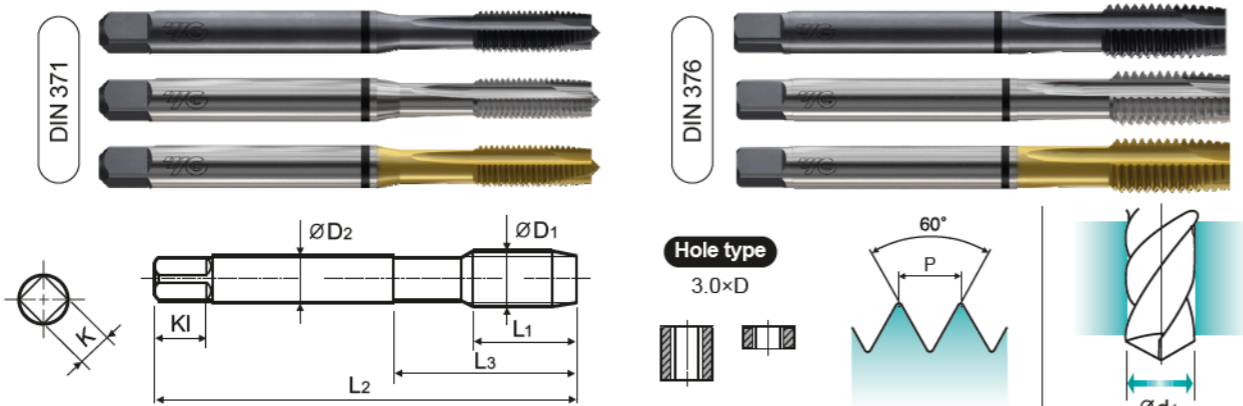
**M ISO Metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 6H 60° B Vap Bright TiN p.B125

Recommended ToolHolder: Plain Shank 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	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M24 × 3.0		TB814786	TC814786	TD814786	34	160	60	18	14.5	17	4	21
M27 × 3.0		TB814866	TC814866	TD814866	36	160	60	20	16	19	4	24
M30 × 3.5		TB814946	TC814946	TD814946	40	180	70	22	18	21	4	26.5
M33 × 3.5		-	TC814A46	TD814A46	40	180	70	25	20	23	4	29.5
M36 × 4.0		-	TC814B36	TD814B36	50	200	80	28	22	25	4	32.0
M39 × 4.0		-	TC814C06	TD814C06	50	200	80	32	24	27	4	35.0
M42 × 4.5		-	TC814C86	TD814C86	56	200	85	32	24	27	4	37.5
M45 × 4.5		-	TC814D56	TD814D56	58	220	85	36	29	32	4	40.5
M48 × 5.0		-	TC814E26	TD814E26	65	250	90	36	29	32	4	43.0
M52 × 5.0		-	TC814F36	TD814F36	65	250	90	40	32	35	4	47.0

► DIN 371(M2~M10) and DIN 376(M11~M52)  
\* The other coating(TiCN or TiAlN) 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	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

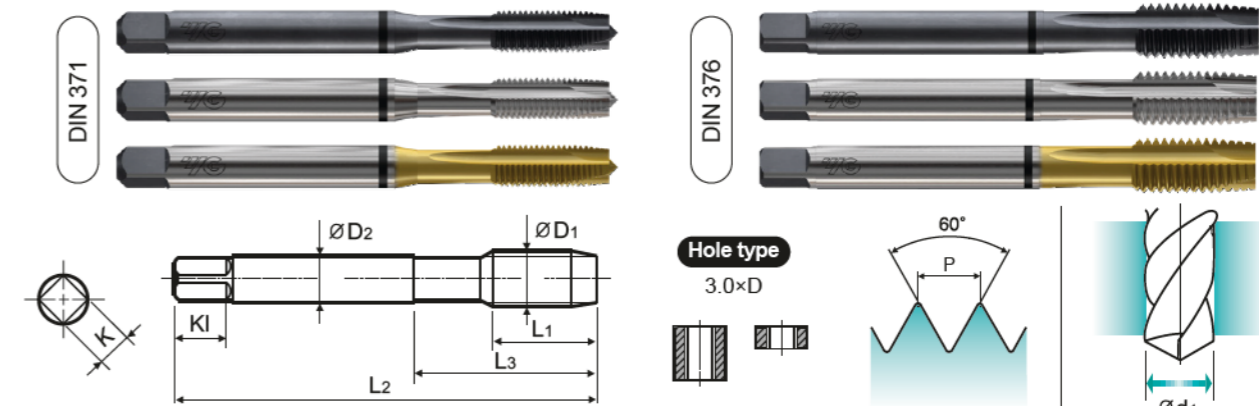
**M ISO Metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 4H 60° B Vap Bright TiN p.B125

Recommended ToolHolder: Plain Shank 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	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TBJ05136	TCJ05136	TDJ05136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBJ05156	TCJ05156	TDJ05156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBJ05196	TCJ05196	TDJ05196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBJ05176	TCJ05176	TDJ05176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBJ05496	TCJ05496	TDJ05496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBJ05206	TCJ05206	TDJ05206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBJ05226	TCJ05226	TDJ05226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TBJ05246	TCJ05246	TDJ05246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBJ05266	TCJ05266	TDJ05266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBJ05286	TCJ05286	TDJ05286	15	70	25	6	4.9	8	3	4.2
M6 × 1.0		TBJ05316	TCJ05316	TDJ05316	17	80	30	6	4.9	8	3	5
M7 × 1.0		TBJ05346	TCJ05346	TDJ05346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TBJ05366	TCJ05366	TDJ05366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBJ05396	TCJ05396	TDJ05396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TBJ05426	TCJ05426	TDJ05426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TBJ05466	TCJ05466	TDJ05466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBJ05506	TCJ05506	TDJ05506	24	110	44	9	7	10	3	10.2
M14 × 2.0		TBJ05546	TCJ05546	TDJ05546	26	110	44	11	9	12	3	12
M16 × 2.0		TBJ05606	TCJ05606	TDJ05606	27	110	44	12	9	12	3	14
M18 × 2.5		TBJ05656	TCJ05656	TDJ05656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TBJ05706	TCJ05706	TDJ05706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TBJ05746	TCJ05746	TDJ05746	32	140	54	18	14.5	17	4	19.5
M24 × 3.0		TBJ05786	TCJ05786	TDJ05786	34	160	60	18	14.5	17	4	21
M27 × 3.0		TBJ05866	TCJ05866	TDJ05866	36	160	60	20	16	19	4	24
M30 × 3.5		TBJ05946	TCJ05946	TDJ05946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating(TiCN or TiAlN) 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	13	25	28	32	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





Vap **TBJ08** SERIES  
Bright **TCJ08** SERIES  
TiN **TDJ08** SERIES

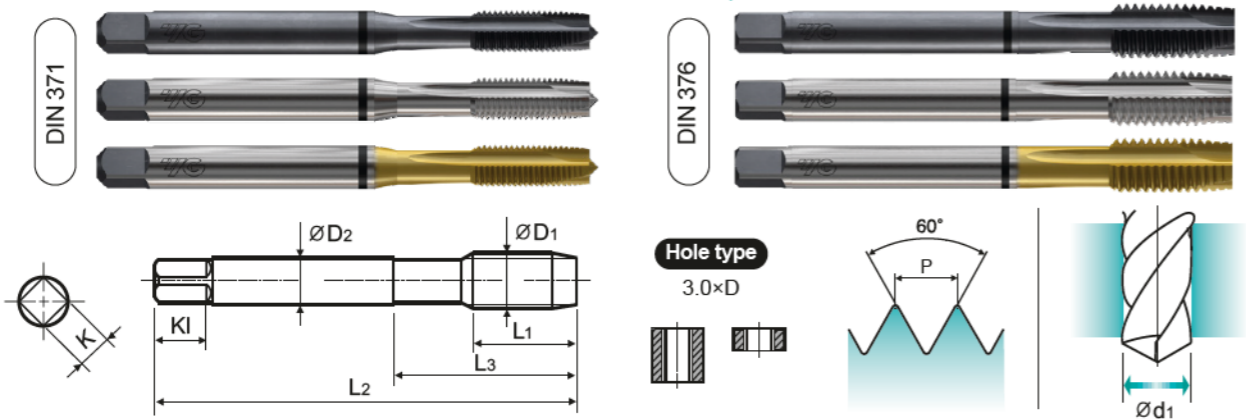
**M** ISO Metric coarse threads DIN 13

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

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 7G 60° B Vap Bright TiN p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER-CHUCK D221-228  
TAPPING CHUCK D211-213  
ONE STEP TAPPING CHUCK

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	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TBJ08136	TCJ08136	TDJ08136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TBJ08156	TCJ08156	TDJ08156	8	45	13	2.8	2.1	5	3	1.75
M2.3 × 0.4		TBJ08196	TCJ08196	TDJ08196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TBJ08176	TCJ08176	TDJ08176	9	50	15	2.8	2.1	5	3	2.05
M2.6 × 0.45		TBJ08496	TCJ08496	TDJ08496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TBJ08206	TCJ08206	TDJ08206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TBJ08226	TCJ08226	TDJ08226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TBJ08246	TCJ08246	TDJ08246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TBJ08266	TCJ08266	TDJ08266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TBJ08286	TCJ08286	TDJ08286	15	70	25	6	4.9	8	3	4.2
M6 × 1.0		TBJ08316	TCJ08316	TDJ08316	17	80	30	6	4.9	8	3	5
M7 × 1.0		TBJ08346	TCJ08346	TDJ08346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TBJ08366	TCJ08366	TDJ08366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TBJ08396	TCJ08396	TDJ08396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TBJ08426	TCJ08426	TDJ08426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TBJ08466	TCJ08466	TDJ08466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TBJ08506	TCJ08506	TDJ08506	24	110	44	9	7	10	3	10.2
M14 × 2.0		TBJ08546	TCJ08546	TDJ08546	26	110	44	11	9	12	3	12
M16 × 2.0		TBJ08606	TCJ08606	TDJ08606	27	110	44	12	9	12	3	14
M18 × 2.5		TBJ08656	TCJ08656	TDJ08656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TBJ08706	TCJ08706	TDJ08706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TBJ08746	TCJ08746	TDJ08746	32	140	54	18	14.5	17	4	19.5
M24 × 3.0		TBJ08786	TCJ08786	TDJ08786	34	160	60	18	14.5	17	4	21
M27 × 3.0		TBJ08866	TCJ08866	TDJ08866	36	160	60	20	16	19	4	24
M30 × 3.5		TBJ08946	TCJ08946	TDJ08946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
\* The other coating (TiCN or TiAlN) is available on your request.

© : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloy 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	240	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			○			○	○	○														



Vap **TB854** SERIES  
Bright **TC854** SERIES  
TiN **TD854** SERIES

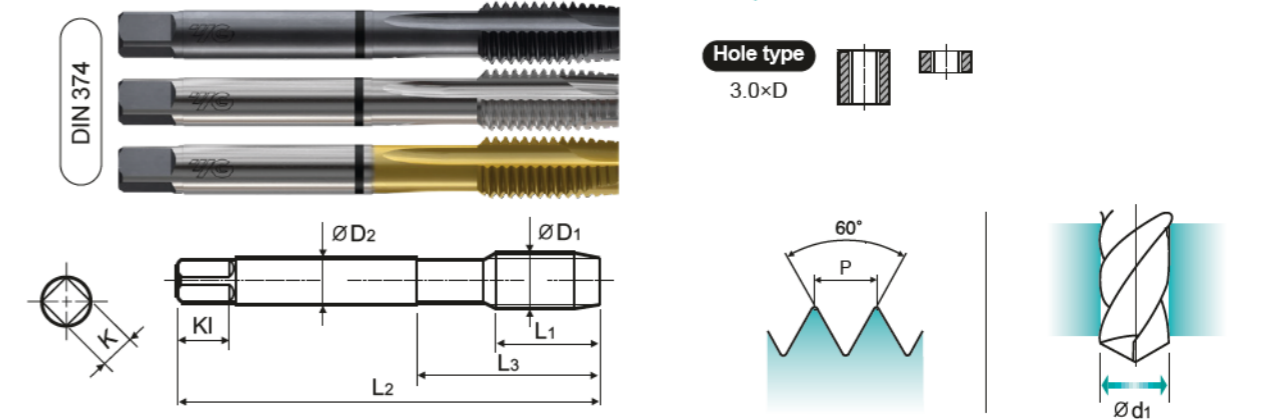
**MF** ISO Metric fine threads DIN 13

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 374 6H 60° B Vap Bright TiN p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER-CHUCK D221-228  
TAPPING CHUCK D211-213  
ONE STEP TAPPING CHUCK

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	Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4 × 0.5		TB854256	TC854256	TD854256	10	63	21	2.8	2.1	5	3	3.5
M5 × 0.5		TB854296	TC854296	TD854296	11	70	25	3.5	2.7	6	3	4.5
M6 × 0.75		TB854326	TC854326	TD854326	13	80	30	4.5	3.4	6	3	5.2
M6 × 0.5		TB854336	TC854336	TD854336	13	80	30	4.5	3.4	6	3	5.5
M7 × 0.75		TB854356	TC854356	TD854356	14	80	30	5.5	4.3	7	3	6.2
M8 × 1.0		TB854376	TC854376	TD854376	17	90	36	6	4.9	8	3	7
M8 × 0.75		TB854386	TC854386	TD854386	14	80	30	6	4.9	8	3	7.2
M10 × 1.25		TB854436	TC854436	TD854436	22	100	40	7	5.5	8	3	8.8
M10 × 1.0		TB854446	TC854446	TD854446	18	90	36	7	5.5	8	3	9
M10 × 0.75		TB854456	TC854456	TD854456	18	90	36	7	5.5	8	3	9.2
M12 × 1.5		TB854516	TC854516	TD854516	22	100	40	9	7	10	3	10.5
M12 × 1.25		TB854526	TC854526	TD854526	22	100	40	9	7	10	3	10.8
M12 × 1.0		TB854536	TC854536	TD854536	18	100	40	9	7	10	3	11
M14 × 1.5		TB854556	TC854556	TD854556	22	100	40	11	9	12	3	12.5
M14 × 1.25		TB854566	TC854566	TD854566	22	100	40	11	9	12	3	12.8
M14 × 1.0		TB854576	TC854576	TD854576	22	100	40	11	9	12	3	13
M16 × 1.5		TB854616	TC854616	TD854616	22	100	40	12	9	12	3	14.5
M16 × 1.0		TB854626	TC854626	TD854626	18	100	40	12	9	12	3	15
M18 × 1.5		TB854676	TC854676	TD854676	25	110	44	14	11	14	4	16.5
M18 × 1.0		TB854686	TC854686	TD854686	20	110	44	14	11	14	4	17

\* The other coating (TiCN or TiAlN) is available on your request.

► NEXT PAGE

© : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloy 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	240	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			○			○	○	○														



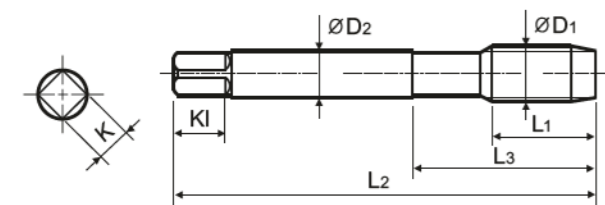
Vap **TB854** SERIES  
Bright **TC854** SERIES  
TiN **TD854** SERIES

**MF** ISO Metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► 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.



Material groups **MU** HSS-E DIN 374 6H 60° B Vap Bright TiN p.B125

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
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M20 × 1.5		TB854726	TC854726	TD854726	25	125	50	16	12	15	4	18.5
M20 × 1.0		TB854736	TC854736	TD854736	20	125	50	16	12	15	4	19
M22 × 1.5		TB854766	TC854766	TD854766	25	125	50	18	14.5	17	4	20.5
M22 × 1.0		TB854776	TC854776	TD854776	20	125	50	18	14.5	17	4	21
M24 × 2.0		TB854796	TC854796	TD854796	27	140	54	18	14.5	17	4	22
M24 × 1.5		TB854806	TC854806	TD854806	27	140	54	18	14.5	17	4	22.5
M26 × 1.5		TB854856	TC854856	TD854856	28	140	54	18	14.5	17	4	24.5
M27 × 2.0		TB854876	TC854876	TD854876	28	140	54	20	16	19	4	25
M27 × 1.5		TB854886	TC854886	TD854886	28	140	54	20	16	19	4	25.5
M28 × 1.5		TB854916	TC854916	TD854916	28	140	54	20	16	19	4	26.5
M30 × 2.0		TB854966	TC854966	TD854966	30	150	57	22	18	21	4	28
M30 × 1.5		TB854976	TC854976	TD854976	30	150	57	22	18	21	4	28.5
M32 × 2.0		-	TC854A16	TD854A16	30	150	57	22	18	21	4	30.0
M32 × 1.5		-	TC854A26	TD854A26	30	150	57	22	18	21	4	30.5
M33 × 2.0		-	TC854A66	TD854A66	33	160	60	25	20	23	4	31.0
M33 × 1.5		-	TC854A76	TD854A76	32	160	60	25	20	23	4	31.5
M34 × 1.5		-	TC854A96	TD854A96	33	170	70	28	22	25	4	32.5
M35 × 1.5		-	TC854B16	TD854B16	33	170	70	28	22	25	4	33.5
M36 × 3.0		-	TC854B46	TD854B46	45	200	80	28	22	25	4	33.0
M36 × 2.0		-	TC854B56	TD854B56	33	170	70	28	22	25	4	34.0
M36 × 1.5		-	TC854B66	TD854B66	33	170	70	28	22	25	4	34.5
M38 × 1.5		-	TC854B86	TD854B86	33	170	70	28	22	25	4	36.5

\* The other coating(TiCN or TiAlN) is available on your request.

► NEXT PAGE

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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						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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



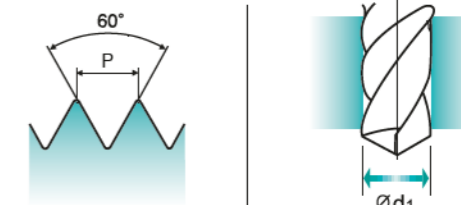
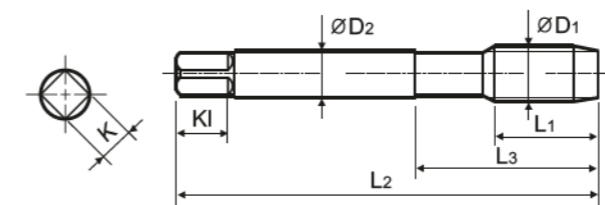
Vap **TB854** SERIES  
Bright **TC854** SERIES  
TiN **TD854** SERIES

**MF** ISO Metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► 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.



Material groups **MU** HSS-E DIN 374 6H 60° B Vap Bright TiN p.B125

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
		Vap	Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1			
M39 × 1.5		-	TC854C36	TD854C36	33	170	70	32	24	27	4	37.5
M40 × 1.5		-	TC854C66	TD854C66	33	170	70	32	24	27	4	38.5
M42 × 3.0		-	TC854D06	TD854D06	45	200	80	32	24	27	4	39.0
M42 × 2.0		-	TC854D16	TD854D16	33	170	70	32	24	27	4	40.0
M42 × 1.5		-	TC854D26	TD854D26	33	170	70	32	24	27	4	40.5
M45 × 1.5		-	TC854D96	TD854D96	33	180	80	36	29	32	4	43.5
M48 × 3.0		-	TC854E56	TD854E56	45	225	90	36	29	32	4	45.0
M48 × 2.0		-	TC854E66	TD854E66	36	190	80	36	29	32	4	46.0
M48 × 1.5		-	TC854E76	TD854E76	36	190	80	36	29	32	4	46.5
M50 × 1.5		-	TC854F16	TD854F16	36	190	80	36	29	32	4	48.5
M52 × 3.0		-	TC854F56	TD854F56	45	225	90	40	32	35	4	49.0
M52 × 2.0		-	TC854F66	TD854F66	36	190	80	40	32	35	4	50.0
M52 × 1.5		-	TC854F76	TD854F76	36	190	80	40	32	35	4	50.5

\* The other coating(TiCN or TiAlN) 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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						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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



Bright TCJ09 SERIES  
TIN TDJ09 SERIES

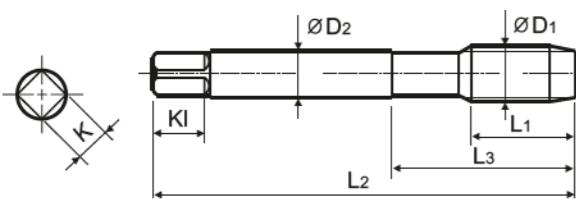
# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

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

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Material groups: **MU** HSS-E DIN 374 6G 60° B Bright TiN p.B125

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
		Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1		
M4 × 0.5		TCJ09256	TDJ09256	10	63	21	2.8	2.1	5	3	3.5
M5 × 0.5		TCJ09296	TDJ09296	11	70	25	3.5	2.7	6	3	4.5
M6 × 0.75		TCJ09326	TDJ09326	13	80	30	4.5	3.4	6	3	5.2
M6 × 0.5		TCJ09336	TDJ09336	13	80	30	4.5	3.4	6	3	5.5
M7 × 0.75		TCJ09356	TDJ09356	14	80	30	5.5	4.3	7	3	6.2
M8 × 1		TCJ09376	TDJ09376	17	90	36	6	4.9	8	3	7
M8 × 0.75		TCJ09386	TDJ09386	14	80	30	6	4.9	8	3	7.2
M10 × 1.25		TCJ09436	TDJ09436	22	100	40	7	5.5	8	3	8.8
M10 × 1		TCJ09446	TDJ09446	18	90	36	7	5.5	8	3	9
M10 × 0.75		TCJ09456	TDJ09456	18	90	36	7	5.5	8	3	9.2
M12 × 1.5		TCJ09516	TDJ09516	22	100	40	9	7	10	3	10.5
M12 × 1.25		TCJ09526	TDJ09526	22	100	40	9	7	10	3	10.8
M12 × 1		TCJ09536	TDJ09536	18	100	40	9	7	10	3	11
M14 × 1.5		TCJ09556	TDJ09556	22	100	40	11	9	12	3	12.5
M14 × 1.25		TCJ09566	TDJ09566	22	100	40	11	9	12	3	12.8
M14 × 1.0		TCJ09576	TDJ09576	22	100	40	11	9	12	3	13
M16 × 1.5		TCJ09616	TDJ09616	22	100	40	12	9	12	3	14.5
M16 × 1		TCJ09626	TDJ09626	18	100	40	12	9	12	3	15
M18 × 1.5		TCJ09676	TDJ09676	25	110	44	14	11	14	4	16.5
M18 × 1		TCJ09686	TDJ09686	20	110	44	14	11	14	4	17

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

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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			◎			◎	◎	◎														



Bright TCJ09 SERIES  
TIN TDJ09 SERIES

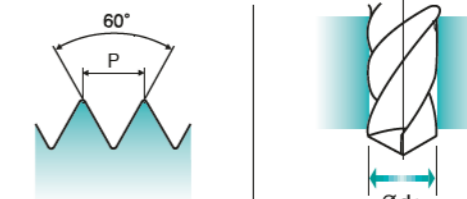
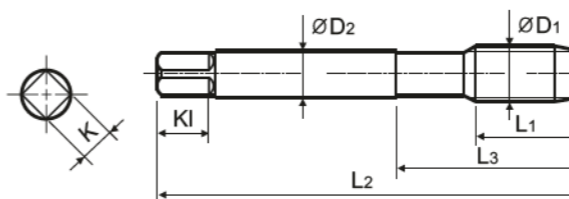
# MF ISO Metric fine threads DIN 13

Metrisches ISO-Feingewinde DIN 13  
ISO MÉTRIQUE PAS FINS DIN13  
ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 374 6G 60° B Bright TiN p.B125

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
		Bright	TiN								
ØD1	P	L1	L2	L3	ØD2	K	KI	Z	Ød1		
M20 × 1.5		TCJ09726	TDJ09726	25	125	50	16	12	15	4	18.5
M20 × 1		TCJ09736	TDJ09736	20	125	50	16	12	15	4	19
M22 × 1.5		TCJ09766	TDJ09766	25	125	50	18	14.5	17	4	20.5
M22 × 1		TCJ09776	TDJ09776	20	125	50	18	14.5	17	4	21
M24 × 2		TCJ09796	TDJ09796	27	140	54	18	14.5	17	4	22
M24 × 1.5		TCJ09806	TDJ09806	27	140	54	18	14.5	17	4	22.5
M26 × 1.5		TCJ09856	TDJ09856	28	140	54	18	14.5	17	4	24.5
M27 × 2		TCJ09876	TDJ09876	28	140	54	20	16	19	4	25
M27 × 1.5		TCJ09886	TDJ09886	28	140	54	20	16	19	4	25.5
M28 × 1.5		TCJ09916	TDJ09916	28	140	54	20	16	19	4	26.5
M30 × 2		TCJ09966	TDJ09966	30	150	57	22	18	21	4	28
M30 × 1.5		TCJ09976	TDJ09976	30	150	57	22	18	21	4	28.5

\* 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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			◎			◎	◎	◎														

**M ISO Metric coarse threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE DIN13, AVEC ARROSAGE CENTRAL
- ISO Metrico passo grosso DIN 13

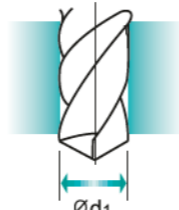
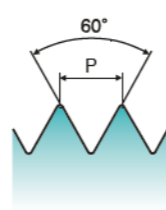
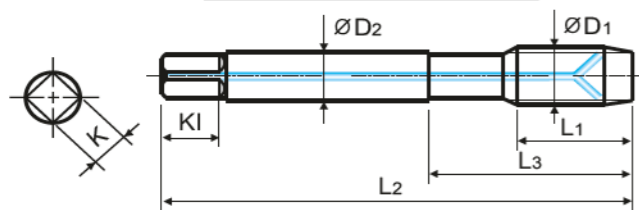
Machine taps  
Maschinengewindebohrer

► 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.



with Internal Coolant



Material groups: **MU** HSS-E DIN 371/376 6H 60° B Bright p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER-CHUCK D221-228  
TAPPING CHUCK 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	KI	Z	Ød1
M6 × 1		TC814316IC	17	80	30	6	4.9	8	3	5
M8 × 1.25		TC814366IC	20	90	35	8	6.2	9	3	6.8
M10 × 1.5		TC814426IC	22	100	39	10	8	11	3	8.5
M12 × 1.75		TC814506IC	24	110	44	9	7	10	3	10.2
M14 × 2		TC814546IC	26	110	44	11	9	12	3	12
M16 × 2		TC814606IC	27	110	44	12	9	12	3	14
M18 × 2.5		TC814656IC	30	125	50	14	11	14	4	15.5
M20 × 2.5		TC814706IC	32	140	54	16	12	15	4	17.5

► DIN 371(M6~M10) and DIN 376(M12~M20)

\* Coating(TiN, 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	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

**M ISO Metric coarse threads DIN 13**

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

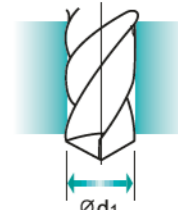
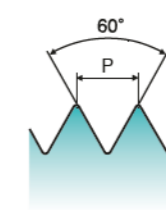
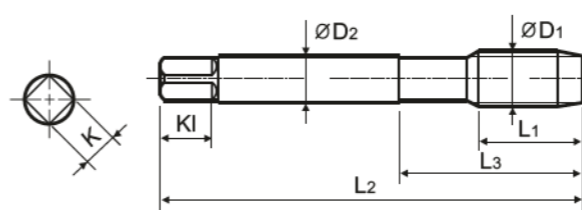
Machine taps  
Maschinengewindebohrer

► 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.



Long Shank



Material groups: **MU** HSS-E LONG 6H 60° B Bright p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER-CHUCK D221-228  
TAPPING CHUCK 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	KI	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					
	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended			◎			◎	◎	◎													

# YG COMBO TAPS

TQ428 SERIES  
TB428 SERIES

## M ISO Metric coarse threads DIN 13

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

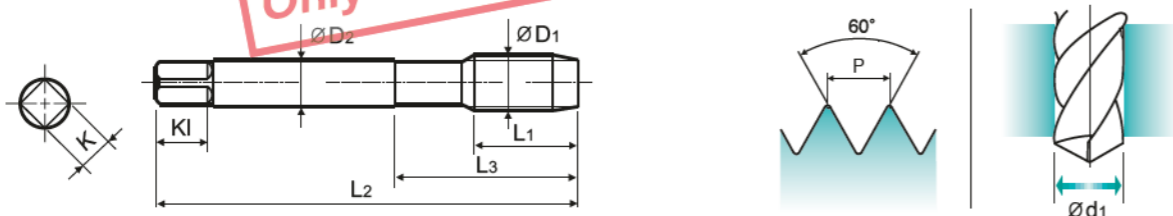
Machine taps  
Maschinengewindebohrer

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

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



**Only available till stock runs out**



Material groups: **VA** up to M12 over M12, HSS PM, HSS-E, DIN 371/376, 6H, 60°, B, Vap, p.B125

Recommended ToolHolder: Plain Shank, TAPPING ER-CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M2 × 0.4		TQ428136	8	45	13	2.8	2.1	5	3	1.6
▲ M2.2 × 0.45		TQ428156	8	45	13	2.8	2.1	5	3	1.75
▲ M2.3 × 0.4		TQ428196	8	45	13	2.8	2.1	5	3	1.9
▲ M2.5 × 0.45		TQ428176	9	50	15	2.8	2.1	5	3	2.05
▲ M2.6 × 0.45		TQ428496	9	50	15	2.8	2.1	5	3	2.1
▲ M3 × 0.5		TQ428206	11	56	18	3.5	2.7	6	3	2.5
▲ M3.5 × 0.6		TQ428226	12	56	20	4	3	6	3	2.9
▲ M4 × 0.7		TQ428246	13	63	21	4.5	3.4	6	3	3.3
▲ M4.5 × 0.75		TQ428266	14	70	25	6	4.9	8	3	3.7
▲ M5 × 0.8		TQ428286	15	70	25	6	4.9	8	3	4.2
▲ M6 × 1		TQ428316	17	80	30	6	4.9	8	3	5
▲ M7 × 1		TQ428346	17	80	30	7	5.5	8	3	6
▲ M8 × 1.25		TQ428366	20	90	35	8	6.2	9	3	6.8
▲ M9 × 1.25		TQ428396	20	90	35	9	7	10	3	7.8
▲ M10 × 1.5		TQ428426	22	100	39	10	8	11	3	8.5
▲ M11 × 1.5		TQ428466	22	100	40	8	6.2	9	3	9.5
▲ M12 × 1.75		TQ428506	24	110	44	9	7	10	3	10.2
▲ M14 × 2		TB428546	26	110	44	11	9	12	3	12
▲ M16 × 2		TB428606	27	110	44	12	9	12	3	14
▲ M18 × 2.5		TB428656	30	125	50	14	11	14	4	15.5
▲ M20 × 2.5		TB428706	32	140	54	16	12	15	4	17.5
▲ M22 × 2.5		TB428746	32	140	54	18	14.5	17	4	19.5
▲ M24 × 3		TB428786	34	160	60	18	14.5	17	4	21
▲ M27 × 3		TB428866	36	160	60	20	16	19	4	24
▲ M30 × 3.5		TB428946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30) **▲ : Only available till stock runs out**  
 ► HSS-PM(M2~M12/TQ428) and HSS-E(M14~M30/TB428)  
 \* Coating(TiN, TiCN or TiAlN) is available on your request.

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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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 COMBO TAPS

TQ438 SERIES

## MF ISO Metric fine threads DIN 13

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

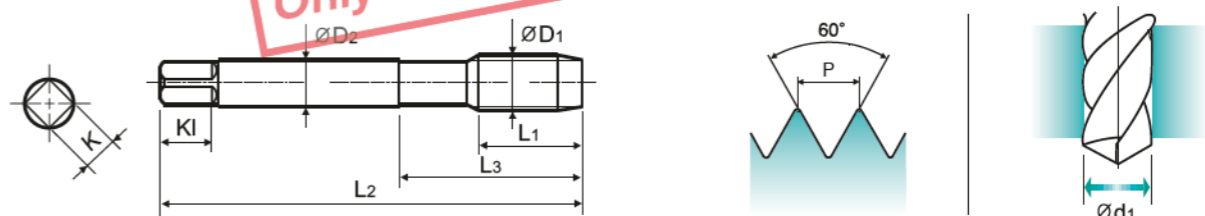
Machine taps  
Maschinengewindebohrer

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

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



**Only available till stock runs out**



Material groups: **VA** up to M12 over M12, HSS PM, DIN 374, 6H, 60°, B, Vap, p.B125

Recommended ToolHolder: Plain Shank, TAPPING ER-CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
▲ M4 × 0.5		TQ438256	10	63	21	2.8	2.1	5	3	3.5
▲ M5 × 0.5		TQ438296	11	70	25	3.5	2.7	6	3	4.5
▲ M6 × 0.75		TQ438326	13	80	30	4.5	3.4	6	3	5.2
▲ M6 × 0.5		TQ438336	13	80	30	4.5	3.4	6	3	5.5
▲ M7 × 0.75		TQ438356	14	80	30	5.5	4.3	7	3	6.2
▲ M8 × 1		TQ438376	17	90	36	6	4.9	8	3	7
▲ M8 × 0.75		TQ438386	14	80	30	6	4.9	8	3	7.2
▲ M10 × 1.25		TQ438436	22	100	40	7	5.5	8	3	8.8
▲ M10 × 1		TQ438446	18	90	36	7	5.5	8	3	9
▲ M10 × 0.75		TQ438456	18	90	36	7	5.5	8	3	9.2
▲ M12 × 1.5		TQ438516	22	100	40	9	7	10	3	10.5
▲ M12 × 1.25		TQ438526	22	100	40	9	7	10	3	10.8
▲ M12 × 1		TQ438536	18	100	40	9	7	10	3	11

\* Coating(TiN, TiCN or TiAlN) is available on your request.

**▲ : Only available till stock runs out**

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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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 COMBO TAPS

TB438 SERIES

## MF ISO Metric fine threads DIN 13

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

Machine taps  
Maschinengewindebohrer

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

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

**DIN 374**

**Hole type**  
3.0xD

**Only available till stock runs out**

**Material groups**  
VA HSS-E DIN 374 6H 60° B Vap p.B125

**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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
▲ M14 × 1.5		TB438556	22	100	40	11	9	12	3	12.5
▲ M14 × 1.25		TB438566	22	100	40	11	9	12	3	12.8
▲ M14 × 1.0		TB438576	22	100	40	11	9	12	3	13
▲ M16 × 1.5		TB438616	22	100	40	12	9	12	3	14.5
▲ M16 × 1		TB438626	18	100	40	12	9	12	3	15
▲ M18 × 1.5		TB438676	25	110	44	14	11	14	4	16.5
▲ M18 × 1		TB438686	20	110	44	14	11	14	4	17
▲ M20 × 1.5		TB438726	25	125	50	16	12	15	4	18.5
▲ M20 × 1		TB438736	20	125	50	16	12	15	4	19
▲ M22 × 1.5		TB438766	25	125	50	18	14.5	17	4	20.5
▲ M22 × 1		TB438776	20	125	50	18	14.5	17	4	21
▲ M24 × 2		TB438796	27	140	54	18	14.5	17	4	22
▲ M24 × 1.5		TB438806	27	140	54	18	14.5	17	4	22.5
▲ M26 × 1.5		TB438856	28	140	54	18	14.5	17	4	24.5
▲ M27 × 2		TB438876	28	140	54	20	16	19	4	25
▲ M27 × 1.5		TB438886	28	140	54	20	16	19	4	25.5
▲ M28 × 1.5		TB438916	28	140	54	20	16	19	4	26.5
▲ M30 × 2		TB438966	30	150	57	22	18	21	4	28
▲ M30 × 1.5		TB438976	30	150	57	22	18	21	4	28.5

\* Coating(TiN, TiCN or TiAlN) is available on your request.

▲ : Only available till stock runs out

◎ : 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	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	40	55	60	42	55	55				
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550				
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				

# YG COMBO TAPS

Vap **TB834** SERIES  
Bright **TC834** SERIES  
TiN **TD834** SERIES

## UNC Unified coarse threads

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► 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.

**DIN 371**

**Hole type**  
3.0xD

**Material groups**  
MU HSS-E DIN 371/376 2B 60° B Vap Bright TiN p.B125

**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		Vap	Bright	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4 -40 UNC		TB834162	TC834162	TD834162	11	56	18	3.5	2.7	6	3	2.3
#5 -40 UNC		TB834202	TC834202	TD834202	11	56	18	3.5	2.7	6	3	2.6
#6 -32 UNC		TB834242	TC834242	TD834242	12	56	20	4	3	6	3	2.85
#8 -32 UNC		TB834282	TC834282	TD834282	13	63	21	4.5	3.4	6	3	3.5
#10 -24 UNC		TB834322	TC834322	TD834322	15	70	25	6	4.9	8	3	3.9
#12 -24 UNC		TB834362	TC834362	TD834362	16	80	30	6	4.9	8	3	4.5
1/4 -20 UNC		TB834402	TC834402	TD834402	17	80	30	7	5.5	8	3	5.2
5/16 -18 UNC		TB834442	TC834442	TD834442	20	90	35	8	6.2	9	3	6.6
3/8 -16 UNC		TB834482	TC834482	TD834482	22	100	39	9	7	10	3	8
7/16 -14 UNC		TB834522	TC834522	TD834522	22	100	40	8	6.2	9	3	9.4
1/2 -13 UNC		TB834562	TC834562	TD834562	25	110	44	9	7	10	3	10.75
9/16 -12 UNC		TB834602	TC834602	TD834602	26	110	44	11	9	12	3	12.25
5/8 -11 UNC		TB834642	TC834642	TD834642	27	110	44	12	9	12	3	13.5
3/4 -10 UNC		TB834702	TC834702	TD834702	30	125	50	14	11	14	4	16.5
7/8 -9 UNC		TB834742	TC834742	TD834742	32	140	54	18	14.5	17	4	19.5
1 -8 UNC		TB834782	TC834782	TD834782	36	160	60	20	16	19	4	22.25

►DIN 371(#4~3/8) and DIN 376(7/16~1)

\* The other coating(TiCN or TiAlN) 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	13	25	28	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	40	55	60	42	55	55				
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550				
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				





Bright **TCJ02** SERIES  
TIN **TDJ02** SERIES

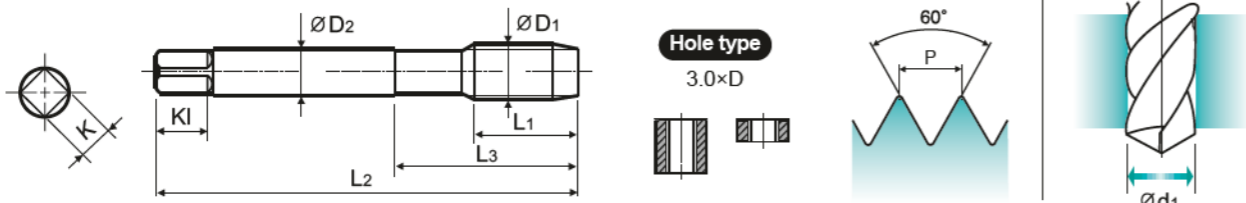
# UNF Unified fine threads

- Unified Grobgewinde
- UNF
- Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► 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.



Material groups: **MU** HSS-E DIN 371/376 3B 60° B Bright TiN p.B125

Recommended ToolHolder: Plain Shank Page D215-220  
TAPPING ER-CHUCK D221-228  
TAPPING CHUCK 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
		Bright	TiN								
#4	-48 UNF	TCJ02182	TDJ02182	11	56	18	3.5	2.7	6	3	2.4
#5	-44 UNF	TCJ02222	TDJ02222	11	56	18	3.5	2.7	6	3	2.7
#6	-40 UNF	TCJ02262	TDJ02262	12	56	20	4	3	6	3	3
#8	-36 UNF	TCJ02302	TDJ02302	13	63	21	4.5	3.4	6	3	3.5
#10	-32 UNF	TCJ02342	TDJ02342	15	70	25	6	4.9	8	3	4.1
#12	-28 UNF	TCJ02382	TDJ02382	16	80	30	6	4.9	8	3	4.7
1/4	-28 UNF	TCJ02422	TDJ02422	17	80	30	7	5.5	8	3	5.5
5/16	-24 UNF	TCJ02462	TDJ02462	17	90	35	8	6.2	9	3	6.9
3/8	-24 UNF	TCJ02502	TDJ02502	18	100	39	9	7	10	3	8.5
7/16	-20 UNF	TCJ02542	TDJ02542	22	100	40	8	6.2	9	3	9.9
1/2	-20 UNF	TCJ02582	TDJ02582	22	100	40	9	7	10	3	11.5
9/16	-18 UNF	TCJ02622	TDJ02622	22	100	40	11	9	12	3	12.9
5/8	-18 UNF	TCJ02662	TDJ02662	22	100	40	12	9	12	3	14.5
3/4	-16 UNF	TCJ02722	TDJ02722	25	110	44	14	11	14	4	17.5
7/8	-14 UNF	TCJ02762	TDJ02762	26	125	50	18	14.5	17	4	20.5
1	-12 UNF	TCJ02802	TDJ02802	28	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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



## Combo Spiral Flute Tap Set



Set No.	Series	Surface Treatment	Size	Quantity
TB804SET5	TB804	VAP	M5, M6, M8, M10, M12	5 pcs
TC804SET7	TC804	Bright	M3, M4, M5, M6, M8, M10, M12	7 pcs

## Combo Spiral Flute Tap + Gold-P Drill (HSS-E, DIN 338, Straight Shank, 135° Split Point, Jobber Length) Set



Set No.	Series	Surface Treatment	Size							Quantity
TD804SET7-GLP195	TD804	TiN	M3	M4	M5	M6	M8	M10	M12	14pcs
	DLGP195	TiN	2.5	3.3	4.2	5	6.8	8.5	10.2	



**RECOMMENDED CUTTING CONDITIONS**  
**EMPHOHLENE SCHNEIDKONDITIONEN**



**RECOMMENDED CUTTING CONDITIONS**  
**EMPHOHLENE SCHNEIDKONDITIONEN**

ISO	VDI 3323	Material Description	HB	HRC	Vc (m/min)								
					TC804 TC844 TC824 TC864	TD804 TD844 TD824 TD864	TB804 TB844 TB824 TB864	TCE05 TCE09 TCE01 TCE02	TDE05 TDE09 TDE01 TDE02	TBE05	TCE06	TDE06	TBE06
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	18-24	12-18
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7	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	5-7
M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	10-15	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	4-6	6-8	4-6
K	15	Grey cast iron	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
N	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	35-40	25-35
	27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	12-17	8-12
	28		100		15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20

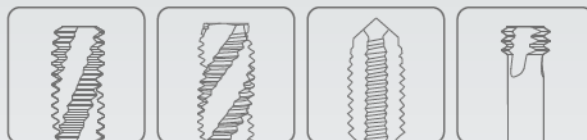
ISO	VDI 3323	Material Description	HB	HRC	Vc (m/min)									
					TB744 TB754 TQ744 TQ754	TC814 TC854 TC834 TC874	TD814 TD854 TD834 TD874	TB814 TB854 TB834 TB874	TCJ05 TCJ09 TCJ01 TCJ02	TDJ05 TDJ09 TDJ01 TDJ02	TBJ05	TCJ06	TDJ06	TBJ06
P	1	Non-alloy steel	125			15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	2		190	13	15-20	15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	3		250	25		12-18	18-24	12-18	12-18	18-24	12-18	12-18	18-24	12-18
	4		270	28	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	5		300	32		6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	6	Low alloy steel	180	10	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	7		275	29	10-15	10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	8		300	32		6-10	10-14	6-10	6-10	10-14	6-10	6-10	10-14	6-10
	9		350	38		3-5	5-7	3-5	3-5	5-7	3-5	3-5	5-7	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	5-7
M	12	Stainless steel	200	15	7-10	7-10	10-15	7-10	7-10	10-15	7-10	7-10	10-15	7-10
	13		240	23	5-8	5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	14		180	10	4-6	4-6	6-8	4-6	4-6	6-8	4-6	4-6	6-8	4-6
K	15	Grey cast iron	180	10		10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	16		260	26		5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
	17	Nodular cast iron	160	3		10-15	15-20	10-15	10-15	15-20	10-15	10-15	15-20	10-15
	18		250	25		5-8	8-11	5-8	5-8	8-11	5-8	5-8	8-11	5-8
N	23	Aluminum-cast, alloyed	75			15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20
	26	Copper and Copper Alloys (Bronze / Brass)	110			25-35	35-40	25-35	25-35	35-40	25-35	25-35	35-40	25-35
	27		90			8-12	12-17	8-12	8-12	12-17	8-12	8-12	12-17	8-12
	28		100			15-20	20-25	15-20	15-20	20-25	15-20	15-20	20-25	15-20

ISO	VDI 3323	Material Description	HB	HRC	Vc (m/min)							
					TCE07	TDE07	TBE07	TCE08	TDE08	TBE08	TC804-IC	TC633
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	12-18
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10
	9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	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
M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8
	14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	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	10-15
	16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8
N	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	25-35
	27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	8-12
	28		100		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20

ISO	VDI 3323	Material Description	HB	HRC	Vc (m/min)								
					TCJ07	TDJ07	TBJ07	TCJ08	TDJ08	TBJ08	TC814-IC	TC445	TB428 TB438
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	12-18	12-18	
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	5		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10	
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	10-15
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	6-10	6-10	
	9		350	38	3-5	5-7	3-5	3-5	5-7	3-5	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	3-5
M	12	Stainless steel	200	15	7-10	10-15	7-10	7-10	10-15	7-10	7-10	7-10	7-10
	13		240	23	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	5-8
	14		180	10	4-6	6-8	4-6	4-6	6-8	4-6	4-6	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	10-15	
	16		260	26	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	10-15	10-15	
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	5-8	5-8	
N	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	25-35	25-35	
	27		90		8-12	12-17	8-12	8-12	12-17	8-12	8-12	8-12	
	28		100		15-20	20-25	15-20	15-20	20-25	15-20	15-20	15-20	15-20



Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation

**HSS & HSS-E**

# **YG TAP GENERAL**

## **YG Gewindebohrer Universal**

- Suitable for Tapping Blind / Through Holes due to Flute Geometry and Excellent Chip Evacuation
- Geeignet für das Gewindeschneiden von Grund- und Durchgangsbohrungen aufgrund der Nutengeometrie und der hervorragenden Spanabfuhr







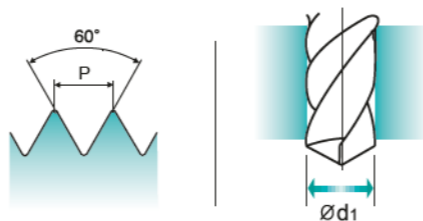
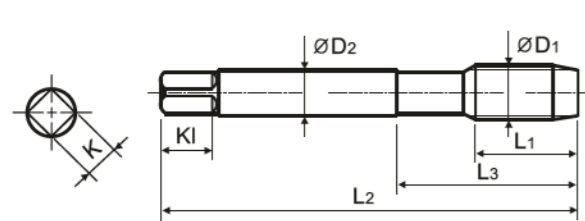
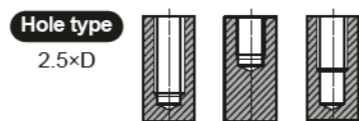
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **GS** HSS-E DIN 371/376 6H 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M2 × 0.4		TC711136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC711196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC711496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC711206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC711226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TC711246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC711266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC711286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TC711316	10	80	30	6	4.9	8	3	5
M7 × 1		TC711346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TC711366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC711396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TC711426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TC711466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC711506	18	110	44	9	7	10	3	10.2
M14 × 2		TC711546	20	110	44	11	9	12	3	12
M16 × 2		TC711606	20	110	44	12	9	12	3	14
M18 × 2.5		TC711656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TC711706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TC711746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TC711786	30	160	60	18	14.5	17	4	21
M27 × 3		TC711866	30	160	60	20	16	19	4	24
M30 × 3.5		TC711946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	◎	◎	○	○

ISO Material Description	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
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	○	○	○	◎	◎	○	○	◎													

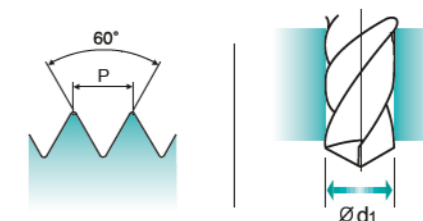
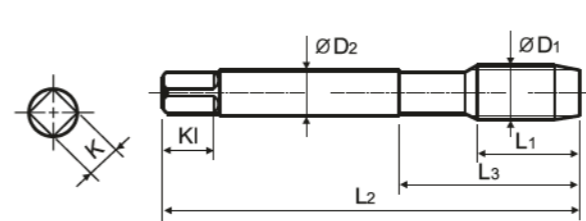
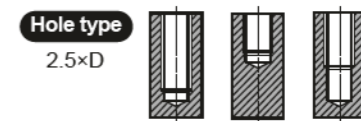
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **GS** HSS-E DIN 371/376 6H 60° C R40 TIN p.B169

Recommended ToolHolder: Plain Shank 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	TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2 × 0.4		TD711136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TD711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TD711196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TD711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TD711496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TD711206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TD711226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TD711246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TD711266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TD711286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TD711316	10	80	30	6	4.9	8	3	5
M7 × 1		TD711346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TD711366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TD711396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TD711426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TD711466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TD711506	18	110	44	9	7	10	3	10.2
M14 × 2		TD711546	20	110	44	11	9	12	3	12
M16 × 2		TD711606	20	110	44	12	9	12	3	14
M18 × 2.5		TD711656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TD711706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TD711746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TD711786	30	160	60	18	14.5	17	4	21
M27 × 3		TD711866	30	160	60	20	16	19	4	24
M30 × 3.5		TD711946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	◎	◎	○	○

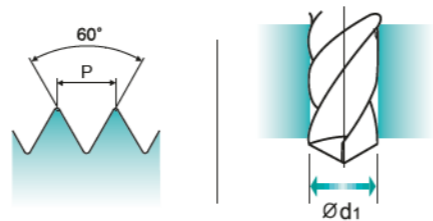
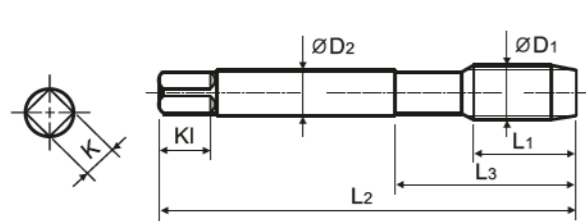
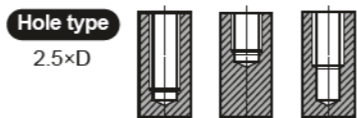
ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	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	○	○	○	◎	◎	○	○	◎													

**MF ISO metric fine threads DIN 13**  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo fine DIN 13

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.



Material groups: **GS** HSS-E DIN 374 6H 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank 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	KI	Z	Ød1
M4	× 0.5	TC411256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC411296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC411326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC411336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC411356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC411376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TC411386	8	80	30	6	4.9	8	3	7.2
M8	× 0.5	TC411936	5	80	30	6	4.9	8	3	7.5
M10	× 1.25	TC411436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TC411446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TC411456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC411516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TC411526	15	100	40	9	7	10	3	10.8
M12	× 1	TC411536	11	100	40	9	7	10	3	11
M14	× 1.5	TC411556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TC411566	15	100	40	11	9	12	3	12.8
M14	× 1	TC411576	11	100	40	11	9	12	3	13
M16	× 1.5	TC411616	15	100	40	12	9	12	3	14.5
M16	× 1	TC411626	12	100	40	12	9	12	3	15
M18	× 1.5	TC411676	17	110	44	14	11	14	4	16.5
M18	× 1	TC411686	13	110	44	14	11	14	4	17

► NEXT PAGE

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○	○

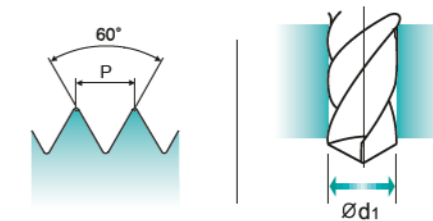
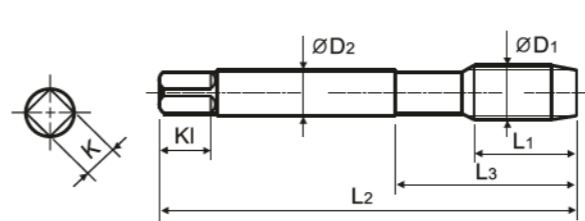
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	36	37	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	○	○	○	○	◎	○	○	◎													

**MF ISO metric fine threads DIN 13**  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo grosso DIN 13

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.



Material groups: **GS** HSS-E DIN 374 6H 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank 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	KI	Z	Ød1
M20	× 1.5	TC411726	17	125	50	16	12	15	4	18.5
M20	× 1	TC411736	14	125	50	16	12	15	4	19
M22	× 1.5	TC411766	17	125	50	18	14.5	17	4	20.5
M22	× 1	TC411776	14	125	50	18	14.5	17	4	21
M24	× 2	TC411796	20	140	54	18	14.5	17	4	22
M24	× 1.5	TC411806	20	140	54	18	14.5	17	4	22.5
M26	× 1.5	TC411856	20	140	54	18	14.5	17	4	24.5
M27	× 2	TC411876	20	140	54	20	16	19	4	25
M27	× 1.5	TC411886	20	140	54	20	16	19	4	25.5
M28	× 1.5	TC411916	20	140	54	20	16	19	4	26.5
M30	× 2	TC411966	22	150	57	22	18	21	4	28
M30	× 1.5	TC411976	22	150	57	22	18	21	4	28.5

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	36	37	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	○	○	○	○	◎	○	○	◎													

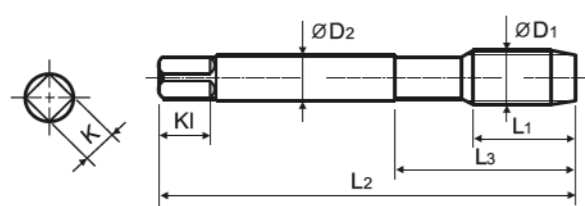
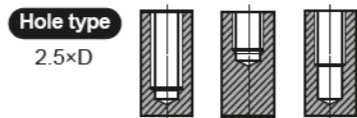
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

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.



Material groups: **GS** HSS-E DIN 374 6H 60° C R40 TiN p.B169

Recommended ToolHolder: Plain Shank 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	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.5	TD411256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD411296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD411326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD411336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD411356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD411376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TD411386	8	80	30	6	4.9	8	3	7.2
M8	× 0.5	TD411936	5	80	30	6	4.9	8	3	7.5
M10	× 1.25	TD411436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TD411446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TD411456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD411516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TD411526	15	100	40	9	7	10	3	10.8
M12	× 1	TD411536	11	100	40	9	7	10	3	11
M14	× 1.5	TD411556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TD411566	15	100	40	11	9	12	3	12.8
M14	× 1	TD411576	11	100	40	11	9	12	3	13
M16	× 1.5	TD411616	15	100	40	12	9	12	3	14.5

▶ NEXT PAGE

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	○	○	○	◎	◎	○	○	◎										◎	◎	○	○

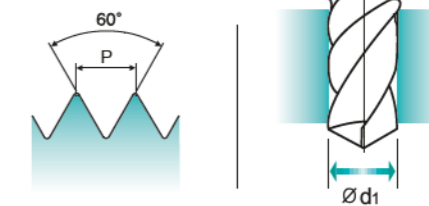
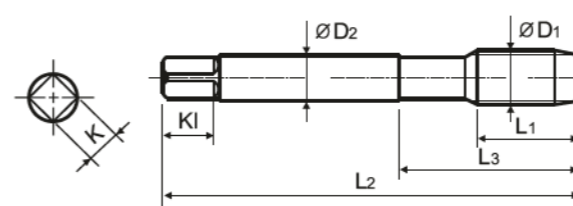
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

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.



Material groups: **GS** HSS-E DIN 374 6H 60° C R40 TiN p.B169

Recommended ToolHolder: Plain Shank 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	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M16	× 1	TD411626	12	100	40	12	9	12	3	15
M18	× 1.5	TD411676	17	110	44	14	11	14	4	16.5
M18	× 1	TD411686	13	110	44	14	11	14	4	17
M20	× 1.5	TD411726	17	125	50	16	12	15	4	18.5
M20	× 1	TD411736	14	125	50	16	12	15	4	19
M22	× 1.5	TD411766	17	125	50	18	14.5	17	4	20.5
M22	× 1	TD411776	14	125	50	18	14.5	17	4	21
M24	× 2	TD411796	20	140	54	18	14.5	17	4	22
M24	× 1.5	TD411806	20	140	54	18	14.5	17	4	22.5
M26	× 1.5	TD411856	20	140	54	18	14.5	17	4	24.5
M27	× 2	TD411876	20	140	54	20	16	19	4	25
M27	× 1.5	TD411886	20	140	54	20	16	19	4	25.5
M28	× 1.5	TD411916	20	140	54	20	16	19	4	26.5
M30	× 2	TD411966	22	150	57	22	18	21	4	28
M30	× 1.5	TD411976	22	150	57	22	18	21	4	28.5

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	○	○

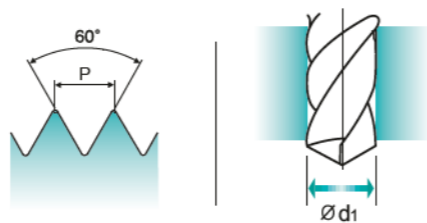
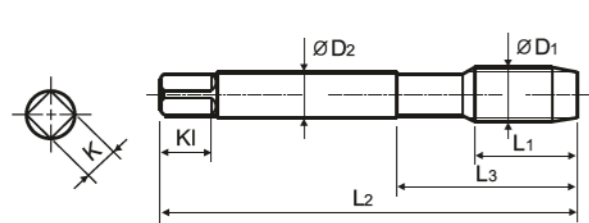
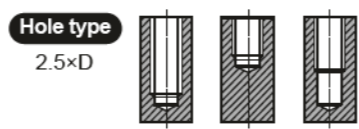
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	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	○	○	○	◎	◎	○	○	◎										◎	◎	○	○

**UNC** Unified coarse threads  
 ● Unified Grobgewinde  
 ○ UNC  
 ○ 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.



Material groups: **GS** HSS-E DIN 371/376 2B 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
#4	-40UNC	TC144162	6	56	18	3.5	2.7	6	3	2.3
#5	-40UNC	TC144202	7	56	18	3.5	2.7	6	3	2.6
#6	-32UNC	TC144242	7	56	20	4	3	6	3	2.85
#8	-32UNC	TC144282	8	63	21	4.5	3.4	6	3	3.5
#10	-24UNC	TC144322	10	70	25	6	4.9	8	3	3.9
#12	-24UNC	TC144362	10	80	30	6	4.9	8	3	4.5
1/4	-20UNC	TC144402	13	80	30	7	5.5	8	3	5.2
5/16	-18UNC	TC144442	14	90	35	8	6.2	9	3	6.6
3/8	-16UNC	TC144482	16	100	39	9	7	10	3	8
7/16	-14UNC	TC144522	17	100	40	8	6.2	9	3	9.4
1/2	-13UNC	TC144562	20	110	44	9	7	10	3	10.75
9/16	-12UNC	TC144602	20	110	44	11	9	12	3	12.25
5/8	-11UNC	TC144642	22	110	44	12	9	12	3	13.5
3/4	-10UNC	TC144702	25	125	50	14	11	14	4	16.5
7/8	-9UNC	TC144742	27	140	54	18	14.5	17	4	19.5
1	-8UNC	TC144782	30	160	60	20	16	19	4	22.25
1-1/8	-7UNC	TC144822	35	180	65	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : 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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	○	○

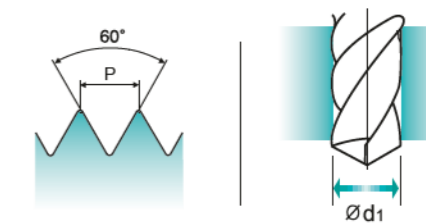
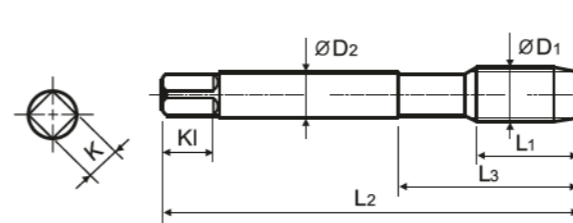
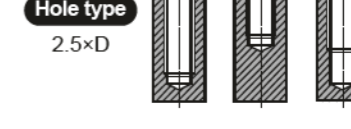
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	36	37	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	○	○	○	◎	◎	○	○	◎													

**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.



Material groups: **GS** HSS-E DIN 371/376 2B 60° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
#4	-48UNF	TC124182	6	56	18	3.5	2.7	6	3	2.4
#5	-44UNF	TC124222	7	56	18	3.5	2.7	6	3	2.7
#6	-40UNF	TC124262	7	56	20	4	3	6	3	3
#8	-36UNF	TC124302	8	63	21	4.5	3.4	6	3	3.5
#10	-32UNF	TC124342	10	70	25	6	4.9	8	3	4.1
#12	-28UNF	TC124382	10	80	30	6	4.9	8	3	4.7
1/4	-28UNF	TC124422	10	80	30	7	5.5	8	3	5.5
5/16	-24UNF	TC124462	10	90	35	8	6.2	9	3	6.9
3/8	-24UNF	TC124502	10	100	39	9	7	10	3	8.5
7/16	-20UNF	TC124542	13	100	40	8	6.2	9	3	9.9
1/2	-20UNF	TC124582	13	100	40	9	7	10	3	11.5
9/16	-18UNF	TC124622	15	100	40	11	9	12	3	12.9
5/8	-18UNF	TC124662	15	100	40	12	9	12	3	14.5
3/4	-16UNF	TC124722	17	110	44	14	11	14	4	17.5
7/8	-14UNF	TC124762	17	125	50	18	14.5	17	4	20.5
1	-12UNF	TC124802	20	140	54	18	14.5	17	4	23.25
1-1/8	-12UNF	TC124842	22	150	60	22	18	21	4	26.5

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

◎ : 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	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	◎	◎	○	○

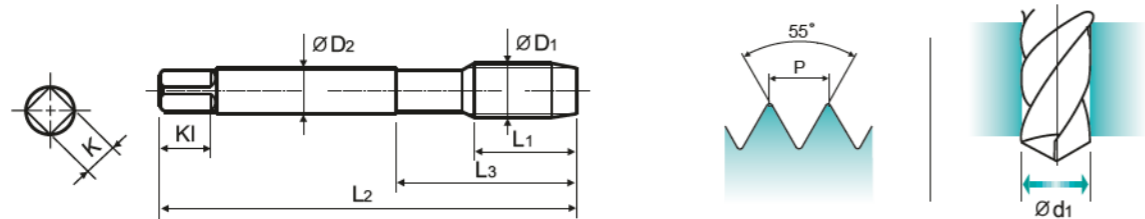
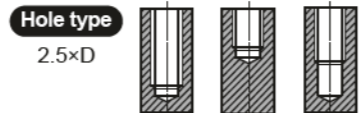
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	36	37	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	○	○	○	◎	◎	○	○	◎													

**BSW** Whitworth threads  
 Whitworth Gewinde  
 BSW  
 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.



Material groups: **GS** HSS-E DIN 2182/2183 55° C R40 Bright p.B169

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
W1/8	-40	TC134200	7	56	18	3.5	2.7	6	3	2.5
W5/32	-32	TC134280	7	63	21	4.5	3.4	6	3	3.1
W3/16	-24	TC134320	10	70	25	6	4.9	8	3	3.6
W7/32	-24	TC134360	10	80	30	6	4.9	8	3	4.4
W1/4	-20	TC134400	13	80	30	7	5.5	8	3	5.1
W5/16	-18	TC134440	14	90	35	8	6.2	9	3	6.5
W3/8	-16	TC134480	16	100	39	9	7	10	3	7.9
W7/16	-14	TC134520	17	100	40	8	6.2	9	3	9.3
W1/2	-12	TC134560	20	110	44	9	7	10	3	10.5
W9/16	-12	TC134600	20	110	44	11	9	12	3	12
W5/8	-11	TC134640	22	110	40	12	9	12	3	13.5
W3/4	-10	TC134700	25	125	50	14	11	14	4	16.5
W7/8	-9	TC134740	27	140	54	18	14.5	17	4	19.25
W1	-8	TC134780	30	160	60	20	16	19	4	22
W1-1/8	-7	TC134820	35	180	65	22	18	21	4	24.75

►DIN 2182(W1/8~W3/8) and DIN 2183(W7/16~W1-1/8)

© : 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	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

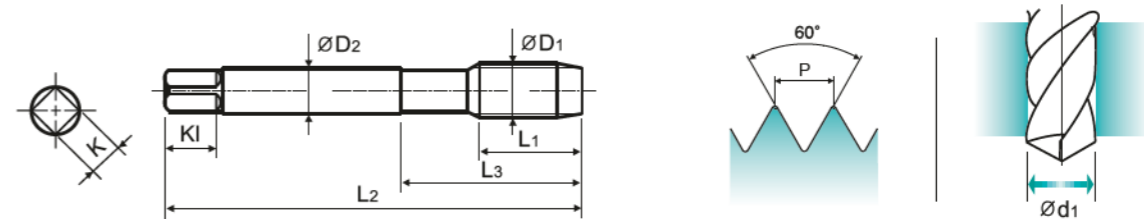
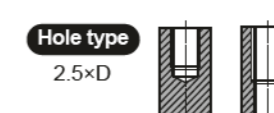
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**M** ISO metric coarse threads DIN 13  
 Metrisches ISO-Gewinde DIN 13  
 ISO MÉTRIQUE DIN13  
 ISO Metrico passo grosso DIN 13

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.



Material groups: **GS** HSS-E DIN 371/376 6H 60° C R20 Bright p.B169

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M2	× 0.4	TC517136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC517156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC517196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC517176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC517496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC517206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC517226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC517246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC517266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC517286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC517316	10	80	30	6	4.9	8	3	5
M7	× 1	TC517346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC517366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC517396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC517426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC517466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC517506	18	110	44	9	7	10	3	10.2
M14	× 2	TC517546	20	110	44	11	9	12	3	12
M16	× 2	TC517606	20	110	44	12	9	12	3	14
M18	× 2.5	TC517656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC517706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC517746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC517786	30	160	60	18	14.5	17	4	21
M27	× 3	TC517866	30	160	60	20	16	19	4	24
M30	× 3.5	TC517946	35	180	70	22	18	21	4	26.5

►DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

© : 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	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

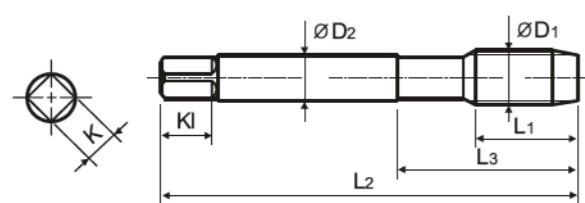
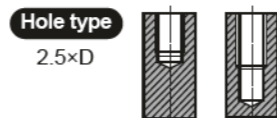
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **GS** HSS-E DIN 352 6H 60° C R20 Bright p.B169

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M3	× 0.5	TC612206	11	40	18	3.5	2.7	6	3	2.5
M4	× 0.7	TC612246	13	45	21	4.5	3.4	6	3	3.3
M5	× 0.8	TC612286	16	52	26	6	4.9	8	3	4.2
M6	× 1	TC612316	18	56	27	6	4.9	8	3	5
M8	× 1.25	TC612366	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TC612426	22	70	38	7	5.5	8	3	8.5
M12	× 1.75	TC612506	24	80	45	9	7	10	3	10.2
M14	× 2	TC612546	26	80	45	11	9	12	3	12
M16	× 2	TC612606	27	80	45	12	9	12	3	14
M18	× 2.5	TC612656	30	95	58	14	11	14	4	15.5
M20	× 2.5	TC612706	32	95	58	16	12	15	4	17.5

© : 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

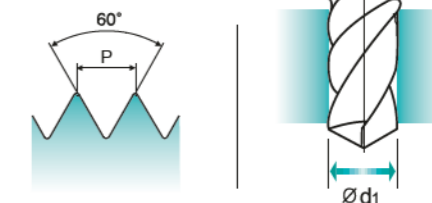
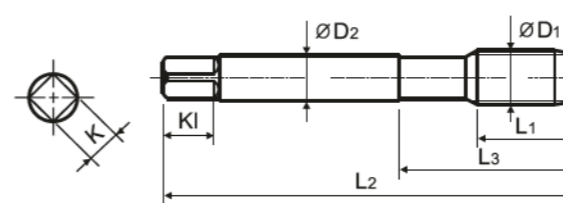
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **GS** HSS-E DIN 371 6H 60° B Bright p.B169

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M2	× 0.4	TC127136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC127156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC127196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC127176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC127496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC127206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC127226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC127246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC127266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC127286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC127316	17	80	30	6	4.9	8	3	5
M7	× 1	TC127346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC127366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC127396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC127426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC127466	22	100	39	11	9	12	3	9.5
M12	× 1.75	TC127506	24	110	44	12	9	12	3	10.2

► \* DIN profile not ISO

© : 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

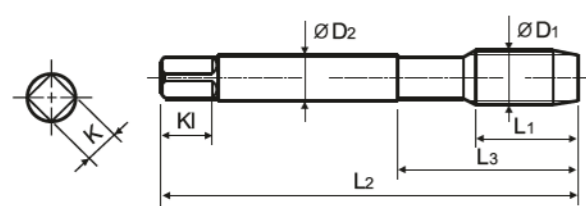
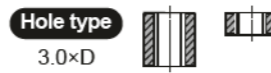
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **GS** HSS-E DIN 371 6H 60° B TIN p.B169

Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213 Recommended ToolHolder

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	KI	Z	Ød1
M2 × 0.4		TD127136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TD127156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TD127196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TD127176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TD127496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TD127206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TD127226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TD127246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TD127266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TD127286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TD127316	17	80	30	6	4.9	8	3	5
M7 × 1		TD127346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TD127366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TD127396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TD127426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TD127466	22	100	39	11	9	12	3	9.5
M12 × 1.75		TD127506	24	110	44	12	9	12	3	10.2

► \*DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	400Rm	1050Rm	55	60	42	55	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			400Rm	1050Rm	550	630	400	550	550	630	400	550	550	
Recommended	○	○	○	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

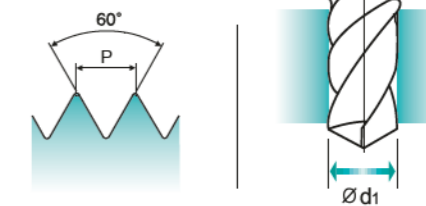
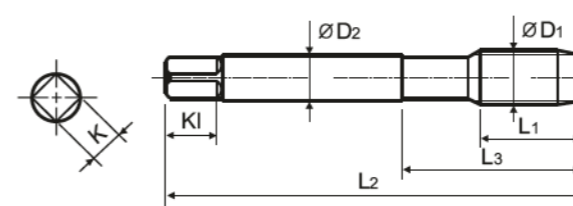
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **GS** HSS-E DIN 352 6H 60° B Bright p.B169

Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213 Recommended ToolHolder

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 × 0.4		TC122136	8	36	13	2.8	2.1	5	3	1.6
M2.5 × 0.45		TC122176	9	40	15	2.8	2.1	5	3	2.05
M3 × 0.5		TC122206	11	40	18	3.5	2.7	6	3	2.5
M4 × 0.7		TC122246	13	45	21	4.5	3.4	6	3	3.3
M5 × 0.8		TC122286	16	52	26	6	4.9	8	3	4.2
M6 × 1		TC122316	18	56	27	6	4.9	8	3	5
M8 × 1.25		TC122366	20	63	34	6	4.9	8	3	6.8
M10 × 1.5		TC122426	22	70	38	7	5.5	8	3	8.5
M12 × 1.75		TC122506	24	80	45	9	7	10	3	10.2
M14 × 2		TC122546	26	80	45	11	9	12	3	12
M16 × 2		TC122606	27	80	45	12	9	12	3	14

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	400Rm	1050Rm	55	60	42	55	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			400Rm	1050Rm	550	630	400	550	550	630	400	550	550	
Recommended	○	○	○	◎	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

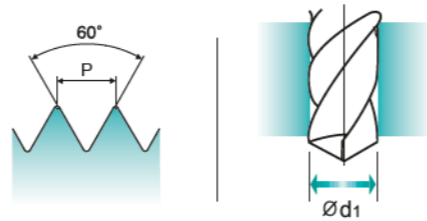
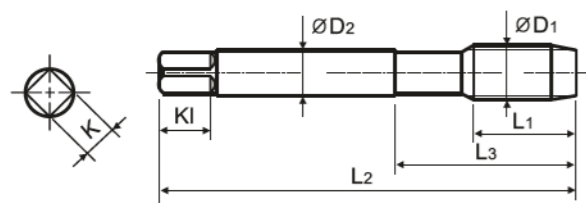
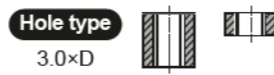
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **GS** HSS-E DIN 374 6H 60° B Bright p.B169

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	KI	Z	Ød1
M4	× 0.5	TC222256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC222296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC222326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC222336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC222356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC222376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TC222386	14	80	30	6	4.9	8	3	7.2
M8	× 0.5	TC222936	14	80	30	6	4.9	8	3	7.5
M10	× 1.25	TC222436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TC222446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TC222456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC222516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TC222526	22	100	40	9	7	10	3	10.8
M12	× 1	TC222536	18	100	40	9	7	10	3	11
M14	× 1.5	TC222556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TC222566	22	100	40	11	9	12	3	12.8
M14	× 1	TC222576	18	100	40	11	9	12	3	13

▶ NEXT PAGE

◎ : 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
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	○	○	◎			○	○	○	○	○	○	○	○	○	○	○

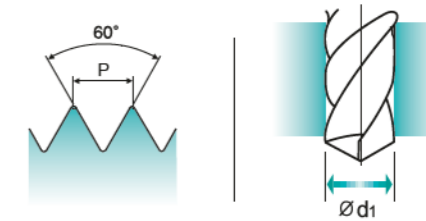
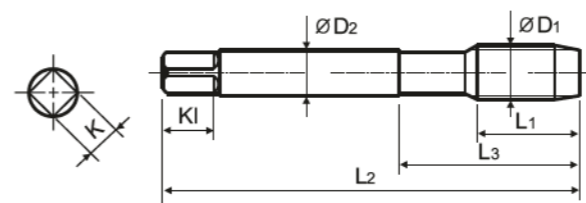
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **GS** HSS-E DIN 374 6H 60° B Bright p.B169

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	KI	Z	Ød1
M16	× 1.5	TC222616	22	100	40	12	9	12	3	14.5
M16	× 1	TC222626	18	100	40	12	9	12	3	15
M18	× 1.5	TC222676	25	110	44	14	11	14	4	16.5
M18	× 1	TC222686	20	110	44	14	11	14	4	17
M20	× 1.5	TC222726	25	125	50	16	12	15	4	18.5
M20	× 1	TC222736	20	125	50	16	12	15	4	19
M22	× 1.5	TC222766	25	125	50	18	14.5	17	4	20.5
M22	× 1	TC222776	20	125	50	18	14.5	17	4	21
M24	× 2	TC222796	27	140	54	18	14.5	17	4	22
M24	× 1.5	TC222806	27	140	54	18	14.5	17	4	22.5
M26	× 1.5	TC222856	28	140	54	18	14.5	17	4	24.5
M27	× 2	TC222876	28	140	54	20	16	19	4	25
M27	× 1.5	TC222886	28	140	54	20	16	19	4	25.5
M28	× 1.5	TC222916	28	140	54	20	16	19	4	26.5
M30	× 2	TC222966	30	150	57	22	18	21	4	28
M30	× 1.5	TC222976	30	150	57	22	18	21	4	28.5

◎ : 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
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	○	○	◎			○	○	○	○	○	○	○	○	○	○	○

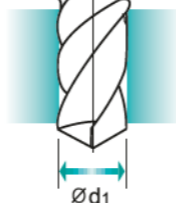
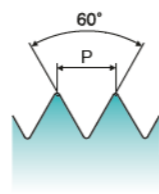
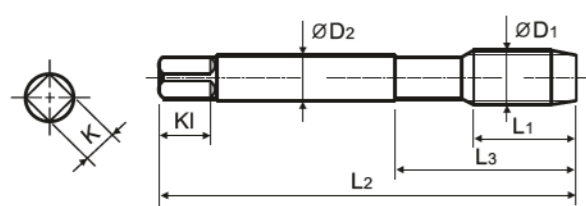


**MF** ISO metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ● ISO MÉTRIQUE PAS FINS DIN13  
 ● ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **GS** HSS-E DIN 374 6H 60° B TiN p.B169

Plain Shank TAPPING ER CHUCK D215-220  
 TAPPING CHUCK D221-228  
 ONE STEP TAPPING CHUCK D211-213  
 Recommended ToolHolder

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	KI	Z	Ød1
M4 × 0.5		TD222256	10	63	21	2.8	2.1	5	3	3.5
M5 × 0.5		TD222296	11	70	25	3.5	2.7	6	3	4.5
M6 × 0.75		TD222326	13	80	30	4.5	3.4	6	3	5.2
M6 × 0.5		TD222336	13	80	30	4.5	3.4	6	3	5.5
M7 × 0.75		TD222356	14	80	30	5.5	4.3	7	3	6.2
M8 × 1		TD222376	17	90	36	6	4.9	8	3	7
M8 × 0.75		TD222386	14	80	30	6	4.9	8	3	7.2
M8 × 0.5		TD222936	14	80	30	6	4.9	8	3	7.5
M10 × 1.25		TD222436	22	100	40	7	5.5	8	3	8.8
M10 × 1		TD222446	18	90	36	7	5.5	8	3	9
M10 × 0.75		TD222456	18	90	36	7	5.5	8	3	9.2
M12 × 1.5		TD222516	22	100	40	9	7	10	3	10.5
M12 × 1.25		TD222526	22	100	40	9	7	10	3	10.8
M12 × 1		TD222536	18	100	40	9	7	10	3	11
M14 × 1.5		TD222556	22	100	40	11	9	12	3	12.5
M14 × 1.25		TD222566	22	100	40	11	9	12	3	12.8
M14 × 1		TD222576	18	100	40	11	9	12	3	13
M16 × 1.5		TD222616	22	100	40	12	9	12	3	14.5

► NEXT PAGE

◎ : 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	30	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	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	◎	◎	◎	◎	○	○

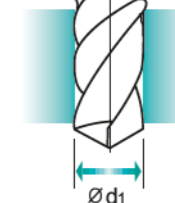
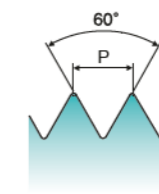
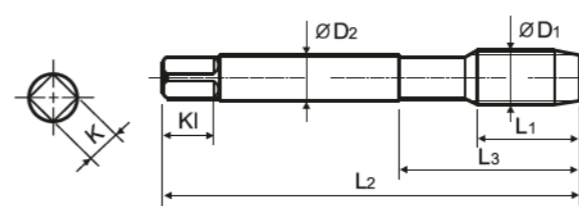
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34	55	60	42	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	○	○	◎													

**MF** ISO metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ● ISO MÉTRIQUE PAS FINS DIN13  
 ● ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **GS** HSS-E DIN 374 6H 60° B TiN p.B169

Plain Shank TAPPING ER CHUCK D215-220  
 TAPPING CHUCK D221-228  
 ONE STEP TAPPING CHUCK D211-213  
 Recommended ToolHolder

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	KI	Z	Ød1
M16 × 1		TD222626	18	100	40	12	9	12	3	15
M18 × 1.5		TD222676	25	110	44	14	11	14	4	16.5
M18 × 1		TD222686	20	110	44	14	11	14	4	17
M20 × 1.5		TD222726	25	125	50	16	12	15	4	18.5
M20 × 1		TD222736	20	125	50	16	12	15	4	19
M22 × 1.5		TD222766	25	125	50	18	14.5	17	4	20.5
M22 × 1		TD222776	20	125	50	18	14.5	17	4	21
M24 × 2		TD222796	27	140	54	18	14.5	17	4	22
M24 × 1.5		TD222806	27	140	54	18	14.5	17	4	22.5
M26 × 1.5		TD222856	28	140	54	18	14.5	17	4	24.5
M27 × 2		TD222876	28	140	54	20	16	19	4	25
M27 × 1.5		TD222886	28	140	54	20	16	19	4	25.5
M28 × 1.5		TD222916	28	140	54	20	16	19	4	26.5
M30 × 2		TD222966	30	150	57	22	18	21	4	28
M30 × 1.5		TD222976	30	150	57	22	18	21	4	28.5

◎ : 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	30	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	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	◎	◎	○	○	◎													

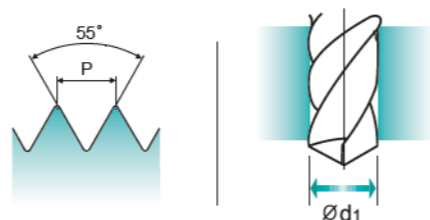
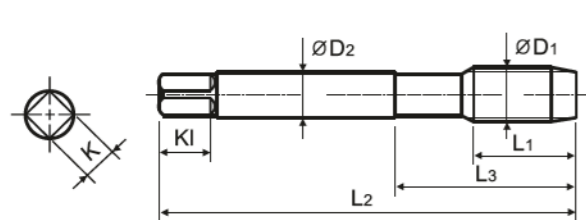


**BSW** Whitworth threads  
 ● Whitworth Gewinde  
 ○ BSW  
 ○ Filettatura Whitworth

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

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Material groups: **GS** HSS-E DIN 2182/2183 2B 55° B Bright p.B169

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

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	K1	Z	Ød1
W1/8 - 40		TC224200	11	56	18	3.5	2.7	6	3	2.5
W5/32 - 32		TC224280	13	63	21	4.5	3.4	6	3	3.1
W3/16 - 24		TC224320	15	70	25	6	4.9	8	3	3.6
W7/32 - 24		TC224360	16	80	30	6	4.9	8	3	4.4
W1/4 - 20		TC224400	17	80	30	7	5.5	8	3	5.1
W5/16 - 18		TC224440	20	90	35	8	6.2	9	3	6.5
W3/8 - 16		TC224480	22	100	39	9	7	10	3	7.9
W7/16 - 14		TC224520	22	100	40	8	6.2	9	3	9.3
W1/2 - 12		TC224560	25	110	44	9	7	10	3	10.5
W9/16 - 12		TC224600	26	110	44	11	9	12	3	12
W5/8 - 11		TC224640	27	110	44	12	9	12	3	13.5
W3/4 - 10		TC224700	30	125	50	14	11	14	4	16.5
W7/8 - 9		TC224740	32	140	54	18	14.5	17	4	19.25
W1 - 8		TC224780	36	160	60	20	16	19	4	22
W1-1/8 - 7		TC224820	40	180	65	22	18	21	4	24.75

► DIN 2182(W1/8~W3/8) and DIN 2183(W7/16~W1-1/8)

◎ : 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	30	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	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	○	○

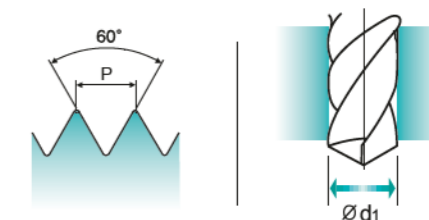
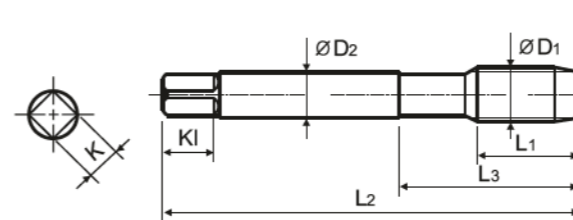
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	◎	◎	○	○	◎			○	○	○	○	○	○	○	○	○	○	○

**M** ISO metric coarse threads DIN 13  
 ● Metrisches ISO-Gewinde DIN 13  
 ○ ISO MÉTRIQUE DIN13  
 ○ ISO Metrico passo grosso DIN 13

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **GS** HSS-E DIN 376 6H 60° B Bright p.B169

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

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	K1	Z	Ød1
M3 × 0.5		TC227206	11	56	18	2.2	1.8	5	3	2.5
M3.5 × 0.6		TC227226	12	56	20	2.5	2.1	5	3	2.9
M4 × 0.7		TC227246	13	63	21	2.8	2.1	5	3	3.3
M4.5 × 0.75		TC227266	14	70	25	3.5	2.7	6	3	3.7
M5 × 0.8		TC227286	15	70	25	3.5	2.7	6	3	4.2
M6 × 1		TC227316	17	80	30	4.5	3.4	6	3	5
M7 × 1		TC227346	17	80	30	5.5	4.3	7	3	6
M8 × 1.25		TC227366	20	90	36	6	4.9	8	3	6.8
M9 × 1.25		TC227396	20	90	36	7	5.5	8	3	7.8
M10 × 1.5		TC227426	22	100	40	7	5.5	8	3	8.5
M11 × 1.5		TC227466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC227506	24	110	44	9	7	10	3	10.2
M14 × 2		TC227546	26	110	44	11	9	12	3	12
M16 × 2		TC227606	27	110	44	12	9	12	3	14
M18 × 2.5		TC227656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TC227706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TC227746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TC227786	34	160	60	18	14.5	17	4	21
M27 × 3		TC227866	36	160	60	20	16	19	4	24
M30 × 3.5		TC227946	40	180	70	22	18	21	4	26.5

◎ : 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	30	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	◎	◎	○	○	◎			○	○	○	○	○	○	○	○	○	○	○

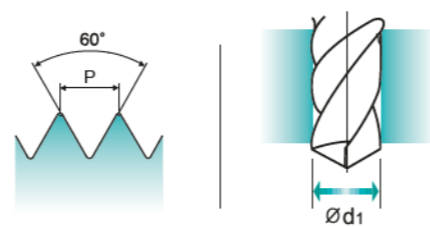
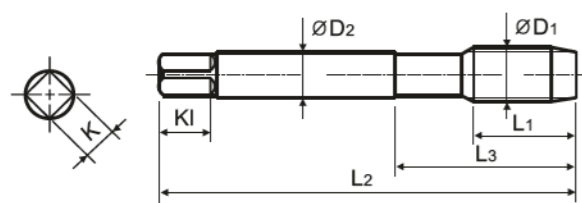
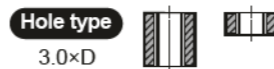
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **GS** HSS-E DIN 376 6H 60° B TIN p.B169

Recommended ToolHolder: Plain Shank TAPPING ER-CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.161 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	KI	Z	Ød1
M3 × 0.5		TD227206	11	56	18	2.2	1.8	5	3	2.5
M3.5 × 0.6		TD227226	12	56	20	2.5	2.1	5	3	2.9
M4 × 0.7		TD227246	13	63	21	2.8	2.1	5	3	3.3
M4.5 × 0.75		TD227266	14	70	25	3.5	2.7	6	3	3.7
M5 × 0.8		TD227286	15	70	25	3.5	2.7	6	3	4.2
M6 × 1		TD227316	17	80	30	4.5	3.4	6	3	5
M7 × 1		TD227346	17	80	30	5.5	4.3	7	3	6
M8 × 1.25		TD227366	20	90	36	6	4.9	8	3	6.8
M9 × 1.25		TD227396	20	90	36	7	5.5	8	3	7.8
M10 × 1.5		TD227426	22	100	40	7	5.5	8	3	8.5
M11 × 1.5		TD227466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TD227506	24	110	44	9	7	10	3	10.2
M14 × 2		TD227546	26	110	44	11	9	12	3	12
M16 × 2		TD227606	27	110	44	12	9	12	3	14
M18 × 2.5		TD227656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TD227706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TD227746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TD227786	34	160	60	18	14.5	17	4	21
M27 × 3		TD227866	36	160	60	20	16	19	4	24
M30 × 3.5		TD227946	40	180	70	22	18	21	4	26.5

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

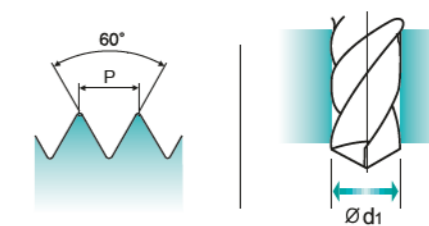
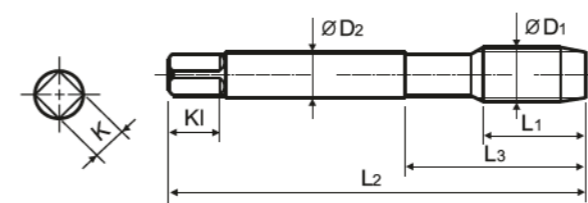
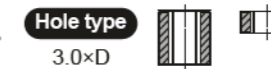
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

Left spiral flute and right hand thread tap to push chips ahead in powerful than spiral point taps.

Rechtsschneidender Gewindebohrer mit Linksdraht um kraftvoller nach vorne zu entspannen als mit Gewindebohrern mit Rechtsdraht.



Material groups: **GS** HSS-E DIN 371/376 6H 60° C Bright L20 p.B169

Recommended ToolHolder: Plain Shank TAPPING ER-CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.161 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 × 0.4		TC211136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC211156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC211196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC211176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC211496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC211206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC211226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TC211246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC211266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC211286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TC211316	17	80	30	6	4.9	8	3	5
M7 × 1		TC211346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TC211366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC211396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TC211426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TC211466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC211506	24	110	44	9	7	10	3	10.2
M14 × 2		TC211546	26	110	44	11	9	12	3	12
M16 × 2		TC211606	27	110	44	12	9	12	3	14
M18 × 2.5		TC211656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TC211706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TC211746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TC211786	34	160	60	18	14.5	17	4	21
M27 × 3		TC211866	36	160	60	20	16	19	4	24
M30 × 3.5		TC211946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

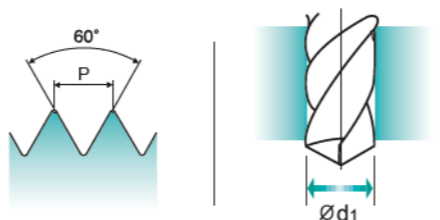
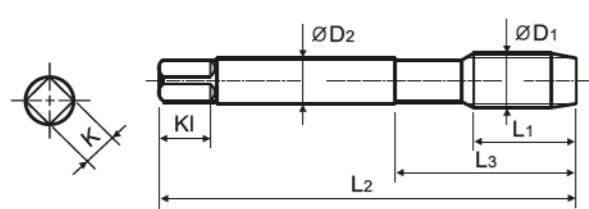
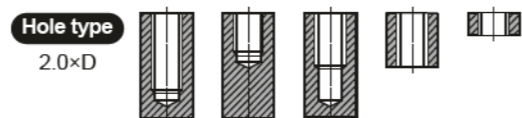
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for tapping shallow holes and the blind holes having enough chip space at the bottom of holes.

► Geeignet zum Schneiden von kurzem Durchgangsgewinde und in Sacklöchern mit ausreichendem Raum für Späne am Bohrungsgrund.



Material groups: **GS** HSS-E DIN 371/376 6H 60° C Bright p.B169

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

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		TC463136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC463156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC463196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC463176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC463496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC463206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC463226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TC463246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC463266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC463286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TC463316	17	80	30	6	4.9	8	3	5
M7 × 1		TC463346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TC463366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC463396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TC463426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TC463466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC463506	24	110	44	9	7	10	3	10.2
M14 × 2		TC463546	26	110	44	11	9	12	3	12
M16 × 2		TC463606	27	110	44	12	9	12	3	14
M18 × 2.5		TC463656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TC463706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TC463746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TC463786	34	160	60	18	14.5	17	4	21
M27 × 3		TC463866	36	160	60	20	16	19	4	24
M30 × 3.5		TC463946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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					○	○	○														

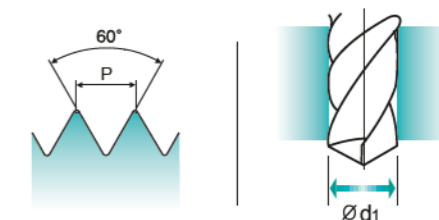
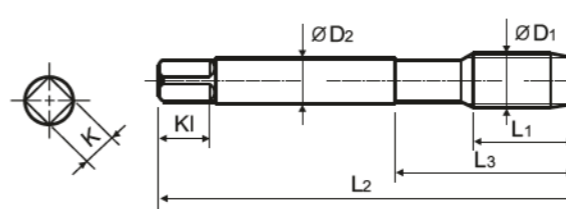
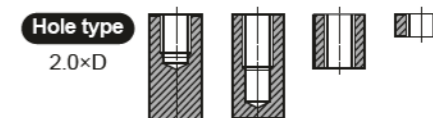
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping shallow holes.

► Geeignet zum Gewindeschneiden flacher Sacklöcher.



Material groups: **GS** HSS-E DIN 374 6H 60° C Bright p.B169

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

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
M4 × 0.5		TC473256	10	63	21	2.8	2.1	5	3	3.5
M5 × 0.5		TC473296	11	70	25	3.5	2.7	6	3	4.5
M6 × 0.75		TC473326	13	80	30	4.5	3.4	6	3	5.2
M6 × 0.5		TC473336	13	80	30	4.5	3.4	6	3	5.5
M7 × 0.75		TC473356	14	80	30	5.5	4.3	7	3	6.2
M8 × 1		TC473376	17	90	36	6	4.9	8	3	7
M8 × 0.75		TC473386	14	80	30	6	4.9	8	3	7.2
M8 × 0.5		TC473936	14	80	30	6	4.9	8	3	7.5
M10 × 1.25		TC473436	22	100	40	7	5.5	8	3	8.8
M10 × 1		TC473446	18	90	36	7	5.5	8	3	9
M10 × 0.75		TC473456	18	90	36	7	5.5	8	3	9.2
M12 × 1.5		TC473516	22	100	40	9	7	10	3	10.5
M12 × 1.25		TC473526	22	100	40	9	7	10	3	10.8
M12 × 1		TC473536	18	100	40	9	7	10	3	11
M14 × 1.5		TC473556	22	100	40	11	9	12	3	12.5
M14 × 1.25		TC473566	22	100	40	11	9	12	3	12.8
M14 × 1		TC473576	18	100	40	11	9	12	3	13
M16 × 1.5		TC473616	22	100	40	12	9	12	3	14.5
M18 × 1.5		TC473676	25	110	44	14	11	14	4	16.5
M20 × 1.5		TC473726	25	125	50	16	12	15	4	18.5
M22 × 1.5		TC473766	25	125	50	18	14.5	17	4	20.5
M24 × 1.5		TC473806	27	140	54	18	14.5	17	4	22.5

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

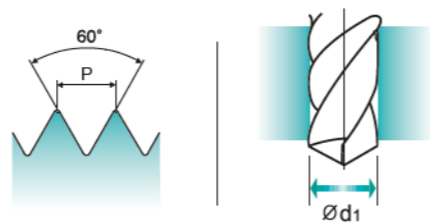
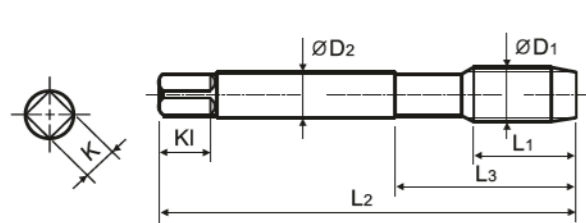
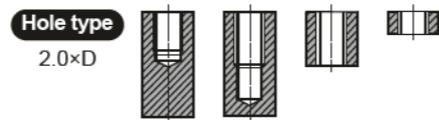
ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	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					○	○	○														

**UNC** Unified coarse threads  
 Unified Grobgewinde  
 UNC  
 Unificato passo grosso

Machine taps  
 Maschinengewindebohrer

Suitable for tapping shallow holes.

Geeignet zum Gewindeschneiden flacher Sacklöcher.



Material groups: **GS** HSS-E DIN 371/376 2B 60° C Bright p.B169

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

Recommended Cutting Page : P.161

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	KI	Z	Ød1
#4	- 40UNC	TC424162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TC424202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TC424242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TC424282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TC424322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TC424362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TC424402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TC424442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TC424482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TC424522	22	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TC424562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TC424602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC424642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC424702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TC424742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TC424782	36	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TC424822	40	180	70	22	18	21	4	25

DIN 371(#4~3/8) and DIN 376(7/16~1- 1/8)

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

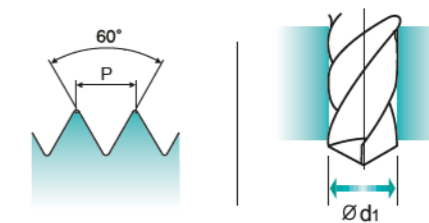
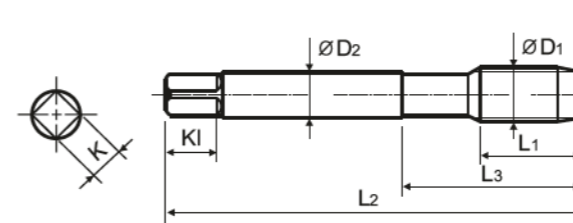
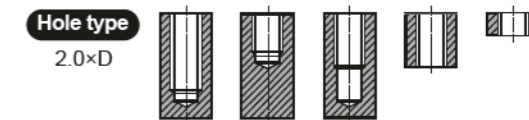
ISO	N					S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	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					○	○	○															

**M** ISO metric coarse threads DIN 13  
 Metrisches ISO-Gewinde DIN 13  
 ISO MÉTRIQUE DIN13  
 ISO Metrico passo grosso DIN 13

Sets of taps  
 Gewindebohrer -Satz

This tap is a serial hand tap in set, First, Second and Bottoming.  
 Bottoming tap of set has final internal thread dimensions only.

Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
 Nur der Fertigschneider kann das gewünschte Gewinde schneiden



Material groups: **GS** HSS DIN 352 6H 60° I/II/III Bright p.B169

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

Recommended Cutting Page : P.161

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	× 0.4	T7109139	8	36	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	T7109159	9	36	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	T7109199	9	36	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	T7109179	9	40	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	T7109499	9	40	15	2.8	2.1	5	3	2.1
M3	× 0.5	T7109209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	T7109229	13	45	21	4	3	6	3	2.9
M4	× 0.7	T7109249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	T7109269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	T7109289	16	52	26	6	4.9	8	3	4.2
M5.5	× 0.9	T7109N69	18	56	27	6	4.9	8	3	4.6
M6	× 1	T7109319	18	56	27	6	4.9	8	3	5
M7	× 1	T7109349	18	56	28.5	6	4.9	8	3	6
M8	× 1.25	T7109369	20	63	34	6	4.9	8	3	6.8
M9	× 1.25	T7109399	20	63	34	7	5.5	8	4	7.8
M10	× 1.5	T7109429	22	70	38	7	5.5	8	4	8.5
M11	× 1.5	T7109469	22	70	38	8	6.2	9	4	9.5
M12	× 1.75	T7109509	24	80	45	9	7	10	4	10.2
M14	× 2	T7109549	26	80	45	11	9	12	4	12
M16	× 2	T7109609	27	80	45	12	9	12	4	14
M18	× 2.5	T7109659	30	95	58	14	11	14	4	15.5
M20	× 2.5	T7109709	32	95	58	16	12	15	4	17.5

\*DIN profile not ISO

NEXT PAGE

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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					○	○	○															

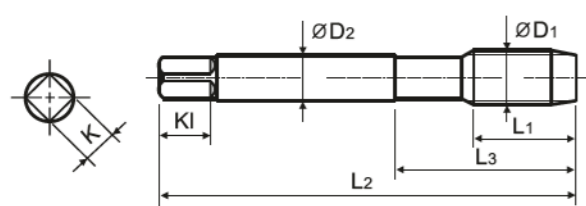
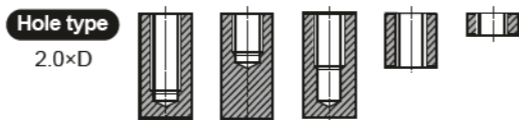
**M ISO metric coarse threads DIN 13**

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

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First, Second and Bottoming.  
► Bottoming tap of set has final internal thread dimensions only.

► Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 352 6H 60° I/II/III Bright p.B169

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

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
M22 × 2.5		T7109749	32	100	62	18	14.5	17	4	19.5
M24 × 3		T7109789	34	110	69	18	14.5	17	4	21
M27 × 3		T7109869	36	110	69	20	16	19	4	24
M30 × 3.5		T7109949	40	125	77	22	18	21	4	26.5
M33 × 3.5		T7109A49	40	125	77	25	20	23	4	29.5
M36 × 4		T7109B39	50	150	88	28	22	25	4	32
M39 × 4		T7109C09	50	150	88	32	24	27	4	35
M42 × 4.5		T7109C89	56	150	88	32	24	27	4	37.5
M45 × 4.5		T7109D59	58	160	93	36	29	32	4	40.5
M48 × 5		T7109E29	65	180	102	36	29	32	4	43
M52 × 5		T7109F39	65	180	102	40	32	35	4	47

►\*DIN profile not ISO

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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					○	○	○	○													

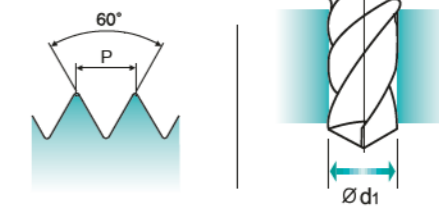
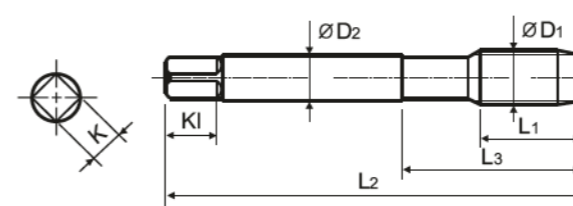
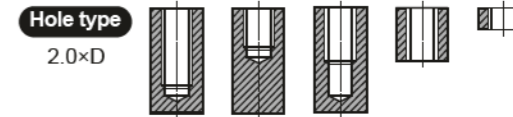
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Gewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First and Bottoming.  
► Bottoming tap of set has final internal thread dimensions only.

► Handgewindebohrersatz mit Vor- und Fertigschneider.  
► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 2181 6H 60° I/III Bright p.B169

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

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 × 0.35		T7309219	9	40	18	3.5	2.7	6	3	2.65
M4 × 0.5		T7309259	10	45	18	4.5	3.4	6	3	3.5
M5 × 0.5		T7309299	13	52	22	6	4.9	8	3	4.5
M6 × 0.75		T7309329	14	56	24	6	4.9	8	3	5.2
M6 × 0.5		T7309339	13	56	24	6	4.9	8	3	5.5
M7 × 0.75		T7309359	14	56	27	6	4.9	8	3	6.2
M8 × 1		T7309379	17	63	27	6	4.9	8	3	7
M8 × 0.75		T7309389	14	63	27	6	4.9	8	3	7.2
M8 × 0.5		T7309939	14	63	27	6	4.9	8	3	7.5
M9 × 1		T7309409	17	63	27	7	5.5	8	4	8
M10 × 1.25		T7309439	22	70	32	7	5.5	8	4	8.8
M10 × 1		T7309449	18	63	27	7	5.5	8	4	9
M10 × 0.75		T7309459	18	63	27	7	5.5	8	4	9.2
M11 × 1		T7309479	18	63	27	8	6.2	9	4	10
M12 × 1.5		T7309519	20	70	32	9	7	10	4	10.5
M12 × 1.25		T7309529	20	70	32	9	7	10	4	10.8
M12 × 1		T7309539	18	70	32	9	7	10	4	11
M13 × 1.5		T7309N19	20	70	32	11	9	12	4	11.5
M13 × 1		T7309N29	18	70	32	11	9	12	4	12
M14 × 1.5		T7309559	20	70	32	11	9	12	4	12.5
M14 × 1.25		T7309569	20	70	32	11	9	12	4	12.8
M14 × 1		T7309579	18	70	32	11	9	12	4	13
M15 × 1.5		T7309589	20	70	32	12	9	12	4	13.5
M15 × 1		T7309599	18	70	32	12	9	12	4	14
M16 × 1.5		T7309619	20	70	32	12	9	12	4	14.5

► NEXT PAGE

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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					○	○	○	○													

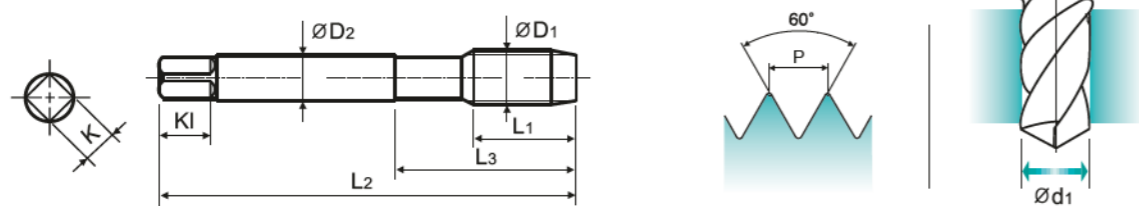
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN 13
- ISO Metrico passo fine DIN 13

Sets of taps  
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First and Bottoming.  
▶ Bottoming tap of set has final internal thread dimensions only.

▶ Handgewindebohrersatz mit Vor- und Fertigschneider.  
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 2181 6H 60° I/III Bright p.B169

Recommended ToolHolder: Plain Shank 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
M16 × 1		T7309629	18	70	32	12	9	12	4	15
M18 × 2		T7309669	22	80	35	14	11	14	4	16
M18 × 1.5		T7309679	22	80	35	14	11	14	4	16.5
M18 × 1		T7309689	18	80	35	14	11	14	4	17
M20 × 2		T7309719	22	80	35	16	12	15	4	18
M20 × 1.5		T7309729	22	80	35	16	12	15	4	18.5
M20 × 1		T7309739	18	80	35	16	12	15	4	19
M22 × 2		T7309759	22	80	35	18	14.5	17	4	20
M22 × 1.5		T7309769	22	80	35	18	14.5	17	4	20.5
M22 × 1		T7309779	18	80	35	18	14.5	17	4	21
M24 × 2		T7309799	22	90	40	18	14.5	17	4	22
M24 × 1.5		T7309809	22	90	40	18	14.5	17	4	22.5
M24 × 1		T7309819	18	90	40	18	14.5	17	4	23
M25 × 1.5		T7309839	22	90	40	18	14.5	17	4	23.5
M25 × 1		T7309849	18	90	40	18	14.5	17	4	24
M26 × 1.5		T7309859	22	90	40	18	14.5	17	4	24.5
M26 × 1		T7309869	18	90	40	18	14.5	17	4	25
M27 × 2		T7309879	22	90	40	20	16	19	4	25
M27 × 1.5		T7309889	22	90	40	20	16	19	4	25.5
M27 × 1		T7309899	18	90	40	20	16	19	4	26
M28 × 2		T7309909	22	90	40	20	16	19	4	26
M28 × 1.5		T7309919	22	90	40	20	16	19	4	26.5
M30 × 2		T7309969	22	90	40	22	18	21	4	28
M30 × 1.5		T7309979	22	90	40	22	18	21	4	28.5
M30 × 1		T7309989	18	90	40	22	18	21	4	29

© : Excellent ○ : Good

ISO Material Description	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	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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					○	○	○	○													

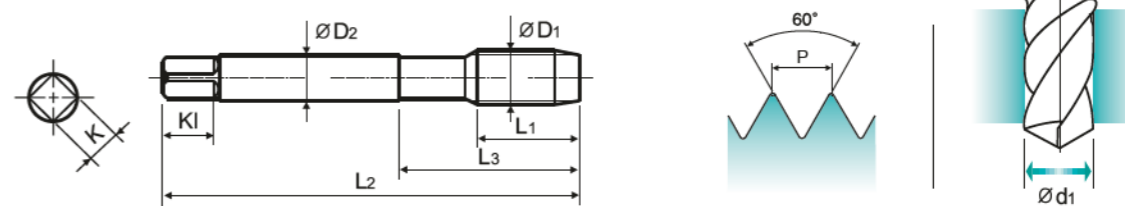
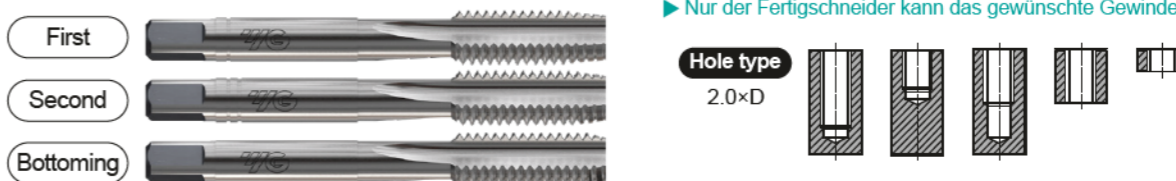
**UNC Unified coarse threads**

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Sets of taps  
Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First, Second and Bottoming.  
▶ Bottoming tap of set has final internal thread dimensions only.

▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 351 2B 60° I/II/III Bright p.B169

Recommended ToolHolder: Plain Shank 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
#2 - 56UNC		T7363089	9	36	13	2.8	2.1	5	3	1.8
#3 - 48UNC		T7363129	10	40	15	2.8	2.1	5	3	2.1
#4 - 40UNC		T7363169	10	42	18	3.5	2.7	6	3	2.3
#5 - 40UNC		T7363209	10	42	18	3.5	2.7	6	3	2.6
#6 - 32UNC		T7363249	11	45	18	4	3	6	3	2.85
#8 - 32UNC		T7363289	12	48	23	4.5	3.4	6	3	3.5
#10 - 24UNC		T7363329	14	52	26	6	4.9	6	3	3.9
#12 - 24UNC		T7363369	16	56	27	6	4.9	8	3	4.5
1/4 - 20UNC		T7363409	16	56	27	6	4.9	8	3	5.2
5/16 - 18UNC		T7363449	20	63	34	6	4.9	8	3	6.6
3/8 - 16UNC		T7363489	22	70	38	7	5.5	8	4	8
7/16 - 14UNC		T7363529	22	70	38	8	6.2	9	4	9.4
1/2 - 13UNC		T7363569	25	80	45	9	7	10	4	10.75
9/16 - 12UNC		T7363609	26	80	45	11	9	12	4	12.25
5/8 - 11UNC		T7363649	27	90	55	12	9	12	4	13.5
3/4 - 10UNC		T7363709	32	105	65	14	11	14	4	16.5
7/8 - 9UNC		T7363749	32	110	69	18	14.5	17	4	19.5
1 - 8UNC		T7363789	36	110	69	20	16	19	4	22.25
1-1/8 - 7UNC		T7363829	40	125	77	22	18	21	4	25
1-1/4 - 7UNC		T7363869	40	125	77	25	20	23	4	28.25
1-1/8 - 6UNC		T7363909	50	150	88	28	22	25	4	30.75
1-1/2 - 6UNC		T7363949	50	150	88	32	24	27	4	34
1-3/4 - 5UNC		T7363B89	58	160	93	36	29	32	4	39.5
2 - 4½UNC		T7363D29	65	180	102	40	32	35	4	45.25

© : Excellent ○ : Good

ISO Material Description	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	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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					○	○	○	○													

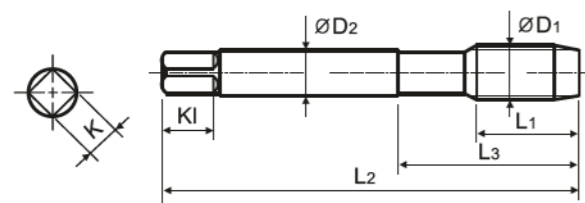
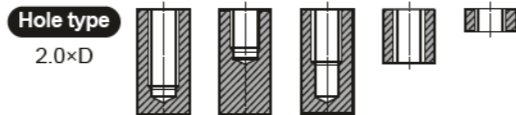


**UNF** Unified fine threads  
 Unified Feingewinde  
 UNF  
 Unificato passo fine

Sets of taps  
 Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First and Bottoming.  
 ▶ Bottoming tap of set has final internal thread dimensions only.

▶ Handgewindebohrersatz mit Vor- und Fertigschneider.  
 ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 2181 2B 60° I/III Bright p.B169

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

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	KI	Z	Ød1
#4 - 48 UNF		T7509189	10	42	18	3.5	2.7	6	3	2.4
#5 - 44 UNF		T7509229	10	42	18	3.5	2.7	6	3	2.7
#6 - 40 UNF		T7509269	11	45	18	4	3	6	3	3
#8 - 36 UNF		T7509309	12	48	23	4.5	3.4	6	3	3.5
#10 - 32 UNF		T7509349	14	52	22	6	4.9	8	3	4.1
#12 - 28 UNF		T7509389	16	56	24	6	4.9	8	3	4.7
1/4 - 28 UNF		T7509429	16	56	24	6	4.9	8	3	5.5
5/16 - 24 UNF		T7509469	17	63	27	6	4.9	8	3	6.9
3/8 - 24 UNF		T7509509	18	63	27	7	5.5	8	4	8.5
7/16 - 20 UNF		T7509549	20	70	32	8	6.2	9	4	9.9
1/2 - 20 UNF		T7509589	20	70	32	9	7	10	4	11.5
9/16 - 18 UNF		T7509629	20	70	32	11	9	12	4	12.9
5/8 - 18 UNF		T7509669	20	70	32	12	9	12	4	14.5
3/4 - 16 UNF		T7509729	22	80	38	14	11	14	4	17.5
7/8 - 14 UNF		T7509769	22	80	38	18	14.5	17	4	20.5
1 - 12 UNF		T7509809	22	90	40	18	14.5	17	4	23.25
1-1/8 - 12 UNF		T7509849	22	90	40	22	18	21	4	26.5

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

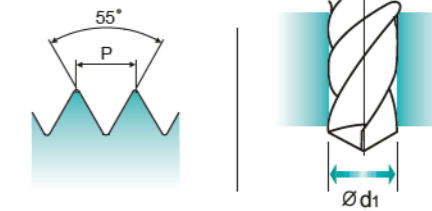
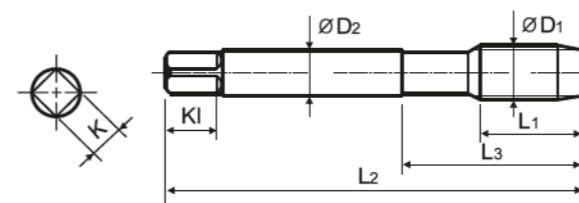
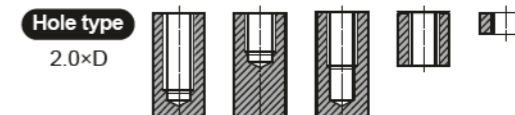
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	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					○	○	○	○													

**BSW** Whitworth threads  
 Whitworth Gewinde  
 BSW  
 Filettatura Whitworth

Sets of taps  
 Gewindebohrer-Satz

▶ This tap is a serial hand tap in set, First, Second and Bottoming.  
 ▶ Bottoming tap of set has final internal thread dimensions only.

▶ Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
 ▶ Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 351 55° I/II/III Bright p.B169

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

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	KI	Z	Ød1
W3/32 - 48		T7609129	10	40	15	2.8	2.1	5	3	1.8
W1/8 - 40		T7609209	10	42	18	3.5	2.7	6	3	2.5
W5/32 - 32		T7609289	12	48	23	4.5	3.4	6	3	3.1
W3/16 - 24		T7609329	14	52	26	6	4.9	8	3	3.6
W7/32 - 24		T7609369	16	56	27	6	4.9	8	3	4.4
W1/4 - 20		T7609409	16	56	27	6	4.9	8	3	5.1
W5/16 - 18		T7609449	20	63	34	6	4.9	8	3	6.5
W3/8 - 16		T7609489	22	70	38	7	5.5	8	4	7.9
W7/16 - 14		T7609529	22	70	38	8	6.2	9	4	9.3
W1/2 - 12		T7609569	25	80	45	9	7	10	4	10.5
W9/16 - 12		T7609609	26	80	45	11	9	12	4	12
W5/8 - 11		T7609649	27	90	55	12	9	12	4	13.5
W3/4 - 10		T7609709	32	105	65	14	11	14	4	16.5
W7/8 - 9		T7609749	32	110	69	18	14.5	17	4	19.25
W1 - 8		T7609789	36	110	69	20	16	19	4	22
W1-1/8 - 7		T7609829	40	125	77	22	18	21	4	24.75
W1-1/4 - 7		T7609869	40	125	77	25	20	23	4	27.75
W1-3/8 - 6		T7609909	50	150	88	28	22	25	4	30.5
W1-1/2 - 6		T7609949	50	150	88	32	24	27	4	33.5
W1-5/8 - 5		T7609989	56	150	88	32	24	27	4	35.5
W1-3/4 - 5		T7609889	58	160	93	36	29	32	4	39
W1-7/8 - 4½		T7609C69	65	180	102	36	29	32	4	41.5
W2 - 4½		T7609D29	65	180	102	40	32	35	4	44.5

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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					○	○	○	○													

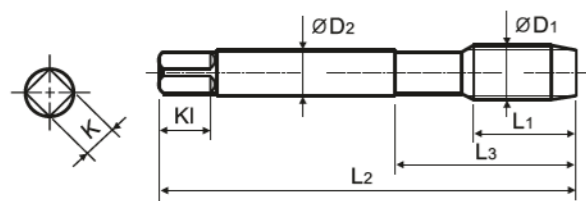
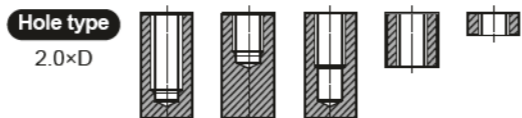
**M-LH ISO metric coarse threads DIN 13**

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

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First, Second and Bottoming.  
► Bottoming tap of set has final internal thread dimensions only.

► Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 352 6H 60° I/II/III Bright p.B169

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

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
M3	× 0.5	T7343209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	T7343229	13	45	21	4	3	6	3	2.9
M4	× 0.7	T7343249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	T7343269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	T7343289	16	52	26	6	4.9	8	3	4.2
M6	× 1	T7343319	18	56	27	6	4.9	8	3	5
M8	× 1.25	T7343369	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	T7343429	22	70	38	7	5.5	8	4	8.5
M12	× 1.75	T7343509	24	80	45	9	7	10	4	10.2
M14	× 2	T7343549	26	80	45	11	9	12	4	12
M16	× 2	T7343609	27	80	45	12	9	12	4	14
M18	× 2.5	T7343659	30	95	58	14	11	14	4	15.5
M20	× 2.5	T7343709	32	95	58	16	12	15	4	17.5
M22	× 2.5	T7343749	32	100	62	18	14.5	17	4	19.5
M24	× 3	T7343789	34	110	69	18	14.5	17	4	21
M27	× 3	T7343869	36	110	69	20	16	19	4	24
M30	× 3.5	T7343949	40	125	77	22	18	21	4	26.5

► LH=Left hand thread

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

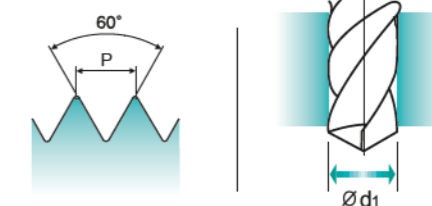
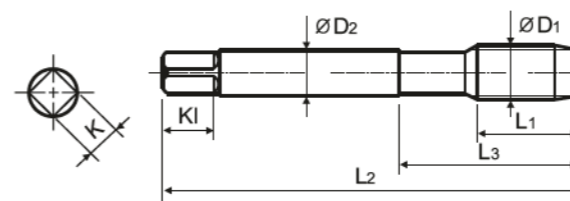
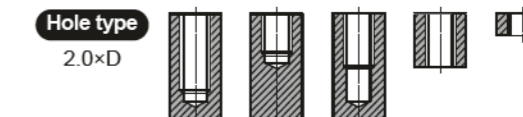
**M ISO metric coarse threads DIN 13**

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

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First, Second and Bottoming.  
► Bottoming tap of set has final internal thread dimensions only.

► Dies ist ein Handgewindebohrer im Satz mit Vor-, Mittel- und Fertigschneider.  
► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS-E DIN 352 6HX 60° I/II/III Vap p.B169

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

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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M3	× 0.5	TB373209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB373229	13	45	21	4	3	6	3	2.9
M4	× 0.7	TB373249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB373269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	TB373289	16	52	26	6	4.9	8	3	4.2
M6	× 1	TB373319	18	56	27	6	4.9	8	3	5
M8	× 1.25	TB373369	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TB373429	22	70	38	7	5.5	8	4	8.5
M12	× 1.75	TB373509	24	80	45	9	7	10	4	10.2
M14	× 2	TB373549	26	80	45	11	9	12	4	12
M16	× 2	TB373609	27	80	45	12	9	12	4	14
M18	× 2.5	TB373659	30	95	58	14	11	14	4	15.5
M20	× 2.5	TB373709	32	95	58	16	12	15	4	17.5

► First with pilot guide

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

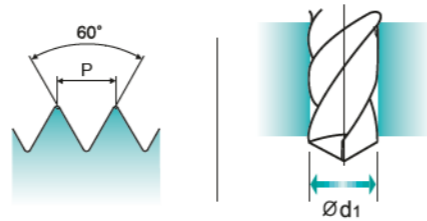
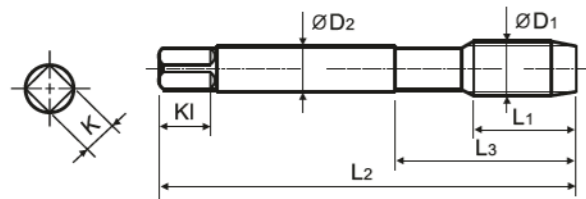
**M ISO metric coarse threads DIN 13**

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

Sets of taps  
Gewindebohrer-Satz

► This tap is a serial hand tap in set, First, Second and Bottoming.  
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► Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **VG** HSS-E DIN 352 6H 60° I/II/III Bright p.B169

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

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	K1	Z	Ød1
M3	× 0.5	TC353209	11	40	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC353229	13	45	21	4	3	6	3	2.9
M4	× 0.7	TC353249	13	45	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC353269	16	50	25	6	4.9	8	3	3.7
M5	× 0.8	TC353289	16	52	26	6	4.9	8	3	4.2
M6	× 1	TC353319	18	56	27	6	4.9	8	3	5
M8	× 1.25	TC353369	20	63	34	6	4.9	8	3	6.8
M10	× 1.5	TC353429	22	70	38	7	5.5	8	4	8.5
M12	× 1.75	TC353509	24	80	45	9	7	10	4	10.2
M14	× 2	TC353549	26	80	45	11	9	12	4	12
M16	× 2	TC353609	27	80	45	12	9	12	4	14
M18	× 2.5	TC353659	30	95	58	14	11	14	4	15.5
M20	× 2.5	TC353709	32	95	58	16	12	15	4	17.5

► First with pilot guide

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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																						

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)											
					TC711 TC411 TC144 TC124 TC134	TD711 TD411	TC517 TC612	TC127 TC122 TC214 TC234 TC224	TD127 TD222	TC227	TD227	TC211	TC463 TC473 TC424			
P	1	Non-alloy steel	125		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	15-20			
	2		190	13	15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20	15-20			
	3		250	25	12-18	18-24	12-18	12-18	18-24	12-18	18-24	12-18	12-18			
	4		270	28	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	5	300	32	6-10	10-14	6-10	6-10	10-14	6-10	10-14	6-10	6-10				
	6	Low alloy steel	180	10	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	7		275	29	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	8		300	32	6-10	10-14	6-10	6-10	10-14	6-10	10-14	6-10	6-10			
M	12		Stainless steel	200	15	7-10	10-13	7-10	7-10	10-13	7-10	10-13	7-10	7-10		
13	240	23		5-8	8-11	5-8	5-8	8-11	5-8	8-11	5-8	5-8				
K	15	Grey cast iron	180	10									10-15			
	16		260	26									5-8			
	17	Nodular cast iron	160	3	10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	18		250	25	5-8	8-11	5-8	5-8	8-11	5-8	8-11	5-8	5-8			
N	21	Aluminum-wrought alloy	60		10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15				
	23	Aluminum-cast, alloyed	75		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20				
	24		90		15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20				
	25		130		10-15	15-20	10-15	10-15	15-20	10-15	15-20	10-15	10-15			
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	35-40	25-35	25-35	35-40	25-35	35-40	25-35	25-35			
	27		90										8-12			
28	100			15-20	20-25	15-20	15-20	20-25	15-20	20-25	15-20					



Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation

**HSS-E & HSS-PM**

# **YG TAP STEEL**

## **YG Gewindebohrer Stähle**

- For Steel Materials but also other Long Chip Forming Materials
- Für Stahlwerkstoffe, aber auch andere langspanende Werkstoffe



# HSS-E & HSS-PM YG TAP STEEL

For Steel Materials but also other Long Chip Forming Materials

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
◎ : Excellent ○ : Good  
Recommended cutting conditions : p.B197

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	SURFACE TREATMENT				
						VAP	Bright	Bright	TiN	
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	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		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				

HOLE TYPE	Max. 2.5xD Blind Hole				
	HSS-PM		HSS-E		
TOOL MATERIAL	C	C	C	C	
CHAMFER LEAD ACC. TO DIN2197	C	C	C	C	
FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Flute	
SPIRAL FLUTE ANGLE	R40	R40	R40	R40	
M	DIN371/376	TQ823 (p.B174)	TR823 (p.B175)	TC312 (p.B176)	TD312 (p.B177)
		DIN352			
		DIN357/LONG			
	MF	DIN374		TC413 (p.B180)	TD413 (p.B181)
		DIN2181			
	UNC	DIN371/376		TC174 (p.B182)	TD174 (p.B183)
		DIN351			
	UNF	DIN371/374		TC184 (p.B184)	
		DIN2181			
	BSW	DIN2182/2183			
DIN351					
G(BSP)	DIN5156/5157				
EG-M	DIN371/376				
EG-UNC	DIN371/376				
EG-UNF	DIN371/374				
MODEL					

HOLE TYPE	Max. 2.5xD Blind Hole				Max. 3.0xD Through Hole					
	HSS-E		HSS-PM		HSS-E					
TOOL MATERIAL	C	C	C	B	B	B	B	B		
CHAMFER LEAD ACC. TO DIN2197	C	C	C	B	B	B	B	B		
FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Spiral Point	Spiral Point	Spiral Point		
SPIRAL FLUTE ANGLE	R40	R40	R40	-	-	-	-	-		
M	Spiral Flute	TB312 (p.B178)	TY312 (p.B179)	TB913 (p.B185)	TQ863 (p.B186)	TR863 (p.B187)	TC422 (p.B188)	TD422 (p.B189)	TE422 (p.B190)	TY422 (p.B191)
MF	Spiral Point						TC263 (p.B192)	TD263 (p.B193)		
UNC	Spiral Point						TC244 (p.B194)	TD244 (p.B195)		
UNF	Spiral Point						TC254 (p.B196)			
BSW	Spiral Point									
G(BSP)	Spiral Point									
EG-M	Spiral Point									
EG-UNC	Spiral Point									
EG-UNF	Spiral Point									

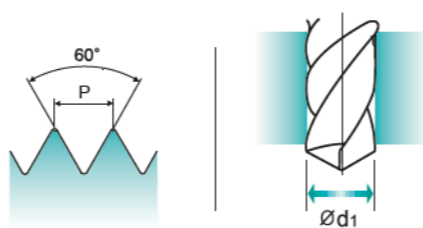
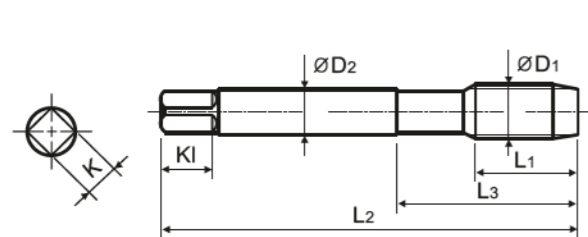
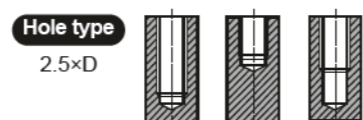
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **VG** HSS PM DIN 371/376 6H 60° C R40 Vap p.B197

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TQ823136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ823156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ823176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ823206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ823226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TQ823246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ823266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ823286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TQ823316	10	80	30	6	4.9	8	3	5
M7	× 1	TQ823346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TQ823366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ823426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ823506	18	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : 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	30	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	15	30	25	38	34	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

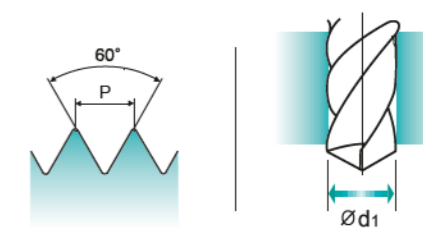
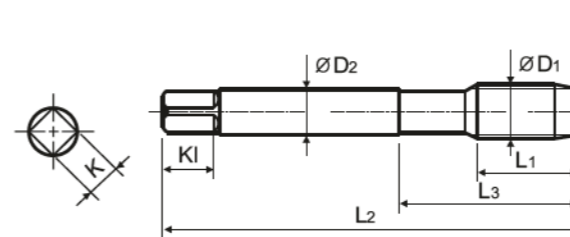
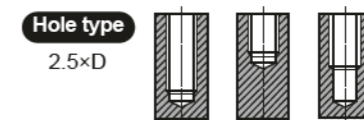
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Material groups: **VG** HSS PM DIN 371/376 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M2	× 0.4	TR823136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR823156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR823176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR823206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR823226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TR823246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR823266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR823286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TR823316	10	80	30	6	4.9	8	3	5
M7	× 1	TR823346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TR823366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR823426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TR823506	18	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : 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	30	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	15	30	25	38	34	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TC312 SERIES

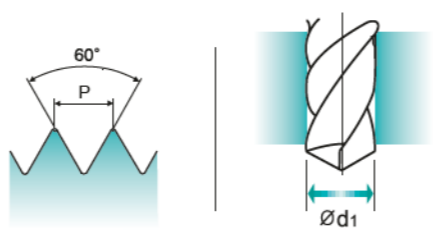
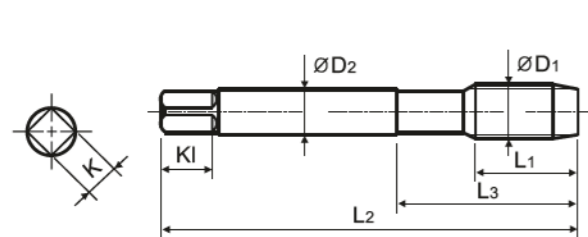
M ISO metric coarse threads DIN 13

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

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.



Material groups: VG HSS-E DIN 371/376 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M2	× 0.4	TC312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TC312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TC312316	10	80	30	6	4.9	8	3	5
M7	× 1	TC312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TC312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TC312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TC312466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC312506	18	110	44	9	7	10	3	10.2
M14	× 2	TC312546	20	110	44	11	9	12	3	12
M16	× 2	TC312606	20	110	44	12	9	12	3	14
M18	× 2.5	TC312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TC312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TC312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TC312786	30	160	60	18	14.5	17	4	21
M27	× 3	TC312866	30	160	60	20	16	19	4	24
M30	× 3.5	TC312946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TD312 SERIES

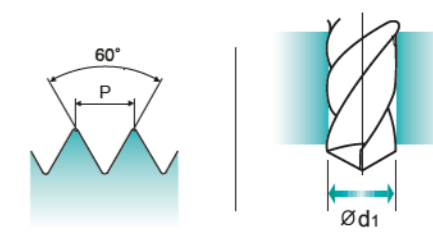
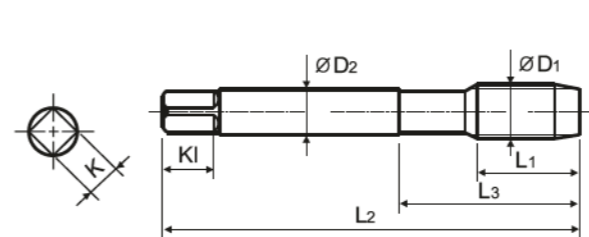
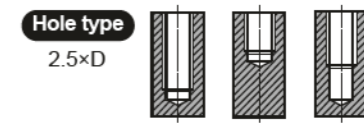
M ISO metric coarse threads DIN 13

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

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.



Material groups: VG HSS-E DIN 371/376 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank 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	TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TD312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TD312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TD312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TD312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TD312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TD312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TD312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TD312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TD312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TD312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TD312316	10	80	30	6	4.9	8	3	5
M7	× 1	TD312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TD312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TD312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TD312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TD312466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TD312506	18	110	44	9	7	10	3	10.2
M14	× 2	TD312546	20	110	44	11	9	12	3	12
M16	× 2	TD312606	20	110	44	12	9	12	3	14
M18	× 2.5	TD312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TD312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TD312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TD312786	30	160	60	18	14.5	17	4	21
M27	× 3	TD312866	30	160	60	20	16	19	4	24
M30	× 3.5	TD312946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	◎	○	○	○	◎	◎	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



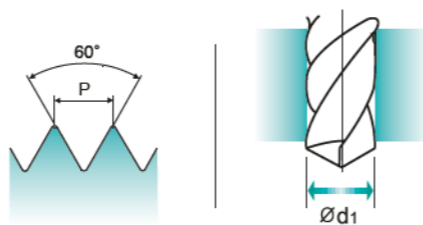
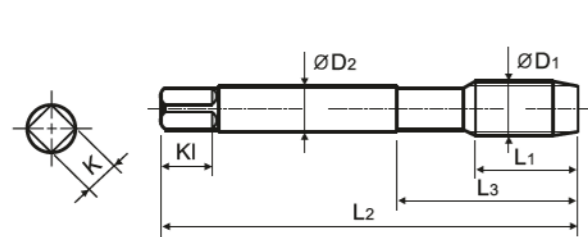
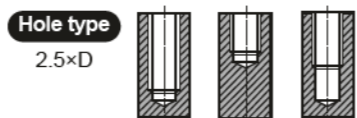
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for threading blind holes due to excellent chip evacuation of tempered steels or similar work materials.

► Geeignet zum Gewinden von Sacklöchern dank ausgezeichneter Spanabfuhr von angelassenen Stählen oder ähnlichen Werkstoffen.



Material groups: **VG** HSS-E DIN 371/376 6H 60° C R40 Vap p.B197

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TB312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB312316	10	80	30	6	4.9	8	3	5
M7	× 1	TB312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB312466	17	100	40	8	6.2	12	3	9.5
M12	× 1.75	TB312506	18	110	44	9	7	10	3	10.2
M14	× 2	TB312546	20	110	44	11	9	12	3	12
M16	× 2	TB312606	20	110	44	12	9	12	3	14
M18	× 2.5	TB312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB312786	30	160	60	18	14.5	17	4	21
M27	× 3	TB312866	30	160	60	20	16	19	4	24
M30	× 3.5	TB312946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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	15	30	25	38	34	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

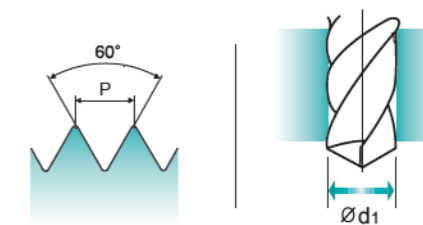
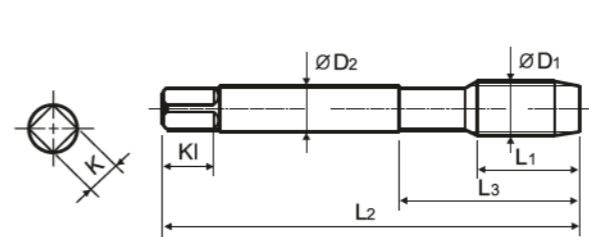
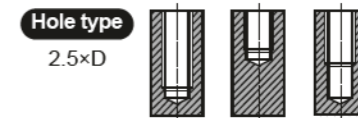
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **VG** HSS-E DIN 371/376 6H 60° C R40 TiAlN p.B197

Recommended ToolHolder: Plain Shank 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	TiAlN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TY312136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY312156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY312196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY312176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY312496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY312206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY312226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TY312246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY312266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY312286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TY312316	10	80	30	6	4.9	8	3	5
M7	× 1	TY312346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TY312366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY312396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TY312426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TY312466	17	100	40	8	6.2	12	3	9.5
M12	× 1.75	TY312506	18	110	44	9	7	10	3	10.2
M14	× 2	TY312546	20	110	44	11	9	12	3	12
M16	× 2	TY312606	20	110	44	12	9	12	3	14
M18	× 2.5	TY312656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TY312706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TY312746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TY312786	30	160	60	18	14.5	17	4	21
M27	× 3	TY312866	30	160	60	20	16	19	4	24
M30	× 3.5	TY312946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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	15	30	25	38	34	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended																					

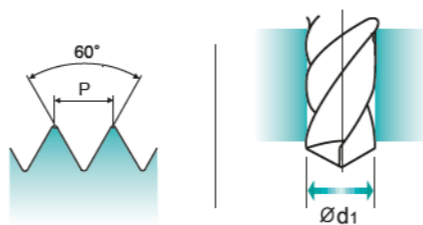
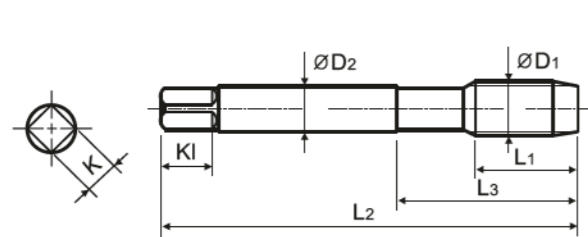
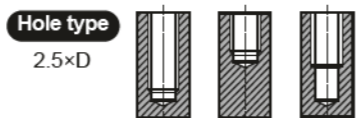
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

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.



Material groups: **VG** HSS-E DIN 374 6H 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M4	× 0.5	TC413256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC413296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC413326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC413336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC413356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC413376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TC413386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TC413436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TC413446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TC413456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC413516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TC413526	15	100	40	9	7	10	3	10.8
M12	× 1	TC413536	11	100	40	9	7	10	3	11
M14	× 1.5	TC413556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TC413566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TC413616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TC413676	17	110	44	14	11	14	4	16.5
M20	× 1.5	TC413726	17	125	50	16	12	15	4	18.5
M22	× 1.5	TC413766	17	125	50	18	14.5	17	4	20.5
M24	× 1.5	TC413806	20	140	54	18	14.5	17	4	22.5

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

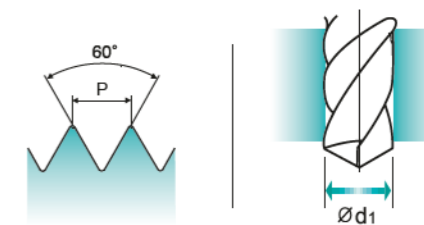
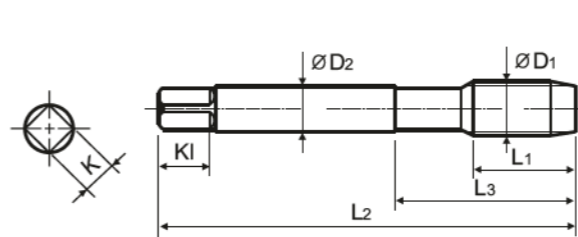
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

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.



Material groups: **VG** HSS-E DIN 374 6H 60° C R40 **TiN** p.B197

Recommended ToolHolder: Plain Shank 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	TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M4	× 0.5	TD413256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD413296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD413326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD413336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD413356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD413376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TD413386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TD413436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TD413446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TD413456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD413516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TD413526	15	100	40	9	7	10	3	10.8
M12	× 1	TD413536	11	100	40	9	7	10	3	11
M14	× 1.5	TD413556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TD413566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TD413616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TD413676	17	110	44	14	11	14	4	16.5
M20	× 1.5	TD413726	17	125	50	16	12	15	4	18.5
M22	× 1.5	TD413766	17	125	50	18	14.5	17	4	20.5
M24	× 1.5	TD413806	20	140	54	18	14.5	17	4	22.5

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TC174 SERIES

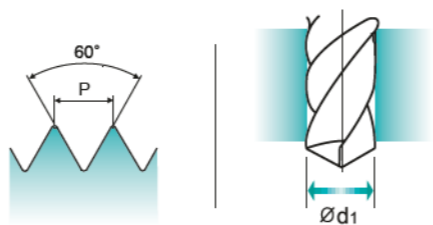
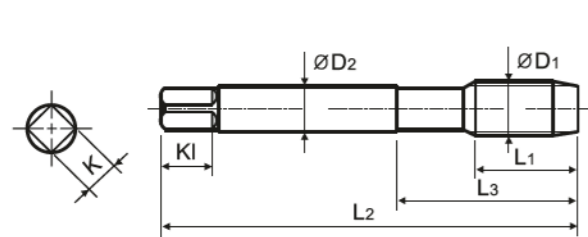
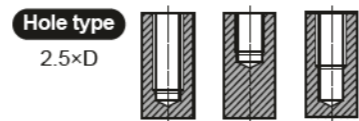
# UNC Unified coarse threads

Unified Grobgewinde  
 UNC  
 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.



Material groups: **VG** HSS-E DIN 371/376 2B 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
#4	- 40UNC	TC174162	6	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TC174202	7	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TC174242	7	56	20	4	3	6	3	2.85
#8	- 32UNC	TC174282	8	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TC174322	10	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TC174362	10	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TC174402	13	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TC174442	14	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TC174482	16	100	39	9	7	10	3	8
7/16	- 14UNC	TC174522	17	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TC174562	20	110	44	9	7	10	3	10.75
9/16	- 12UNC	TC174602	20	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC174642	22	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC174702	25	125	50	14	11	14	4	16.5
7/8	- 9UNC	TC174742	27	140	54	18	14.5	17	4	19.5
1	- 8UNC	TC174782	30	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TC174822	35	180	65	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

© : 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	30	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											○										



TD174 SERIES

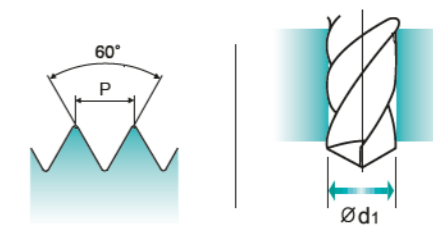
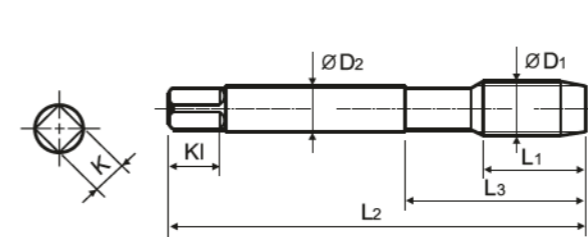
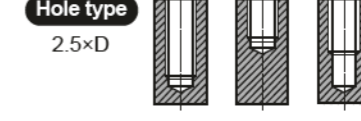
# UNC Unified coarse threads

Unified Grobgewinde  
 UNC  
 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.



Material groups: **VG** HSS-E DIN 371/376 2B 60° C R40 TiN p.B197

Recommended ToolHolder: Plain Shank 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		TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
#4	- 40UNC	TD174162	6	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TD174202	7	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TD174242	7	56	20	4	3	6	3	2.85
#8	- 32UNC	TD174282	8	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TD174322	10	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TD174362	10	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TD174402	13	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TD174442	14	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TD174482	16	100	39	9	7	10	3	8
7/16	- 14UNC	TD174522	17	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TD174562	20	110	44	9	7	10	3	10.75
9/16	- 12UNC	TD174602	20	110	44	11	9	12	3	12.25
5/8	- 11UNC	TD174642	22	110	44	12	9	12	3	13.5
3/4	- 10UNC	TD174702	25	125	50	14	11	14	4	16.5
7/8	- 9UNC	TD174742	27	140	54	18	14.5	17	4	19.5
1	- 8UNC	TD174782	30	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TD174822	35	180	65	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

© : 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	30	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

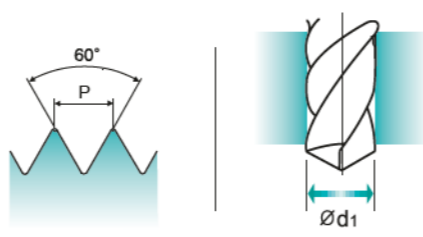
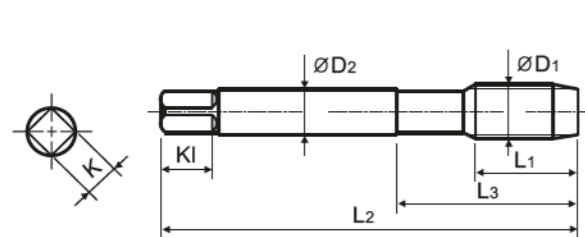
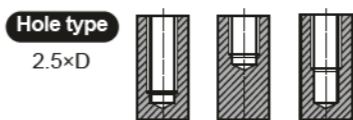
ISO	N										S				H						
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	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											○										

**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.



Material groups: **VG** HSS-E DIN 371/376 2B 60° C R40 Bright p.B197

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
#4	- 48UNF	TC184182	6	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TC184222	7	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TC184262	7	56	20	4	3	6	3	3
#8	- 36UNF	TC184302	8	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TC184342	10	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TC184382	10	80	30	6	4.9	8	3	4.7
1/4	- 28UNF	TC184422	10	80	30	7	5.5	8	3	5.5
5/16	- 24UNF	TC184462	10	90	35	8	6.2	9	3	6.9
3/8	- 24UNF	TC184502	10	100	39	9	7	10	3	8.5
7/16	- 20UNF	TC184542	13	100	40	8	6.2	9	3	9.9
1/2	- 20UNF	TC184582	13	100	40	9	7	10	3	11.5
9/16	- 18UNF	TC184622	15	100	40	11	9	12	3	12.9
5/8	- 18UNF	TC184662	15	100	40	12	9	12	3	14.5
3/4	- 16UNF	TC184722	17	110	44	14	11	14	4	17.5
7/8	- 14UNF	TC184762	17	125	50	18	14.5	17	4	20.5
1	- 12UNF	TC184802	20	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TC184842	22	150	60	22	18	21	4	26.5

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

◎ : 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	30	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	○	○	○	◎	○	○	○	◎	○	○	○	○	○	○	○	○	○	○	○	○

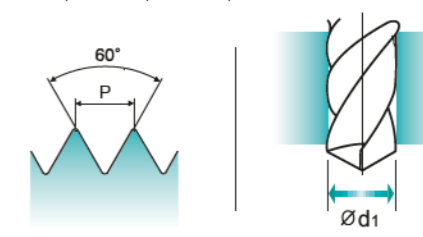
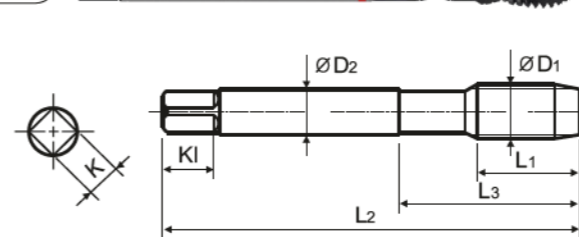
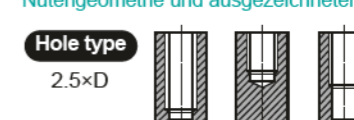
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron							
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	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											○					○					

**M** ISO metric coarse threads DIN 13  
 Metrisches ISO-Gewinde DIN 13  
 ISO MÉTRIQUE DIN13  
 ISO Metrico passo grosso DIN 13

Machine taps  
 Maschinengewindebohrer

► With recessed threads for machine tapping of deep blind holes.  
 ► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.  
 ► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VG** HSS-E DIN 371/376 6H 60° C R40 Vap p.B197

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2 × 0.4		TB913136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TB913156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TB913196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TB913176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TB913496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TB913206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TB913226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TB913246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TB913266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TB913286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TB913316	10	80	30	6	4.9	8	3	5
M7 × 1		TB913346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TB913366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TB913396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TB913426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TB913466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TB913506	18	110	44	9	7	10	3	10.2
M14 × 2		TB913546	20	110	44	11	9	12	3	12
M16 × 2		TB913606	20	110	44	12	9	12	3	14
M18 × 2.5		TB913656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TB913706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TB913746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TB913786	30	160	60	18	14.5	17	4	21
M27 × 3		TB913866	30	160	60	20	16	19	4	24
M30 × 3.5		TB913946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : 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	30	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											○					○					

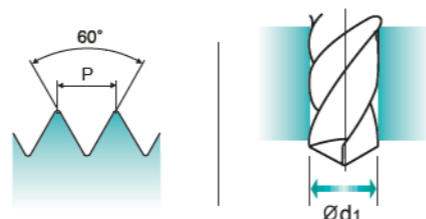
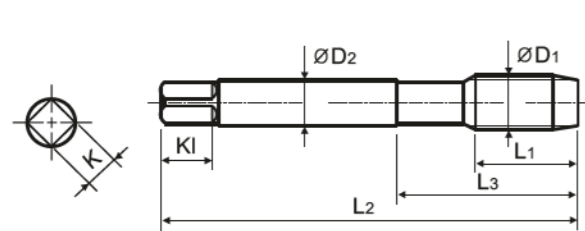
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: **VG** HSS PM DIN 371/376 6H 60° B Vap p.B197

Recommended ToolHolder: Plain Shank TAPPING ER-CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.189

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	Vap	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TQ863136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ863156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ863176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ863206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ863226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TQ863246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ863266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ863286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TQ863316	17	80	30	6	4.9	8	3	5
M7	× 1	TQ863346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TQ863366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ863426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TQ863506	24	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy 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	30	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

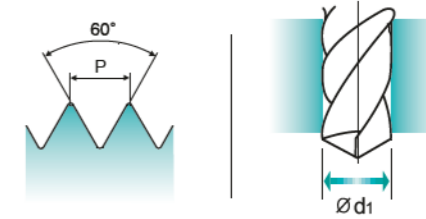
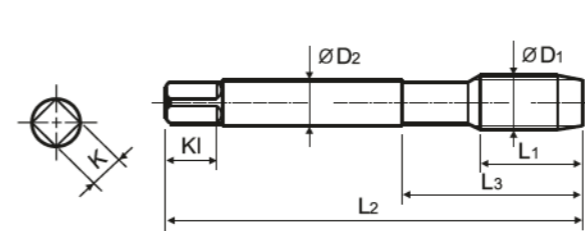
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: **VG** HSS PM DIN 371/376 6H 60° B Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER-CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.189

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	K1	Z	Ød1
M2	× 0.4	TR863136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR863156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR863176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR863206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR863226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TR863246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR863266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR863286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TR863316	17	80	30	6	4.9	8	3	5
M7	× 1	TR863346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TR863366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR863426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TR863506	24	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy 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	30	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TC422 SERIES

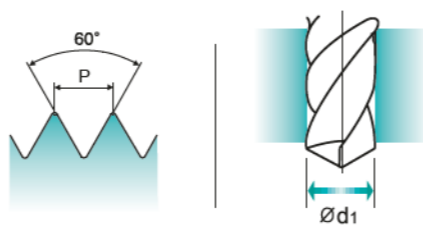
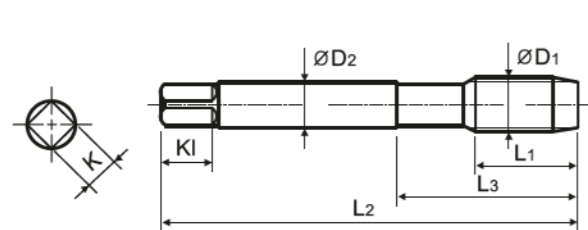
**M** ISO metric coarse threads DIN 13

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **VG** HSS-E DIN 371/376 6H 60° B Bright p.B197

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	K1	Z	Ød1
M2	× 0.4	TC422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TC422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TC422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TC422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TC422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TC422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TC422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TC422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TC422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TC422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TC422316	17	80	30	6	4.9	8	3	5
M7	× 1	TC422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TC422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TC422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TC422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TC422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TC422506	24	110	44	9	7	10	3	10.2
M14	× 2	TC422546	26	110	44	11	9	12	3	12
M16	× 2	TC422606	27	110	44	12	9	12	3	14
M18	× 2.5	TC422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TC422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TC422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TC422786	34	160	60	18	14.5	17	4	21
M27	× 3	TC422866	36	160	60	20	16	19	4	24
M30	× 3.5	TC422946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550		
Recommended																							



TD422 SERIES

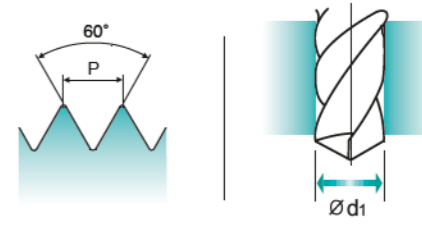
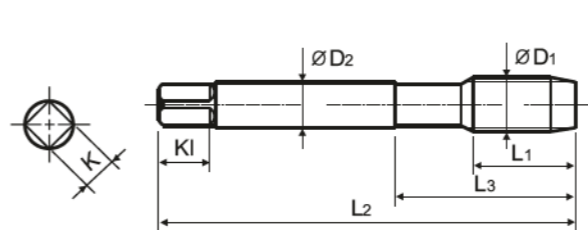
**M** ISO metric coarse threads DIN 13

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **VG** HSS-E DIN 371/376 6H 60° B TiN p.B197

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	TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TD422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TD422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TD422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TD422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TD422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TD422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TD422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TD422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TD422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TD422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TD422316	17	80	30	6	4.9	8	3	5
M7	× 1	TD422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TD422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TD422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TD422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TD422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TD422506	24	110	44	9	7	10	3	10.2
M14	× 2	TD422546	26	110	44	11	9	12	3	12
M16	× 2	TD422606	27	110	44	12	9	12	3	14
M18	× 2.5	TD422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TD422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TD422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TD422786	34	160	60	18	14.5	17	4	21
M27	× 3	TD422866	36	160	60	20	16	19	4	24
M30	× 3.5	TD422946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	42	55		
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550		
Recommended																							

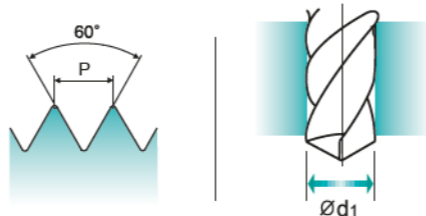
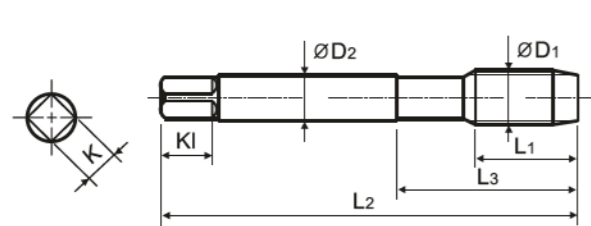
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Recommended for tapping abrasive materials due to nitriding, not suitable for tapping tough or high strength materials.

► Empfohlen für das Gewindeschneiden verschleißfördernder Werkstoffe wegen der Nitrierung; nicht geeignet für das Gewinden zaher oder hochfester Werkstoffe.



**VG** HSS-E DIN 371/376 6H 60° B Nitride p.B197

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

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	Ni	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TE422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TE422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TE422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TE422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TE422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TE422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TE422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TE422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TE422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TE422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TE422316	17	80	30	6	4.9	8	3	5
M7	× 1	TE422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TE422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TE422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TE422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TE422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TE422506	24	110	44	9	7	10	3	10.2
M14	× 2	TE422546	26	110	44	11	9	12	3	12
M16	× 2	TE422606	27	110	44	12	9	12	3	14
M18	× 2.5	TE422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TE422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TE422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TE422786	34	160	60	18	14.5	17	4	21
M27	× 3	TE422866	36	160	60	20	16	19	4	24
M30	× 3.5	TE422946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

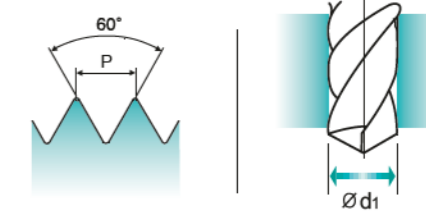
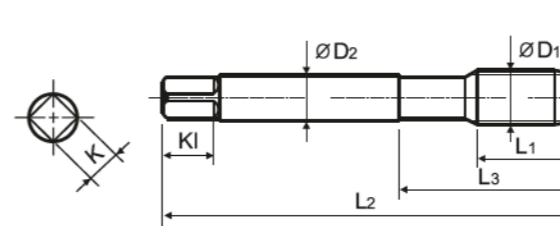
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



**VG** HSS-E DIN 371/376 6H 60° B TiAlN p.B197

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

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	TiAlN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M2	× 0.4	TY422136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY422156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY422196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY422176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY422496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY422206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY422226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TY422246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY422266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY422286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TY422316	17	80	30	6	4.9	8	3	5
M7	× 1	TY422346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TY422366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY422396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TY422426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TY422466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TY422506	24	110	44	9	7	10	3	10.2
M14	× 2	TY422546	26	110	44	11	9	12	3	12
M16	× 2	TY422606	27	110	44	12	9	12	3	14
M18	× 2.5	TY422656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TY422706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TY422746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TY422786	34	160	60	18	14.5	17	4	21
M27	× 3	TY422866	36	160	60	20	16	19	4	24
M30	× 3.5	TY422946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					



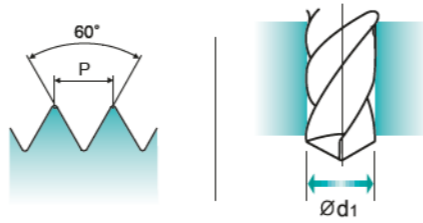
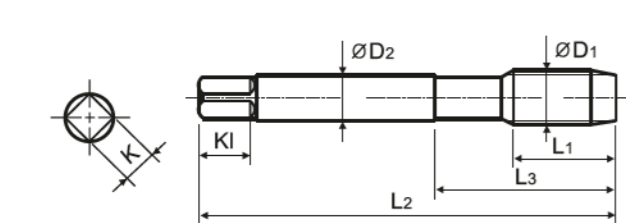
TC263 SERIES

**MF** ISO metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ● ISO MÉTRIQUE PAS FINS DIN13  
 ● ISO Metrico passo fine DIN 13

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **VG** HSS-E DIN 374 6H 60° B Bright p.B197

Recommended ToolHolder: Plain Shank 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	K1	Z	Ød1
M4	× 0.5	TC263256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TC263296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TC263326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TC263336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TC263356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TC263376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TC263386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TC263436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TC263446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TC263456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TC263516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TC263526	22	100	40	9	7	10	3	10.8
M12	× 1	TC263536	18	100	40	9	7	10	3	11
M14	× 1.5	TC263556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TC263566	22	100	40	11	9	12	3	12.8
M16	× 1.5	TC263616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TC263676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TC263726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TC263766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TC263806	27	140	54	18	14.5	17	4	22.5

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



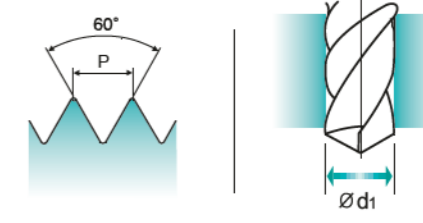
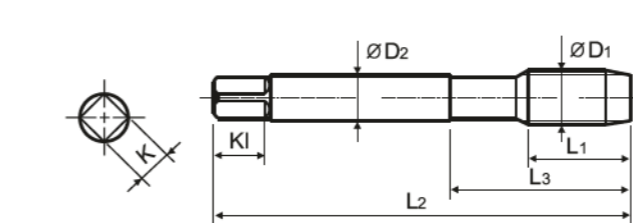
TD263 SERIES

**MF** ISO metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ● ISO MÉTRIQUE PAS FINS DIN13  
 ● ISO Metrico passo fine DIN 13

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **VG** HSS-E DIN 374 6H 60° B TiN p.B197

Recommended ToolHolder: Plain Shank 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	TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
M4	× 0.5	TD263256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TD263296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TD263326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TD263336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TD263356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TD263376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TD263386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TD263436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TD263446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TD263456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TD263516	22	100	40	9	7	10	3	10.5
M12	× 1.25	TD263526	22	100	40	9	7	10	3	10.8
M12	× 1	TD263536	18	100	40	9	7	10	3	11
M14	× 1.5	TD263556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TD263566	22	100	40	11	9	12	3	12.8
M16	× 1.5	TD263616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TD263676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TD263726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TD263766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TD263806	27	140	54	18	14.5	17	4	22.5

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

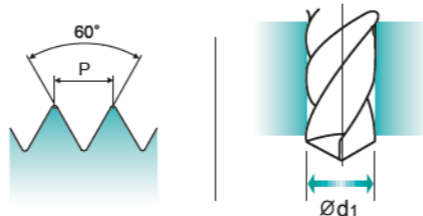
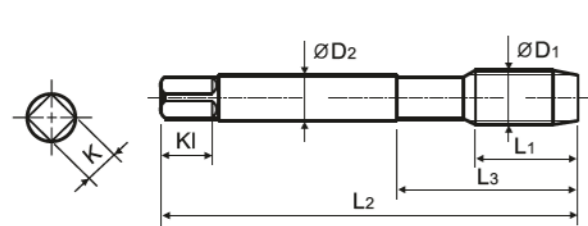


**UNC** Unified coarse threads  
 Unified Grobgewinde  
 UNC  
 Unificato passo grosso

Machine taps  
 Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **VG** HSS-E DIN 371/376 2B 60° B Bright p.B197

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

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	K1	Z	Ød1
#4	- 40UNC	TC244162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TC244202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TC244242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TC244282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TC244322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TC244362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TC244402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TC244442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TC244482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TC244522	22	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TC244562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TC244602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC244642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC244702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TC244742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TC244782	36	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TC244822	40	180	70	22	18	21	4	25

DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

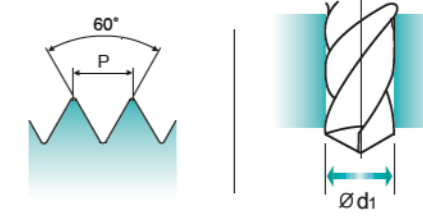
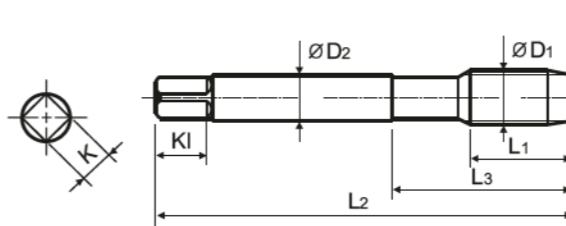
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

**UNC** Unified coarse threads  
 Unified Grobgewinde  
 UNC  
 Unificato passo grosso

Machine taps  
 Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **VG** HSS-E DIN 371/376 2B 60° B TiN p.B197

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

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		TiN	L1	L2	L3	ØD2	K	K1	Z	Ød1
#4	- 40UNC	TD244162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TD244202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TD244242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TD244282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TD244322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TD244362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TD244402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TD244442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TD244482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TD244522	22	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TD244562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TD244602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TD244642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TD244702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TD244742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TD244782	36	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TD244822	40	180	70	22	18	21	4	25

DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TC254 SERIES

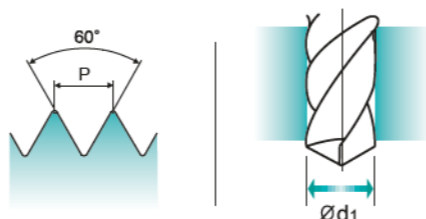
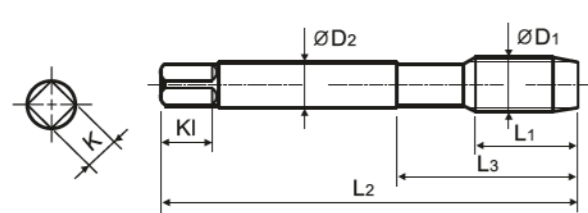
# UNF Unified fine threads

- Unified Feingewinde
- UNF
- Unificato passo fine

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VG** HSS-E DIN 371/376 2B 60° B Bright p.B197

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.189

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	K1	Z	Ød1
#4	- 48UNF	TC254182	11	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TC254222	11	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TC254262	12	56	20	4	3	6	3	3
#8	- 36UNF	TC254302	13	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TC254342	15	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TC254382	16	80	30	6	4.9	8	3	4.7
1/4	- 28UNF	TC254422	17	80	30	7	5.5	8	3	5.5
5/16	- 24UNF	TC254462	17	90	35	8	6.2	9	3	6.9
3/8	- 24UNF	TC254502	18	100	39	9	7	10	3	8.5
7/16	- 20UNF	TC254542	22	100	40	8	6.2	9	3	9.9
1/2	- 20UNF	TC254582	22	100	40	9	7	10	3	11.5
9/16	- 18UNF	TC254622	22	100	40	11	9	12	3	12.9
5/8	- 18UNF	TC254662	22	100	40	12	9	12	3	14.5
3/4	- 16UNF	TC254722	25	110	44	14	11	14	4	17.5
7/8	- 14UNF	TC254762	26	125	50	18	14.5	17	4	20.5
1	- 12UNF	TC254802	28	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TC254842	30	150	60	22	18	21	4	26.5

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

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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											○					○					

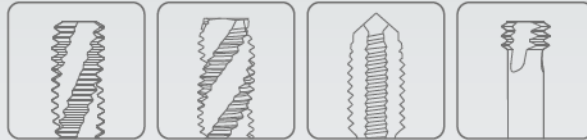


RECOMMENDED CUTTING CONDITIONS  
EMFOHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)																	
					TQ823	TR823	TC312 TC413 TC174 TC184	TD312 TD413 TD174	TB312	TY312	TB913	TQ863	TR863	TC422 TC263 TC244 TC254	TD422 TD263 TD244	TE422	TY422					
P	1	Non-alloy steel	125																			
	2		190	13	15-20	15-20	15-20	20-25	15-20	20-25	15-20	15-20	15-20	15-20	15-20	20-25	20-25					
	3		250	25	12-18	12-18	12-18	18-24	12-18	18-24	12-18	12-18	12-18	12-18	18-24	18-24						
	4		270	28	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	15-20	15-20						
	5	300	32	6-10	6-10	6-10	10-14	6-10	10-14	6-10	6-10	6-10	6-10	10-14	10-14							
	6	180	10	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	15-20	15-20							
	7	275	29	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	15-20	15-20							
	8	300	32	6-10	6-10	6-10	10-14	6-10	10-14	6-10	6-10	6-10	6-10	10-14	10-14							
	9	350	38	3-5	3-5	3-5	5-7	3-5	5-7	3-5	3-5	3-5	3-5	5-7	5-7							
	10	200	15	3-5	3-5	3-5	5-7	3-5	5-7	3-5	3-5	3-5	3-5	5-7	5-7							
M	12	Stainless steel	200	15													7-10	7-10	7-10	7-10	10-15	10-15
	13		240	23													5-8	5-8	5-8	5-8	8-11	8-11
	14		180	10	4-6	4-6	4-6	6-8	4-6	6-8	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	6-8	6-8	
S	31	Heat Resistant Super Alloys	200	15	10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	15-20	15-20	
	36	Titanium Alloys	400Rm		10-15	10-15	10-15	15-20	10-15	15-20	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	15-20	15-20	



Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation

**SOLID CARBIDE & HSS-E**

**YG TAP HARDENED**

**YG HAHN GEHÄRTET**

- For Hardened Steels Applications to Control the Continuous and Red-glowing Chips
- Für gehärtete Stähle zur Kontrolle der kontinuierlichen und rotglühenden Späne





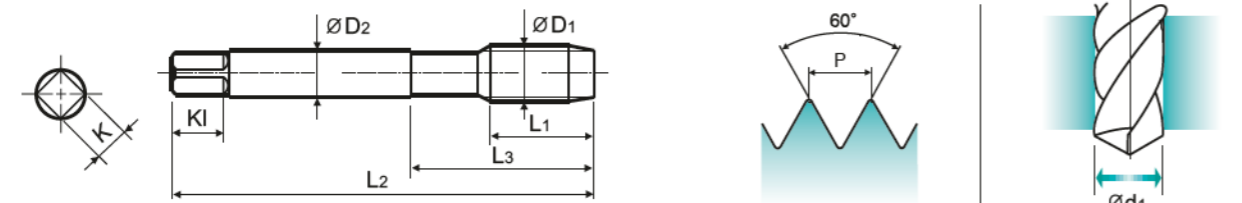
T0997-TIC SERIES

M ISO metric coarse threads DIN 13

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

Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for hardened steels (HRc50~60)

VHM-Gewindebohrer ermöglichen aufgrund ihrer höheren Härte bessere Standzeiten als HSS-Gewindebohrer. Geeignet für gehärtete Stähle (HRc50~60)



Material groups: HR CARBIDE DIN 371/376 6HX 60° C TICN p.B209

Recommended ToolHolder: Plain Shank 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	TICN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	T0997206TIC	11	56	18	3.5	2.7	6	4	2.55
M4	× 0.7	T0997246TIC	13	63	21	4.5	3.4	6	4	3.4
M5	× 0.8	T0997286TIC	15	70	25	6	4.9	8	4	4.3
M6	× 1	T0997316TIC	17	80	30	6	4.9	8	5	5.1
M8	× 1.25	T0997366TIC	20	90	35	8	6.2	9	5	6.9
M10	× 1.5	T0997426TIC	22	100	39	10	8	11	5	8.6
M12	× 1.75	T0997506TIC	24	110	-	9	7	12	5	10.4
M14	× 2	T0997546TIC	26	110	-	11	9	12	6	12.2
M16	× 2	T0997606TIC	27	110	-	12	9	12	6	14.2
M18	× 2.5	T0997656TIC	30	125	-	14	11	14	6	15.7
M20	× 2.5	T0997706TIC	32	140	-	16	12	15	6	17.7

►DIN 371(M3~M10) and DIN 376(M12~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	38	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
Recommended																					



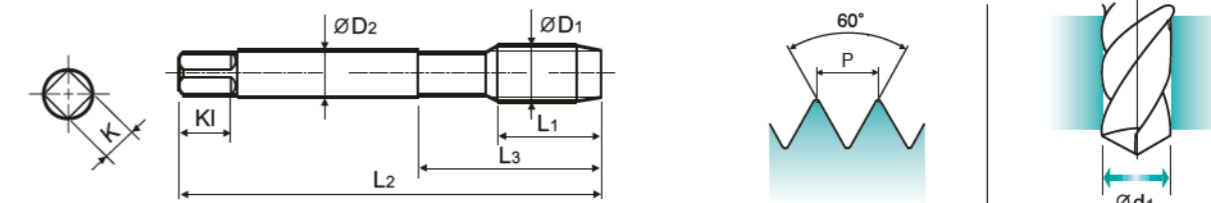
T0999-TIC SERIES

M ISO metric coarse threads DIN 13

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

Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for hardened steels (HRc50~60)

VHM-Gewindebohrer ermöglichen aufgrund ihrer höheren Härte bessere Standzeiten als HSS-Gewindebohrer. Geeignet für gehärtete Stähle (HRc50~60)



Material groups: HR CARBIDE DIN 371/376 6HX 60° D TICN p.B209

Recommended ToolHolder: Plain Shank 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	TICN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M3	× 0.5	T0999206TIC	11	56	18	3.5	2.7	6	4	2.55
M4	× 0.7	T0999246TIC	13	63	21	4.5	3.4	6	4	3.4
M5	× 0.8	T0999286TIC	15	70	25	6	4.9	8	4	4.3
M6	× 1	T0999316TIC	17	80	30	6	4.9	8	5	5.1
M8	× 1.25	T0999366TIC	20	90	35	8	6.2	9	5	6.9
M10	× 1.5	T0999426TIC	22	100	39	10	8	11	5	8.6
M12	× 1.75	T0999506TIC	24	110	-	9	7	12	5	10.4
M14	× 2	T0999546TIC	26	110	-	11	9	12	6	12.2
M16	× 2	T0999606TIC	27	110	-	12	9	12	6	14.2
M18	× 2.5	T0999656TIC	30	125	-	14	11	14	6	15.7
M20	× 2.5	T0999706TIC	32	140	-	16	12	15	6	17.7

►DIN 371(M3~M10) and DIN 376(M12~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	38	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	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HB	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	55	60	42	55
Recommended																					

# YG TAP HARDENED

## TC313 SERIES

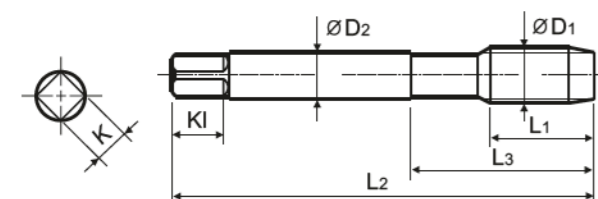
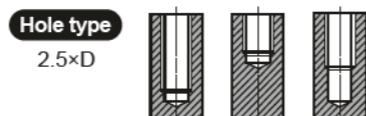
### M ISO metric coarse threads DIN 13

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

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.



Material groups: **HR** HSS-E DIN 371/376 6H 60° C Bright p.B209

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	KI	Z	Ød1
M2 × 0.4		TC313136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC313156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC313196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC313176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC313496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC313206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC313226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TC313246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC313266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC313286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TC313316	10	80	30	6	4.9	8	3	5
M7 × 1		TC313346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TC313366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC313396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TC313426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TC313466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC313506	18	110	44	9	7	10	3	10.2
M14 × 2		TC313546	20	110	44	11	9	12	3	12
M16 × 2		TC313606	20	110	44	12	9	12	3	14
M18 × 2.5		TC313656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TC313706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TC313746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TC313786	30	160	60	18	14.5	17	4	21
M27 × 3		TC313866	30	160	60	20	16	19	4	24
M30 × 3.5		TC313946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						○															

# YG TAP HARDENED

## TB313 SERIES

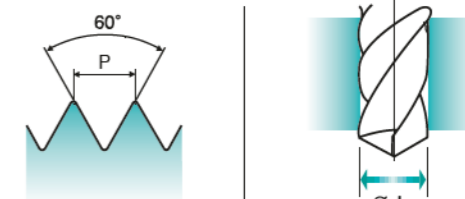
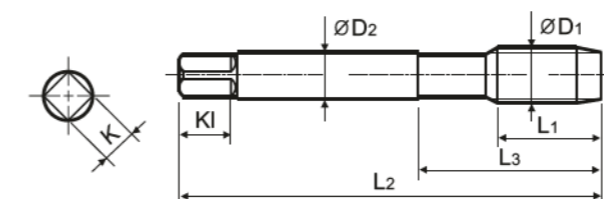
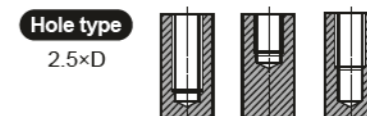
### M ISO metric coarse threads DIN 13

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

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.



Material groups: **HR** HSS-E DIN 371/376 6H 60° C Vap p.B209

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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TB313136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TB313156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TB313196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TB313176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TB313496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TB313206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TB313226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TB313246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TB313266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TB313286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TB313316	10	80	30	6	4.9	8	3	5
M7 × 1		TB313346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TB313366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TB313396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TB313426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TB313466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TB313506	18	110	44	9	7	10	3	10.2
M14 × 2		TB313546	20	110	44	11	9	12	3	12
M16 × 2		TB313606	20	110	44	12	9	12	3	14
M18 × 2.5		TB313656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TB313706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TB313746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TB313786	30	160	60	18	14.5	17	4	21
M27 × 3		TB313866	30	160	60	20	16	19	4	24
M30 × 3.5		TB313946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended						○															

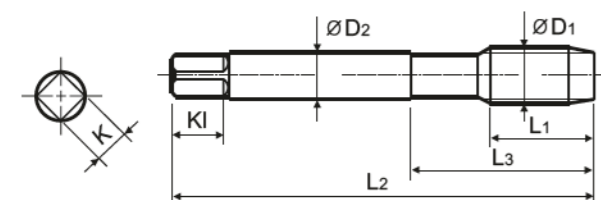
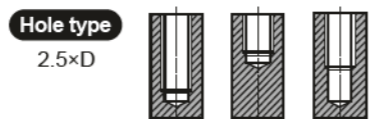
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **HR** HSS-E DIN 371/376 6H 60° C TiAlN p.B209

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	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TY313136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TY313156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TY313196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TY313176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TY313496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TY313206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TY313226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TY313246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TY313266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TY313286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TY313316	10	80	30	6	4.9	8	3	5
M7 × 1		TY313346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TY313366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TY313396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TY313426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TY313466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TY313506	18	110	44	9	7	10	3	10.2
M14 × 2		TY313546	20	110	44	11	9	12	3	12
M16 × 2		TY313606	20	110	44	12	9	12	3	14
M18 × 2.5		TY313656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TY313706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TY313746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TY313786	30	160	60	18	14.5	17	4	21
M27 × 3		TY313866	30	160	60	20	16	19	4	24
M30 × 3.5		TY313946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	◎											

ISO Material Description	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																					

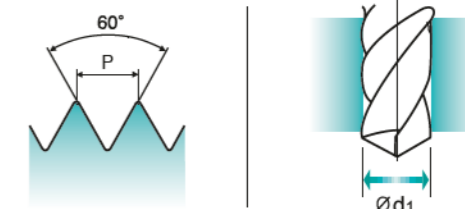
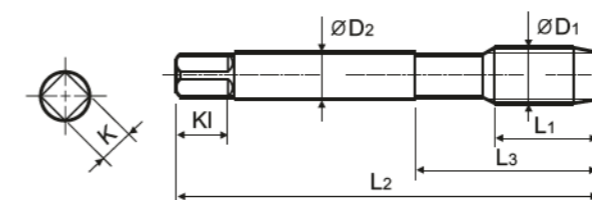
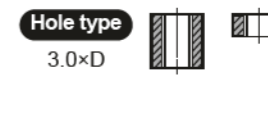
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **HR** HSS-E DIN 371/376 6H 60° B Bright p.B209

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	KI	Z	Ød1
M2 × 0.4		TC283136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC283156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC283196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC283176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC283496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC283206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC283226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TC283246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC283266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC283286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TC283316	17	80	30	6	4.9	8	3	5
M7 × 1		TC283346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TC283366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC283396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TC283426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TC283466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC283506	24	110	44	9	7	10	3	10.2
M14 × 2		TC283546	26	110	44	11	9	12	3	12
M16 × 2		TC283606	27	110	44	12	9	12	3	14
M18 × 2.5		TC283656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TC283706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TC283746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TC283786	34	160	60	18	14.5	17	4	21
M27 × 3		TC283866	36	160	60	20	16	19	4	24
M30 × 3.5		TC283946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	◎											

ISO Material Description	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																					



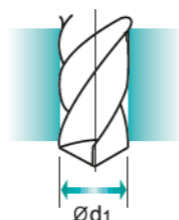
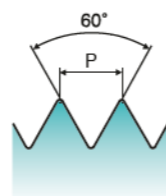
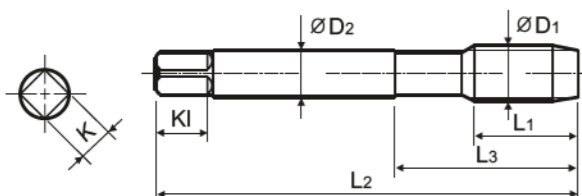
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

Suitable for through hole in more cutting speed than other taps due to thick web.

Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **HR** HSS-E DIN 371/376 6H 60° B TiAlN p.B209

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

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	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TY283136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TY283156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TY283196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TY283176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TY283496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TY283206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TY283226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TY283246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TY283266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TY283286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TY283316	17	80	30	6	4.9	8	3	5
M7	× 1	TY283346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TY283366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TY283396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TY283426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TY283466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TY283506	24	110	44	9	7	10	3	10.2
M14	× 2	TY283546	26	110	44	11	9	12	3	12
M16	× 2	TY283606	27	110	44	12	9	12	3	14
M18	× 2.5	TY283656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TY283706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TY283746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TY283786	34	160	60	18	14.5	17	4	21
M27	× 3	TY283866	36	160	60	20	16	19	4	24
M30	× 3.5	TY283946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						○	○	◎					○							

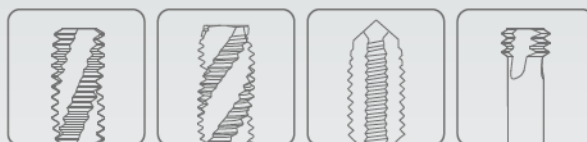
  

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	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						○															

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)			
					T0997-TIC	T0999-TIC	TC313 TB313 TY313	TC283 TY283
P	7	Non-alloy steel	275	29			10-15	10-15
	8		300	32			6-10	6-10
	9		350	38	5-8	5-8	3-5	3-5
M	14	Stainless steel	180	10			4-6	4-6
N	26	Copper and Copper Alloys (Bronze / Brass)	110				25-35	25-35
H	38	Hardened steel	550	55	3-7	3-7		
	39		630	60	3-7	3-7		
	40	Chilled Cast Iron	400	42	3-7	3-7		
	41	Hardened Cast Iron	550	55	3-7	3-7		



Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation



**HSS-E & HSS-PM**

**YG TAP INOX**

**YG Gewindebohrer INOX**

- For Stainless Steels with Lamellar, Irregular Chip Formation where the Cutting Forces are Higher
- Für nichtrostende Stähle mit lamellarer, unregelmäßiger Spänebildung, bei denen die Schnittkräfte größer sind.

SELECTION GUIDE



HSS-E & HSS-PM YG TAP INOX

For Stainless Steels with Lamellar, Irregular Chip Formation where the Cutting Forces are Higher

Please visit globallyg1.com/mat for material search. Recommended cutting conditions : p.B233

Table with columns: ISO, VDI 3323, Material Description, Composition / Structure / Heat Treatment, HB, HRc, and performance indicators (circles) for various materials like Non-alloy steel, Low alloy steel, Stainless steel, etc.

Table with columns: HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES, MODEL, and SURFACE TREATMENT.

Table with columns: HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES, MODEL, and SURFACE TREATMENT, including visual images of different tap models.



TB711 SERIES

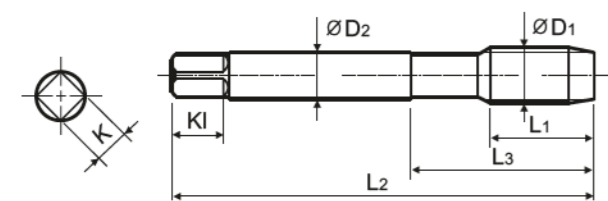
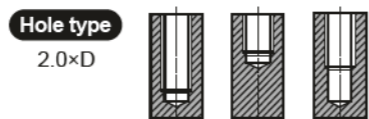
**M** ISO metric coarse threads DIN 13

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

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.



Material groups: **NW** HSS-E DIN 371/376 6H 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TB711136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TB711156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TB711196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TB711176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TB711496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TB711206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TB711226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TB711246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TB711266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TB711286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TB711316	10	80	30	6	4.9	8	3	5
M7	× 1	TB711346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TB711366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TB711396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TB711426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TB711466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TB711506	18	110	44	9	7	10	3	10.2
M14	× 2	TB711546	20	110	44	11	9	12	3	12
M16	× 2	TB711606	20	110	44	12	9	12	3	14
M18	× 2.5	TB711656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TB711706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TB711746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TB711786	30	160	60	18	14.5	17	4	21
M27	× 3	TB711866	30	160	60	20	16	19	4	24
M30	× 3.5	TB711946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	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 Material Description	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	○									○											



TQ813 SERIES

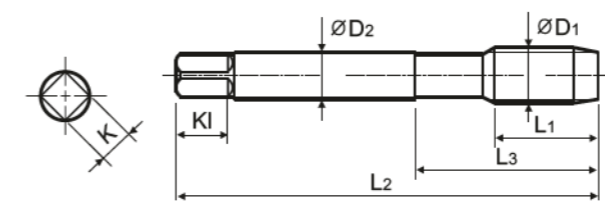
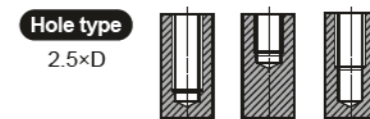
**M** ISO metric coarse threads DIN 13

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

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.



Material groups: **VA** HSS PM DIN 371/376 6H 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TQ813136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ813156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ813176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ813206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ813226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TQ813246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ813266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ813286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TQ813316	10	80	30	6	4.9	8	3	5
M7	× 1	TQ813346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TQ813366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ813426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ813506	18	110	44	9	7	10	3	10.2

► DIN 371(M2~M10) and DIN 376(M12)

◎ : Excellent ○ : Good

ISO Material Description	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	30	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 Material Description	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	○									○											

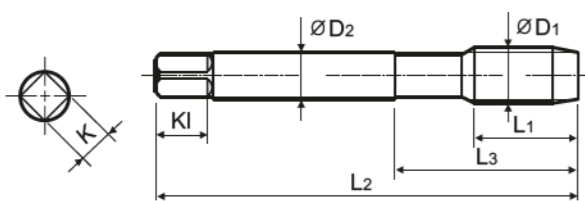
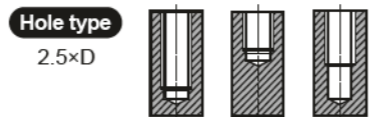
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **VA** HSS PM DIN 371/376 6H 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank 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	KI	Z	Ød1
M2 × 0.4		TR813136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TR813156	8	45	13	2.8	2.1	5	3	1.75
M2.5 × 0.45		TR813176	9	50	15	2.8	2.1	5	3	2.05
M3 × 0.5		TR813206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TR813226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TR813246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TR813266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TR813286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TR813316	10	80	30	6	4.9	8	3	5
M7 × 1		TR813346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TR813366	13	90	35	8	6.2	9	3	6.8
M10 × 1.5		TR813426	15	100	39	10	8	11	3	8.5
M12 × 1.75		TR813506	18	110	44	9	7	10	3	10.2

► DIN 371(M2~M10) and DIN 376(M12)

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

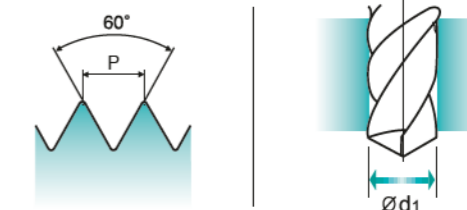
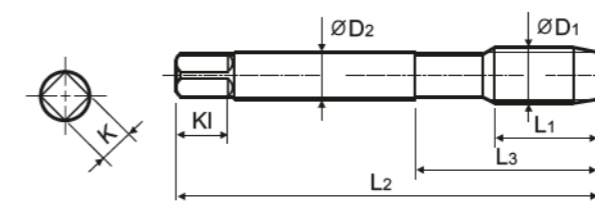
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► With recessed threads for machine tapping of deep blind holes.  
► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.  
► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA NW** HSS-E DIN 371/376 6H 60° C R40 Vap TICN p.B233

Recommended ToolHolder: Plain Shank 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	Vap	TICN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TB914136	TI914136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TB914156	TI914156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TB914196	TI914196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TB914176	TI914176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TB914496	TI914496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TB914206	TI914206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TB914226	TI914226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TB914246	TI914246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TB914266	TI914266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TB914286	TI914286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TB914316	TI914316	10	80	30	6	4.9	8	3	5
M7 × 1		TB914346	TI914346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TB914366	TI914366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TB914396	TI914396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TB914426	TI914426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TB914466	TI914466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TB914506	TI914506	18	110	44	9	7	10	3	10.2
M12 × 1.75		TB914506F4	TI914506F4	18	110	44	9	7	10	4	10.2
M14 × 2		TB914546	TI914546	20	110	44	11	9	12	3	12
M14 × 2		TB914546F4	TI914546F4	20	110	44	11	9	12	4	12
M16 × 2		TB914606	TI914606	20	110	44	12	9	12	3	14
M16 × 2		TB914606F4	TI914606F4	20	110	44	12	9	12	4	14
M18 × 2.5		TB914656	TI914656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TB914706	TI914706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TB914746	TI914746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TB914786	TI914786	30	160	60	18	14.5	17	4	21
M27 × 3		TB914866	TI914866	30	160	60	20	16	19	4	24
M30 × 3.5		TB914946	TI914946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

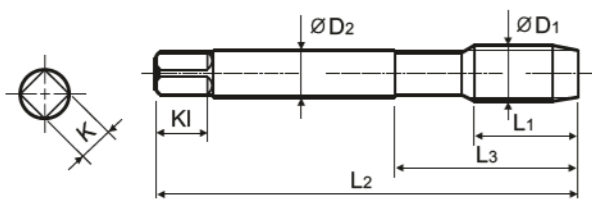
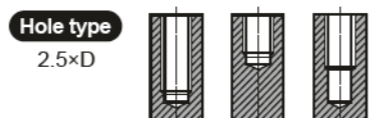
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA NW** HSS-E DIN 371/376 4H 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TBE15136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE15156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TBE15196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE15176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TBE15496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE15206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE15226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE15246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE15266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE15286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE15316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE15346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE15366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE15396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE15426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE15466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE15506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE15546	20	110	44	11	9	12	3	12
M16	× 2	TBE15606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE15656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE15706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE15746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE15786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE15866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE15946	35	180	70	22	18	21	4	26.5

- DIN 371(M2~M10) and DIN 376(M11~M30)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	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	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

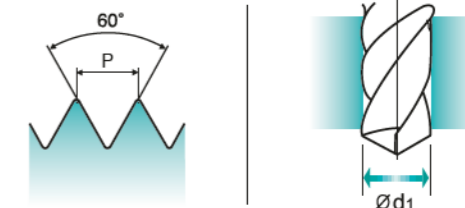
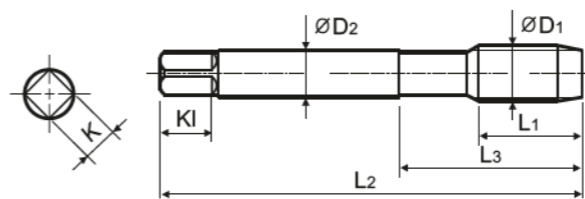
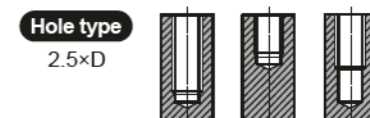
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA NW** HSS-E DIN 371/376 6H+0.1 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TBE16136	8	45	13	2.8	2.1	5	3	1.7
M2.2	× 0.45	TBE16156	8	45	13	2.8	2.1	5	3	1.85
*M2.3	× 0.4	TBE16196	8	45	13	2.8	2.1	5	3	2
M2.5	× 0.45	TBE16176	9	50	15	2.8	2.1	5	3	2.15
*M2.6	× 0.45	TBE16496	9	50	15	2.8	2.1	5	3	2.2
M3	× 0.5	TBE16206	6	56	18	3.5	2.7	6	3	2.6
M3.5	× 0.6	TBE16226	7	56	20	4	3	6	3	3
M4	× 0.7	TBE16246	7	63	21	4.5	3.4	6	3	3.4
M4.5	× 0.75	TBE16266	8	70	25	6	4.9	8	3	3.8
M5	× 0.8	TBE16286	8	70	25	6	4.9	8	3	4.3
M6	× 1	TBE16316	10	80	30	6	4.9	8	3	5.1
M7	× 1	TBE16346	10	80	30	7	5.5	8	3	6.1
M8	× 1.25	TBE16366	13	90	35	8	6.2	9	3	6.9
M9	× 1.25	TBE16396	13	90	35	9	7	10	3	7.9
M10	× 1.5	TBE16426	15	100	39	10	8	11	3	8.6
M11	× 1.5	TBE16466	17	100	40	8	6.2	9	3	9.6
M12	× 1.75	TBE16506	18	110	44	9	7	10	3	10.3
M14	× 2	TBE16546	20	110	44	11	9	12	3	12.1
M16	× 2	TBE16606	20	110	44	12	9	12	3	14.1
M18	× 2.5	TBE16656	25	125	50	14	11	14	4	15.6
M20	× 2.5	TBE16706	25	140	54	16	12	15	4	17.6
M22	× 2.5	TBE16746	25	140	54	18	14.5	17	4	19.6
M24	× 3	TBE16786	30	160	60	18	14.5	17	4	21.1
M27	× 3	TBE16866	30	160	60	20	16	19	4	24.1
M30	× 3.5	TBE16946	35	180	70	22	18	21	4	26.6

- DIN 371(M2~M10) and DIN 376(M11~M30)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	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	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

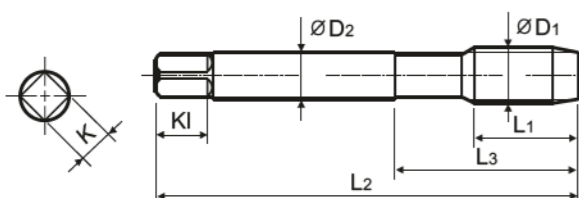
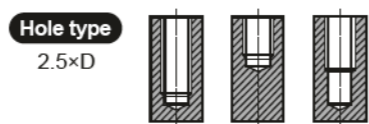
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA NW** HSS-E DIN 371/376 6G 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TBE17136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE17156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TBE17196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE17176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TBE17496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE17206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE17226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE17246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE17266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE17286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE17316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE17346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE17366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE17396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE17426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE17466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE17506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE17546	20	110	44	11	9	12	3	12
M16	× 2	TBE17606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE17656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE17706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE17746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE17786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE17866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE17946	35	180	70	22	18	21	4	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	◎	◎	○	○	○	○				◎	◎	◎	◎									

ISO Material Description	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	15	30	25	38	34	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											○					○									

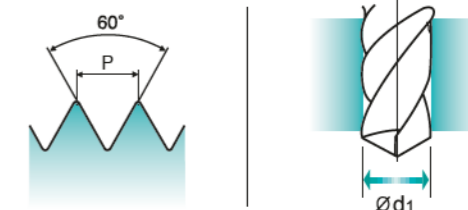
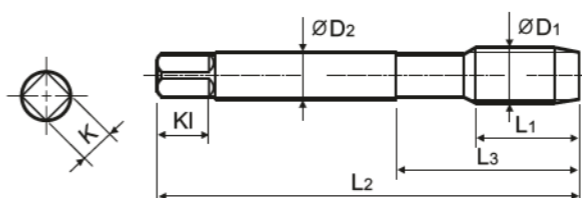
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA NW** HSS-E DIN 371/376 7G 60° C R40 Vap p.B233

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TBE18136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TBE18156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TBE18196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TBE18176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TBE18496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TBE18206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TBE18226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TBE18246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TBE18266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TBE18286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TBE18316	10	80	30	6	4.9	8	3	5
M7	× 1	TBE18346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TBE18366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TBE18396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TBE18426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TBE18466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TBE18506	18	110	44	9	7	10	3	10.2
M14	× 2	TBE18546	20	110	44	11	9	12	3	12
M16	× 2	TBE18606	20	110	44	12	9	12	3	14
M18	× 2.5	TBE18656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TBE18706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TBE18746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TBE18786	30	160	60	18	14.5	17	4	21
M27	× 3	TBE18866	30	160	60	20	16	19	4	24
M30	× 3.5	TBE18946	35	180	70	22	18	21	4	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	◎	◎	○	○	○	○				◎	◎	◎	◎									

ISO Material Description	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	15	30	25	38	34	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											○					○									



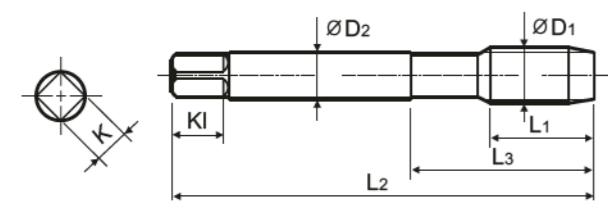
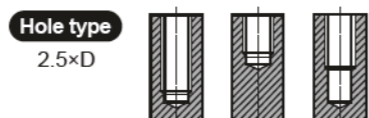
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

- With recessed threads for machine tapping of deep blind holes.
- Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

- Mit abgesetztem Gewinde zum Schneiden von tiefen Sacklochgewinden.
- Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Material groups: **VA** **NW** **HSS-E** **DIN 371/376** **6H** **60°** **C** **R40** **Hardslid** **p.B233**

Recommended ToolHolder: Plain Shank 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	Hardslid	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TCH14136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TCH14156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TCH14196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TCH14176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TCH14496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TCH14206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TCH14226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TCH14246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TCH14266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TCH14286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TCH14316	10	80	30	6	4.9	8	3	5
M7	× 1	TCH14346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TCH14366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TCH14396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TCH14426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TCH14466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TCH14506	18	110	44	9	7	10	3	10.2
M14	× 2	TCH14546	20	110	44	11	9	12	3	12
M16	× 2	TCH14606	20	110	44	12	9	12	3	14
M18	× 2.5	TCH14656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TCH14706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TCH14746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TCH14786	30	160	60	18	14.5	17	4	21
M27	× 3	TCH14866	30	160	60	20	16	19	4	24
M30	× 3.5	TCH14946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

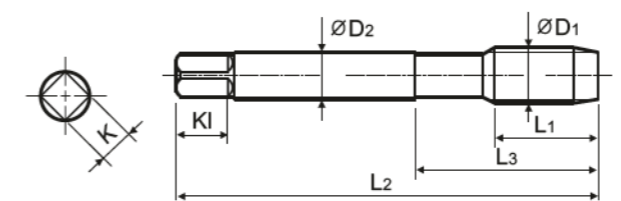
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

- Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

- Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke und bestem Werkstoff.



Material groups: **VA** **HSS PM** **DIN 371/376** **6H** **60°** **B** **Vap** **p.B233**

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TQ853136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ853156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ853176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ853206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ853226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TQ853246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ853266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ853286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TQ853316	17	80	30	6	4.9	8	3	5
M7	× 1	TQ853346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TQ853366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ853426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TQ853506	24	110	44	9	7	10	3	10.2

► DIN 371(M2~M10) and DIN 376(M12)

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○					○					

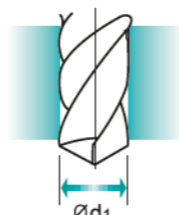
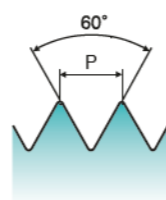
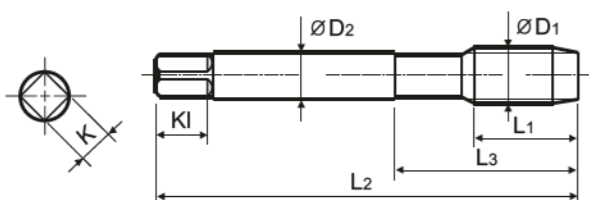
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: **VA** HSS PM DIN 371/376 6H 60° B Bright p.B233

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
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	KI	Z	Ød1
M2 × 0.4		TR853136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TR853156	8	45	13	2.8	2.1	5	3	1.75
M2.5 × 0.45		TR853176	9	50	15	2.8	2.1	5	3	2.05
M3 × 0.5		TR853206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TR853226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TR853246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TR853266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TR853286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TR853316	17	80	30	6	4.9	8	3	5
M7 × 1		TR853346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TR853366	20	90	35	8	6.2	9	3	6.8
M10 × 1.5		TR853426	22	100	39	10	8	11	3	8.5
M12 × 1.75		TR853506	24	110	44	9	7	10	3	10.2

► DIN 371(M2~M10) and DIN 376(M12)

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

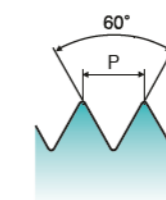
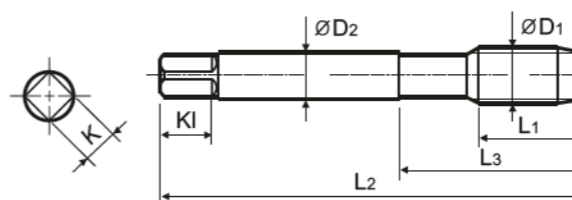
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VA NW** HSS-E DIN 371/376 6HX 60° B Vap p.B233

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TB623136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TB623156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TB623196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TB623176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TB623496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TB623206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TB623226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TB623246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TB623266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TB623286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TB623316	17	80	30	6	4.9	8	3	5
M7 × 1		TB623346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TB623366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TB623396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TB623426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TB623466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TB623506	24	110	44	9	7	10	4	10.2
M14 × 2		TB623546	26	110	44	11	9	12	4	12
M16 × 2		TB623606	27	110	44	12	9	12	4	14
M18 × 2.5		TB623656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TB623706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TB623746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TB623786	34	160	60	18	14.5	17	4	21
M27 × 3		TB623866	36	160	60	20	16	19	4	24
M30 × 3.5		TB623946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

© : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	55	60	42	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

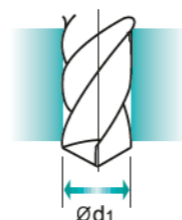
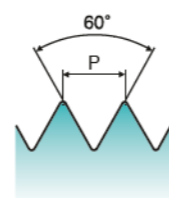
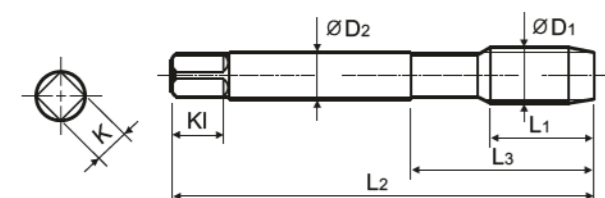
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **VA NW** HSS-E DIN 371/376 6HX 60° B Hardslick p.B233

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	Hardslick	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TCH23136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TCH23156	8	45	13	2.8	2.1	5	3	1.75
*M2.3	× 0.4	TCH23196	8	45	13	2.8	2.1	5	3	1.9
M2.5	× 0.45	TCH23176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TCH23496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TCH23206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TCH23226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TCH23246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TCH23266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TCH23286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TCH23316	17	80	30	6	4.9	8	3	5
M7	× 1	TCH23346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TCH23366	20	90	35	8	6.2	9	3	6.8
M9	× 1.25	TCH23396	20	90	35	9	7	10	3	7.8
M10	× 1.5	TCH23426	22	100	39	10	8	11	3	8.5
M11	× 1.5	TCH23466	22	100	40	8	6.2	9	3	9.5
M12	× 1.75	TCH23506	24	110	44	9	7	10	4	10.2
M14	× 2	TCH23546	26	110	44	11	9	12	4	12
M16	× 2	TCH23606	27	110	44	12	9	12	4	14
M18	× 2.5	TCH23656	30	125	50	14	11	14	4	15.5
M20	× 2.5	TCH23706	32	140	54	16	12	15	4	17.5
M22	× 2.5	TCH23746	32	140	54	18	14.5	17	4	19.5
M24	× 3	TCH23786	34	160	60	18	14.5	17	4	21
M27	× 3	TCH23866	36	160	60	20	16	19	4	24
M30	× 3.5	TCH23946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : 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	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

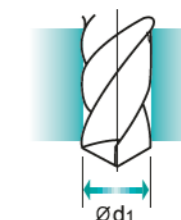
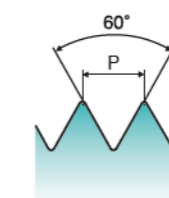
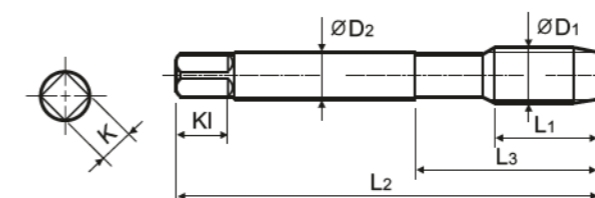
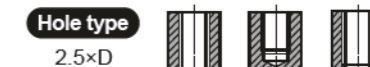
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

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.



Material groups: **VA NW** HSS-E DIN 374 6H 60° C R40 Vap p.B233

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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.5	TB183256	5	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TB183296	5	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TB183326	8	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TB183336	5	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TB183356	10	80	30	5.5	4.3	7	3	6.2
M8	× 1	TB183376	10	90	36	6	4.9	8	3	7
M8	× 0.75	TB183386	8	80	30	6	4.9	8	3	7.2
M10	× 1.25	TB183436	16	100	40	7	5.5	8	3	8.8
M10	× 1	TB183446	10	90	36	7	5.5	8	3	9
M10	× 0.75	TB183456	10	90	36	7	5.5	8	3	9.2
M12	× 1.5	TB183516	15	100	40	9	7	10	3	10.5
M12	× 1.25	TB183526	15	100	40	9	7	10	3	10.8
M12	× 1	TB183536	11	100	40	9	7	10	3	11
M14	× 1.5	TB183556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TB183566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TB183616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TB183676	17	110	44	14	11	14	4	16.5
M20	× 1.5	TB183726	17	125	50	16	12	15	4	18.5
M22	× 1.5	TB183766	17	125	50	18	14.5	17	4	20.5
M24	× 1.5	TB183806	20	140	54	18	14.5	17	4	22.5

◎ : 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	30	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



TB904 SERIES

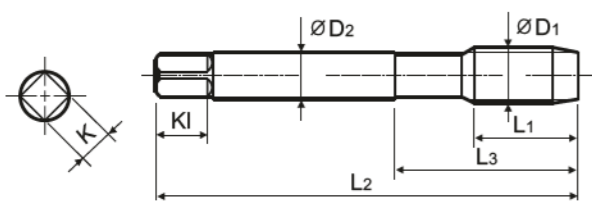
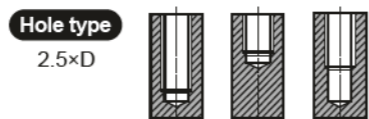
# UNC Unified coarse threads

- Unified Grobgewinde
- UNC
- 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.



Material groups: **VA** **NW** **HSS-E** **DIN 371/376** **2B** **60°** **C** **R40** **Vap** **p.B233**

Recommended ToolHolder: Plain Shank 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		Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	- 40UNC	TB904162	6	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TB904202	7	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TB904242	7	56	20	4	3	6	3	2.85
#8	- 32UNC	TB904282	8	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TB904322	10	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TB904362	10	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TB904402	13	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TB904442	14	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TB904482	16	100	39	9	7	10	3	8
7/16	- 14UNC	TB904522	17	100	40	8	6.2	9	3	9.4
1/2	- 13UNC	TB904562	20	110	44	9	7	10	3	10.75
9/16	- 12UNC	TB904602	20	110	44	11	9	12	3	12.25
5/8	- 11UNC	TB904642	22	110	44	12	9	12	3	13.5
3/4	- 10UNC	TB904702	25	125	50	14	11	14	4	16.5
7/8	- 9UNC	TB904742	27	140	54	18	14.5	17	4	19.5
1	- 8UNC	TB904782	30	160	60	20	16	19	4	22.25
1-1/8	- 7UNC	TB904822	35	180	65	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

© : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
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	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



TB924 SERIES

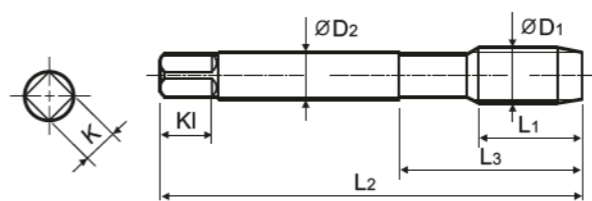
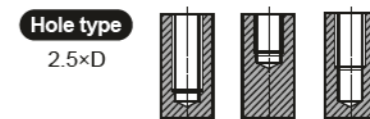
# UNF Unified fine threads

- 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.



Material groups: **VA** **NW** **HSS-E** **DIN 371/376** **2B** **60°** **C** **R40** **Vap** **p.B233**

Recommended ToolHolder: Plain Shank 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		Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	- 48UNF	TB924182	6	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TB924222	7	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TB924262	7	56	20	4	3	6	3	3
#8	- 36UNF	TB924302	8	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TB924342	10	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TB924382	10	80	30	6	4.9	8	3	4.7
1/4	- 28UNF	TB924422	10	80	30	7	5.5	8	3	5.5
5/16	- 24UNF	TB924462	10	90	35	8	6.2	9	3	6.9
3/8	- 24UNF	TB924502	10	100	39	9	7	10	3	8.5
7/16	- 20UNF	TB924542	13	100	40	8	6.2	9	3	9.9
1/2	- 20UNF	TB924582	13	100	40	9	7	10	3	11.5
9/16	- 18UNF	TB924622	15	100	40	11	9	12	3	12.9
5/8	- 18UNF	TB924662	15	100	40	12	9	12	3	14.5
3/4	- 16UNF	TB924722	17	110	44	14	11	14	4	17.5
7/8	- 14UNF	TB924762	17	125	50	18	14.5	17	4	20.5
1	- 12UNF	TB924802	20	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TB924842	22	150	60	22	18	21	4	26.5

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

© : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

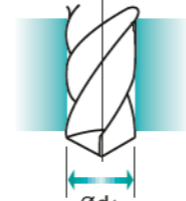
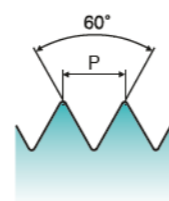
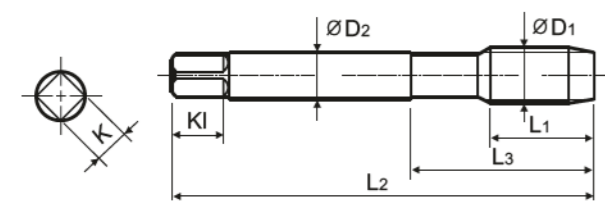
ISO	N					S					H												
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron								
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
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	15	30	25	38	34	15	30	25	38	34	15	30	25	38	34	42	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	550	
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**MF** ISO metric fine threads DIN 13  
 ● Metrisches ISO-Feingewinde DIN 13  
 ○ ISO MÉTRIQUE PAS FINS DIN13  
 ○ ISO Metrico passo fine DIN 13

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **VA** **NW** **HSS-E** **DIN 374** **6HX** **60°** **B** **Vap** p.B233

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

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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M4	× 0.5	TB123256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TB123296	11	70	25	3.5	2.7	6	3	4.5
M6	× 0.75	TB123326	13	80	30	4.5	3.4	6	3	5.2
M6	× 0.5	TB123336	13	80	30	4.5	3.4	6	3	5.5
M7	× 0.75	TB123356	14	80	30	5.5	4.3	7	3	6.2
M8	× 1	TB123376	17	90	36	6	4.9	8	3	7
M8	× 0.75	TB123386	14	80	30	6	4.9	8	3	7.2
M10	× 1.25	TB123436	22	100	40	7	5.5	8	3	8.8
M10	× 1	TB123446	18	90	36	7	5.5	8	3	9
M10	× 0.75	TB123456	18	90	36	7	5.5	8	3	9.2
M12	× 1.5	TB123516	22	100	40	9	7	10	4	10.5
M12	× 1.25	TB123526	22	100	40	9	7	10	3	10.8
M12	× 1	TB123536	18	100	40	9	7	10	3	11
M14	× 1.5	TB123556	22	100	40	11	9	12	3	12.5
M14	× 1.25	TB123566	22	100	40	11	9	12	3	12.8
M16	× 1.5	TB123616	22	100	40	12	9	12	3	14.5
M18	× 1.5	TB123676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TB123726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TB123766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TB123806	27	140	54	18	14.5	17	4	22.5

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	○	○	○	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

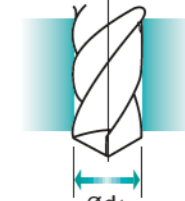
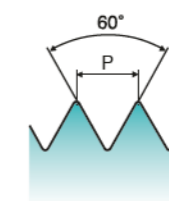
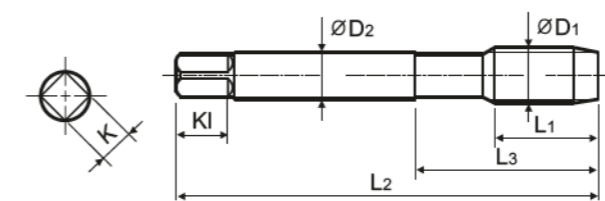
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**UNC** Unified coarse threads  
 ● Unified Grobgewinde  
 ○ UNC  
 ○ Unificato passo grosso

Machine taps  
 Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **VA** **NW** **HSS-E** **DIN 371/376** **2B** **60°** **C** **Vap** p.B233

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

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		Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
#4	- 40UNC	TB264162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TB264202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TB264242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TB264282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TB264322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TB264362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TB264402	17	80	30	7	5.5	8	3	5.2
5/16	- 18UNC	TB264442	20	90	35	8	6.2	9	3	6.6
3/8	- 16UNC	TB264482	22	100	39	9	7	10	3	8
7/16	- 14UNC	TB264522	22	100	44	8	6.2	9	3	9.4
1/2	- 13UNC	TB264562	25	110	44	9	7	10	3	10.75
9/16	- 12UNC	TB264602	26	110	44	11	9	12	3	12.25
5/8	- 11UNC	TB264642	27	110	44	12	9	12	3	13.5
3/4	- 10UNC	TB264702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TB264742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TB264782	36	160	60	20	16	17	4	22.25
1-1/8	- 7UNC	TB264822	40	180	70	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



TB274 SERIES

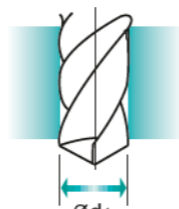
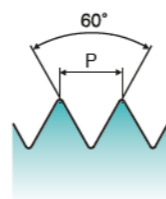
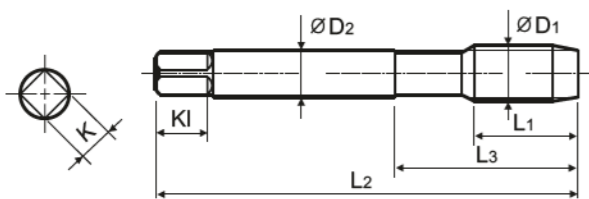
# UNF Unified fine threads

Unified Feingewinde  
 UNF  
 Unificato passo fine

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke.



Material groups: **VANW** HSS-E DIN 371/376 2B 60° B Vap p.B233

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		Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4 - 48UNF		TB274182	11	56	18	3.5	2.7	6	3	2.4
#5 - 44UNF		TB274222	11	56	18	3.5	2.7	6	3	2.7
#6 - 40UNF		TB274262	12	56	20	4	3	6	3	3
#8 - 36UNF		TB274302	13	63	21	4.5	3.4	6	3	3.5
#10 - 32UNF		TB274342	15	70	25	6	4.9	8	3	4.1
#12 - 28UNF		TB274382	16	80	30	6	4.9	8	3	4.7
1/4 - 28UNF		TB274422	17	80	30	7	5.5	8	3	5.5
5/16 - 24UNF		TB274462	17	90	35	8	6.2	9	3	6.9
3/8 - 24UNF		TB274502	18	100	39	9	7	10	3	8.5
7/16 - 20UNF		TB274542	22	100	40	8	6.2	9	3	9.9
1/2 - 20UNF		TB274582	22	100	40	9	7	10	3	11.5
9/16 - 18UNF		TB274622	22	100	40	11	9	12	3	12.9
5/8 - 18UNF		TB274662	22	100	40	12	9	12	3	14.5
3/4 - 16UNF		TB274722	25	110	44	14	11	14	4	17.5
7/8 - 14UNF		TB274762	26	125	50	18	14.5	17	4	20.5
1 - 12UNF		TB274802	28	140	54	18	14.5	17	4	23.25
1-1/8 - 12UNF		TB274842	30	150	60	22	18	21	4	26.5

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

◎ : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	3	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				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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	15	30	25	38	34	15	30	25	38	34	55	60	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



RECOMMENDED CUTTING CONDITIONS  
EMFOHLENE SCHNEIDKONDITIONEN

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)															
					TB711	TQ813	TR813	TB914 TB183 TB904 TB924	TI914	TBE15	TBE16	TBE17	TBE18	TCH14	TQ853	TR853	TB623 TB123 TB264 TB274	TCH23		
P	1	Non-alloy steel	125		15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	20-25		
	2		190	13	15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	15-20	20-25	15-20	15-20	15-20	20-25		
	3		250	25		12-18	12-18	12-18	18-24	12-18	12-18	12-18	12-18	18-24	12-18	12-18	12-18	18-24		
	4		270	28		10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20		
6	180	10		10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20			
M	12	Stainless steel	200	15	7-10	7-10	7-10	7-10	10-13	7-10	7-10	7-10	7-10	10-13	7-10	7-10	7-10	10-13		
	13		240	23	5-8	5-8	5-8	5-8	8-11	5-8	5-8	5-8	5-8	8-11	5-8	5-8	5-8	8-11		
	14		180	10	4-6	4-6	4-6	4-6	6-8	4-6	4-6	4-6	4-6	6-8	4-6	4-6	4-6	6-8		
N	21	Aluminum-wrought alloy	60		10-15															
	28	Copper and Copper Alloys (Bronze / Brass)	100		15-20															
S	31	Heat Resistant Super Alloys	200	15		10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20		
	36	Titanium Alloys	400Rm			10-15	10-15	10-15	15-20	10-15	10-15	10-15	10-15	15-20	10-15	10-15	10-15	15-20		



Global Cutting Tool Leader **YG-1**



# THREADING



Leading Through Innovation



**SOLID CARBIDE & HSS-E**

# **YG TAP CAST IRON**

## **HSS YG Gewindebohrer Guss**

- For Cast Iron or Similar Work Materials
- Für Gusseisen oder ähnliche Werkstoffe





# SOLID CARBIDE & HSS-E YG TAP CAST IRON

For Cast Iron or Similar Work Materials

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B245

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC	SURFACE TREATMENT					
						Bright	NI	TiN	TiCN	TiAlN	
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	21	○	○	○	○	○	
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	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 Rubber, Wood, etc.							
	30										
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						

HOLE TYPE	Max. 2.0xD Blind / Through Hole						
	CARBIDE	HSS-E					
TOOL MATERIAL	CARBIDE	HSS-E					
CHAMFER LEAD ACC. TO DIN2197	C	C	C	C	C		
FLUTE TYPE	Straight Flute	Straight Flute	Straight Flute	Straight Flute	Straight Flute		
SPIRAL FLUTE ANGLE	-	-	-	-	-		
SERIES	M	DIN371/376	T0993 (p.B237)	TE821 (p.B238)	TD821 (p.B239)	TI821 (p.B240)	TY821 (p.B241)
		DIN352					
		DIN357/LONG					
	MF	DIN374		TE403 (p.B242)			
		DIN2181					
	UNC	DIN371/376		TE434 (p.B243)			
		DIN351					
	UNF	DIN371/374		TE454 (p.B244)			
		DIN2181					
	BSW	DIN2182/2183					
		DIN351					
G(BSP)	DIN5156/5157						
EG-M	DIN371/376						
EG-UNC	DIN371/376						
EG-UNF	DIN371/374						



MODEL	Bright	NI	TiN	TiCN	TiAlN
	◎	◎	◎	◎	◎

## YG TAP CAST IRON

T0993 SERIES

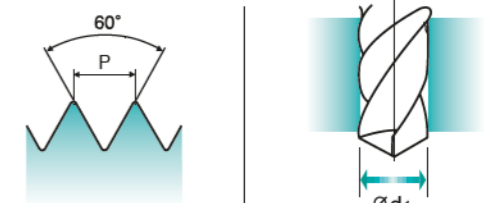
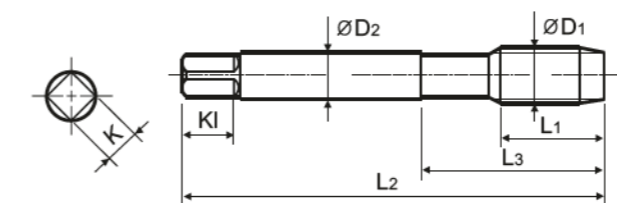
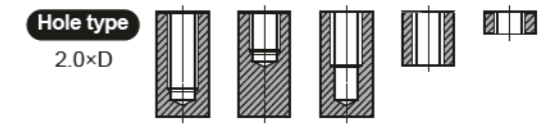
### ISO metric coarse threads DIN 13

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

Machine taps  
Maschinengewindebohrer

► Carbide tap can increase tool life longer than HSS taps due to higher hardness. Suitable for cast iron and high silicon aluminums.

► Der VHM-Gewindebohrer kann die Lebensdauer gegenüber HSS-Gewindebohrern erhöhen dank der größeren Härte. Geeignet für Guss und Aluminium mit hohem Siliziumanteil



Material groups: **GG** CARBIDE, DIN 371/376, 6HX, 60°, C, Bright, p.B245

Recommended ToolHolder: Plain Shank, TAPPING ER-CHUCK, ONE STEP TAPPING CHUCK

Page: D215-220, D221-228, D211-218

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	K1	Z	Ød1
M3 × 0.5		T0993206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		T0993226	12	56	20	4	3	6	3	2.9
M4 × 0.7		T0993246	13	63	21	4.5	3.4	6	3	3.3
M5 × 0.8		T0993286	15	70	25	6	4.9	8	4	4.2
M6 × 1		T0993316	17	80	30	6	4.9	8	4	5
M8 × 1.25		T0993366	20	90	35	8	6.2	9	4	6.8
M10 × 1.5		T0993426	22	100	39	10	8	11	4	8.5
M12 × 1.75		T0993506	24	110	44	9	7	10	4	10.2
M14 × 2		T0993546	26	110	44	11	9	12	4	12
M16 × 2		T0993606	27	110	44	12	9	12	4	14
M18 × 2.5		T0993656	30	125	50	14	11	14	4	15.5
M20 × 2.5		T0993706	32	140	54	16	12	15	4	17.5

► DIN 371(M2~M10) and DIN 376(M11~M20)

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	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	130	21
HB	190	250	270	300	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	15	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100														
Recommended			◎	◎	◎																	

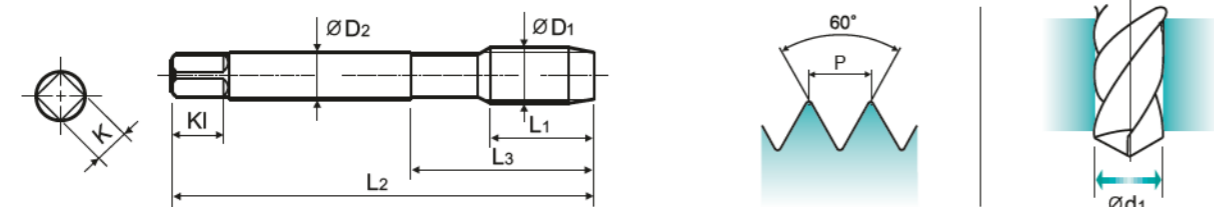
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups: **GG** HSS-E DIN 371/376 6HX 60° C Nitride p.B245

Recommended ToolHolder: Plain Shank 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	Ni	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TE821136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TE821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TE821196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TE821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TE821496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TE821206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TE821226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TE821246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TE821266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TE821286	15	70	25	6	4.9	8	4	4.2
M6 × 1		TE821316	17	80	30	6	4.9	8	4	5
M7 × 1		TE821346	17	80	30	7	5.5	8	4	6
M8 × 1.25		TE821366	20	90	35	8	6.2	9	4	6.8
M9 × 1.25		TE821396	20	90	35	9	7	10	4	7.8
M10 × 1.5		TE821426	22	100	39	10	8	11	4	8.5
M11 × 1.5		TE821466	22	100	40	8	6.2	9	4	9.5
M12 × 1.75		TE821506	24	110	44	9	7	10	4	10.2
M14 × 2		TE821546	26	110	44	11	9	12	4	12
M16 × 2		TE821606	27	110	44	12	9	12	4	14
M18 × 2.5		TE821656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TE821706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TE821746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TE821786	34	160	60	18	14.5	17	4	21
M27 × 3		TE821866	36	160	60	20	16	19	4	24
M30 × 3.5		TE821946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO Material Description	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																						

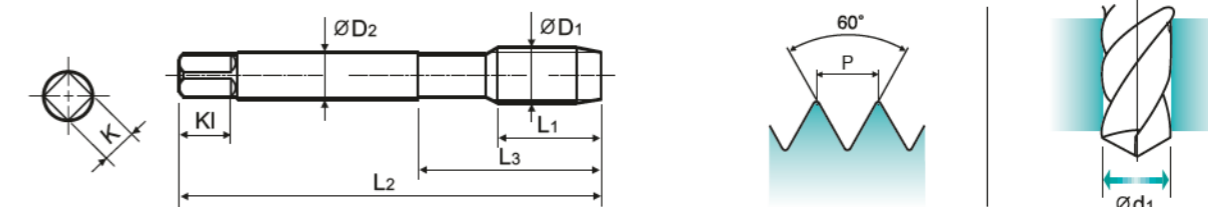
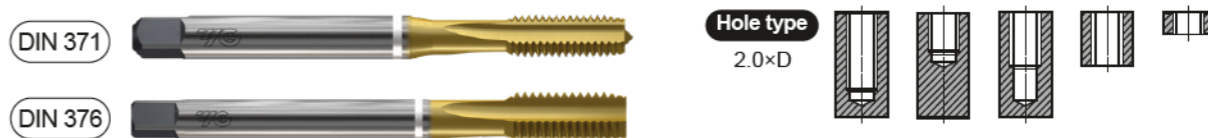
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups: **GG** HSS-E DIN 371/376 6HX 60° C TiN p.B245

Recommended ToolHolder: Plain Shank 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	TiN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TD821136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TD821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TD821196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TD821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TD821496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TD821206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TD821226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TD821246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TD821266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TD821286	15	70	25	6	4.9	8	4	4.2
M6 × 1		TD821316	17	80	30	6	4.9	8	4	5
M7 × 1		TD821346	17	80	30	7	5.5	8	4	6
M8 × 1.25		TD821366	20	90	35	8	6.2	9	4	6.8
M9 × 1.25		TD821396	20	90	35	9	7	10	4	7.8
M10 × 1.5		TD821426	22	100	39	10	8	11	4	8.5
M11 × 1.5		TD821466	22	100	40	8	6.2	9	4	9.5
M12 × 1.75		TD821506	24	110	44	9	7	10	4	10.2
M14 × 2		TD821546	26	110	44	11	9	12	4	12
M16 × 2		TD821606	27	110	44	12	9	12	4	14
M18 × 2.5		TD821656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TD821706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TD821746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TD821786	34	160	60	18	14.5	17	4	21
M27 × 3		TD821866	36	160	60	20	16	19	4	24
M30 × 3.5		TD821946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	13	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO Material Description	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																						

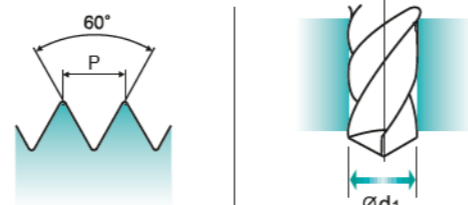
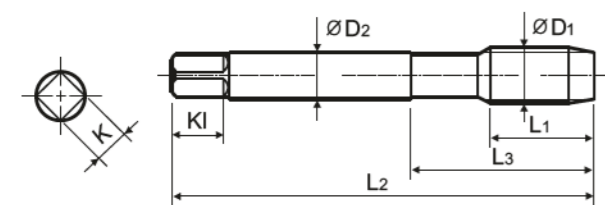
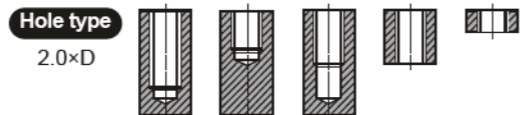
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups: **GG** HSS-E DIN 371/376 6HX 60° C TiCN p.B245

Recommended ToolHolder: Plain Shank 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	TiCN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TI821136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TI821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TI821196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TI821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TI821496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TI821206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TI821226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TI821246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TI821266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TI821286	15	70	25	6	4.9	8	4	4.2
M6 × 1		TI821316	17	80	30	6	4.9	8	4	5
M7 × 1		TI821346	17	80	30	7	5.5	8	4	6
M8 × 1.25		TI821366	20	90	35	8	6.2	9	4	6.8
M9 × 1.25		TI821396	20	90	35	9	7	10	4	7.8
M10 × 1.5		TI821426	22	100	39	10	8	11	4	8.5
M11 × 1.5		TI821466	22	100	40	8	6.2	9	4	9.5
M12 × 1.75		TI821506	24	110	44	9	7	10	4	10.2
M14 × 2		TI821546	26	110	44	11	9	12	4	12
M16 × 2		TI821606	27	110	44	12	9	12	4	14
M18 × 2.5		TI821656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TI821706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TI821746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TI821786	34	160	60	18	14.5	17	4	21
M27 × 3		TI821866	36	160	60	20	16	19	4	24
M30 × 3.5		TI821946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO Material Description	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																					

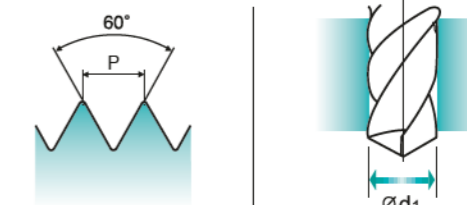
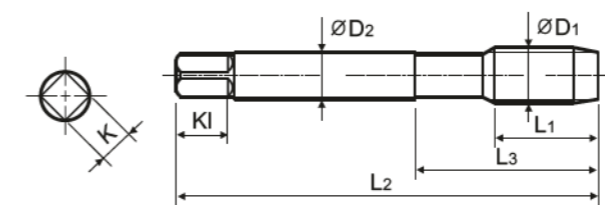
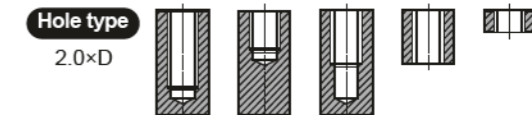
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen



Material groups: **GG** HSS-E DIN 371/376 6HX 60° C TiAlN p.B245

Recommended ToolHolder: Plain Shank 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	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TY821136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TY821156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TY821196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TY821176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TY821496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TY821206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TY821226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TY821246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TY821266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TY821286	15	70	25	6	4.9	8	4	4.2
M6 × 1		TY821316	17	80	30	6	4.9	8	4	5
M7 × 1		TY821346	17	80	30	7	5.5	8	4	6
M8 × 1.25		TY821366	20	90	35	8	6.2	9	4	6.8
M9 × 1.25		TY821396	20	90	35	9	7	10	4	7.8
M10 × 1.5		TY821426	22	100	39	10	8	11	4	8.5
M11 × 1.5		TY821466	22	100	40	8	6.2	9	4	9.5
M12 × 1.75		TY821506	24	110	44	9	7	10	4	10.2
M14 × 2		TY821546	26	110	44	11	9	12	4	12
M16 × 2		TY821606	27	110	44	12	9	12	4	14
M18 × 2.5		TY821656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TY821706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TY821746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TY821786	34	160	60	18	14.5	17	4	21
M27 × 3		TY821866	36	160	60	20	16	19	4	24
M30 × 3.5		TY821946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

ISO Material Description	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																					

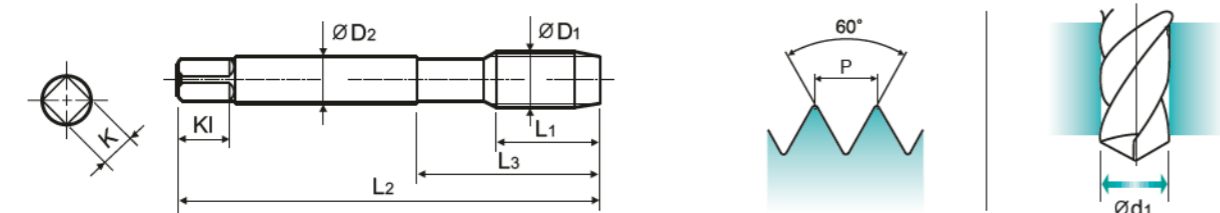
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials due to nitriding.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung



Material groups: **GG** HSS-E DIN 374 6HX 60° C Nitride p.B245

Recommended ToolHolder: Plain Shank 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	Ni	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M4	× 0.5	TE403256	10	63	21	2.8	2.1	5	3	3.5
M5	× 0.5	TE403296	11	70	25	3.5	2.7	6	4	4.5
M6	× 0.75	TE403326	13	80	30	4.5	3.4	6	4	5.2
M6	× 0.5	TE403336	13	80	30	4.5	3.4	6	4	5.5
M7	× 0.75	TE403356	14	80	30	5.5	4.3	7	4	6.2
M8	× 1	TE403376	17	90	36	6	4.9	8	4	7
M8	× 0.75	TE403386	14	80	30	6	4.9	8	4	7.2
M10	× 1.25	TE403436	22	100	40	7	5.5	8	4	8.8
M10	× 1	TE403446	18	90	36	7	5.5	8	4	9
M10	× 0.75	TE403456	18	90	36	7	5.5	8	4	9.2
M12	× 1.5	TE403516	22	100	40	9	7	10	4	10.5
M12	× 1.25	TE403526	22	100	40	9	7	10	4	10.8
M12	× 1	TE403536	18	100	40	9	7	10	4	11
M14	× 1.5	TE403556	22	100	40	11	9	12	4	12.5
M14	× 1.25	TE403566	22	100	40	11	9	12	4	12.8
M16	× 1.5	TE403616	22	100	40	12	9	12	4	14.5
M18	× 1.5	TE403676	25	110	44	14	11	14	4	16.5
M20	× 1.5	TE403726	25	125	50	16	12	15	4	18.5
M22	× 1.5	TE403766	25	125	50	18	14.5	17	4	20.5
M24	× 1.5	TE403806	27	140	54	18	14.5	17	4	22.5

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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)	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																				○	

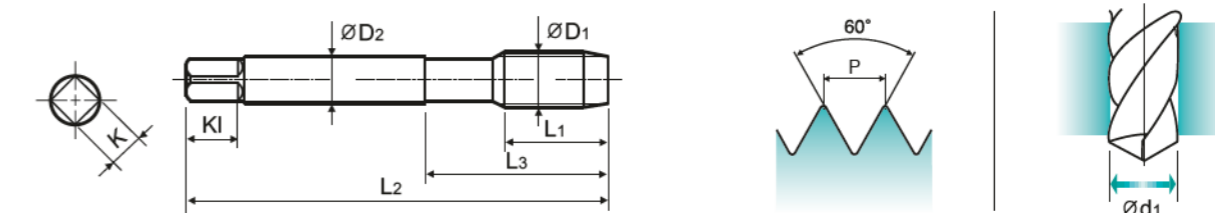
**UNC Unified coarse threads**

- Unified Grobgewinde
- UNC
- Unificato passo grosso

Machine taps  
Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials due to nitriding.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung



Material groups: **GG** HSS-E DIN 371/376 2BX 60° C Nitride p.B245

Recommended ToolHolder: Plain Shank 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		Ni	L1	L2	L3	ØD2	K	Kl	Z	Ød1
#4	- 40UNC	TE434162	11	56	18	3.5	2.7	6	3	2.3
#5	- 40UNC	TE434202	11	56	18	3.5	2.7	6	3	2.6
#6	- 32UNC	TE434242	12	56	20	4	3	6	3	2.85
#8	- 32UNC	TE434282	13	63	21	4.5	3.4	6	3	3.5
#10	- 24UNC	TE434322	15	70	25	6	4.9	8	3	3.9
#12	- 24UNC	TE434362	16	80	30	6	4.9	8	3	4.5
1/4	- 20UNC	TE434402	17	80	30	7	5.5	8	4	5.2
5/16	- 18UNC	TE434442	20	90	35	8	6.2	9	4	6.6
3/8	- 16UNC	TE434482	22	100	39	9	7	10	4	8
7/16	- 14UNC	TE434522	22	100	40	8	6.2	9	4	9.4
1/2	- 13UNC	TE434562	25	110	44	9	7	10	4	10.75
9/16	- 12UNC	TE434602	26	110	44	11	9	12	4	12.25
5/8	- 11UNC	TE434642	27	110	44	12	9	12	4	13.5
3/4	- 10UNC	TE434702	30	125	50	14	11	14	4	16.5
7/8	- 9UNC	TE434742	32	140	54	18	14.5	17	4	19.5
1	- 8UNC	TE434782	36	160	60	20	16	17	4	22.25
1-1/8	- 7UNC	TE434822	40	180	70	22	18	21	4	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended															◎	◎	◎	◎	○	○

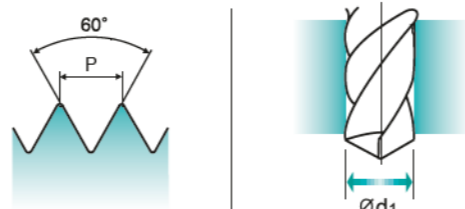
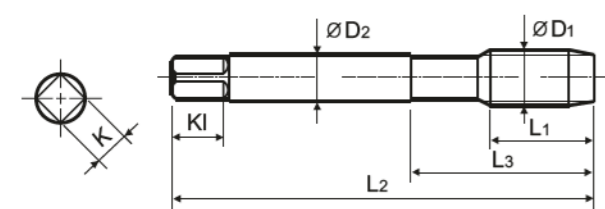
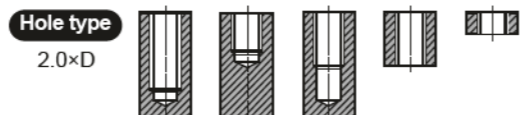
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											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																				○	

**UNF** Unified fine threads  
 Unified Feingewinde  
 UNF  
 Unificato passo fine

Machine taps  
 Maschinengewindebohrer

► Suitable for tapping cast iron or similar work materials due to nitriding.

► Geeignet zum Gewindeschneiden von Guss oder ähnlichen Werkstoffen dank der Nitrierung



Material groups: **GG** HSS-E DIN 371/376 2BX 60° C Nitride p.B245

Recommended ToolHolder: Plain Shank 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		Ni	L1	L2	L3	ØD2	K	K1	Z	Ød1
#4	- 48UNF	TE454182	11	56	18	3.5	2.7	6	3	2.4
#5	- 44UNF	TE454222	11	56	18	3.5	2.7	6	3	2.7
#6	- 40UNF	TE454262	12	56	20	4	3	6	3	3
#8	- 36UNF	TE454302	13	63	21	4.5	3.4	6	3	3.5
#10	- 32UNF	TE454342	15	70	25	6	4.9	8	3	4.1
#12	- 28UNF	TE454382	16	80	30	6	4.9	8	4	4.7
1/4	- 28UNF	TE454422	17	80	30	7	5.5	8	4	5.5
5/16	- 24UNF	TE454462	17	90	35	8	6.2	9	4	6.9
3/8	- 24UNF	TE454502	18	100	39	9	7	10	4	8.5
7/16	- 20UNF	TE454542	22	100	40	8	6.2	9	4	9.9
1/2	- 20UNF	TE454582	22	100	40	9	7	10	4	11.5
9/16	- 18UNF	TE454622	22	100	40	11	9	12	4	12.9
5/8	- 18UNF	TE454662	22	100	40	12	9	12	4	14.5
3/4	- 16UNF	TE454722	25	110	44	14	11	14	4	17.5
7/8	- 14UNF	TE454762	26	125	50	18	14.5	17	4	20.5
1	- 12UNF	TE454802	28	140	54	18	14.5	17	4	23.25
1-1/8	- 12UNF	TE454842	30	150	60	22	18	21	4	26.5

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

◎ : 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		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	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	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	30	25	38	34	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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																					

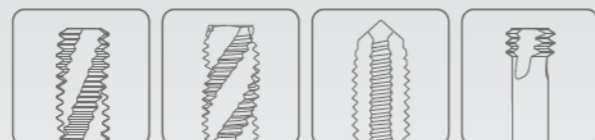
ISO	VDI 3323	Material Description	HB	HRc	T0993	TE821 TE403 TE434 TE454	TD821	TI821	TY821
					Vc (m/min)				
K	15	Grey cast iron	180	10	10-15	10-15	15-20	15-20	15-20
	16		260	26	5-8	5-8	8-11	8-11	8-11
	17	Nodular cast iron	160	3	10-15	10-15	15-20	15-20	15-20
	18		250	25	5-8	5-8	8-11	8-11	8-11
	19	Malleable cast iron	130		10-15	10-15	15-20	15-20	15-20
	20		230	21	5-8	5-8	8-11	8-11	8-11
N	23	Aluminum-cast, alloyed	75		15-20				
	25		130		10-15				
	27	Copper and Copper Alloys (Bronze / Brass)	90			8-12	12-16	12-16	12-16
H	40	Chilled Cast Iron	400	42	3-5				



Leading Through Innovation



Global Cutting Tool Leader **YG-1**



**HSS-E**

# THREADING

# YG TAP ALU

## YG TAP Aluminium

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



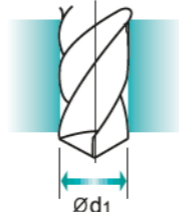
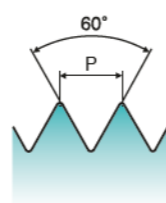
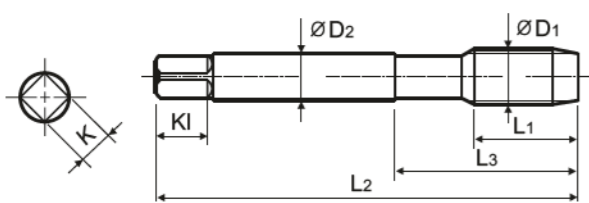
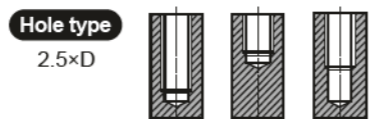
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **AI** HSS-E DIN 371/376 6H 60° C R45 Bright p.B260

Recommended ToolHolder: Plain Shank 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	KI	Z	Ød1
M2	× 0.4	TC163136	8	45	13	2.8	2.1	5	2	1.6
M2.2	× 0.45	TC163156	8	45	13	2.8	2.1	5	2	1.75
*M2.3	× 0.4	TC163196	8	45	13	2.8	2.1	5	2	1.9
M2.5	× 0.45	TC163176	9	50	15	2.8	2.1	5	2	2.05
*M2.6	× 0.45	TC163496	9	50	15	2.8	2.1	5	2	2.1
M3	× 0.5	TC163206	6	56	18	3.5	2.7	6	2	2.5
M3.5	× 0.6	TC163226	7	56	20	4	3	6	2	2.9
M4	× 0.7	TC163246	7	63	21	4.5	3.4	6	2	3.3
M4.5	× 0.75	TC163266	8	70	25	6	4.9	8	2	3.7
M5	× 0.8	TC163286	8	70	25	6	4.9	8	2	4.2
M6	× 1	TC163316	10	80	30	6	4.9	8	2	5
M7	× 1	TC163346	10	80	30	7	5.5	8	2	6
M8	× 1.25	TC163366	13	90	35	8	6.2	9	2	6.8
M9	× 1.25	TC163396	13	90	35	9	7	10	2	7.8
M10	× 1.5	TC163426	15	100	39	10	8	11	2	8.5
M11	× 1.5	TC163466	17	100	40	8	6.2	9	2	9.5
M12	× 1.75	TC163506	18	110	44	9	7	10	2	10.2
M14	× 2	TC163546	20	110	44	11	9	12	3	12
M16	× 2	TC163606	20	110	44	12	9	12	3	14
M18	× 2.5	TC163656	25	125	50	14	11	14	3	15.5
M20	× 2.5	TC163706	25	140	54	16	12	15	3	17.5
M22	× 2.5	TC163746	25	140	54	18	14.5	17	3	19.5
M24	× 3	TC163786	30	160	60	18	14.5	17	3	21
M27	× 3	TC163866	30	160	60	20	16	19	3	24
M30	× 3.5	TC163946	35	180	70	22	18	21	3	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

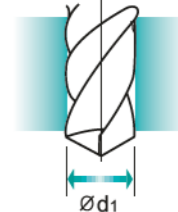
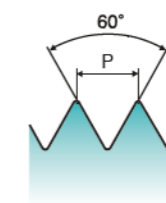
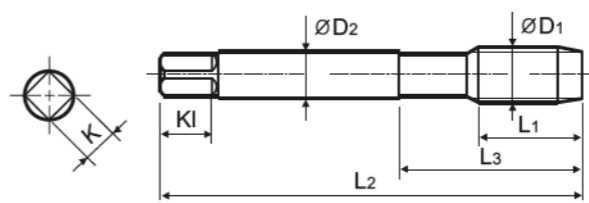
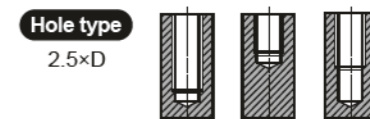
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **AI** HSS-E DIN 371/376 6H 60° C R40 Nitride p.B260

Recommended ToolHolder: Plain Shank 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	Ni	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TE953136	8	45	13	2.8	2.1	5	2	1.6
M2.2	× 0.45	TE953156	8	45	13	2.8	2.1	5	2	1.75
*M2.3	× 0.4	TE953196	8	45	13	2.8	2.1	5	2	1.9
M2.5	× 0.45	TE953176	9	50	15	2.8	2.1	5	2	2.05
*M2.6	× 0.45	TE953496	9	50	15	2.8	2.1	5	2	2.1
M3	× 0.5	TE953206	6	56	18	3.5	2.7	6	2	2.5
M3.5	× 0.6	TE953226	7	56	20	4	3	6	2	2.9
M4	× 0.7	TE953246	7	63	21	4.5	3.4	6	2	3.3
M4.5	× 0.75	TE953266	8	70	25	6	4.9	8	2	3.7
M5	× 0.8	TE953286	8	70	25	6	4.9	8	2	4.2
M6	× 1	TE953316	10	80	30	6	4.9	8	2	5
M7	× 1	TE953346	10	80	30	7	5.5	8	2	6
M8	× 1.25	TE953366	13	90	35	8	6.2	9	2	6.8
M9	× 1.25	TE953396	13	90	35	9	7	10	3	7.8
M10	× 1.5	TE953426	15	100	39	10	8	11	3	8.5
M11	× 1.5	TE953466	17	100	40	8	6.2	9	3	9.5
M12	× 1.75	TE953506	18	110	44	9	7	10	3	10.2
M14	× 2	TE953546	20	110	44	11	9	12	3	12
M16	× 2	TE953606	20	110	44	12	9	12	3	14
M18	× 2.5	TE953656	25	125	50	14	11	14	4	15.5
M20	× 2.5	TE953706	25	140	54	16	12	15	4	17.5
M22	× 2.5	TE953746	25	140	54	18	14.5	17	4	19.5
M24	× 3	TE953786	30	160	60	18	14.5	17	4	21
M27	× 3	TE953866	30	160	60	20	16	19	4	24
M30	× 3.5	TE953946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

ISO Material Description	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	○	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



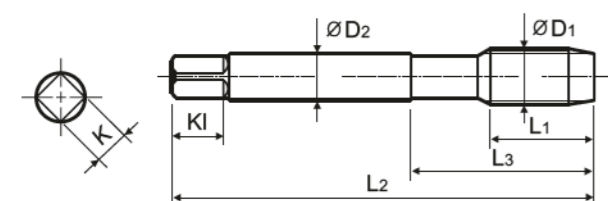
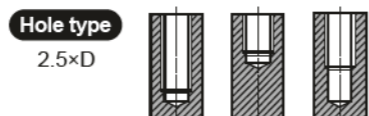
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo grosso DIN 13

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.



Material groups: AI, HSS-E, DIN 374, 6H, 60°, C, R45, Bright, p.B260

Recommended ToolHolder: Plain Shank 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	KI	Z	Ød1
M4	× 0.5	TC963256	5	63	21	2.8	2.1	5	2	3.5
M5	× 0.5	TC963296	5	70	25	3.5	2.7	6	2	4.5
M6	× 0.75	TC963326	8	80	30	4.5	3.4	6	2	5.2
M6	× 0.5	TC963336	5	80	30	4.5	3.4	6	2	5.5
M7	× 0.75	TC963356	10	80	30	5.5	4.3	7	2	6.2
M8	× 1	TC963376	10	90	36	6	4.9	8	2	7
M8	× 0.75	TC963386	8	80	30	6	4.9	8	2	7.2
M10	× 1.25	TC963436	16	100	40	7	5.5	8	2	8.8
M10	× 1	TC963446	10	90	36	7	5.5	8	2	9
M10	× 0.75	TC963456	10	90	36	7	5.5	8	2	9.2
M12	× 1.5	TC963516	15	100	40	9	7	10	2	10.5
M12	× 1.25	TC963526	15	100	40	9	7	10	2	10.8
M12	× 1	TC963536	11	100	40	9	7	10	2	11
M14	× 1.5	TC963556	15	100	40	11	9	12	3	12.5
M14	× 1.25	TC963566	15	100	40	11	9	12	3	12.8
M16	× 1.5	TC963616	15	100	40	12	9	12	3	14.5
M18	× 1.5	TC963676	17	110	44	14	11	14	3	16.5
M20	× 1.5	TC963726	17	125	50	16	12	15	3	18.5
M22	× 1.5	TC963766	17	125	50	18	14.5	17	3	20.5
M24	× 1.5	TC963806	20	140	54	18	14.5	17	3	22.5

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	◎	◎	◎	◎																								

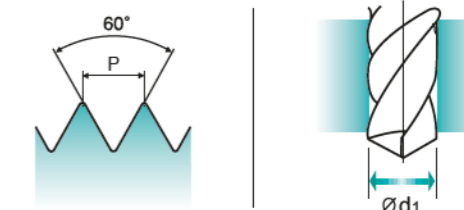
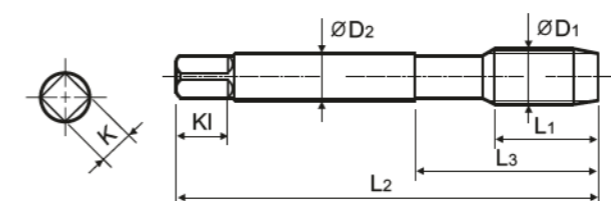
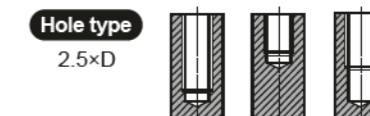
**UNC Unified coarse threads**

- Unified Grobgewinde
- UNC
- 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.



Material groups: AI, HSS-E, DIN 371/376, 2B, 60°, C, R45, Bright, p.B260

Recommended ToolHolder: Plain Shank 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	KI	Z	Ød1
#4	- 40UNC	TC169162	6	56	18	3.5	2.7	6	2	2.3
#5	- 40UNC	TC169202	7	56	18	3.5	2.7	6	2	2.6
#6	- 32UNC	TC169242	7	56	20	4	3	6	2	2.85
#8	- 32UNC	TC169282	8	63	21	4.5	3.4	6	2	3.5
#10	- 24UNC	TC169322	10	70	25	6	4.9	8	2	3.9
#12	- 24UNC	TC169362	10	80	30	6	4.9	8	2	4.5
1/4	- 20UNC	TC169402	13	80	30	7	5.5	8	2	5.2
5/16	- 18UNC	TC169442	14	90	35	8	6.2	9	2	6.6
3/8	- 16UNC	TC169482	16	100	39	9	7	10	2	8
7/16	- 14UNC	TC169522	17	100	40	8	6.2	9	2	9.4
1/2	- 13UNC	TC169562	20	110	44	9	7	10	2	10.75
9/16	- 12UNC	TC169602	20	110	44	11	9	12	3	12.25
5/8	- 11UNC	TC169642	22	110	44	12	9	12	3	13.5
3/4	- 10UNC	TC169702	25	125	50	14	11	14	3	16.5
7/8	- 9UNC	TC169742	27	140	54	18	14.5	17	3	19.5
1	- 8UNC	TC169782	30	160	60	20	16	19	3	22.25
1-1/8	- 7UNC	TC169822	35	180	65	22	18	21	3	25

► DIN 371(#4~3/8) and DIN 376(7/16~1-1/8)

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended	○	○	○																			

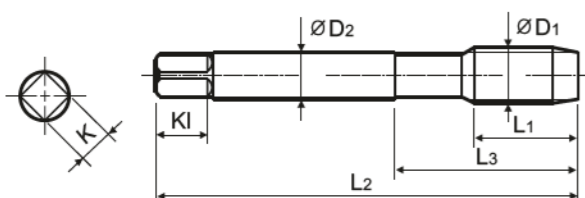
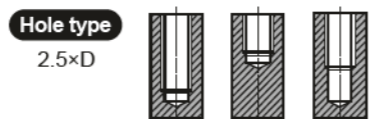
ISO	N										S						H											
	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys						Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	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	◎	◎	◎	◎																								

**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.



Material groups: **AI** HSS-E DIN 371/376 2B 60° C R45 Bright p.B260

Recommended ToolHolder: Plain Shank 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	KI	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					
	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	○	○																	

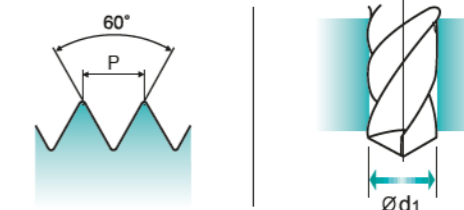
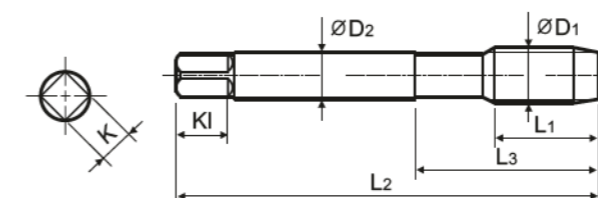
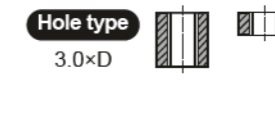
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	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	○	○	○	○																	

**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 Werkstück und das Drehmoment zu minimieren und dem Span mehr Raum zu geben.



Material groups: **AI** HSS-E DIN 371/376 6H 60° B Bright p.B260

Recommended ToolHolder: Plain Shank 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	KI	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					
	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	○	○	○	○																	

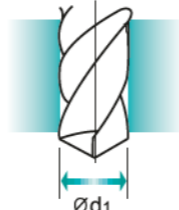
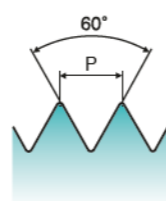
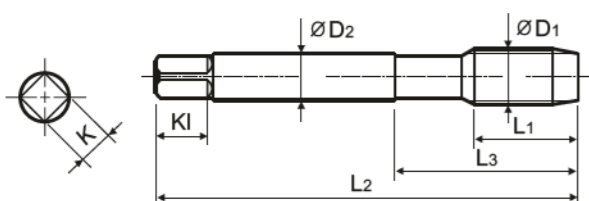
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kernstärke.



Material groups: **AI** HSS-E DIN 371/376 6H 60° B Nitride p.B260

Plain Shank Page D215-228  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK D221-213  
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	Ni	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TE943136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TE943156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TE943196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TE943176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TE943496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TE943206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TE943226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TE943246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TE943266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TE943286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TE943316	17	80	30	6	4.9	8	3	5
M7 × 1		TE943346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TE943366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TE943396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TE943426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TE943466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TE943506	24	110	44	9	7	10	3	10.2
M14 × 2		TE943546	26	110	44	11	9	12	3	12
M16 × 2		TE943606	27	110	44	12	9	12	3	14
M18 × 2.5		TE943656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TE943706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TE943746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TE943786	34	160	60	18	14.5	17	4	21
M27 × 3		TE943866	36	160	60	20	16	19	4	24
M30 × 3.5		TE943946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended					○															

ISO Material Description	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
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	○	○	○	○	◎																

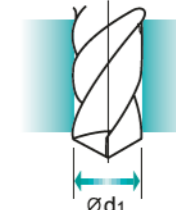
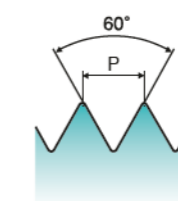
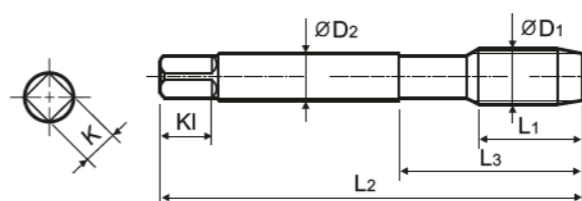
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for brass and short chip work materials.

► Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen



Material groups: **Ms** HSS-E DIN 371/376 6H 60° C Bright p.B260

Plain Shank Page D215-228  
TAPPING ER CHUCK D221-228  
TAPPING CHUCK D221-213  
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	KI	Z	Ød1
M2 × 0.4		TC433136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TC433156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TC433196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TC433176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TC433496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TC433206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TC433226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TC433246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TC433266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TC433286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TC433316	17	80	30	6	4.9	8	3	5
M7 × 1		TC433346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TC433366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TC433396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TC433426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TC433466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TC433506	24	110	44	9	7	10	3	10.2
M14 × 2		TC433546	26	110	44	11	9	12	3	12
M16 × 2		TC433606	27	110	44	12	9	12	3	14
M18 × 2.5		TC433656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TC433706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TC433746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TC433786	34	160	60	18	14.5	17	4	21
M27 × 3		TC433866	36	160	60	20	16	19	4	24
M30 × 3.5		TC433946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended					○															

ISO Material Description	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
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	○	○	○	○	◎																

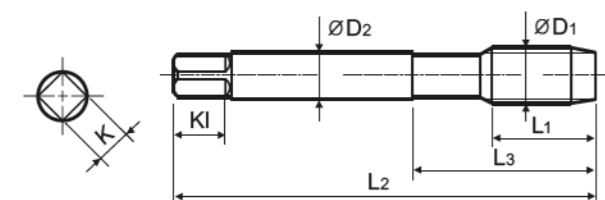
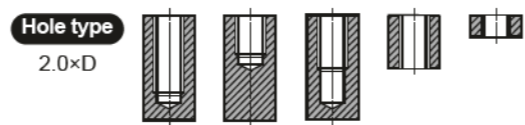
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for brass and short chip work materials.

► Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen



Material groups: **Ms**, HSS-E, DIN 371/376, 6HX, 60°, C, Nitride, p.B260

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	Ni	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TE443136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TE443156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TE443196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TE443176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TE443496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TE443206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TE443226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TE443246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TE443266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TE443286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TE443316	17	80	30	6	4.9	8	3	5
M7 × 1		TE443346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TE443366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TE443396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TE443426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TE443466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TE443506	24	110	44	9	7	10	3	10.2
M14 × 2		TE443546	26	110	44	11	9	12	3	12
M16 × 2		TE443606	27	110	44	12	9	12	3	14
M18 × 2.5		TE443656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TE443706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TE443746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TE443786	34	160	60	18	14.5	17	4	21
M27 × 3		TE443866	36	160	60	20	16	19	4	24
M30 × 3.5		TE443946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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						◎	○															

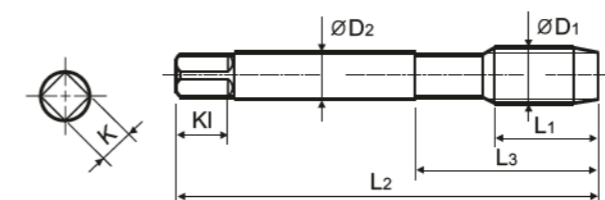
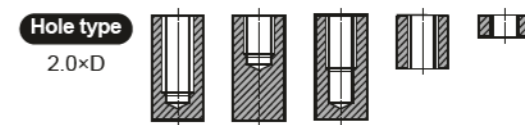
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for brass and short chip work materials.

► Geeignet zum Gewindeschneiden von Messing und anderen kurzspanenden Werkstoffen



Material groups: **Ms**, HSS-E, DIN 371/376, 6H, 60°, C, TiAlN, p.B260

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	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TY433136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TY433156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TY433196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TY433176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TY433496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TY433206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TY433226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TY433246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TY433266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TY433286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TY433316	17	80	30	6	4.9	8	3	5
M7 × 1		TY433346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TY433366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TY433396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TY433426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TY433466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TY433506	24	110	44	9	7	10	3	10.2
M14 × 2		TY433546	26	110	44	11	9	12	3	12
M16 × 2		TY433606	27	110	44	12	9	12	3	14
M18 × 2.5		TY433656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TY433706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TY433746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TY433786	34	160	60	18	14.5	17	4	21
M27 × 3		TY433866	36	160	60	20	16	19	4	24
M30 × 3.5		TY433946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)  
► \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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						◎	○															

					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		110						25-35	25-35	35-40
	27	Copper and Copper Alloys (Bronze / Brass)	90		8-12		8-12		8-12	8-12	12-16
	28		100						15-20		20-25



Leading Through Innovation



**HSS-PM**



# YG TAP Ti Ni

## YG Gewindebohrer Titan / Superlegierungen

- For Heat Resistent Super Alloys and Titanium Alloys Applied with Cutting Edge Rake Angles and Thread Relief
- Für hitzebeständige Superlegierungen und Titanlegierungen, mit Schneidkanten-Spanwinkeln und Gewindehinterschliff



# HSS-PM YG TAP Ti Ni

For Heat Resistant Super Alloys and Titanium Alloys  
Applied with Cutting Edge Rake Angles and Thread Relief

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
◎ : Excellent ○ : Good  
Recommended cutting conditions : p.B276

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	HOLE TYPE			
						Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	HSS-PM	
P	1	Non-alloy steel	About 0.15% C Annealed	125					
	2		About 0.45% C Annealed	190					
	3		About 0.45% C Quenched & Tempered	250					
	4		About 0.75% C Annealed	270					
	5		About 0.75% C Quenched & Tempered	300					
	6	Low alloy steel	Annealed	180					
	7		Quenched & Tempered	275	○	○	○	○	
	8		Quenched & Tempered	300	○	○	○	○	
	9		Quenched & Tempered	350	○	○	○	○	
	10		High alloyed steel, and tool steel	Annealed	200				
	11	Quenched & Tempered		325					
M	12	Stainless steel	Ferritic / Martensitic Annealed	200					
	13		Martensitic Quenched & Tempered	240					
	14		Austenitic	180					
K	15	Grey cast iron	Pearlitic / ferritic	180					
	16		Pearlitic (Martensitic)	260					
	17	Nodular cast iron	Ferritic	160					
	18		Pearlitic	250					
	19		Ferritic	130					
20	Malleable cast iron	Pearlitic	230						
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					
	32		Cured	280					
	33		Annealed	250					
	34		Ni or Co Based Cured	350					
	35		Cast	320					
36	Titanium Alloys	Pure Titanium	400 Rm						
37		Alpha + Beta Alloys Hardened	1050 Rm	◎	◎	◎	◎		
H	38	Hardened steel	Hardened	550					
	39		Hardened	630					
	40	Chilled Cast Iron	Cast	400					
	41	Hardened Cast Iron	Hardened	550					

SERIES	HOLE TYPE	HSS-PM				
		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	HSS-PM		
M	CHAMFER LEAD ACC. TO DIN2197	C	C	B	B	
	FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	
	SPIRAL FLUTE ANGLE	R25	R25	-	-	
	M	DIN371/376	TM903 (p.B264)	TZ903 (p.B265)	TM293 (p.B266)	TZ293 (p.B267)
		DIN352				
	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		Bright	TiAlN	Bright	TiAlN	
MODEL						

SERIES	HOLE TYPE	HSS-PM								
		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole	
M	CHAMFER LEAD ACC. TO DIN2197	C	C	B	B	C	C	B	B	
	FLUTE TYPE	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	Spiral Flute	Spiral Flute	Spiral Point	Spiral Point	
	SPIRAL FLUTE ANGLE	R40	R40	-	-	R40	R40	-	-	
	M	DIN371/376	TM933 (p.B268)	TZ933 (p.B269)	TM923 (p.B270)	TZ923 (p.B271)	TQ833 (p.B272)	TR833 (p.B273)	TQ873 (p.B274)	TR873 (p.B275)
		DIN352								
	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		Bright	TiAlN	Bright	TiAlN	VAP	Bright	VAP	Bright	
MODEL										

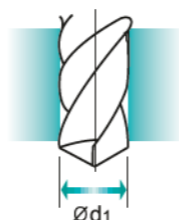
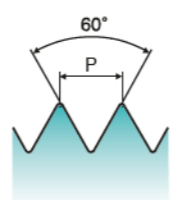
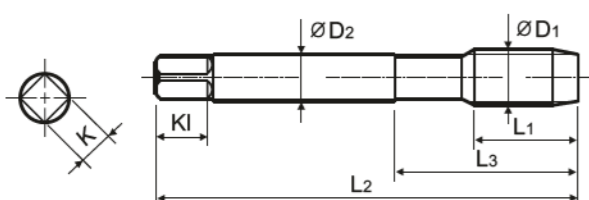
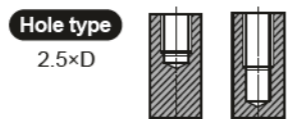
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **Ti**, HSS PM, DIN 371/376, 6H, 60°, C, R25, Bright, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK (Page D215-220), TAPPING CHUCK (Page D221-228), ONE STEP TAPPING CHUCK (Page 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	KI	Z	Ød1
M2 × 0.4		TM903136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TM903156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TM903196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TM903176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TM903496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TM903206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TM903226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TM903246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TM903266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TM903286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TM903316	10	80	30	6	4.9	8	3	5
M7 × 1		TM903346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TM903366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TM903396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TM903426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TM903466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TM903506	18	110	44	9	7	10	3	10.2
M14 × 2		TM903546	20	110	44	11	9	12	3	12
M16 × 2		TM903606	20	110	44	12	9	12	3	14
M18 × 2.5		TM903656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TM903706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TM903746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TM903786	30	160	60	18	14.5	17	4	21
M27 × 3		TM903866	30	160	60	20	16	19	4	24
M30 × 3.5		TM903946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	○											

ISO Material Description	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
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	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○						◎				

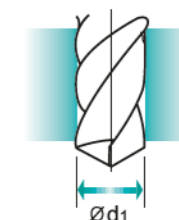
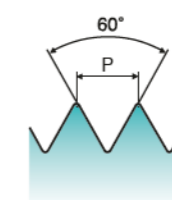
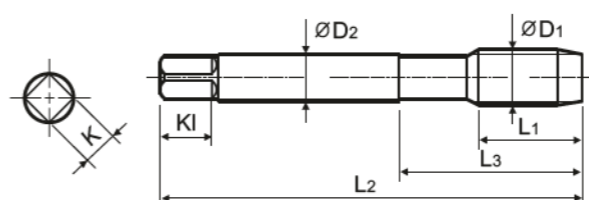
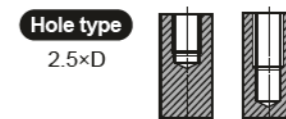
**M ISO metric coarse threads DIN 13**

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

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.



Material groups: **Ti**, HSS PM, DIN 371/376, 6H, 60°, C, R25, TiAlN, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK (Page D215-220), TAPPING CHUCK (Page D221-228), ONE STEP TAPPING CHUCK (Page 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	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TZ903136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TZ903156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TZ903196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TZ903176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TZ903496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TZ903206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TZ903226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TZ903246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TZ903266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TZ903286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TZ903316	10	80	30	6	4.9	8	3	5
M7 × 1		TZ903346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TZ903366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TZ903396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TZ903426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TZ903466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TZ903506	18	110	44	9	7	10	3	10.2
M14 × 2		TZ903546	20	110	44	11	9	12	3	12
M16 × 2		TZ903606	20	110	44	12	9	12	3	14
M18 × 2.5		TZ903656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TZ903706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TZ903746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TZ903786	30	160	60	18	14.5	17	4	21
M27 × 3		TZ903866	30	160	60	20	16	19	4	24
M30 × 3.5		TZ903946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	○											

ISO Material Description	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
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	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended											○						◎				

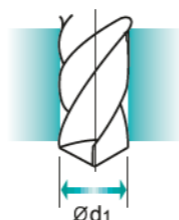
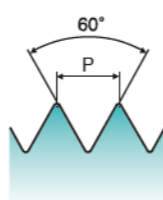
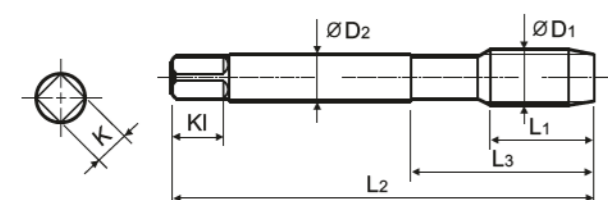


**M-Az ISO metric coarse threads DIN 13**

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

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

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



Material groups: **Ti**, HSS PM, DIN 371/376, 6H, 60°, B, Bright, p.B276

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
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	KI	Z	Ød1
M2 × 0.4		TM293136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TM293156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TM293196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TM293176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TM293496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TM293206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TM293226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TM293246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TM293266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TM293286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TM293316	17	80	30	6	4.9	8	3	5
M7 × 1		TM293346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TM293366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TM293396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TM293426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TM293466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TM293506	24	110	44	9	7	10	3	10.2
M14 × 2		TM293546	26	110	44	11	9	12	3	12
M16 × 2		TM293606	27	110	44	12	9	12	3	14
M18 × 2.5		TM293656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TM293706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TM293746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TM293786	34	160	60	18	14.5	17	4	21
M27 × 3		TM293866	36	160	60	20	16	19	4	24
M30 × 3.5		TM293946	40	180	70	22	18	21	4	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended							○	○	○													

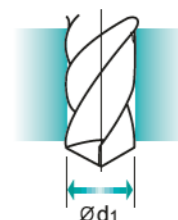
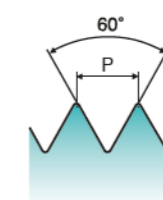
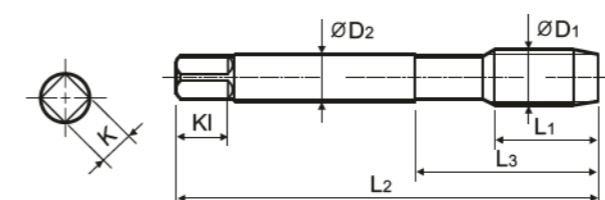
ISO Material Description	N										S						H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel		Chilled Cast Iron		Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
HRc											15	30	25	38	34	55	60	42	55	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended											○	○	○	○	○	○	◎				○	

**M-Az ISO metric coarse threads DIN 13**

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

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

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



Material groups: **Ti**, HSS PM, DIN 371/376, 6H, 60°, B, TiAIN, p.B276

Plain Shank Page D215-220  
TAPPING ER CHUCK D221-228  
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	TiAIN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TZ293136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TZ293156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TZ293196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TZ293176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TZ293496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TZ293206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TZ293226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TZ293246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TZ293266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TZ293286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TZ293316	17	80	30	6	4.9	8	3	5
M7 × 1		TZ293346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TZ293366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TZ293396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TZ293426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TZ293466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TZ293506	24	110	44	9	7	10	3	10.2
M14 × 2		TZ293546	26	110	44	11	9	12	3	12
M16 × 2		TZ293606	27	110	44	12	9	12	3	14
M18 × 2.5		TZ293656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TZ293706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TZ293746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TZ293786	34	160	60	18	14.5	17	4	21
M27 × 3		TZ293866	36	160	60	20	16	19	4	24
M30 × 3.5		TZ293946	40	180	70	22	18	21	4	26.5

▶ DIN 371(M2~M10) and DIN 376(M11~M30)

▶ \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21		
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230		
Recommended							○	○	○													

ISO Material Description	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	55	55	
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
Recommended											○	○	○	○	○	○	◎				○	

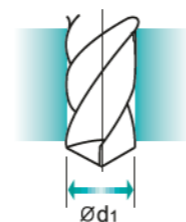
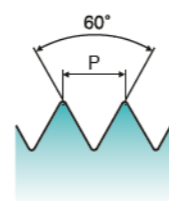
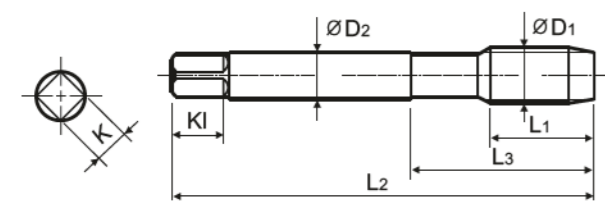
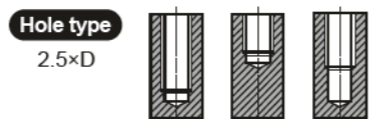
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► For tapping Nickel alloys and heat resistant alloy steels which are used in aerospace and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Material groups: **Ni**, HSS PM, DIN 371/376, 6H, 60°, C, R40, Bright, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.268

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 × 0.4		TM933136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TM933156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TM933196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TM933176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TM933496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TM933206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TM933226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TM933246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TM933266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TM933286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TM933316	10	80	30	6	4.9	8	3	5
M7 × 1		TM933346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TM933366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TM933396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TM933426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TM933466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TM933506	18	110	44	9	7	10	3	10.2
M14 × 2		TM933546	20	110	44	11	9	12	3	12
M16 × 2		TM933606	20	110	44	12	9	12	3	14
M18 × 2.5		TM933656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TM933706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TM933746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TM933786	30	160	60	18	14.5	17	4	21
M27 × 3		TM933866	30	160	60	20	16	19	4	24
M30 × 3.5		TM933946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO Material Description	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											◎	◎	◎	◎	◎								

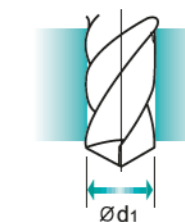
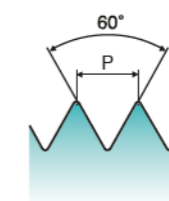
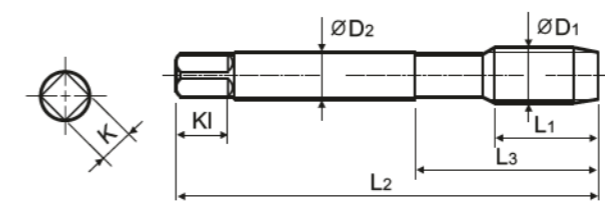
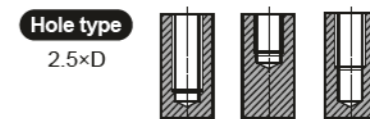
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► For tapping Nickel alloys and heat resistant alloy steels which are used in aerospace and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Material groups: **Ni**, HSS PM, DIN 371/376, 6H, 60°, C, R40, TiAlN, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.268

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	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2 × 0.4		TZ933136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TZ933156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TZ933196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TZ933176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TZ933496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TZ933206	6	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TZ933226	7	56	20	4	3	6	3	2.9
M4 × 0.7		TZ933246	7	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TZ933266	8	70	25	6	4.9	8	3	3.7
M5 × 0.8		TZ933286	8	70	25	6	4.9	8	3	4.2
M6 × 1		TZ933316	10	80	30	6	4.9	8	3	5
M7 × 1		TZ933346	10	80	30	7	5.5	8	3	6
M8 × 1.25		TZ933366	13	90	35	8	6.2	9	3	6.8
M9 × 1.25		TZ933396	13	90	35	9	7	10	3	7.8
M10 × 1.5		TZ933426	15	100	39	10	8	11	3	8.5
M11 × 1.5		TZ933466	17	100	40	8	6.2	9	3	9.5
M12 × 1.75		TZ933506	18	110	44	9	7	10	3	10.2
M14 × 2		TZ933546	20	110	44	11	9	12	3	12
M16 × 2		TZ933606	20	110	44	12	9	12	3	14
M18 × 2.5		TZ933656	25	125	50	14	11	14	4	15.5
M20 × 2.5		TZ933706	25	140	54	16	12	15	4	17.5
M22 × 2.5		TZ933746	25	140	54	18	14.5	17	4	19.5
M24 × 3		TZ933786	30	160	60	18	14.5	17	4	21
M27 × 3		TZ933866	30	160	60	20	16	19	4	24
M30 × 3.5		TZ933946	35	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO Material Description	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											◎	◎	◎	◎	◎								

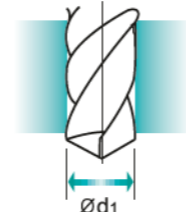
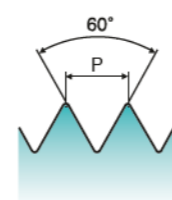
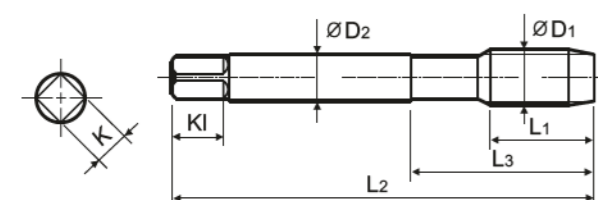
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Material groups: **Ni**, HSS PM, DIN 371/376, 6H, 60°, B, Bright, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK (p. D215-220), TAPPING CHUCK (p. D221-228), ONE STEP TAPPING CHUCK (p. 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		TM923136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TM923156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TM923196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TM923176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TM923496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TM923206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TM923226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TM923246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TM923266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TM923286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TM923316	17	80	30	6	4.9	8	3	5
M7 × 1		TM923346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TM923366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TM923396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TM923426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TM923466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TM923506	24	110	44	9	7	10	3	10.2
M14 × 2		TM923546	26	110	44	11	9	12	3	12
M16 × 2		TM923606	27	110	44	12	9	12	3	14
M18 × 2.5		TM923656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TM923706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TM923746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TM923786	34	160	60	18	14.5	17	4	21
M27 × 3		TM923866	36	160	60	20	16	19	4	24
M30 × 3.5		TM923946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO Material Description	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						◎	◎	◎	◎	◎							○				○

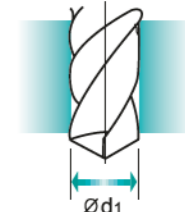
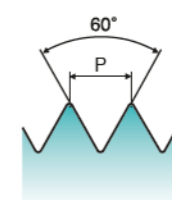
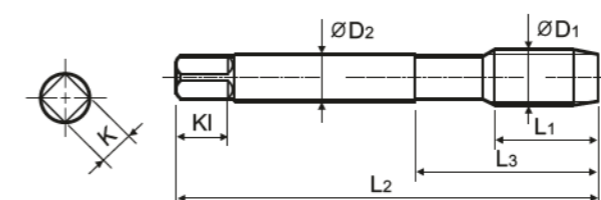
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and chemical industries.

► Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.



Material groups: **Ni**, HSS PM, DIN 371/376, 6H, 60°, B, TiAIN, p.B276

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK (p. D215-220), TAPPING CHUCK (p. D221-228), ONE STEP TAPPING CHUCK (p. 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	TiAIN	L1	L2	L3	ØD2	K	Kl	Z	Ød1
M2 × 0.4		TZ923136	8	45	13	2.8	2.1	5	3	1.6
M2.2 × 0.45		TZ923156	8	45	13	2.8	2.1	5	3	1.75
*M2.3 × 0.4		TZ923196	8	45	13	2.8	2.1	5	3	1.9
M2.5 × 0.45		TZ923176	9	50	15	2.8	2.1	5	3	2.05
*M2.6 × 0.45		TZ923496	9	50	15	2.8	2.1	5	3	2.1
M3 × 0.5		TZ923206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TZ923226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TZ923246	13	63	21	4.5	3.4	6	3	3.3
M4.5 × 0.75		TZ923266	14	70	25	6	4.9	8	3	3.7
M5 × 0.8		TZ923286	15	70	25	6	4.9	8	3	4.2
M6 × 1		TZ923316	17	80	30	6	4.9	8	3	5
M7 × 1		TZ923346	17	80	30	7	5.5	8	3	6
M8 × 1.25		TZ923366	20	90	35	8	6.2	9	3	6.8
M9 × 1.25		TZ923396	20	90	35	9	7	10	3	7.8
M10 × 1.5		TZ923426	22	100	39	10	8	11	3	8.5
M11 × 1.5		TZ923466	22	100	40	8	6.2	9	3	9.5
M12 × 1.75		TZ923506	24	110	44	9	7	10	3	10.2
M14 × 2		TZ923546	26	110	44	11	9	12	3	12
M16 × 2		TZ923606	27	110	44	12	9	12	3	14
M18 × 2.5		TZ923656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TZ923706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TZ923746	32	140	54	18	14.5	17	4	19.5
M24 × 3		TZ923786	34	160	60	18	14.5	17	4	21
M27 × 3		TZ923866	36	160	60	20	16	19	4	24
M30 × 3.5		TZ923946	40	180	70	22	18	21	4	26.5

► DIN 371(M2~M10) and DIN 376(M11~M30)

► \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											

ISO Material Description	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						◎	◎	◎	◎	◎							○				○



TQ833 SERIES

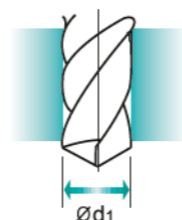
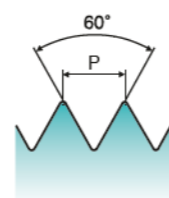
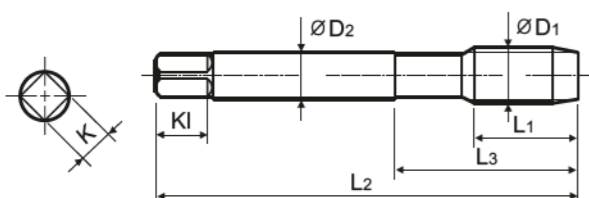
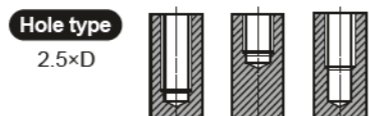
**M** ISO metric coarse threads DIN 13

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

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.



Material groups: **Ti Ni**, HSS PM, DIN 371/376, 6H, 60°, C, R40, Vap, p.B276

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TQ833136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ833156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ833176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ833206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ833226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TQ833246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ833266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ833286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TQ833316	10	80	30	6	4.9	8	3	5
M7	× 1	TQ833346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TQ833366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ833426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ833506	18	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : 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	30	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						◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



TR833 SERIES

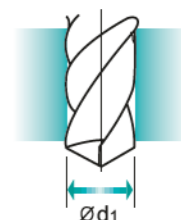
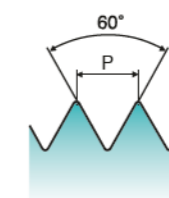
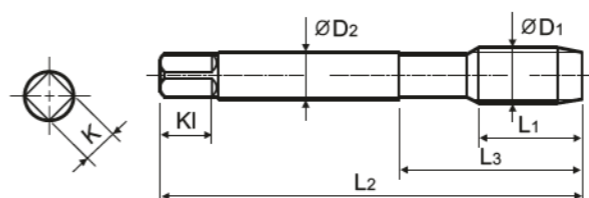
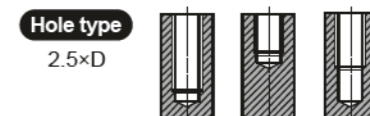
**M** ISO metric coarse threads DIN 13

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

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.



Material groups: **Ti Ni**, HSS PM, DIN 371/376, 6H, 60°, C, R40, Bright, p.B276

Recommended ToolHolder: Plain Shank 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	KI	Z	Ød1
M2	× 0.4	TR833136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR833156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR833176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR833206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR833226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TR833246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR833266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR833286	8	70	25	6	4.9	8	3	4.2
M6	× 1	TR833316	10	80	30	6	4.9	8	3	5
M7	× 1	TR833346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TR833366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR833426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TR833506	18	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

© : 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	30	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						◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

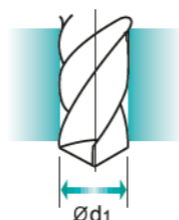
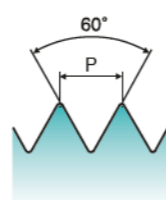
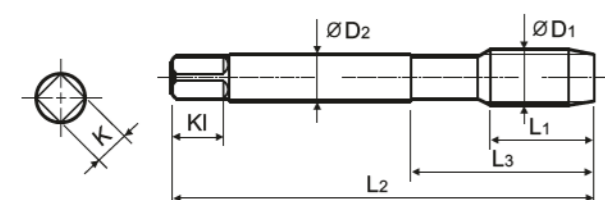
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: **Ti Ni**, HSS PM, DIN 371/376, 6H, 60°, B, Vap, p.B276

Recommended ToolHolder: Plain Shank 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	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TQ873136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TQ873156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TQ873176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ873206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TQ873226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TQ873246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ873266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ873286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TQ873316	17	80	30	6	4.9	8	3	5
M7	× 1	TQ873346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TQ873366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ873426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TQ873506	24	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

◎ : 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	30	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						◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

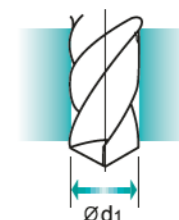
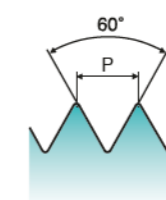
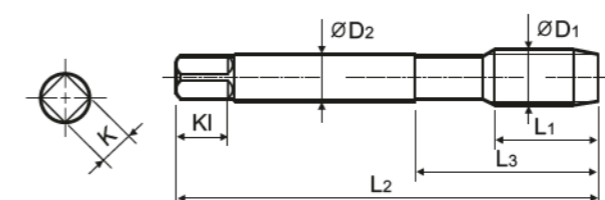
**M ISO metric coarse threads DIN 13**

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

Machine taps  
Maschinengewindebohrer

► Suitable for through hole in more cutting speed than other taps due to thick web and the best substrate.

► Geeignet für Durchgangslöcher in höherer Schnittgeschwindigkeit als bei anderen Gewindebohrern dank größerer Kerndicke und bestem Werkstoff.



Material groups: **Ti Ni**, HSS PM, DIN 371/376, 6H, 60°, B, Bright, p.B276

Recommended ToolHolder: Plain Shank 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	KI	Z	Ød1
M2	× 0.4	TR873136	8	45	13	2.8	2.1	5	3	1.6
M2.2	× 0.45	TR873156	8	45	13	2.8	2.1	5	3	1.75
M2.5	× 0.45	TR873176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TR873206	11	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TR873226	12	56	20	4	3	6	3	2.9
M4	× 0.7	TR873246	13	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TR873266	14	70	25	6	4.9	8	3	3.7
M5	× 0.8	TR873286	15	70	25	6	4.9	8	3	4.2
M6	× 1	TR873316	17	80	30	6	4.9	8	3	5
M7	× 1	TR873346	17	80	30	7	5.5	8	3	6
M8	× 1.25	TR873366	20	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR873426	22	100	39	10	8	11	3	8.5
M12	× 1.75	TR873506	24	110	44	9	7	10	3	10.2

►DIN 371(M2~M10) and DIN 376(M12)

◎ : 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	30	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						◎	◎	◎	◎											

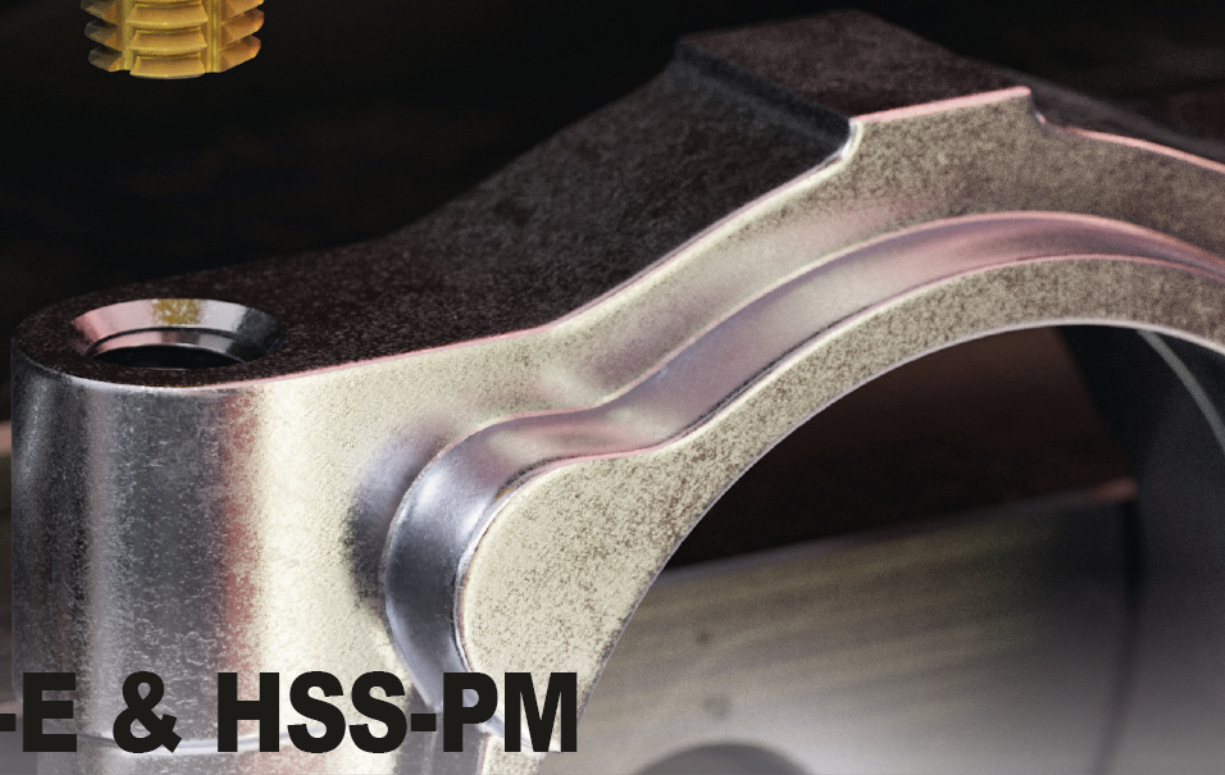
  

ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	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						◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

					TM903	TZ903	TM293	TZ293	TM933	TZ933	TM923	TZ923	TQ833	TR833	TQ873	TR873	
ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)												
COMBO TAPS YG TAP GENERAL	P	Low alloy steel	6	180	10					10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
			7	275	29	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
			8	300	32	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10
			9	350	38	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5
YG TAP STEEL	S	Heat Resistant Super Alloys	31	200	15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	
			32	280	30			10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	
YG TAP HARDENED	S	Heat Resistant Super Alloys	33	250	25			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	
			34	350	38			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	
			35	320	34			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	
YG TAP INOX	S	Titanium Alloys	36	400Rm		10-15	10-15	10-15	10-15					10-15	10-15	10-15	10-15
			37	1050Rm		4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6
YG TAP CAST IRON	H	Hardened steel	38	550	55								3-5				
			40	400	42			3-5	3-5			3-5	3-5			3-5	3-5
YG TAP ALU																	
YG TAP Ti Ni																	
YG TAP FORMING																	
NUT TAPS																	
STI TAPS																	
PIPE TAPS																	
TECHNICAL DATA																	



Leading Through Innovation



**HSS-E & HSS-PM**

# **YG TAP FORMING**

## **YG INNENGEWINDEFORMER**

- Tapping by Forming Soft Materials
- Gewindeherstellung durch Formen von weichen Materialien



HSS-E & HSS-PM YG TAP FORMING

Tapping by Forming Soft Materials

Please visit globalyg1.com/mat for material search. Recommended cutting conditions : p.B293

Table with columns: ISO, VDI 3323, Material Description, Composition / Structure / Heat Treatment, HB, HRc, and MODEL. It lists various materials like Non-alloy steel, Low alloy steel, Stainless steel, Cast iron, Aluminum-wrought alloy, Heat Resistant Super Alloys, Titanium Alloys, Hardened steel, and Hardened Cast Iron.

Table with columns: HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD ACC. TO DIN2197, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES, SURFACE TREATMENT / COATING, and MODEL. It details specifications for HSS-E and HSS-PM tool materials and provides visual models of the taps.

Table with columns: HSS-E, HSS-PM, HSS-E, HSS-PM, HSS-E, HSS-PM, HSS-E. It provides a detailed comparison of tool materials and their performance across various ISO standards (1-41).



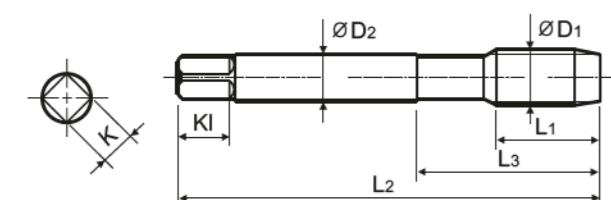
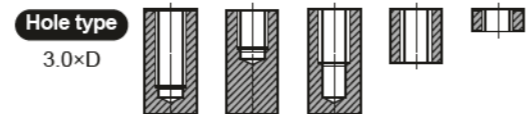
**M ISO metric coarse threads DIN 13**

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

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6HX 60° C TIN p.B293

Recommended ToolHolder: Plain Shank 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	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TD703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TD703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TD703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TD703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TD703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TD703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TD703226	12	56	20	4	3	6	3.25
M4	× 0.7	TD703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TD703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TD703286	15	70	25	6	4.9	8	4.65
M6	× 1	TD703316	17	80	30	6	4.9	8	5.55
M7	× 1	TD703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TD703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TD703396	20	90	35	9	7	10	8.4
M10	× 1.5	TD703426	22	100	39	10	8	11	9.3
M11	× 1.5	TD703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TD703506	24	110	44	9	7	10	11.2
M14	× 2	TD703546	26	110	44	11	9	12	13
M16	× 2	TD703606	27	110	44	12	9	12	15
M18	× 2.5	TD703656	30	125	50	14	11	14	16.8
M20	× 2.5	TD703706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎		◎					○	○									

ISO Material Description	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	◎	◎	○	○		○		○													

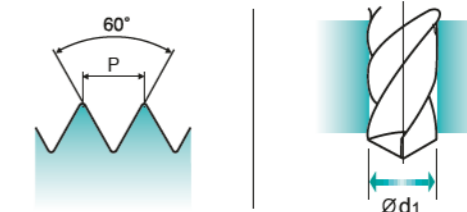
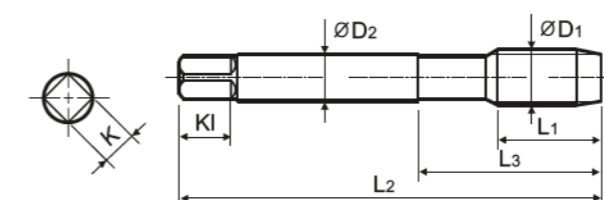
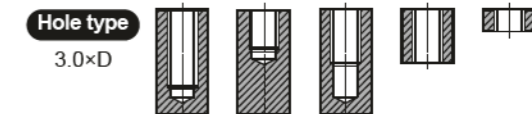
**M ISO metric coarse threads DIN 13**

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- ISO MÉTRIQUE DIN13
- ISO Metrico passo grosso DIN 13

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

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- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6HX 60° C Nitride p.B293

Recommended ToolHolder: Plain Shank 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	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TE703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TE703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TE703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TE703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TE703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TE703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TE703226	12	56	20	4	3	6	3.25
M4	× 0.7	TE703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TE703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TE703286	15	70	25	6	4.9	8	4.65
M6	× 1	TE703316	17	80	30	6	4.9	8	5.55
M7	× 1	TE703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TE703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TE703396	20	90	35	9	7	10	8.4
M10	× 1.5	TE703426	22	100	39	10	8	11	9.3
M11	× 1.5	TE703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TE703506	24	110	44	9	7	10	11.2
M14	× 2	TE703546	26	110	44	11	9	12	13
M16	× 2	TE703606	27	110	44	12	9	12	15
M18	× 2.5	TE703656	30	125	50	14	11	14	16.8
M20	× 2.5	TE703706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎		◎					○	○									

ISO Material Description	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	◎	◎	○	○		○		○													

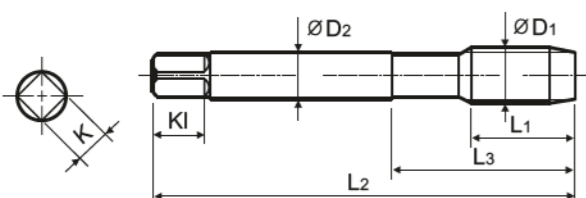
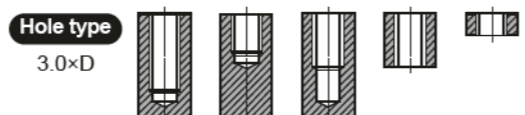
**M ISO metric coarse threads DIN 13**

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

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6HX 60° C TiAlN p.B293

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

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TY703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TY703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TY703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TY703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TY703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TY703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TY703226	12	56	20	4	3	6	3.25
M4	× 0.7	TY703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TY703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TY703286	15	70	25	6	4.9	8	4.65
M6	× 1	TY703316	17	80	30	6	4.9	8	5.55
M7	× 1	TY703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TY703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TY703396	20	90	35	9	7	10	8.4
M10	× 1.5	TY703426	22	100	39	10	8	11	9.3
M11	× 1.5	TY703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TY703506	24	110	44	9	7	10	11.2
M14	× 2	TY703546	26	110	44	11	9	12	13
M16	× 2	TY703606	27	110	44	12	9	12	15
M18	× 2.5	TY703656	30	125	50	14	11	14	16.8
M20	× 2.5	TY703706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	36	37	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		

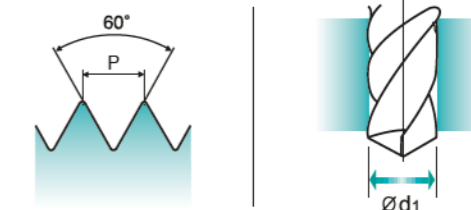
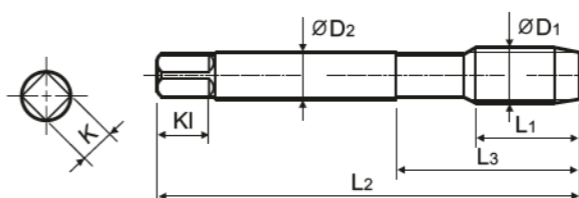
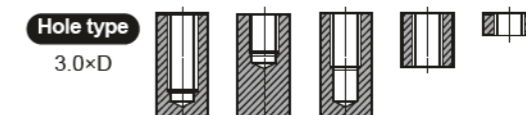
**M ISO metric coarse threads DIN 13**

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

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation in the best substrate.
- The pre-drilling holes are bigger than normal sized holes.

- Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS PM DIN 371/376 6HX 60° C Vap p.B293

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

Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TQ703136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TQ703156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TQ703196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TQ703176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TQ703496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TQ703206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TQ703226	12	56	20	4	3	6	3.25
M4	× 0.7	TQ703246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TQ703266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TQ703286	15	70	25	6	4.9	8	4.65
M6	× 1	TQ703316	17	80	30	6	4.9	8	5.55
M7	× 1	TQ703346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TQ703366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TQ703396	20	90	35	9	7	10	8.4
M10	× 1.5	TQ703426	22	100	39	10	8	11	9.3
M11	× 1.5	TQ703466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TQ703506	24	110	44	9	7	10	11.2
M14	× 2	TQ703546	26	110	44	11	9	12	13
M16	× 2	TQ703606	27	110	44	12	9	12	15
M18	× 2.5	TQ703656	30	125	50	14	11	14	16.8
M20	× 2.5	TQ703706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	36	37	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎		

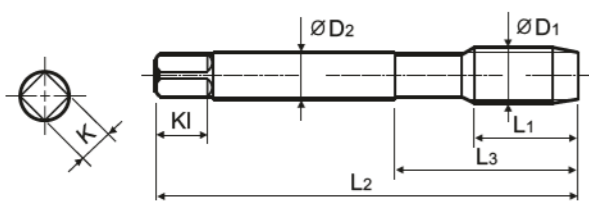
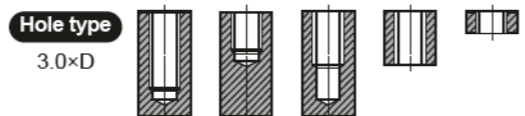
**M ISO metric coarse threads DIN 13**

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

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6GX 60° C TIN p.B293

Recommended ToolHolder: Plain Shank 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	Tapping Drill Diameter
ØD1	P	TiN	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TD713136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TD713156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TD713196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TD713176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TD713496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TD713206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TD713226	12	56	20	4	3	6	3.25
M4	× 0.7	TD713246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TD713266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TD713286	15	70	25	6	4.9	8	4.65
M6	× 1	TD713316	17	80	30	6	4.9	8	5.55
M7	× 1	TD713346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TD713366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TD713396	20	90	35	9	7	10	8.4
M10	× 1.5	TD713426	22	100	39	10	8	11	9.3
M11	× 1.5	TD713466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TD713506	24	110	44	9	7	10	11.2
M14	× 2	TD713546	26	110	44	11	9	12	13
M16	× 2	TD713606	27	110	44	12	9	12	15
M18	× 2.5	TD713656	30	125	50	14	11	14	16.8
M20	× 2.5	TD713706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	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	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	36	37	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

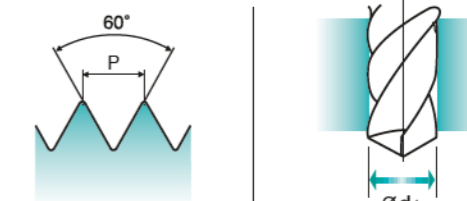
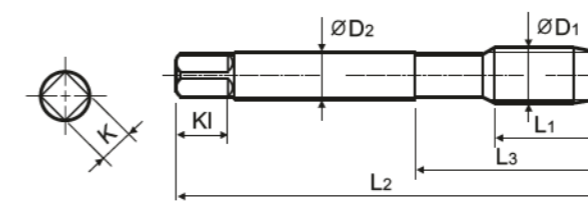
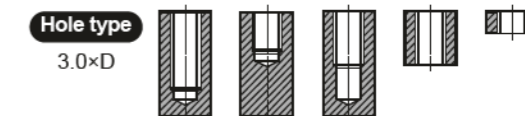
**M ISO metric coarse threads DIN 13**

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

Cold forming taps with oil grooves  
Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6GX 60° C Nitride p.B293

Recommended ToolHolder: Plain Shank 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	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TE713136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TE713156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TE713196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TE713176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TE713496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TE713206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TE713226	12	56	20	4	3	6	3.25
M4	× 0.7	TE713246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TE713266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TE713286	15	70	25	6	4.9	8	4.65
M6	× 1	TE713316	17	80	30	6	4.9	8	5.55
M7	× 1	TE713346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TE713366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TE713396	20	90	35	9	7	10	8.4
M10	× 1.5	TE713426	22	100	39	10	8	11	9.3
M11	× 1.5	TE713466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TE713506	24	110	44	9	7	10	11.2
M14	× 2	TE713546	26	110	44	11	9	12	13
M16	× 2	TE713606	27	110	44	12	9	12	15
M18	× 2.5	TE713656	30	125	50	14	11	14	16.8
M20	× 2.5	TE713706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

© : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	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	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	36	37	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

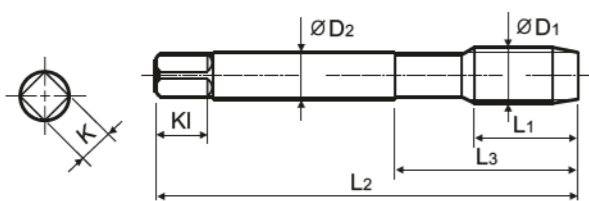
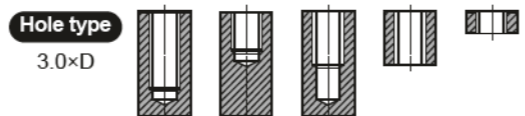
**M ISO metric coarse threads DIN 13**

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

Cold forming taps  
Gewindeformer

- Suitable for threading soft materials with at least 8-10% elongation in the best substrate.
- The pre-drilling holes are bigger than normal sized holes.

- Aus bestem Werkstoff geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS PM DIN 371/376 6HX 60° C Vap p.B293

Recommended ToolHolder: Plain Shank 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	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TQ723136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TQ723156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TQ723196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TQ723176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TQ723496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TQ723206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TQ723226	12	56	20	4	3	6	3.25
M4	× 0.7	TQ723246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TQ723266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TQ723286	15	70	25	6	4.9	8	4.65
M6	× 1	TQ723316	17	80	30	6	4.9	8	5.55
M7	× 1	TQ723346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TQ723366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TQ723396	20	90	35	9	7	10	8.4
M10	× 1.5	TQ723426	22	100	39	10	8	11	9.3
M11	× 1.5	TQ723466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TQ723506	24	110	44	9	7	10	11.2
M14	× 2	TQ723546	26	110	44	11	9	12	13
M16	× 2	TQ723606	27	110	44	12	9	12	15
M18	× 2.5	TQ723656	30	125	50	14	11	14	16.8
M20	× 2.5	TQ723706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

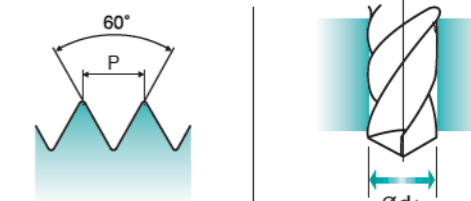
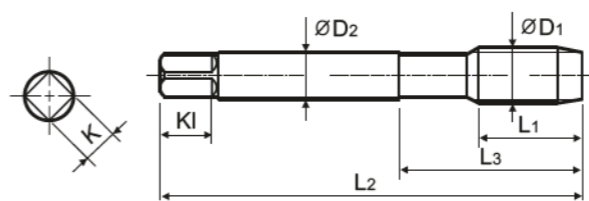
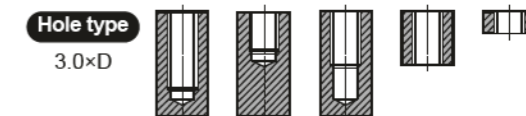
**M ISO metric coarse threads DIN 13**

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

Cold forming taps  
Gewindeformer

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS PM DIN 371/376 6HX 60° C Nitride p.B293

Recommended ToolHolder: Plain Shank 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	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	KI	Ød1
M2	× 0.4	TE723136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TE723156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TE723196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TE723176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TE723496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TE723206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TE723226	12	56	20	4	3	6	3.25
M4	× 0.7	TE723246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TE723266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TE723286	15	70	25	6	4.9	8	4.65
M6	× 1	TE723316	17	80	30	6	4.9	8	5.55
M7	× 1	TE723346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TE723366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TE723396	20	90	35	9	7	10	8.4
M10	× 1.5	TE723426	22	100	39	10	8	11	9.3
M11	× 1.5	TE723466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TE723506	24	110	44	9	7	10	11.2
M14	× 2	TE723546	26	110	44	11	9	12	13
M16	× 2	TE723606	27	110	44	12	9	12	15
M18	× 2.5	TE723656	30	125	50	14	11	14	16.8
M20	× 2.5	TE723706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

◎ : Excellent ○ : Good

ISO Material Description	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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	55	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

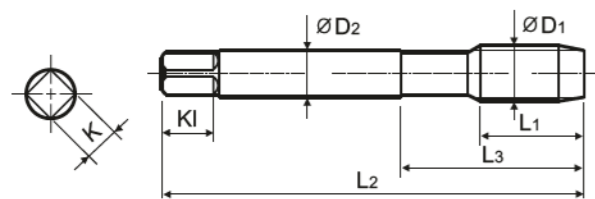
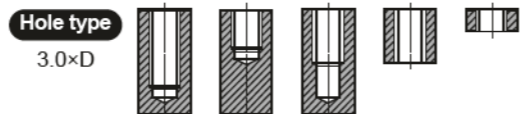
**M ISO metric coarse threads DIN 13**

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

Cold forming taps  
Gewindeformer

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 6HX 60° C TIN p.B293

Recommended ToolHolder: Plain Shank TAPPING ER-CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.285 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	KI	Ød1
M2	× 0.4	TD723136	8	45	13	2.8	2.1	5	1.83
M2.2	× 0.45	TD723156	8	45	13	2.8	2.1	5	2
*M2.3	× 0.4	TD723196	8	45	13	2.8	2.1	5	2.1
M2.5	× 0.45	TD723176	9	50	15	2.8	2.1	5	2.3
*M2.6	× 0.45	TD723496	9	50	15	2.8	2.1	5	2.4
M3	× 0.5	TD723206	11	56	18	3.5	2.7	6	2.8
M3.5	× 0.6	TD723226	12	56	20	4	3	6	3.25
M4	× 0.7	TD723246	13	63	21	4.5	3.4	6	3.7
M4.5	× 0.75	TD723266	14	70	25	6	4.9	8	4.15
M5	× 0.8	TD723286	15	70	25	6	4.9	8	4.65
M6	× 1	TD723316	17	80	30	6	4.9	8	5.55
M7	× 1	TD723346	17	80	30	7	5.5	8	6.55
M8	× 1.25	TD723366	20	90	35	8	6.2	9	7.4
M9	× 1.25	TD723396	20	90	35	9	7	10	8.4
M10	× 1.5	TD723426	22	100	39	10	8	11	9.3
M11	× 1.5	TD723466	22	100	40	8	6.2	9	10.3
M12	× 1.75	TD723506	24	110	44	9	7	10	11.2
M14	× 2	TD723546	26	110	44	11	9	12	13
M16	× 2	TD723606	27	110	44	12	9	12	15
M18	× 2.5	TD723656	30	125	50	14	11	14	16.8
M20	× 2.5	TD723706	32	140	54	16	12	15	18.8

- DIN 371(M2~M10) and DIN 376(M11~M20)
- \* DIN profile not ISO

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

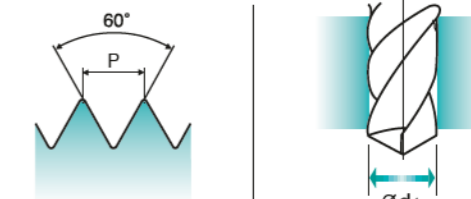
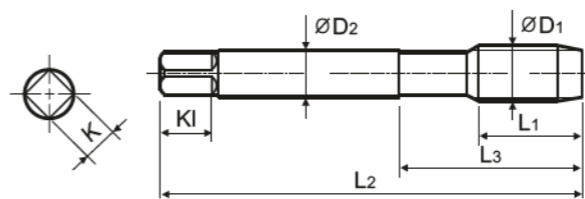
**MF ISO metric fine threads DIN 13**

- Metrisches ISO-Feingewinde DIN 13
- ISO MÉTRIQUE PAS FINS DIN13
- ISO Metrico passo fine DIN 13

Cold forming taps  
Gewindeformer

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 374 6HX 60° C TIN p.B293

Recommended ToolHolder: Plain Shank TAPPING ER-CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.285 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	KI	Ød1
M4	× 0.5	TD733256	10	63	21	2.8	2.1	5	3.75
M5	× 0.5	TD733296	11	70	25	3.5	2.7	6	4.75
M6	× 0.75	TD733326	13	80	30	4.5	3.4	6	5.65
M6	× 0.5	TD733336	13	80	30	4.5	3.4	6	5.75
M7	× 0.75	TD733356	14	80	30	5.5	4.3	7	6.65
M8	× 1	TD733376	17	90	36	6	4.9	8	7.5
M8	× 0.75	TD733386	14	80	30	6	4.9	8	7.65
M10	× 1.25	TD733436	22	100	40	7	5.5	8	9.4
M10	× 1	TD733446	18	90	36	7	5.5	8	9.5
M10	× 0.75	TD733456	18	90	36	7	5.5	8	9.65
M12	× 1.5	TD733516	22	100	40	9	7	10	11.25
M12	× 1.25	TD733526	22	100	40	9	7	10	11.4
M12	× 1	TD733536	18	100	40	9	7	10	11.5
M14	× 1.5	TD733556	22	100	40	11	9	12	13.25
M14	× 1.25	TD733566	22	100	40	11	9	12	13.4
M16	× 1.5	TD733616	22	100	40	12	9	12	15.25
M18	× 1.5	TD733676	25	110	44	14	11	14	17.25
M20	× 1.5	TD733726	25	125	50	16	12	15	19.25

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

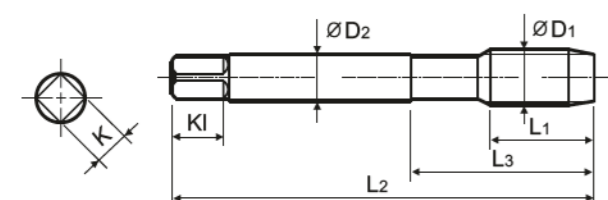
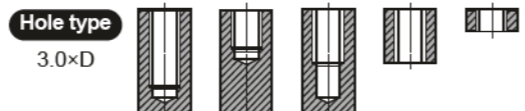
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	55	60	42	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**MF** ISO metric fine threads DIN 13  
 • Metrisches ISO-Feingewinde DIN 13  
 • ISO MÉTRIQUE PAS FINS DIN13  
 • ISO Metrico passo fine DIN 13

Cold forming taps with oil grooves  
 Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 374 6HX 60° C Nitride p.B293

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

Recommended Cutting Page : P.285 Unit : mm

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1	P	Ni	L1	L2	L3	ØD2	K	Kl	Ød1
M4	× 0.5	TE733256	10	63	21	2.8	2.1	5	3.75
M5	× 0.5	TE733296	11	70	25	3.5	2.7	6	4.75
M6	× 0.75	TE733326	13	80	30	4.5	3.4	6	5.65
M6	× 0.5	TE733336	13	80	30	4.5	3.4	6	5.75
M7	× 0.75	TE733356	14	80	30	5.5	4.3	7	6.65
M8	× 1	TE733376	17	90	36	6	4.9	8	7.5
M8	× 0.75	TE733386	14	80	30	6	4.9	8	7.65
M10	× 1.25	TE733436	22	100	40	7	5.5	8	9.4
M10	× 1	TE733446	18	90	36	7	5.5	8	9.5
M10	× 0.75	TE733456	18	90	36	7	5.5	8	9.65
M12	× 1.5	TE733516	22	100	40	9	7	10	11.25
M12	× 1.25	TE733526	22	100	40	9	7	10	11.4
M12	× 1	TE733536	18	100	40	9	7	10	11.5
M14	× 1.5	TE733556	22	100	40	11	9	12	13.25
M14	× 1.25	TE733566	22	100	40	11	9	12	13.4
M16	× 1.5	TE733616	22	100	40	12	9	12	15.25
M18	× 1.5	TE733676	25	110	44	14	11	14	17.25
M20	× 1.5	TE733726	25	125	50	16	12	15	19.25

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

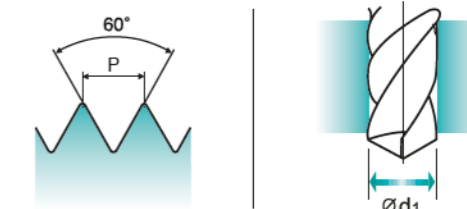
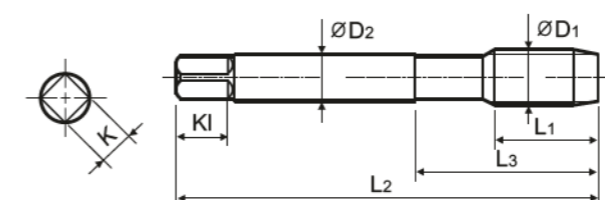
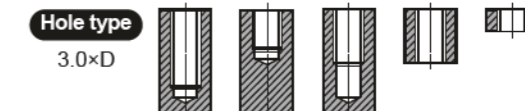
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	35	60	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

**UNC** Unified coarse threads  
 • Unified Grobgewinde  
 • UNC  
 • Unificato passo grosso

Cold forming taps with oil grooves  
 Gewindeformer mit Schmiernuten

- Suitable for threading soft materials with at least 8-10% elongation.
- The pre-drilling holes are bigger than normal sized holes.

- Geeignet zum Gewindeformen weicher Werkstoffe mit mindestens 8-10% Dehnung.
- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 2BX 60° C TiN p.B293

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

Recommended Cutting Page : P.285 Unit : mm

SIZE	TPI	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	Tapping Drill Diameter
ØD1		TiN	L1	L2	L3	ØD2	K	Kl	Ød1
#5 - 40UNC		TD704202	11	56	18	3.5	2.7	6	2.87
#6 - 32UNC		TD704242	12	56	20	4	3	6	3.1
#8 - 32UNC		TD704282	13	63	21	4.5	3.4	6	3.8
#10 - 24UNC		TD704322	15	70	25	6	4.9	8	4.3
#12 - 24UNC		TD704362	16	80	30	6	4.9	8	4.95
1/4 - 20UNC		TD704402	17	80	30	7	5.5	8	5.75
5/16 - 18UNC		TD704442	20	90	35	8	6.2	9	7.25
3/8 - 16UNC		TD704482	22	100	39	9	7	10	8.75
7/16 - 14UNC		TD704522	22	100	40	8	6.2	9	10.2
1/2 - 13UNC		TD704562	25	110	44	9	7	10	11.7
9/16 - 12UNC		TD704602	26	110	40	11	9	12	13.2
5/8 - 11UNC		TD704642	27	110	44	12	9	12	14.7
3/4 - 10UNC		TD704702	30	125	50	14	11	14	17.8

►DIN 371(#4~3/8) and DIN 376(7/16~3/4)

◎ : 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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

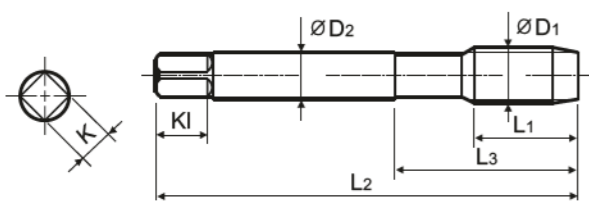
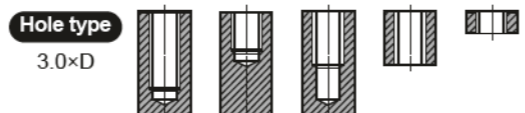
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials	Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	21	22	23	24	25	26	27	28	29	30	15	30	25	38	34	35	60	60	42	55	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

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- Die Kernlochbohrungen sind größer als normale Kernlöcher.



Material groups: **GV** HSS-E DIN 371/376 2BX 60° C Nitride p.B293

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 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	Tapping Drill Diameter
ØD1		Ni	L1	L2	L3	ØD2	K	KI	Ød1
#5 - 40 UNC		TE704202	11	56	18	3.5	2.7	6	2.87
#6 - 32 UNC		TE704242	12	56	20	4	3	6	3.1
#8 - 32 UNC		TE704282	13	63	21	4.5	3.4	6	3.8
#10 - 24 UNC		TE704322	15	70	25	6	4.9	8	4.3
#12 - 24 UNC		TE704362	16	80	30	6	4.9	8	4.95
1/4 - 20 UNC		TE704402	17	80	30	7	5.5	8	5.75
5/16 - 18 UNC		TE704442	20	90	35	8	6.2	9	7.25
3/8 - 16 UNC		TE704482	22	100	39	9	7	10	8.75
7/16 - 14 UNC		TE704522	22	100	40	8	6.2	9	10.2
1/2 - 13 UNC		TE704562	25	110	44	9	7	10	11.7
9/16 - 12 UNC		TE704602	26	110	40	11	9	12	13.2
5/8 - 11 UNC		TE704642	27	110	44	12	9	12	14.7
3/4 - 10 UNC		TE704702	30	125	50	14	11	14	17.8

► DIN 371(#4~3/8) and DIN 376(7/16~3/4)

© : Excellent ○ : Good

ISO	P										M				K					
	Non-alloy steel					Low alloy steel					High alloy steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron		
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

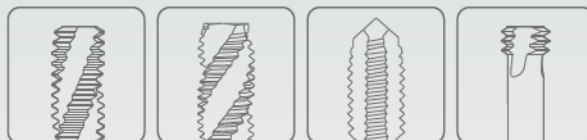
  

ISO	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials			Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc	60	100	75	90	130	110	90	100			15	30	25	38	34	400Rm	1050Rm	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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO	VDI 3323	Material Description	HB	HRc	Vc (m/min)								
					TD703 TD733 TD704	TE703 TE733 TE704	TY703	TQ703	TD713	TE713	TQ723	TE723	TD723
P	1	Non-alloy steel	125		15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20
	2		190	13	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20
	3		250	25	12-18	12-18	12-18	12-18	12-18	12-18	12-18	12-18	12-18
	6	Low alloy steel	180	10	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
M	12	Stainless steel	200	15	10-13	7-10	10-13	7-10	10-13	7-10	7-10	7-10	10-13
	13		240	23	8-11	5-8	8-11	5-8	8-11	5-8	5-8	5-8	8-11
	14		180	10	6-8	4-6	6-8	4-6	6-8	4-6	4-6	4-6	6-8
N	21	Aluminum-wrought alloy	60		10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	22		100		10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	23	Aluminum-cast, alloyed	75		15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20
	24		90		10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	26	Copper and Copper Alloys (Bronze / Brass)	110		25-35	25-35	25-35	25-35	25-35	25-35	25-35	25-35	25-35
	28		100		15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20	15-20



Global Cutting Tool Leader **YG-1**



# THREADING





Leading Through Innovation

**HSS-E**

# **NUT TAPS**

## **MUTTERGEWINDEBOHRER**

- Nut Tapping Machines
- Zum Gewindeschneiden von Muttern

SELECTION GUIDE



HSS-E NUT TAPS

Nut Tapping Machines

HOLE TYPE	Max. 2.0xD Through Hole		
TOOL MATERIAL	HSS-E		
CHAMFER LEAD ACC. TO DIN2197	Long		
FLUTE TYPE	Straight Flute		
SPIRAL FLUTE ANGLE	-		
SERIES	M	DIN371/376	TC803 (p.B297)
		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	Bright		
MODEL			

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search

◎ : Excellent ○ : Good

Recommended cutting conditions : p.B296

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRC		Vc (m/min)
P	1	Non-alloy steel	About 0.15% C Annealed	125	13	○	15-20
	2		About 0.45% C Annealed	190	13	○	15-20
	3		About 0.45% C Quenched & Tempered	250	25	○	12-18
	4		About 0.75% C Annealed	270	28	○	10-15
	5		About 0.75% C Quenched & Tempered	300	32	○	10-15
	6	Low alloy steel	Annealed	180	10	○	10-15
	7		Quenched & Tempered	275	29	○	10-15
	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	○	10-15
	18		Pearlitic	250	25	○	5-8
	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		○	10-15
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		○	25-35
	27		CuZn, CuSnZn (Brass)	90		○	8-12
	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		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	Hardened Cast Iron	Cast	400	42		
	41		Hardened	550	55		

YG NUT TAPS

TC803 SERIES

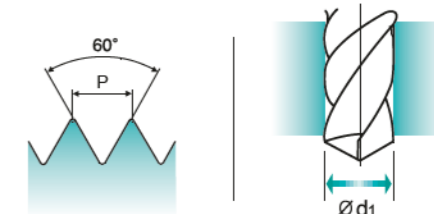
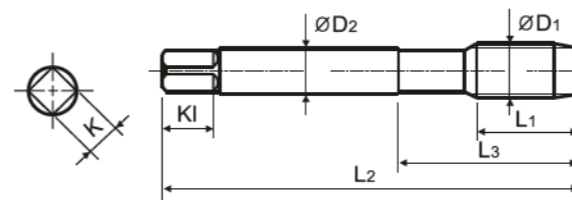
ISO metric coarse threads DIN 13

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

Nut taps Muttergewindebohrer

- For making nuts on machines.
- The work pieces can be taken out from shank side only.

- Zur Herstellung von Muttern auf Sondermaschinen.
- Die fertigen Muttern können nur über das Schaftende entnommen werden.



Material groups: GS HSS-E DIN 357 6H 60° LONG Bright p.B296

Recommended Toolholder: Plain Shank 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	KI	Z	Ød1
M4	× 0.7	TC803246	25	90	45	2.8	2.1	5	3	3.3
M5	× 0.8	TC803286	28	100	50	3.5	2.7	6	3	4.2
M6	× 1	TC803316	32	110	55	4.5	3.4	6	3	5
M7	× 1	TC803346	36	110	55	5.5	4.3	7	3	6
M8	× 1.25	TC803366	40	125	62	6	4.9	8	3	6.8
M10	× 1.5	TC803426	45	140	70	7	5.5	8	3	8.5
M12	× 1.75	TC803506	50	180	90	9	7	10	3	10.2
M14	× 2	TC803546	56	200	100	11	9	12	4	12
M16	× 2	TC803606	63	200	100	12	9	12	4	14
M18	× 2.5	TC803656	63	220	110	14	11	14	4	15.5
M20	× 2.5	TC803706	70	250	125	16	12	15	4	17.5

◎ : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	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	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

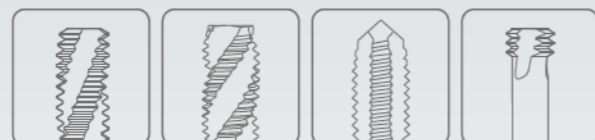
ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)		Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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	15	30	25	38	34	200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommended						○	○	○													



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**HSS-E**

# THREADING

# SCREW THREAD INSERT TAPS

## SCHRAUBENGWINDE INSERT TAPS

- Tapping STI Threads of Soft Materials
- Gewindeschneiden von STI-Gewinden in weichen Materialien

SELECTION GUIDE



# HSS-E SCREW THREAD INSERT TAPS

Tapping STI Threads of Soft Materials

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)	DIN156/5157	
EG-M	DIN371/376	TC909 (p.B301)	TC973 (p.B302)
EG-UNC	DIN371/376	TC944 (p.B303)	TC934 (p.B304)
EG-UNF	DIN371/374		TC954 (p.B305)
SURFACE TREATMENT		Bright	Bright
MODEL			

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B306

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		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		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	110		
	27	Non Metallic Materials	CuSn, lead-free copper and electrolytic copper	90		◎	◎
	28		Duroplastic, Fiber Reinforced Plastic	100			
	29		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	Hardened Cast Iron	Cast	400	42		
	41		Hardened	550	55		

## YG SCREW THREAD INSERT TAPS

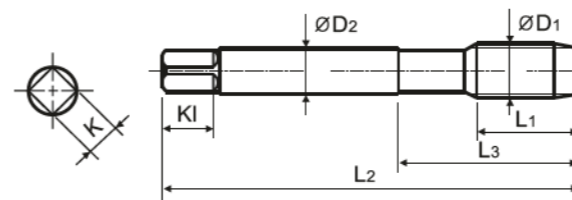
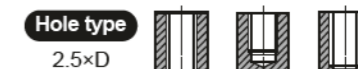
TC909 SERIES

**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

Machine taps  
 Maschinengewindebohrer

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° C R40 Bright p.B306

Recommended ToolHolder: Plain Shank TAPPING CHUCK D215-220, TAPPING CHUCK D221-228, ONESTEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.298

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		TC909176	6	56	18	3.5	2.7	6	3	2.65
M3 × 0.5		TC909206	5	63	21	4.5	3.4	6	3	3.15
M3.5 × 0.6		TC909226	8	70	25	6	4.9	8	3	3.7
M4 × 0.7		TC909246	8	70	25	6	4.9	8	3	4.2
M5 × 0.8		TC909286	8	80	30	6	4.9	8	3	5.25
M6 × 1		TC909316	10	90	35	8	6.2	9	3	6.3
M8 × 1.25		TC909366	16	100	39	10	8	11	3	8.4
M10 × 1.5		TC909426	15	110	44	9	7	10	3	10.4
M12 × 1.75		TC909506	20	110	44	11	9	12	3	12.5
M14 × 2		TC909546	22	110	44	12	9	12	3	14.5
M16 × 2		TC909606	25	125	50	14	11	14	4	16.5
M18 × 2.5		TC909656	27	140	54	18	14.5	17	4	18.75
M20 × 2.5		TC909706	30	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
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	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		
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
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	15	30	25	38	34	15	30	25	38	34	400Rm	1050Rm	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	◎	◎	◎	◎		◎															

# YGG SCREW THREAD INSERT TAPS

TC973 SERIES

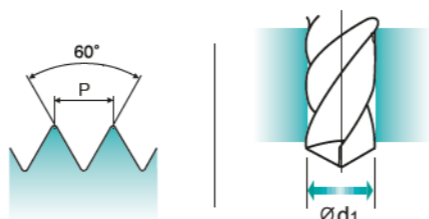
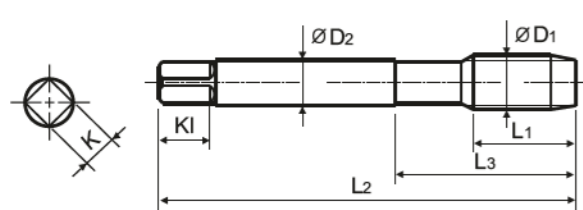
## EG-M ISO metric coarse threads for Screw Thread insert

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

Machine taps  
Maschinengewindebohrer

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, p.B306

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

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	Kl	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	30	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	◎	◎	◎	◎			◎														

# YGG SCREW THREAD INSERT TAPS

TC944 SERIES

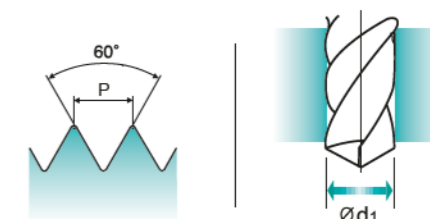
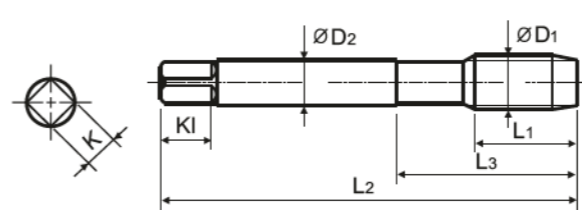
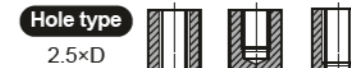
## EG-UNC Unified coarse threads for Screw Thread insert

Unified Regelgew.f.Gew.Drahteins  
UNC POUR FILETS RAPPORTÉS  
ISO Metrico passo grosso per Helicoil

Machine taps  
Maschinengewindebohrer

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, 2B, 60°, C, R40, Bright, p.B306

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.298 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 - 40 UNC		TC944162	7	63	21	4.5	3.4	6	3	3.1
#5 - 40 UNC		TC944202	7	63	21	4.5	3.4	6	3	3.4
#6 - 32 UNC		TC944242	8	70	25	6	4.9	8	3	3.8
#8 - 32 UNC		TC944282	8	80	25	6	4.9	8	3	4.4
#10 - 24 UNC		TC944322	10	80	30	7	5.5	8	3	5.2
#12 - 24 UNC		TC944362	10	80	30	7	5.5	8	3	5.8
1/4 - 20 UNC		TC944402	14	90	35	8	6.2	9	3	6.7
5/16 - 18 UNC		TC944442	16	100	39	10	8	11	3	8.4
3/8 - 16 UNC		TC944482	16	110	39	12	9	12	3	10
7/16 - 14 UNC		TC944522	20	110	44	11	9	12	3	11.6
1/2 - 13 UNC		TC944562	22	110	44	12	9	12	3	13.3
9/16 - 12 UNC		TC944602	22	125	50	14	11	14	3	15
5/8 - 11 UNC		TC944642	25	125	50	14	11	14	4	16.5
3/4 - 10 UNC		TC944702	27	140	56	18	14.5	17	4	19.75

►DIN 371(#4~3/8) and DIN 376(7/16~3/4)

© : 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	30	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	◎	◎	◎	◎			◎														

# YG SCREW THREAD INSERT TAPS

TC934 SERIES

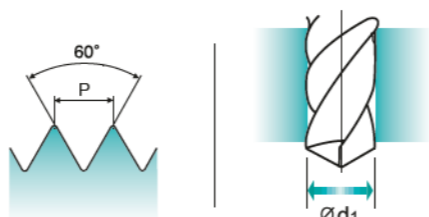
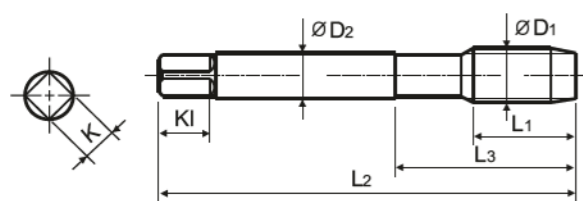
## EG-UNC

Unified coarse threads for Screw Thread insert

- Unified Regelgew.f.Gew.Drahteins
  - UNC POUR FILETS RAPPORTÉS
  - ISO Metrico passo grosso per Helicoil
- Machine taps Maschinengewindebohrer

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, 2B, 60°, B, Bright, p.B306

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.298 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 - 40 UNC		TC934162	13	63	21	4.5	3.4	6	3	3.1
#5 - 40 UNC		TC934202	13	63	21	4.5	3.4	6	3	3.4
#6 - 32 UNC		TC934242	14	70	25	6	4.9	8	3	3.8
#8 - 32 UNC		TC934282	13	80	25	6	4.9	8	3	4.4
#10 - 24 UNC		TC934322	17	80	30	7	5.5	8	3	5.2
#12 - 24 UNC		TC934362	17	80	30	7	5.5	8	3	5.8
1/4 - 20 UNC		TC934402	20	90	35	8	6.2	9	3	6.7
5/16 - 18 UNC		TC934442	22	100	39	10	8	11	3	8.4
3/8 - 16 UNC		TC934482	21	110	39	12	9	12	3	10
7/16 - 14 UNC		TC934522	26	110	44	11	9	12	3	11.6
1/2 - 13 UNC		TC934562	27	110	44	12	9	12	3	13.3
9/16 - 12 UNC		TC934602	30	125	50	14	11	14	3	15
5/8 - 11 UNC		TC934642	30	125	50	14	11	14	4	16.5
3/4 - 10 UNC		TC934702	32	140	54	18	14.5	17	4	19.75

►DIN 371(#4~3/8) and DIN 376(7/16~3/4)

© : 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	◎	◎	◎	◎			◎															

# YG SCREW THREAD INSERT TAPS

TC954 SERIES

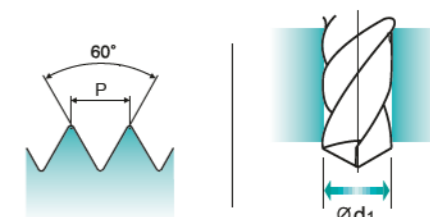
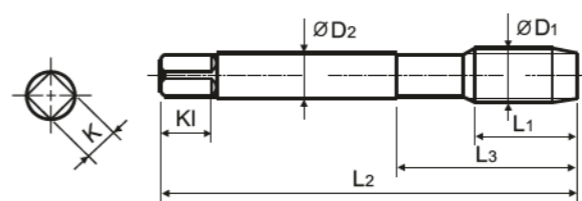
## EG-UNF

Unified fine threads for Screw Thread insert

- Unified Feingew.f.Gew.Drahteins
  - UNC POUR FILETS RAPPORTÉS
  - ISO Metrico passo grosso per Helicoil
- Machine taps Maschinengewindebohrer

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, 2B, 60°, B, Bright, p.B306

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220, TAPPING CHUCK D221-228, ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.298 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 - 48 UNF		TC954182	12	56	20	4	3	6	3	3.1
#6 - 40 UNF		TC954262	14	70	25	6	4.9	8	3	3.7
#8 - 36 UNF		TC954302	13	70	25	6	4.9	8	3	4.4
#10 - 32 UNF		TC954342	13	80	25	6	4.9	8	3	5.1
1/4 - 28 UNF		TC954422	17	90	35	8	6.2	9	3	6.6
5/16 - 24 UNF		TC954462	18	100	39	10	8	11	3	8.25
3/8 - 24 UNF		TC954502	18	110	39	12	9	12	3	9.8
7/16 - 20 UNF		TC954542	22	100	40	9	7	10	3	11.5
1/2 - 20 UNF		TC954582	22	100	40	11	9	12	3	13.1
9/16 - 18 UNF		TC954622	22	100	40	12	9	12	3	14.75
5/8 - 18 UNF		TC954662	25	110	44	14	11	14	4	16.25
3/4 - 16 UNF		TC954722	25	125	50	16	12	15	4	19.5

►DIN 371(#4~3/8) and DIN 374(7/16~3/4)

© : 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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	◎	◎	◎	◎			◎															

ISO	VDI 3323	Material Description	HB	HRc	TC909 TC944	TC973 TC934 TC954
					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
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
	27	Copper and Copper Alloys (Bronze / Brass)	90		8-12	8-12



## HSS & HSS-E

# PIPE TAPS GASGEWINDEBOHRER

- Tapping Whitworth Pipe threads
- Zum Gewindeschneiden von Whitworth-Rohrgewinden



# HSS & HSS-E PIPE TAPS

Tapping Whitworth Pipe threads

HOLE TYPE	Max. 2.0xD Blind Through Hole	Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole
TOOL MATERIAL	HSS		HSS-E
CHAMFER LEAD ACC. TO DIN2197	I/III	C	B
FLUTE TYPE	Straight Flute		Spiral Flute
SPIRAL FLUTE ANGLE	-	R40	R40

SERIES	M	DIN371/376				
		DIN352				
MF	DIN374					
	DIN2181					
UNC	DIN371/376					
	DIN351					
UNF	DIN371/374					
	DIN2181					
BSW	DIN2182/2183					
	DIN351					

MODEL					
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Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search  
 ◎ : Excellent ○ : Good  
 Recommended cutting conditions : p.B314

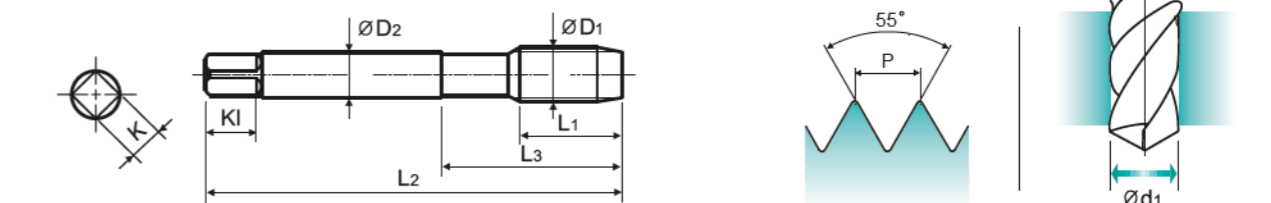
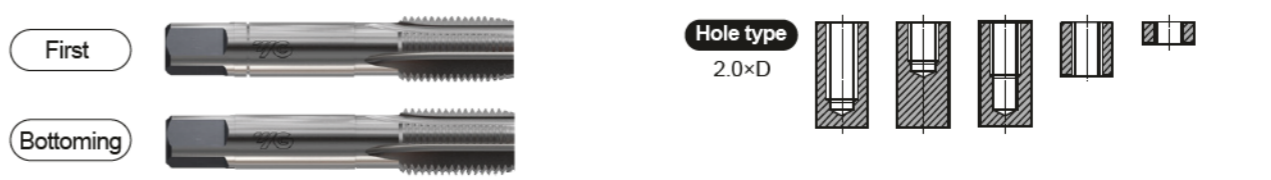
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc						
P	1	Non-alloy steel	About 0.15% C Annealed	125		○					
	2		About 0.45% C Annealed	190	13	○					
	3		About 0.45% C Quenched & Tempered	250	25	○	◎				
	4		About 0.75% C Annealed	270	28		◎				
	5		About 0.75% C Quenched & 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		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		Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	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		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	Hardened Cast Iron	Cast	400	42						
	41		Hardened	550	55						

## YG PIPE TAPS

### T7709 SERIES

**G(BSP)** Whitworth Pipe threads DIN ISO 228/1  
 Whitworth Rohrgewinde DIN ISO 228/1  
 G(BSP) PROFIL 55° DIN ISO 228/1  
 Filettatura Whitworth per tubi DIN ISO 228/1

- Serial hand tap set in First and Bottoming.
- Bottoming tap of set has final internal thread dimensions only.
- Handgewindebohrersatz mit Vor- und Fertigschneider.
- Nur der Fertigschneider kann das gewünschte Gewinde schneiden.



Material groups: **GS** HSS DIN 5157 55° I/III Bright p.B314

Recommended Toolholder: Plain Shank TAPPING ER CHUCK D215-220 D221-228 ONESTEP TAPPING CHUCK D211-213

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	KI	Z	Ød1
G1/16 - 28		T7709029	22	56	26	6	4.9	8	3	6.8
G1/8 - 28		T7709209	20	63	27	7	5.5	8	4	8.8
G1/4 - 19		T7709409	22	70	32	11	9	12	4	11.8
G3/8 - 19		T7709489	22	70	32	12	9	12	4	15.25
G1/2 - 14		T7709569	22	80	35	16	12	15	4	19
G3/4 - 14		T7709709	22	90	40	20	16	19	4	24.5
G1 - 11		T7709789	25	100	45	25	20	23	6	30.75
G1-1/4 - 11		T7709869	40	125	77	32	24	27	6	39.5
G1-1/2 - 11		T7709949	40	140	85	36	29	32	6	45.2

◎ : 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	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	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
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	
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	15	30	25	38	34	200	280	250	350	320	400Rm	1050Rm	550	630	400	550	
HB	60	100	75	90	130	110	90	100														
Recommended	○	○	○																			



# YG PIPE TAPS

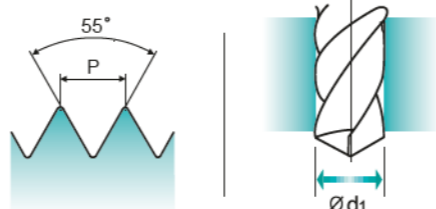
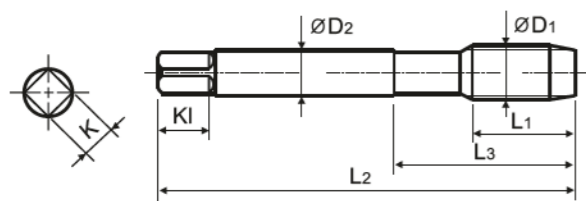
## TC728 SERIES

### G(BSP) Whitworth pipe threads DIN ISO 228/1

- Whitworth Rohrgewinde DIN ISO 228/1
  - G(BSP) PROFIL 55° DIN ISO 228/1
  - Filettatura Whitworth per tubi DIN ISO 228/1
- 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.



Material groups: **GS** HSS-E DIN 5156 55° C R40 Bright p.B314

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.306 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	KI	Z	Ød1
G1/8 - 28		TC728200	20	90	36	7	5.5	8	3	8.8
G1/4 - 19		TC728400	22	100	40	11	9	12	3	11.8
G3/8 - 19		TC728480	22	100	40	12	9	12	3	15.25
G1/2 - 14		TC728560	25	125	50	16	12	15	4	19
G3/4 - 14		TC728700	28	140	54	20	16	19	4	24.5
G1 - 11		TC728780	30	160	60	25	20	23	4	30.75

◎ : 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	30	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	○	○	○	○	◎	◎	○														

# YG PIPE TAPS

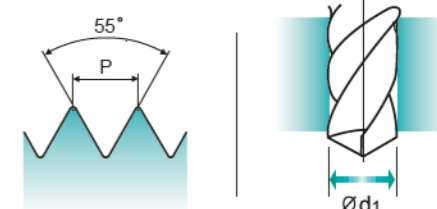
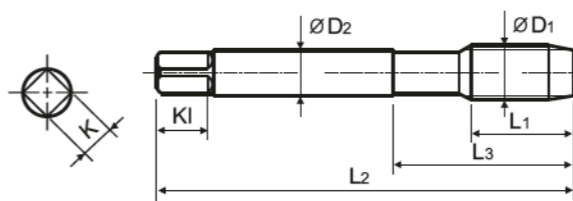
## TC729 SERIES

### G(BSP) Whitworth pipe threads DIN ISO 228/1

- Whitworth Rohrgewinde DIN ISO 228/1
  - G(BSP) PROFIL 55° DIN ISO 228/1
  - Filettatura Whitworth per tubi DIN ISO 228/1
- 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.



Material groups: **VG** HSS-E DIN 5156 55° C R40 Bright p.B314

Recommended ToolHolder: Plain Shank TAPPING ER CHUCK D215-220 TAPPING CHUCK D221-228 ONE STEP TAPPING CHUCK D211-213

Recommended Cutting Page : P.306 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	KI	Z	Ød1
G1/8 - 28		TC729200	20	90	36	7	5.5	8	3	8.8
G1/4 - 19		TC729400	22	100	40	11	9	12	3	11.8
G3/8 - 19		TC729480	22	100	40	12	9	12	3	15.25
G1/2 - 14		TC729560	25	125	50	16	12	15	4	19
G3/4 - 14		TC729700	28	140	54	20	16	19	4	24.5
G1 - 11		TC729780	30	160	60	25	20	23	4	30.75

◎ : 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	30	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											○	○	◎	◎						

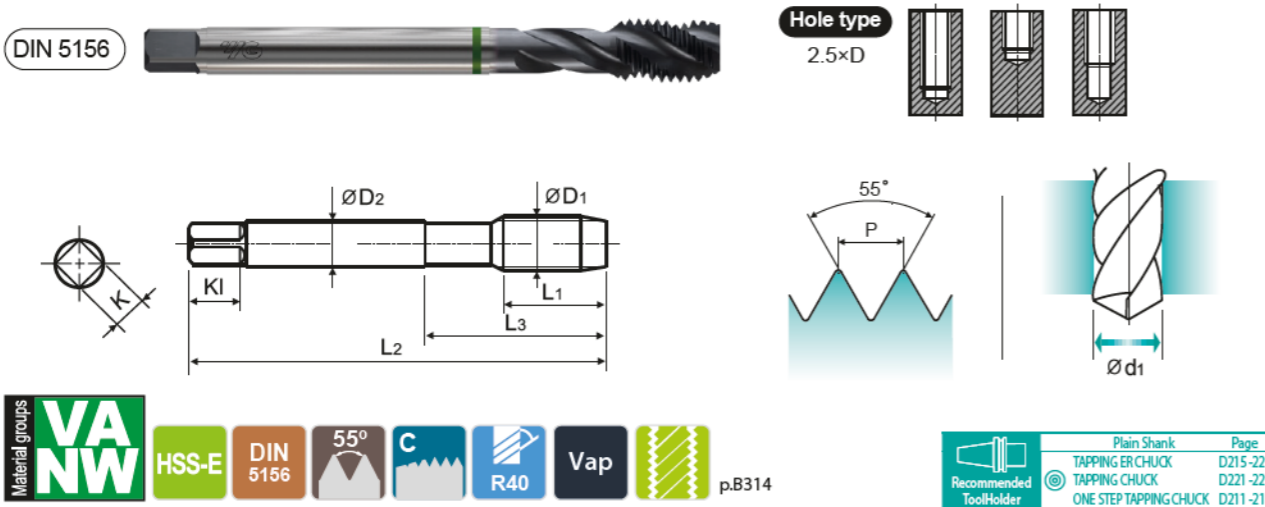
ISO	N					S					H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron						
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	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	○	○	○	○	◎	◎	○														

# YG PIPE TAPS

## TB514 SERIES

**G(BSP)** Whitworth pipe threads DIN ISO 228/1  
 Whitworth Rohrgewinde DIN ISO 228/1  
 G(BSP) PROFIL 55° DIN ISO 228/1  
 Filettatura Whitworth per tubi DIN ISO 228/1  
 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.



Recommended Cutting Page : P.306 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		Vap	L1	L2	L3	ØD2	K	Kl	Z	Ød1
G1/8 - 28		TB514200	20	90	36	7	5.5	8	3	8.8
G1/4 - 19		TB514400	22	100	40	11	9	12	3	11.8
G3/8 - 19		TB514480	22	100	40	12	9	12	3	15.25
G1/2 - 14		TB514560	25	125	50	16	12	15	4	19
G3/4 - 14		TB514700	28	140	54	20	16	19	4	24.5
G1 - 11		TB514780	30	160	60	25	20	23	4	30.75

© : 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	3	25	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	◎	◎								◎	◎	◎							◎	◎	

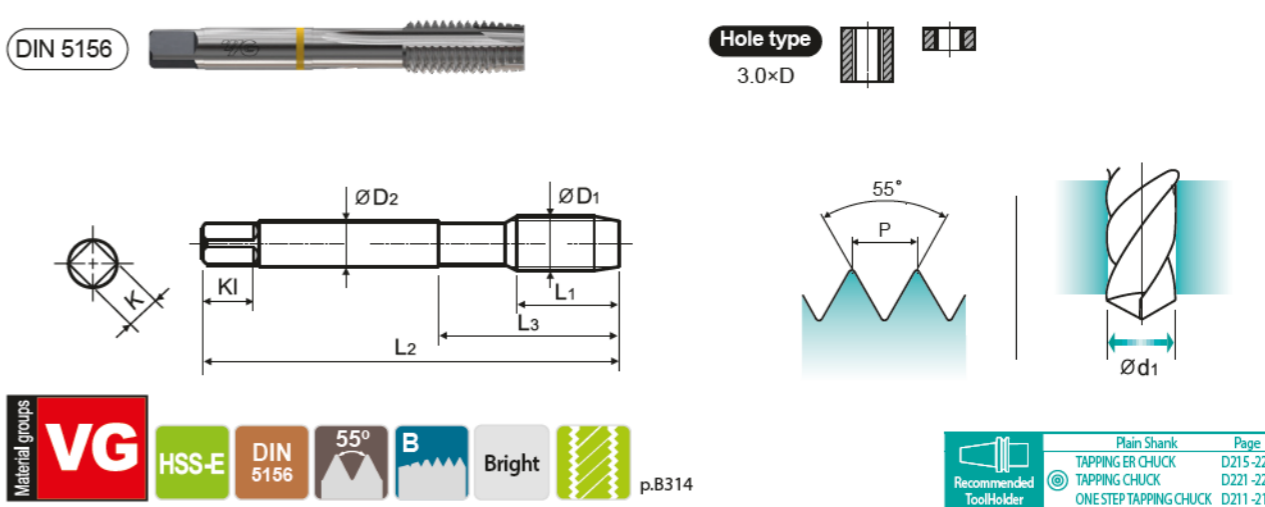
ISO	N					S					H																							
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)	Non Metallic Materials					Heat Resistant Super Alloys					Titanium Alloys					Hardened steel					Chilled Cast Iron					Hardened Cast Iron			
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41													
HRc	15	30	25	38	34						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 PIPE TAPS

## TC727 SERIES

**G(BSP)** Whitworth Pipe threads DIN ISO 228/1  
 Whitworth Rohrgewinde DIN ISO 228/1  
 G(BSP) PROFIL 55° DIN ISO 228/1  
 Filettatura Whitworth per tubi DIN ISO 228/1  
 Machine taps  
 Maschinengewindebohrer

- Suitable for through hole in more cutting speed than other taps due to strong geometry.
- Geeignet für Sacklöcher in höherer Schnittgeschwindigkeit als andere Gewindebohrer dank einer stabilen Bohrergeometrie.



Recommended Cutting Page : P.306 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
G1/8 - 28		TC727200	20	90	36	7	5.5	8	3	8.8
G1/4 - 19		TC727400	22	100	40	11	9	12	3	11.8
G3/8 - 19		TC727480	22	100	40	12	9	12	3	15.25
G1/2 - 14		TC727560	25	125	50	16	12	15	4	19
G3/4 - 14		TC727700	28	140	54	20	16	19	4	24.5
G1 - 11		TC727780	30	160	60	25	20	23	4	30.75

© : 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	38	10	29	32	38	15	35	15	23	10	10	26	3	25	3	25	
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						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	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎													

					TC728	TC729	TB514	TC727
ISO	VDI 3323	Material Description	HB	HRC	Vc (m/min)			
P	1	Non-alloy steel	125				15-20	
	2		190	13	15-20		15-20	15-20
	3		250	25	12-18			12-18
	4		270	28	10-15			10-15
	5		300	32				
	6	Low alloy steel	180	10	10-15	10-15		10-15
	7		275	29	10-15	10-15		10-15
	8		300	32		6-10		
	9		350	38		3-5		
M	12	Stainless steel	200	15			7-10	
	13		240	23			5-8	
	14		180	10		4-6	4-6	
K	17	Nodular cast iron	160	3	10-15			10-15
	18		250	25	5-8			5-8
N	21	Aluminum-wrought alloy	60		10-15			10-15
	22		100		10-15			10-15
N	23	Aluminum-cast, alloyed	75		15-20			15-20
	24		90		15-20			15-20
N	25		130		10-15			10-15
	26		Copper and Copper Alloys (Bronze / Brass)	110		25-35		
27	90			8-12			8-12	



Leading Through Innovation



**TAPS**



# TECHNICAL DATA

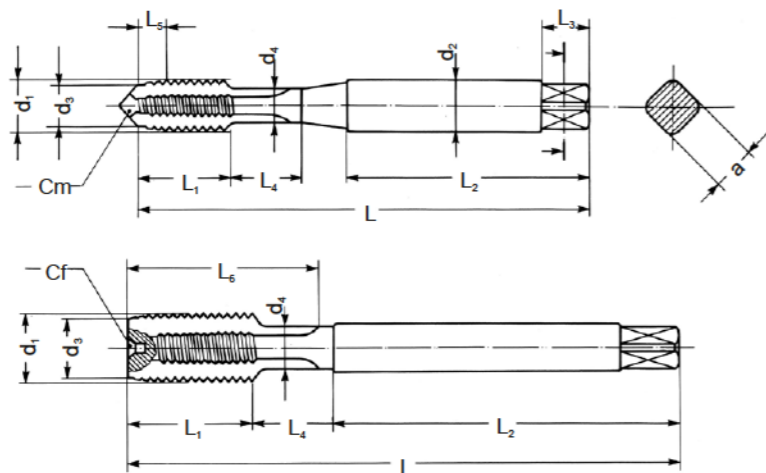
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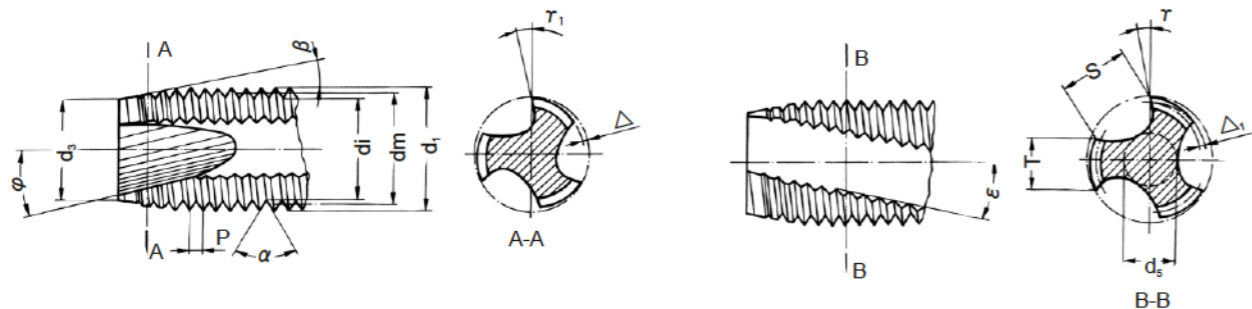
**TECHNICAL DATA**

**SUPER CUTTING TAPS  
HOCHLEISTUNGS GEWINDEBOHRER**

**1 TAPS TERMINOLOGY  
FACHAUSDRÜCKE BEI GEWINDEBOHRERN (Terminologie)**



- |                                 |                                       |  |
|---------------------------------|---------------------------------------|--|
| d <sub>1</sub> Major diameter   | d <sub>1</sub> Nenn Aussendurchmesser | d <sub>1</sub> Diamètre externe nominal                |
| d <sub>2</sub> Shank diameter   | d <sub>2</sub> Schaftdurchmesser      | d <sub>2</sub> Diamètre de la queue                    |
| d <sub>3</sub> Chamfer diameter | d <sub>3</sub> Anschnittdurchmesser   | d <sub>3</sub> Diamètre de l'entrée                    |
| d <sub>4</sub> Neck diameter    | d <sub>4</sub> Bunddurchmesser        | d <sub>4</sub> Diamètre de la collerette de dégagement |
| L Total length                  | L Gesamtlänge                         | L Longueur totale                                      |
| L <sub>1</sub> Thread length    | L <sub>1</sub> Gewindelänge           | L <sub>1</sub> Longueur de la partie filetée           |
| L <sub>2</sub> Shank length     | L <sub>2</sub> Schaftlänge            | L <sub>2</sub> Longueur de la queue                    |
| L <sub>3</sub> Square length    | L <sub>3</sub> Vierkantlänge          | L <sub>3</sub> Longueur du carré                       |
| L <sub>4</sub> Neck length      | L <sub>4</sub> Bundlänge              | L <sub>4</sub> Longueur de la collerette de dégagement |
| L <sub>5</sub> Chamfer length   | L <sub>5</sub> Anschnittlänge         | L <sub>5</sub> Longueur de l'entrée                    |
| L <sub>6</sub> Flutes length    | L <sub>6</sub> Nutenlänge             | L <sub>6</sub> Longueur des goujures                   |
| a Square                        | a Vierkantmaß                         | a Carré  |
| Cm Center male                  | Cm Mittelpunkt des Aussengewindes     | Cm Centre mâle   |
| Cf Center female                | Cf Mittelpunkt des Innengewindes      | Cf Centre femelle                                      |



- |  |  |  |
|--|--|--|
| d <sub>1</sub> Major diameter                    | d <sub>1</sub> Nenn Aussendurchmesser              | d <sub>1</sub> Diamètre externe nominal        |
| dm Flank diameter                                | dm Flankendurchmesser                              | dm Diamètre moyen                              |
| di Minor diameter                                | di Kerndurchmesser                                 | di Diamètre interne                            |
| d <sub>3</sub> Chamfer diameter                  | d <sub>3</sub> Anschnittdurchmesser                | d <sub>3</sub> Diamètre de l'entrée            |
| P Pitch  | P Steigung   | P Pas  |
| a Flank angle                                    | a Flankenwinkel                                    | α Angle du filet                               |
| β Chamfer angle                                  | β Anschnittwinkel                                  | β Demi-angle du cône d'entrée                  |
| φ Gun nose angle                                 | φ Schälswinkel                                     | φ Angle de l'entrée GUN                        |
| τ Gun nose rake angle in front                   | τ <sub>1</sub> Schälswinkel-Spanwinkel             | τ <sub>1</sub> Angle de coupe sur l'entrée GUN |
| Δ Chamfer relief                                 | Δ Hinterschliff am Anschnitt                       | Δ Détalonnage sur l'entrée                     |
| Δ <sub>1</sub> Pitch diameter relief on the land | Δ <sub>1</sub> Flankenhinterschliff auf Zahnbreite | Δ <sub>1</sub> Détalonnage sur le filet        |
| τ Rake angle                                     | τ Spanwinkel                                       | τ Angle de coupe frontale                      |
| T Width of land                                  | T Zahnstollenbreite                                | T Largeur des dents                            |
| S Flute width                                    | S Nutenbreite                                      | S Largeur des goujures                         |
| d <sub>5</sub> Web thickness                     | d <sub>5</sub> Seelendicke                         | d <sub>5</sub> Diamètre de l'âme               |
| ε Angle of spiral flute                          | ε Spiralwinkel                                     | ε Angle d'hélice des goujures                  |



**TECHNICAL DATA**

**SUPER CUTTING TAPS  
HOCHLEISTUNGS GEWINDEBOHRER**

**2 RECOMMENDED TAP DRILL SIZE  
EMPFOHLENE KERNLOCHMASSE**

Unit : mm

Metric-ISO threads coarse pitch				Metric-ISO threads fine pitch				Metric-ISO threads fine pitch			
M	Pitch	Maximum core dia.	Drill size	MF	Pitch	Maximum core dia.	Drill size	MF	Pitch	Maximum core dia.	Drill size
1	0.25	0.785	0.75	2.5	0.35	2.221	2.15	25	2.00	23.210	23.00
1.1	0.25	0.885	0.85	3	0.35	2.271	2.65	26	1.50	24.676	24.50
1.2	0.25	0.985	0.95	3.5	0.35	3.221	3.15	27	1.00	26.153	26.00
1.4	0.30	1.160	1.10	4	0.50	3.599	3.50	27	1.50	25.676	25.50
1.6	0.35	1.321	1.25	4.5	0.50	4.099	4.00	27	2.00	25.210	25.00
1.7	0.35	1.346	1.30	5	0.50	4.599	4.50	28	1.00	27.153	27.00
1.8	0.35	1.521	1.45	5.5	0.50	5.099	5.00	28	1.50	26.676	26.50
2	0.40	1.679	1.60	6	0.75	5.378	5.20	28	2.00	26.210	26.00
2.2	0.45	1.838	1.75	7	0.75	6.378	6.20	30	1.00	29.153	29.00
2.3	0.40	1.920	1.90	8	0.75	7.378	7.20	30	1.50	28.676	28.50
2.5	0.45	2.138	2.05	8	1.00	7.153	7.00	30	2.00	28.210	28.00
2.6	0.45	2.176	2.10	9	0.75	8.378	8.20	30	3.00	27.252	27.00
3	0.50	2.599	2.50	9	1.00	8.153	8.00	32	1.50	30.675	30.50
3.5	0.60	3.010	2.90	10	0.75	9.378	9.20	32	2.00	30.210	30.00
4	0.70	3.422	3.30	10	1.00	9.153	9.00	33	1.50	31.676	31.50
4.5	0.75	3.878	3.70	10	1.25	8.912	8.80	33	2.00	31.210	31.00
5	0.80	4.334	4.20	11	0.75	10.378	10.20	33	3.00	30.252	30.00
6	1.00	5.153	5.00	11	1.00	10.153	10.00	35	1.50	33.676	33.50
7	1.00	6.153	6.00	12	1.00	11.153	11.00	36	1.50	34.676	34.50
8	1.25	6.912	6.80	12	1.25	10.912	10.80	36	2.00	34.210	34.00
9	1.25	7.912	7.80	12	1.50	10.676	10.50	36	3.00	33.252	33.00
10	1.50	8.676	8.50	14	1.00	13.153	13.00	38	1.50	36.676	36.50
11	1.50	9.676	9.50	14	1.25	12.912	12.80	39	1.50	37.676	37.50
12	1.75	10.441	10.20	14	1.50	12.676	12.50	39	2.00	37.210	37.00
14	2.00	12.210	12.00	15	1.00	14.153	14.00	39	3.00	36.252	36.00
16	2.00	14.210	14.00	15	1.50	13.676	13.50	40	1.50	38.676	38.50
18	2.50	15.744	15.50	16	1.00	15.153	15.00	40	2.00	38.210	38.00
20	2.50	17.744	17.50	16	1.50	14.676	14.50	40	3.00	37.252	37.00
22	2.50	19.744	19.50	17	1.00	16.153	16.00	42	1.50	40.676	40.50
24	3.00	21.252	21.00	17	1.50	15.676	15.50	42	2.00	40.210	40.00
27	3.00	24.252	24.00	18	1.00	17.153	17.00	42	3.00	39.252	39.00
30	3.50	26.771	26.50	18	1.50	16.676	16.50	45	1.50	43.676	43.50
33	3.50	29.771	29.50	18	2.00	16.210	16.00	45	2.00	43.210	43.00
36	4.00	32.270	32.00	20	1.00	19.153	19.00	45	3.00	42.252	42.00
39	4.00	35.270	35.00	20	1.50	18.676	18.50	48	1.50	46.676	46.50
42	4.50	37.799	37.50	20	2.00	18.210	18.00	48	2.00	46.210	46.00
45	4.50	40.799	40.50	22	1.00	21.153	21.00	48	3.00	45.252	45.00
48	5.00	43.297	43.00	22	1.50	20.676	20.50	50	1.50	48.676	48.50
52	5.00	47.297	47.00	22	2.00	20.210	20.00	50	2.00	48.210	48.00
56	5.50	50.796	50.50	24	1.00	23.153	23.00	50	3.00	47.252	47.00
60	5.50	54.796	54.50	24	1.50	22.676	22.50	52	1.50	50.676	50.50
64	6.00	58.305	58.00	24	2.00	22.210	22.00	52	2.00	50.210	50.00
68	6.00	62.305	62.00	25	1.00	24.153	24.00	52	3.00	49.252	49.00
				25	1.50	23.676	23.50				



**TECHNICAL DATA**

**SUPER CUTTING TAPS  
HOCHLEISTUNGS GEWINDEBOHRER**

Unit : mm

American Unified coarse threads				American Unified fine threads			
UNC	T.P.I	Maximum core dia.	Drill size	UNF	T.P.I	Maximum core dia.	Drill size
#1	64	1.585	1.50	#0	80	1.306	1.30
#2	56	1.872	1.80	#1	72	1.613	1.60
#3	48	2.146	2.10	#2	64	1.913	1.90
#4	40	2.385	2.30	#3	56	2.197	2.10
#5	40	2.697	2.60	#4	48	2.459	2.40
#6	32	2.896	2.85	#5	44	2.741	2.70
#8	32	3.528	3.50	#6	40	3.012	3.00
#10	24	3.950	3.90	#8	36	3.597	3.50
#12	24	4.590	4.50	#10	32	4.168	4.10
1/4"	20	5.250	5.20	#12	28	4.717	4.70
5/16"	18	6.680	6.60	1/4"	28	5.563	5.50
3/8"	16	8.082	8.00	5/16"	24	6.995	6.90
7/16"	14	9.441	9.40	3/8"	24	8.565	8.50
1/2"	13	10.881	10.75	7/16"	20	9.947	9.90
9/16"	12	12.301	12.25	1/2"	20	11.524	11.50
5/8"	11	13.693	13.50	9/16"	18	12.969	12.90
3/4"	10	16.624	16.50	5/8"	18	14.554	14.50
7/8"	9	19.520	19.50	3/4"	16	17.546	17.50
1"	8	22.344	22.25	7/8"	14	20.493	20.50
1*1/8"	7	25.082	25.00	1"	12	23.363	23.25
1*1/4"	7	28.258	28.25	1*1/8"	12	26.538	26.50
1*3/8"	6	30.851	30.75	1*1/4"	12	29.713	29.50
1*1/2"	6	34.026	34.00	1*3/8"	12	32.888	32.70
1*3/4"	5	39.560	39.50	1*1/2"	12	36.063	36.00
2"	4.5	45.367	45.25				

Whitworth threads B.S.W.				Whitworth pipe thread BSP.PI			
BSW	T.P.I	Maximum core dia.	Drill size	G(BSP)	T.P.I	Maximum core dia.	Drill size
3/32"	48	1.910	1.80	1/8"	28	8.848	8.80
1/8"	40	2.590	2.50	1/4"	19	11.890	11.80
5/32"	32	3.211	3.10	3/8"	19	15.395	15.25
3/16"	24	3.743	3.60	1/2"	14	19.172	19.00
7/32"	24	4.538	4.40	5/8"	14	21.128	21.00
1/4"	20	5.224	5.10	3/4"	14	24.658	24.50
5/16"	18	6.661	6.50	7/8"	14	28.418	28.25
3/8"	16	8.052	7.90	1"	11	30.931	30.75
7/16"	14	9.379	9.30	1*1/8"	11	35.579	35.50
1/2"	12	10.610	10.50	1*1/4"	11	39.592	39.50
9/16"	12	12.176	12.00	1*3/8"	11	42.005	42.00
5/8"	11	13.598	13.50	1*1/2"	11	45.485	45.20
3/4"	10	16.538	16.50	1*5/8"	11	49.670	49.60
7/8"	9	19.411	19.25	1*3/4"	11	51.428	51.40
1"	8	22.185	22.00	2"	11	57.296	57.20
1*1/8"	7	24.879	24.75	2*1/4"	11	63.392	63.30
1*1/4"	7	28.054	27.75	2*3/8"	11	67.080	67.00
1*3/8"	6	30.555	30.50	2*1/2"	11	72.866	72.80
1*1/2"	6	33.730	33.50	2*3/4"	11	79.216	79.10
1*5/8"	5	35.921	35.50	3"	11	85.566	85.50
1*3/4"	5	39.096	39.00	3*1/4"	11	91.662	91.50
1*7/8"	4.5	41.648	41.50	3*1/2"	11	98.012	98.00
2"	4.5	44.823	44.50	3*3/4"	11	104.362	104.00
2*1/4"	4	50.420	50.00	4"	11	110.712	110.50
2*1/2"	4	56.770	56.50				
2*3/4"	3.5	62.108	62.00				
3"	3.5	68.459	68.50				

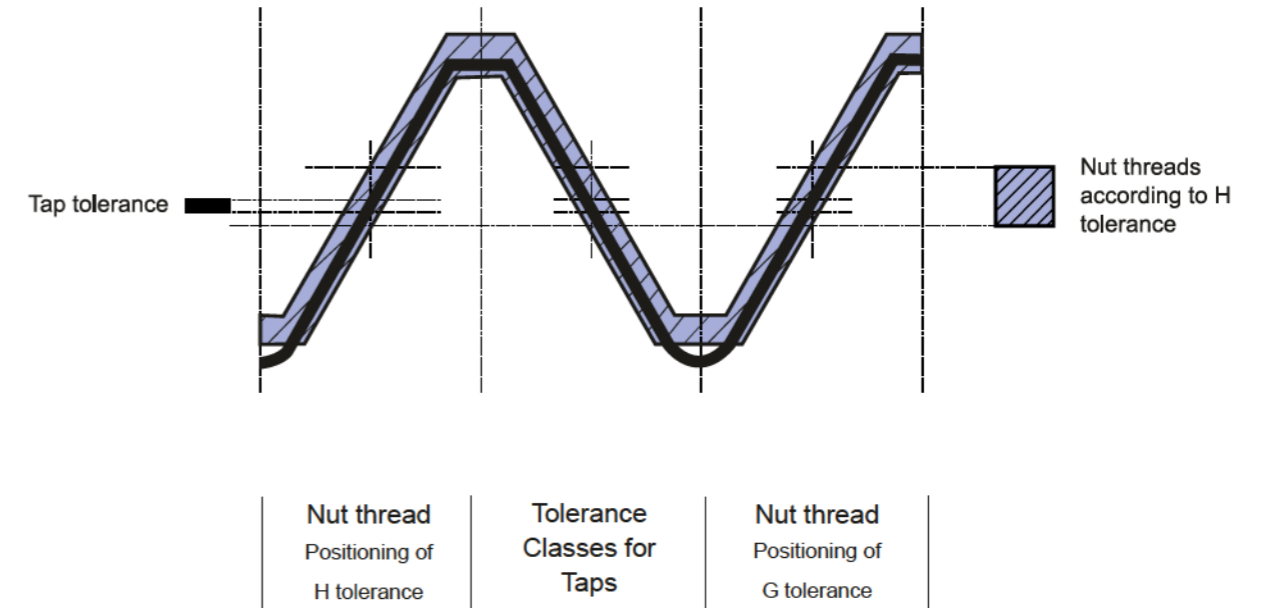


**TECHNICAL DATA**

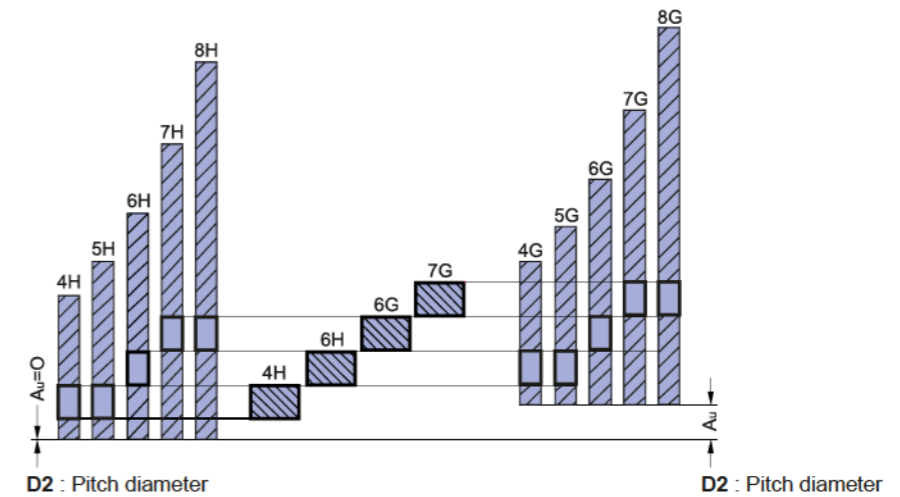
**SUPER CUTTING TAPS  
HOCHLEISTUNGS GEWINDEBOHRER**

**3 TAP TOLERANCES  
GEWINDEBOHRER TOLERANZEN**

Tolerance classes of taps and tolerance positions for screw threads as per Metric ISO Standard.  
Toleranzklassen und Toleranzfelder für Schraubengewinde entsprechen dem metrischen ISO-Standard



Nut thread Positioning of H tolerance | Tolerance Classes for Taps | Nut thread Positioning of G tolerance



Taps tolerances and recommended classes

Tap tolerance ISO	Tap tolerance DIN	Correct class to obtain Nut thread with tolerance			
ISO 1	4H	4H	5H		
ISO 2	6H	4G	5G	6H	
ISO 3	6G			6G	7H 8H
	7G				7G 8G



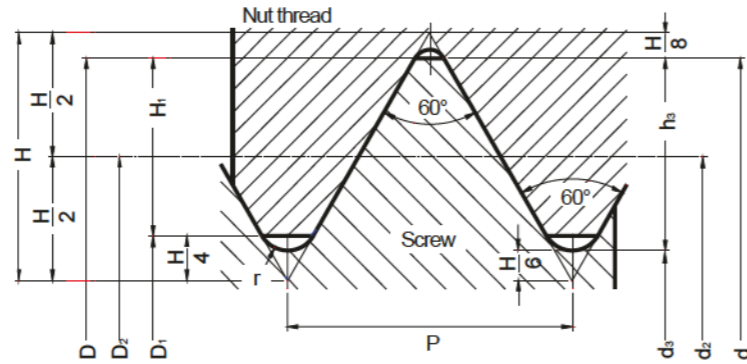
**TECHNICAL DATA**

**SUPER CUTTING TAPS  
HOCHLEISTUNGS GEWINDEBOHRER**

**METRIC ISO COARSE THREADS  
METRISCHES ISO-GEWINDE**

Nominal dimensions UNI 4535-64  
Production tolerances on tap pitch diameter for ISO 6H Nut threads  
Limit dimensions-Nut threads ISO 6H

Dimensions in mm  
 $H = 0.86603P$   
 $H_1 = \frac{5}{8} H = 0.54127P$   
 $h_3 = \frac{17}{24} H = 0.61343P$   
 $d_2 = D_2 = d - H = \frac{3}{4} d - 0.64952P$   
 $d_3 = d - 2h_3 = d - 1.22687P$   
 $r = \frac{H}{6} = 0.14434P$



Nominal diameter d = D	Pitch P	Pitch diameter d <sub>2</sub> = D <sub>2</sub>	Minor diameter		Thread depth		Radius r	Pitch diameter Tap tolerance 6H		Pitch diameter Nut tolerance 6H	
			Screw d <sub>3</sub>	Nut D <sub>1</sub>	Screw h <sub>3</sub>	Nut H <sub>1</sub>		d <sub>2</sub>		min. max.	
M 1.6	0.35	1.373	1.171	1.221	0.215	0.189	0.051	1.393	1.407	1.373	1.458
M 1.8	0.35	1.573	1.371	1.421	0.215	0.189	0.051	1.593	1.607	1.573	1.658
M 2	0.4	1.740	1.509	1.567	0.245	0.217	0.058	1.761	1.776	1.740	1.830
M 2.2	0.45	1.908	1.648	1.713	0.276	0.244	0.065	1.931	1.946	1.908	2.003
M 2.5	0.45	2.208	1.948	2.013	0.276	0.244	0.065	2.231	2.246	2.208	2.303
M 3	0.5	2.675	2.387	2.459	0.307	0.271	0.072	2.699	2.715	2.675	2.775
M 3.5	0.6	3.110	2.764	2.850	0.368	0.325	0.087	3.137	3.155	3.110	3.222
M 4	0.7	3.545	3.141	3.242	0.429	0.379	0.101	3.574	3.593	3.545	3.663
M 4.5	0.75	4.013	3.580	3.688	0.460	0.406	0.108	4.042	4.061	4.013	4.131
M 5	0.8	4.480	4.019	4.134	0.491	0.433	0.115	4.510	4.530	4.480	4.605
M 6	1	5.350	4.773	4.917	0.613	0.541	0.144	5.385	5.409	5.350	5.500
M 7	1	6.350	5.773	5.917	0.613	0.541	0.144	6.385	6.409	6.350	6.500
M 8	1.25	7.188	6.466	6.647	0.767	0.677	0.180	7.226	7.251	7.188	7.348
M 9	1.25	8.188	7.466	7.647	0.767	0.677	0.180	8.226	8.251	8.188	8.348
M 10	1.5	9.026	8.160	8.376	0.920	0.812	0.217	9.068	9.096	9.026	9.206
M 11	1.5	10.026	9.160	9.376	0.920	0.812	0.217	10.068	10.096	10.026	10.206
M 12	1.75	10.863	9.853	10.106	1.074	0.947	0.253	10.911	10.943	10.863	11.063
M 14	2	12.701	11.546	11.835	1.227	1.083	0.289	12.752	12.786	12.701	12.913
M 16	2	14.701	13.546	13.835	1.227	1.083	0.289	14.752	14.786	14.701	14.913
M 18	2.5	16.376	14.933	15.294	1.534	1.353	0.361	16.430	16.466	16.376	16.600
M 20	2.5	18.376	16.933	17.294	1.534	1.353	0.361	18.430	18.466	18.376	18.600
M 22	2.5	20.376	18.933	19.294	1.534	1.353	0.361	20.430	20.466	20.376	20.600
M 24	3	22.051	20.319	20.752	1.840	1.624	0.433	22.115	22.157	22.051	22.316
M 27	3	25.051	23.319	23.752	1.840	1.624	0.433	25.115	25.157	25.051	25.316
M 30	3.5	27.727	25.706	26.211	2.147	1.894	0.505	27.794	27.839	27.727	28.007
M 33	3.5	30.727	28.706	29.211	2.147	1.894	0.505	30.794	30.839	30.727	31.007
M 36	4	33.402	31.093	31.670	2.454	2.165	0.577	33.473	33.520	33.402	33.702
M 39	4	36.402	34.093	34.670	2.454	2.165	0.577	36.473	36.520	36.402	36.702
M 42	4.5	39.077	36.479	37.129	2.760	2.436	0.650	39.152	39.202	39.077	39.392
M 45	4.5	42.077	39.479	40.129	2.760	2.436	0.650	42.152	42.202	42.077	42.392
M 48	5	44.752	41.866	42.587	3.067	2.706	0.722	44.832	44.885	44.752	45.087
M 52	5	48.752	45.866	46.587	3.067	2.706	0.722	48.832	48.885	48.752	49.087
M 56	5.5	52.428	49.252	50.046	3.374	2.977	0.794	52.512	52.568	52.428	52.783
M 60	5.5	56.428	53.252	54.046	3.374	2.977	0.794	56.512	56.568	56.428	56.783
M 64	6	60.103	56.639	57.505	3.681	3.248	0.866	60.193	60.253	60.103	60.478
M 68	6	64.103	60.639	61.505	3.681	3.248	0.866	64.193	64.253	64.103	64.478

**Metric thread MA(old UNI 159 Profile) Nut tolerance SH8**

M 1.7	0.35	1.473	1.246	1.246	0.227	0.227	0.040	1.493	1.507	1.473	1.529
M 2.3	0.4	2.040	1.780	1.780	0.260	0.260	0.040	2.061	2.076	2.040	2.120
M 2.6	0.45	2.308	2.016	2.016	0.292	0.292	0.050	2.331	2.346	2.308	2.388



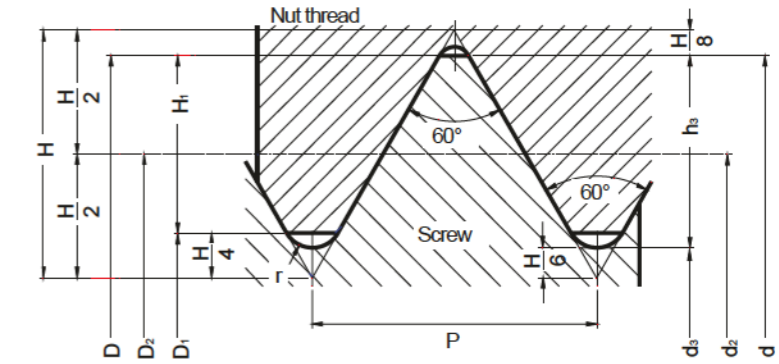
**TECHNICAL DATA**

**SUPER CUTTING TAPS  
HOCHLEISTUNGS GEWINDEBOHRER**

**METRIC ISO FINE THREADS  
METRISCHES ISO-FEINGEWINDE**

Nominal dimensions UNI 4535-64  
Production tolerances on tap flank diameter for ISO 6H Nut threads  
Limit dimensions-Nut threads ISO 6H

Dimensions in mm  
 $H = 0.86603P$   
 $H_1 = \frac{5}{8} H = 0.54127P$   
 $h_3 = \frac{17}{24} H = 0.61343P$   
 $d_2 = D_2 = d - \frac{3}{4} H = d - 0.64952P$   
 $d_3 = d - 2h_3 = d - 1.22687P$   
 $r = \frac{H}{6} = 0.14434P$



Nominal diameter d = D	Pitch P	Pitch diameter d <sub>2</sub> = D <sub>2</sub>	Minor diameter		Thread depth		Radius r	Pitch diameter Tap tolerance 6H		Pitch diameter Nut tolerance 6H	
			Screw d <sub>3</sub>	Nut D <sub>1</sub>	Screw h <sub>3</sub>	Nut H <sub>1</sub>		d <sub>2</sub>		min. max.	
M 2	0.25	1.838	1.693	1.729	0.153	0.135	0.036	1.844	1.856	1.838	1.886
M 2.5	0.35	2.273	2.701	2.621	0.215	0.189	0.051	2.293	2.307	2.273	2.358
M 3	0.35	2.773	2.571	2.621	0.215	0.189	0.051	2.794	2.809	2.773	2.863
M 3.5	0.35	3.273	3.071	3.121	0.215	0.189	0.051	3.294	3.309	3.273	3.363
M 4	0.5	3.675	3.387	3.459	0.307	0.271	0.072	3.699	3.715	3.675	3.775
M 4.5	0.5	4.175	3.887	3.959	0.307	0.271	0.072	4.199	4.215	4.175	4.275
M 5	0.5	4.675	4.387	4.459	0.307	0.271	0.072	4.699	4.715	4.675	4.775
M 5.5	0.5	5.175	4.887	4.959	0.307	0.271	0.072	5.199	5.215	5.175	5.275
M 6	0.5	5.675	5.387	5.459	0.307	0.271	0.072	5.702	5.720	5.675	5.787
M 6	0.75	5.513	5.080	5.188	0.460	0.406	0.108	5.545	5.566	5.513	5.645
M 7	0.75	6.513	6.080	6.188	0.460	0.406	0.108	6.545	6.566	6.513	6.645
M 8	0.5	7.675	7.387	7.459	0.307	0.271	0.072	7.702	7.720	7.675	7.787
M 8	0.75	7.513	7.080	7.188	0.460	0.406	0.108	7.545	7.566	7.513	7.645
M 8	1	7.350	6.773	6.917	0.613	0.541	0.144	7.835	7.409	7.350	7.500
M 9	0.75	8.513	8.080	8.188	0.460	0.406	0.108	8.545	8.566	8.513	8.645
M 9	1	8.350	7.773	7.917	0.613	0.541	0.144	8.385	8.409	8.350	8.500
M 10	0.5	9.675	9.387	9.459	0.307	0.271	0.072	9.702	9.720	9.675	9.787
M 10	0.75	9.513	9.080	9.188	0.460	0.406	0.108	9.545	9.566	9.513	9.645
M 10	1	9.350	8.773	8.917	0.613	0.541	0.144	9.385	9.409	9.350	9.500
M 10	1.25	9.188	8.466	8.647	0.767	0.677	0.180	9.226	9.251	9.188	9.348
M 11	0.75	10.513	10.080	10.188	0.460	0.406	0.108	10.545	10.566	10.513	10.645
M 11	1	10.350	9.773	9.917	0.613	0.541	0.144	10.385	10.409	10.350	10.500
M 12	0.75	11.513	11.080	11.188	0.460	0.406	0.108	11.547	11.569	11.513	11.653
M 12	1	11.350	10.773	10.917	0.613	0.541	0.144	11.388	11.413	11.350	11.510
M 12	1.25	11.188	10.466	10.647	0.767	0.677	0.180	11.230	11.258	11.188	11.368
M 12	1.5	11.026	10.160	10.376	0.920	0.812	0.217	11.071	11.101	11.026	11.216
M 13	1	12.350	11.773	11.917	0.613	0.541	0.144	12.388	12.413	12.350	12.510
M 14	1	13.350	12.773	12.917	0.613	0.541	0.144	13.388	13.413	13.350	13.510
M 14	1.25	13.188	12.466	12.647	0.767	0.677	0.180	13.230	13.258	13.188	13.368
M 14	1.5	13.026	12.160	12.376	0.920	0.812	0.217	13.071	13.101	13.026	13.216
M 15	1	14.350	13.773	13.917	0.613	0.541	0.144	14.388	14.413	14.350	14.510
M 15	1.5	14.026	13.160	13.376	0.920	0.812	0.217	14.071	14.101	14.026	14.216
M 16	1	15.350	14.773	14.917	0.613	0.541	0.144	15.388	15.413	15.350	15.510
M 16	1.25	15.188	14.466	14.647	0.767	0.677	0.180	15.230	15.258	15.188	15.368
M 16	1.5	15.026	14.160	14.376	0.920	0.812	0.217	15.071	15.101	15.026	15.216
M 17	1	16.350	15.773	15.917	0.613	0.541	0.144	16.388	16.413	16.350	16.510
M 17	1.5	16.026	15.160	15.376	0.920	0.812	0.217	16.071	16.101	16.026	16.216
M 18	1	17.350	16.773	16.917	0.613	0.541	0.144	17.388	17.413	17.350	17.510
M 18	1.5	17.026	16.160	16.376	0.920	0.812	0.217	17.071	17.101	17.026	17.216
M 18	2	16.701	15.546								

**YG TECHNICAL DATA SUPER CUTTING TAPS HOCHLEISTUNGS GEWINDEBOHRER**

Nominal diameter	Pitch	Pitch diameter	Minor diameter		Thread depth		Radius	Pitch diameter Tap tolerance 6H		Pitch diameter Nut tolerance 6H	
			Screw	Nut	Screw	Nut		min.	max.	min.	max.
d = D	P	d <sub>2</sub> = D <sub>2</sub>	d <sub>3</sub>	D <sub>1</sub>	h <sub>3</sub>	H <sub>1</sub>	r	d <sub>2</sub>			
M 22	2	20.701	19.546	19.835	1.227	1.083	0.289	20.752	20.786	20.701	20.913
M 24	1	23.350	22.773	22.917	0.613	0.541	0.144	23.390	23.416	23.350	23.520
M 24	1.5	23.026	22.160	22.376	0.920	0.812	0.217	23.074	23.106	23.026	23.226
M 24	2	22.701	21.546	21.835	1.227	1.083	0.289	22.754	22.791	22.701	22.925
M 25	1	24.350	23.773	23.917	0.613	0.541	0.144	24.390	24.416	24.350	24.520
M 25	1.5	24.026	23.160	23.376	0.920	0.812	0.217	24.074	24.106	24.026	24.226
M 25	2	23.701	22.546	22.835	1.227	1.083	0.289	23.754	23.791	23.701	23.925
M 26	1	25.350	24.773	24.917	0.613	0.541	0.144	25.390	25.416	25.350	25.520
M 26	1.5	25.026	24.160	24.376	0.920	0.812	0.217	25.074	25.106	25.026	25.226
M 26	2	24.701	23.546	23.835	1.227	1.083	0.289	24.754	24.791	24.701	24.925
M 27	1	26.350	25.773	25.917	0.613	0.541	0.144	26.390	26.416	26.350	26.520
M 27	1.5	26.026	25.160	25.376	0.920	0.812	0.217	26.074	26.106	26.026	26.226
M 27	2	25.701	24.546	24.835	1.227	1.083	0.289	25.754	25.791	25.701	25.925
M 28	1	27.350	26.773	26.917	0.613	0.541	0.144	27.390	27.416	27.350	27.520
M 28	1.5	27.026	26.160	26.376	0.920	0.812	0.217	27.074	27.106	27.026	27.226
M 28	2	26.701	25.546	25.835	1.227	1.083	0.289	26.754	26.791	26.701	26.925
M 30	1	29.350	28.773	28.917	0.613	0.541	0.144	29.390	29.416	29.350	29.520
M 30	1.5	29.026	28.160	28.376	0.920	0.812	0.217	29.074	29.106	29.026	29.226
M 30	2	28.701	27.546	27.835	1.227	1.083	0.289	28.754	28.791	28.701	28.925
M 30	3	28.051	26.319	26.752	1.840	1.624	0.433	28.115	28.157	28.051	28.316
M 32	1.5	31.026	30.160	30.376	0.920	0.812	0.217	31.074	31.106	31.026	31.226
M 32	2	30.701	29.546	29.835	1.227	1.083	0.289	30.754	30.791	30.701	30.925
M 33	1.5	32.026	31.160	31.376	0.920	0.812	0.217	32.074	32.106	32.026	32.226
M 33	2	31.701	30.546	30.835	1.227	1.083	0.289	31.754	31.791	31.701	31.925
M 33	3	31.051	29.319	29.752	1.840	1.624	0.433	31.115	31.157	31.051	31.316
M 35	1.5	34.026	33.160	33.376	0.920	0.812	0.217	34.074	34.106	34.026	34.226
M 35	2	33.701	32.546	32.835	1.227	1.083	0.289	33.754	33.791	33.701	33.925
M 36	1.5	35.026	34.160	34.376	0.920	0.812	0.217	35.074	35.106	35.026	35.226
M 36	2	34.701	33.546	33.835	1.227	1.083	0.289	34.754	34.791	34.701	34.925
M 36	3	34.051	32.319	32.752	1.840	1.624	0.433	34.115	34.157	34.051	34.316
M 38	1.5	37.026	36.160	36.376	0.920	0.812	0.217	37.074	37.106	37.026	37.226
M 39	1.5	38.026	37.160	37.376	0.920	0.812	0.217	38.074	38.106	38.026	38.226
M 39	2	37.701	36.546	36.835	1.227	1.083	0.289	37.754	37.791	37.701	37.925
M 39	3	37.051	35.319	35.752	1.840	1.624	0.433	37.115	37.157	37.051	37.316
M 40	1.5	39.026	38.160	38.376	0.920	0.812	0.217	39.074	39.106	39.026	39.226
M 40	2	38.701	37.546	37.835	1.227	1.083	0.289	38.754	38.791	38.701	38.925
M 40	3	38.051	36.319	36.752	1.840	1.624	0.433	38.115	38.157	38.051	38.316
M 42	1.5	41.026	40.160	40.376	0.920	0.812	0.217	41.074	41.106	41.026	41.226
M 42	2	40.701	39.546	39.835	1.227	1.083	0.289	40.754	40.791	40.701	40.925
M 42	3	40.051	38.319	38.752	1.840	1.624	0.433	40.115	40.157	40.051	40.316
M 45	1.5	44.026	43.160	43.376	0.920	0.812	0.217	44.074	44.106	44.026	44.226
M 45	2	43.701	42.546	42.835	1.227	1.083	0.289	43.754	43.791	43.701	43.925
M 45	3	43.051	41.319	41.752	1.840	1.624	0.433	43.115	43.157	43.051	43.316
M 48	1.5	47.026	46.160	46.376	0.920	0.812	0.217	47.074	47.106	47.026	47.226
M 48	2	46.701	45.546	45.835	1.227	1.083	0.289	46.754	46.796	46.701	46.937
M 48	3	46.051	44.319	44.752	1.840	1.624	0.433	46.118	46.163	46.051	46.331
M 50	1.5	49.026	48.160	48.376	0.920	0.812	0.217	49.074	49.111	49.026	49.238
M 50	2	48.701	47.546	47.835	1.227	1.083	0.289	48.754	48.796	48.701	48.937
M 50	3	48.051	46.319	46.752	1.840	1.624	0.433	48.118	48.163	48.051	48.331
M 52	1.5	51.026	50.160	50.376	0.920	0.812	0.217	51.074	51.111	51.026	51.238
M 52	2	50.701	49.546	49.835	1.227	1.083	0.289	50.754	50.796	50.701	50.937
M 52	3	50.051	48.319	48.752	1.840	1.624	0.433	50.118	50.163	50.051	50.331
M 55	1.5	54.026	53.160	53.376	0.920	0.812	0.217	54.074	54.111	54.026	54.238
M 55	2	53.701	52.546	52.835	1.227	1.083	0.289	53.754	53.796	53.701	53.937
M 55	3	53.051	51.319	51.752	1.840	1.624	0.433	53.118	53.163	53.051	53.331
M 56	1.5	55.026	54.160	54.376	0.920	0.812	0.217	55.074	55.111	55.026	55.238
M 56	2	54.701	53.546	53.835	1.227	1.083	0.289	54.754	54.796	54.701	54.937
M 56	3	54.051	52.319	52.752	1.840	1.624	0.433	54.118	54.163	54.051	54.331
M 58	1.5	57.026	56.160	56.376	0.920	0.812	0.217	57.074	57.111	57.026	57.238
M 58	2	56.701	55.546	55.835	1.227	1.083	0.289	56.754	56.796	56.701	56.937
M 58	3	56.051	54.319	54.752	1.840	1.624	0.433	56.118	56.163	56.051	56.331
M 60	1.5	59.026	58.160	58.376	0.920	0.812	0.217	59.074	59.111	59.026	59.238
M 60	2	58.701	57.546	57.835	1.227	1.083	0.289	58.754	58.796	58.701	58.937
M 60	3	58.051	56.319	56.752	1.840	1.624	0.433	58.118	58.163	58.051	58.331

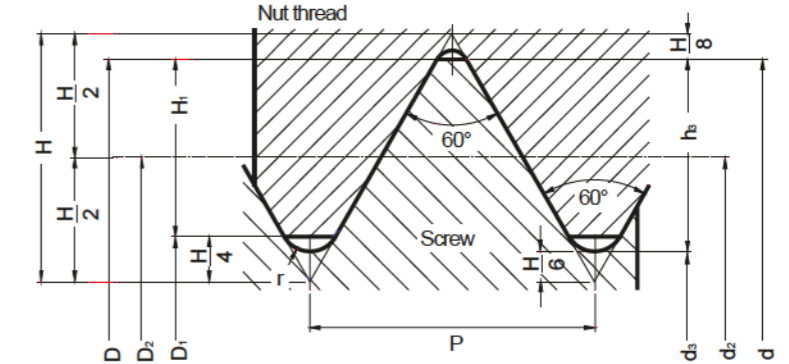
Metric thread MB(old UNI 160 Profile)						Nut tolerance SH8					
M 2,3	0.25	2.138	1.976	1.976	0.162	0.162	0.030	2.144	2.156	2.138	2.194
M 2,6	0.35	2.373	2.146	2.146	0.227	0.227	0.040	2.393	2.407	2.373	2.429

**YG TECHNICAL DATA SUPER CUTTING TAPS HOCHLEISTUNGS GEWINDEBOHRER**

**UNIFIED COARSE THREADS UNIFIED GROBGEWINDE**

Nominal dimensions as per ANSI B1.1  
 Production tolerances on tap flank diameter for 2B class nut threads  
 Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm  
 $H = 0.86603P$   
 $H_1 = \frac{5}{8}H = 0.54127P$   
 $h_3 = \frac{17}{24}H = 0.61343P$   
 $d_2 = D_2 = d - \frac{3}{4}H = d - 0.64952P$   
 $d_3 = d - 2h_3 = d - 1.22687P$   
 $r = \frac{H}{6} = 0.14434P$



Nominal diameter	T.P.I	Pitch	External diameter	Flank diameter	Thread depth		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
					Nut	Screw	min.	max.	min. 2B/3B	max. 2B	max. 3B
		P	d = D	d <sub>2</sub> = D <sub>2</sub>	D <sub>1</sub>	d <sub>3</sub>					
#1	- 64 UNC	0.397	1.854	1.598	1.425	1.367	1.610	1.623	1.598	1.664	1.646
#2	- 64 UNC	0.454	2.184	1.890	1.694	1.628	1.902	1.915	1.890	1.961	1.943
#3	- 48 UNC	0.529	2.515	2.172	1.941	1.864	2.184	2.197	2.172	2.248	2.228
#4	- 40 UNC	0.635	2.845	2.433	2.156	2.065	2.446	2.459	2.433	2.517	2.494
#5	- 40 UNC	0.635	3.175	2.764	2.487	2.395	2.776	2.789	2.764	2.847	2.827
#6	- 32 UNC	0.794	3.505	2.990	2.647	2.532	3.105	3.028	2.990	3.084	3.058
#8	- 32 UNC	0.794	4.166	3.650	3.307	3.193	3.675	3.688	3.650	3.746	3.721
#10	- 24 UNC	1.058	4.826	4.138	3.680	3.528	4.163	4.176	4.138	4.247	4.219
#12	- 24 UNC	1.058	5.486	4.798	4.3						

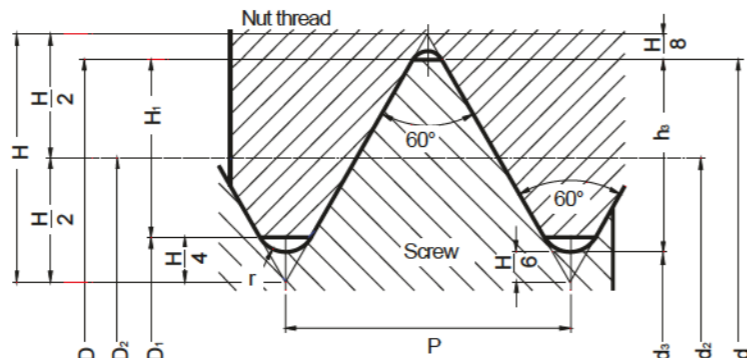




**UNIFIED FINE THREADS  
UNIFIED FEINGEWINDE**

Nominal dimensions as per ANSI B1.1  
Production tolerances on tap flank diameter for 2B class nut threads  
Limit dimensions-Nut threads as per ANSI B1.1, 2B-3B tolerance classes

Dimensions in mm  
 $H = 0.86603P$   
 $H_1 = \frac{5}{8}H = 0.54127P$   
 $h_3 = \frac{17}{24}H = 0.61343P$   
 $d_2 = D_2 = d - \frac{3}{4}H = d - 0.64952P$   
 $d_3 = d - 2h_3 = d - 1.22687P$   
 $r = \frac{H}{6} = 0.14434P$

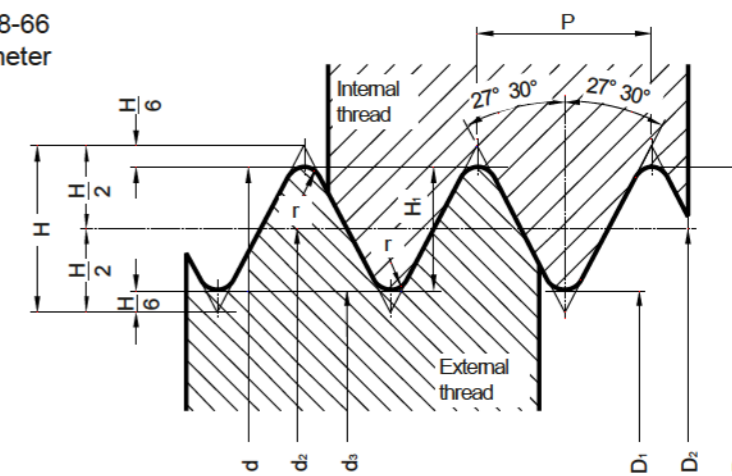


Nominal diameter	T.P.I	Pitch	External diameter	Flank diameter	Thread depth		Flank diameter Tap tolerance 2B		Flank diameter Nut tolerance		
					Nut	Screw	min.	max.	min. 2B/3B	max. 2B	max. 3B
#0	-80 UNF	0.318	1.524	1.318	1.181	1.135	1.331	1.344	1.318	1.377	1.361
#1	-72 UNF	0.353	1.854	1.626	1.473	1.422	1.638	1.651	1.626	1.689	1.674
#2	-64 UNF	0.397	2.184	1.928	1.755	1.697	1.941	1.953	1.928	1.996	1.979
#3	-56 UNF	0.454	2.515	2.220	2.024	1.958	2.233	2.245	2.220	2.291	2.273
#4	-48 UNF	0.529	2.845	2.502	2.271	2.195	2.515	2.527	2.502	2.581	2.560
#5	-44 UNF	0.577	3.175	2.799	2.550	2.466	2.812	2.824	2.799	2.880	2.860
#6	-40 UNF	0.635	3.505	3.094	2.817	2.725	3.108	3.119	3.094	3.180	3.157
#8	-36 UNF	0.706	4.166	3.708	3.401	3.299	3.721	3.734	3.708	3.800	3.777
#10	-32 UNF	0.794	4.826	4.310	3.967	3.853	4.336	4.348	4.310	4.409	4.384
#12	-28 UNF	0.907	5.486	4.897	4.503	4.374	4.923	4.935	4.897	5.004	4.976
1/4"	-28 UNF	0.907	6.350	5.761	5.367	5.237	5.799	5.812	5.761	5.870	5.842
5/16"	-24 UNF	1.058	7.938	7.249	6.792	6.640	7.287	7.300	7.249	7.371	7.341
3/8"	-24 UNF	1.058	9.525	8.837	8.379	8.227	8.875	8.887	8.837	8.961	8.931
7/16"	-20 UNF	1.270	11.112	10.287	9.738	9.555	10.338	10.351	10.287	10.424	10.391
1/2"	-20 UNF	1.270	12.700	11.874	11.326	11.143	11.925	11.938	11.874	12.017	11.981
9/16"	-18 UNF	1.411	14.288	13.371	12.761	12.555	13.421	13.434	13.371	13.520	13.482
5/8"	-18 UNF	1.411	15.875	14.958	14.348	14.143	15.009	15.022	14.958	15.110	15.072
3/4"	-16 UNF	1.588	19.050	18.019	17.330	17.102	18.070	18.082	18.019	18.184	18.143
7/8"	-14 UNF	1.814	22.225	21.046	20.262	20.000	21.110	21.123	21.046	21.224	21.181
1"	-12 UNF	2.117	25.400	24.026	23.109	22.804	24.089	24.102	24.026	24.219	24.171
1 1/8"	-12 UNF	2.117	28.575	27.201	26.284	25.979	27.252	27.277	27.201	27.339	27.351
1 1/4"	-12 UNF	2.117	31.750	30.376	29.459	29.154	30.427	30.452	30.376	30.579	30.528
1 3/8"	-12 UNF	2.117	34.925	33.551	32.634	32.329	33.602	33.627	33.551	33.759	33.706
1 1/2"	-12 UNF	2.117	38.100	36.726	35.809	35.504	36.777	36.802	36.726	36.937	36.886

**WHITWORTH PIPE THREADS  
WHITWORTH ROHRGEWINDE**

Nominal dimensions ISO 228/1-UNI 338-66  
Production tolerances on tap flank diameter  
Limit dimensions for internal threads

Dimensions in mm  
 $P = \frac{25.4}{z}$   
 $H = 0.960491P$   
 $H_1 = 0.640327P$   
 $r = 0.137329P$



Type	Thread diameter	Pitch	T.P.I	Flank diameter	Minor diameter	H1	r	Tap Flank diameter		Internal Thread Flank diameter	
								min.	max.	min.	max.
G 1/8"	9.728	0.907	28	9.147	8.566	0.581	0.125	9.177	9.194	9.147	9.254
G 1/4"	13.157	1.157	19	12.301	11.445	0.856	0.184	12.336	12.356	12.301	12.426
G 3/8"	16.662	1.337	19	15.806	14.950	0.856	0.184	15.841	15.861	15.806	15.933
G 1/2"	20.955	1.814	14	19.793	18.631	1.162	0.249	19.828	19.848	19.793	19.935
G 5/8"	22.911	1.814	14	21.749	20.587	1.162	0.249	21.784	21.804	21.749	21.891
G 3/4"	26.441	1.814	14	25.279	24.117	1.162	0.249	25.314	25.334	25.279	25.421
G 7/8"	32.201	1.814	14	29.039	27.877	1.162	0.249	29.074	29.094	29.039	29.181
G 1"	33.249	2.309	11	31.770	30.291	1.479	0.317	31.815	31.839	31.770	31.950
G 1 1/8"	37.897	2.309	11	36.418	34.939	1.479	0.317	36.463	36.487	36.418	36.598
G 1 1/4"	41.910	2.309	11	40.431	38.952	1.479	0.317	40.476	40.500	40.431	40.611
G 1 3/8"	44.323	2.309	11	42.844	41.365	1.479	0.317	42.889	42.913	42.844	43.024
G 1 1/2"	47.803	2.309	11	46.324	44.845	1.479	0.317	46.374	46.398	46.324	46.504
G 1 3/4"	53.746	2.309	11	52.267	50.788	1.479	0.317	52.327	52.354	52.267	52.447
G 2"	59.614	2.309	11	58.135	56.656	1.479	0.317	58.195	58.222	58.135	58.315
G 2 1/4"	65.710	2.309	11	64.231	62.752	1.479	0.317	64.291	64.318	64.231	64.448
G 2 3/8"	69.398	2.309	11	67.919	66.440	1.479	0.317	67.979	68.006	67.919	68.136
G 2 1/2"	75.184	2.309	11	73.705	72.226	1.479	0.317	73.765	73.792	73.705	73.922
G 2 3/4"	81.534	2.309	11	80.055	78.576	1.479	0.317	80.127	80.157	80.055	80.272
G 3"	87.884	2.309	11	86.405	84.926	1.479	0.317	86.477	86.507	86.405	86.622
G 3 1/4"	93.980	2.309	11	92.501	91.022	1.479	0.317	92.573	92.603	92.501	92.718
G 3 1/2"	100.330	2.309	11	98.851	97.372	1.479	0.317	98.923	98.953	98.851	99.068
G 3 3/4"	106.680	2.309	11	105.201	103.722	1.479	0.317	105.273	105.303	105.201	105.418
G 4"	113.030	2.309	11	111.551	110.072	1.479	0.317	111.623	111.653	111.551	111.768
G 4 1/2"	125.730	2.309	11	124.251	122.772	1.479	0.317				
G 5"	138.430	2.309	11	136.951	135.472	1.479	0.317				
G 5 1/2"	151.130	2.309	11	149.651	148.172	1.479	0.317				
G 6"	163.830	2.309	11	162.351	160.872	1.479	0.317				

(1) - This type is conventional:originally the value in inches was the internal pipe diameter.

**INTERESTING HINTS FOR TAPPING  
HINWEISE ZUM GEWINDESCHNEIDEN****Selection of the most suitable tap  
Auswahl des geeigneten Gewindebohrers**

Which types of tap or whether or not a thread former can be used, depends on the type of material to be machined. As a general guide, materials with an extension of at least 10% can be cold-formed.

To determine the most suitable tap, refer to the tap recommendation table on pages 356 to 363.

Welcher Typ Gewindebohrer oder ob ein Gewindeformer eingesetzt werden kann, hängt von dem zu bearbeitenden Werkstoff ab.

Als allgemeiner Leitwert gilt, daß Werkstoffe mit mindestens 10% Dehnung kaltgeformt werden können.

Zur Bestimmung des optimalen Gewindebohrers nutzen Sie die Empfehlungstabelle auf den Seiten 356 bis 363.

**Core holes  
Kernlöcher**

- Core holes should be clean and swarf-free.
- Core holes should be of the prescribed size, see chart extract on page 583-584 of this catalogue, and dependent on the actual application, selected towards the upper diameter limit.
- Kernlöcher sollten sauber und spanfrei sein.
- Kernlöcher sollten die angegebenen Durchmesser haben, siehe Seiten 583 und 584, und abhängig vom aktuellen Einsatzfall, zur größtmöglichen Durchmesserangabe tendieren.

**Lubricant in relation to machining centers  
Schmiermitteleinsatz auf Bearbeitungszentren**

Frequently the coolants used on machining centers are unsatisfactory for tapping because their percentage lubricant content is too low. If it is not possible to increase the percentage of lubricant in the emulsion, the lubrication problem can be solved in other ways, i.e.:

Meistens sind die gebräuchlichen Kühlmittel in Bearbeitungszentren zum Gewindeschneiden nicht geeignet, weil ihr Anteil an Schmierstoffen zu gering ist. Wenn es nicht möglich ist, den Anteil an Schmierstoffen in der Emulsion zu erhöhen, kann das Schmierproblem in anderer Weise gelöst werden, z. B.:

**Lubricating with concentrated emulsion    Schmierung mit konzentrierter Emulsion**

A. A lubricating unit, connected to the machine control, delivers at the required instant a specific quantity of concentrated emulsion into the core hole or onto the tap.

B. A pump in a separate tank, controlled by the machine, delivers a specific amount of concentrate into the core hole.

A. Eine Schmiervorrichtung, die mit der Maschinensteuerung verbunden ist, gibt zum gewünschten Zeitpunkt eine bestimmte Menge konzentrierter Emulsion in das Kernloch oder auf den Gewindebohrer ab.

B. Eine Pumpe mit separatem Tank, mit der Maschinensteuerung verbunden, gibt eine bestimmte Menge des Konzentrats in das Kernloch.

**Tapping in separate operations    Gewindeschneiden als separater Bearbeitungsgang**

This procedure allows the use of the ideal tapping lubricant.

Dies erlaubt den Einsatz des idealen Gewindeschneid Schmiermittels.

**Cutting speeds for taps  
Schnittgeschwindigkeiten für Gewindebohrer**

The cutting speed has a great influence on chip flow and the life of the tap.

It is worthwhile to establish the ideal cutting speed by tapping trials.

Guide values see on the recommendation table page 364. The cutting speed should be in relation to the characteristics of the material, the machine and its equipment.

Die Schnittgeschwindigkeit hat großen Einfluss auf den Spanabgang und die Lebensdauer des Gewindebohrers.

Bei Großserien ist es lohnend, die ideale Schnittgeschwindigkeit durch Versuche zu ermitteln.

Leitwerte finden Sie in der Empfehlungstabelle Seite 364. Die Schnittgeschwindigkeit sollte auf den Werkstoff, die Maschine und das Umfeld abgestimmt sein.

**Effects of unsuitable cutting speed    Die Folgen falscher Schnittgeschwindigkeiten**

- forced tapping    Zu hoher Kraftaufwand
- tap lead chipping caused by overloaded cutting tooth    Beschädigte Steigung durch überlastete Schneide
- torn threads    Verschnittenes Gewinde
- unsatisfactory tap-life    Ungenügende Standzeit
- rejected threads    Ausschuss

**Cold welding  
Kaltaufschweißung**

What are the causes of cold welding?    Was sind die Gründe für eine Kaltaufschweißung?

- unsuitable tap selection    Ungeeignete Gewindebohrer Auswahl
- tap with incorrect cutting geometry    Gewindebohrer mit falscher Schneidengeometrie
- coolant unsuitable for material    Kühlmittel ungeeignet für den Werkstoff
- insufficient coolant    Unzureichende Kühlung
- axial pressure (pull or push) on the tap    Axialer Druck (Zug oder Druck) auf den Gewindebohrer
- core hole too small    Kernloch zu klein
- breaks in walls of core hole    Risse in der Wand des Kernlochs
- speed too high or too low    Schnittgeschwindigkeit zu hoch oder zu klein
- swarf trapped in the hole    Verklemmter Span im Kernloch
- incorrect alignment of tap and core hole    Achsversatz zwischen Gewindebohrer und Kernloch
- tap eccentricity    Gewindebohrer läuft unrun

Effects of cold welding:    Die Folgen von Kaltaufschweißungen

- torn threads    verschnittene Gewinde
- short tap life    kurze Standzeit
- rejected threads    Ausschuss
- tap breakage    Werkzeugbruch
- scrap workpieces    schrottreife Werkstücke

**Tap mounting  
Gewindebohrer einspannen**

- The tap must be mounted on the axis of the core hole.
- On non-synchronized machines (feed / speed) we recommend the use of a tapping spindle.
- Die Achsen von Gewindebohrer und Kernloch müssen genau fluchten.
- Auf nicht synchronisierten Maschinen (Vorschub / Schnittgeschwindigkeit) empfehlen wir den Einsatz einer Gewindeschneidspindel.

**Tapping heads  
Gewindeschneidköpfe**

With non-synchronized machine spindles (feed / speed) the feed rate should as a rule be programmed approx. 5-10% lower than the thread pitch. In these cases a tapping chuck must be used which will compensate the difference between the feed rate and the thread pitch.

It is important that the tension spring in the axial compensation is set to a light rate to avoid axially loading the tap.

The compression spring should be tensioned so that the tap starts to cut by compressing the spring at the most up to one half pitch.

Bei nicht synchronisierten Maschinenspindeln (Vorschub / Schnittgeschwindigkeit) sollte der Vorschub in der Regel 5 – 10% kleiner sein als die Gewindesteigung. In diesen Fällen muss ein Gewindeschneidfutter verwendet werden, das die Differenz zwischen dem Vorschub und der Gewindesteigung ausgleicht.

Es ist wichtig, daß die Spannfeder im axialen Ausgleich locker eingestellt wird, um eine zu große axiale Belastung des Gewindebohrers zu vermeiden.

Die Druckfeder sollte so gespannt sein, daß der Gewindebohrer zu schneiden beginnt, wenn die Feder bei höchstens einer halben Steigung gespannt ist.

**Important hints:    Wichtige Hinweise :**

Ensure that the correct speed is selected.

Ensure that ample lubricating coolant is used when tapping.

Good machine and equipment stability is essential for optimum quality and performance.

Sorgen Sie für die richtige Schnittgeschwindigkeit.

Sorgen Sie dafür, daß reichlich Kühlschmiermittel beim Gewindeschneiden verwendet wird.

Gute Stabilität von Maschine und Vorrichtungen ist die Grundlage für optimale Qualität und Leistung.

APPLICATION AND USE OF THREADING TAPS  
FEHLER UND ABHILFEN BEIM GEWINDESCHNEIDEN

Problem / FEHLER	Causes / URSACHEN	Solutions / LOSUNGEN
<b>Tapped hole oversize Gewinde zu groß</b>	Incorrect tap in use (cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use tap selected from the relevant material group Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	Faulty alignment Fehlerhafte Fluchtung	Ensure that the tap is correctly aligned with the core hole axis Dafür sorgen, daß Gewindebohrer und Kernloch axial genau fluchten
	Cold welding Kaltaufschweißung	Improve lubrication and direction of coolant Adjust cutting speed Schmierung und Ausrichtung des Kühlstrahls verbessern Schnittgeschwindigkeit korrigieren
	Re-ground tap (lead-in is not concentric) Nachgescharfter Gewindebohrer (Anschnitt nicht konzentrisch)	Regrind tap lead correctly on a suitable tap grinding machine Anschnitt fehlerfrei auf geeigneter Schleifmaschine nachschleifen
<b>Stripped threads Gewinde verschnitten</b>	Incorrect tap in use (cutting geometry incorrect for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use a tap from the relevant material group. Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	Spindle speed and feed rate not synchronized Spindelgeschwindigkeit und Vorschub sind nicht aufeinander abgestimmt	Check feed rate programming and / or pitch of leading spindle Use a tapping spindle with axial float Vorschub und / oder Steigung der Spindel überprüfen Gewindeschneidspindel mit axialem Ausgleich verwenden
	Insufficient start pressure exerted on tap with peel-cut Unzureichender Startdruck auf einen Gewindebohrer mit Schalanschnitt	Increase start pressure Startdruck erhöhen
<b>Bell mouthed tapped hole Gewinde trichterförmig</b>	Incorrect start pressure applied to tap Falscher Gewindebohrer im Einsatz	Use a tapping spindle with axial float Gewindeschneidspindel mit axialem Ausgleich verwenden
<b>Unsatisfactory thread surface finish Gewinde zu rau</b>	Incorrect tap in use (Cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Select tap from the relevant material group Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	The tap is blunt Die Schneiden sind stumpf	Replace or re-grind tap Neuen oder nachgescharften Gewindebohrer einsetzen
	Tap badly re-ground Der Gewindebohrer ist schlecht nachgescharft	Re-grind tap again. Check that cutting geometry is suitable for material Gewindebohrer korrekt nachschleifen Prüfen, ob die Schneidengeometrie für den Werkstoff geeignet ist
	Coolant lacking in lubricating qualities and / or quantity Kühlmittel mit unzureichendem Schmiermittelanteil	Ensure the use of a suitable coolant and an ample supply Für qualitativ und quantitativ gute Kühlung und Schmierung sorgen



Problem / FEHLER	Causes / URSACHEN	Solutions / LOSUNGEN
<b>Partial chipping of tap Gewinde ist unfertig</b>	Swarf jamming Spanestau	Check cutting speed Use alternative tap type Schnittgeschwindigkeit prüfen Andere Gewindebohrertypen wählen
	Tap has jammed against bottom of core hole Gewindebohrer ist auf den Grund des Kernlochs gefahren	Check hole and thread depths Drill core hole deeper Kernlochtiefe und Gewindelänge prüfen Kernloch tiefer bohren
	Tap incorrectly re-ground (lead-in diameter too small therefore too few cutting teeth) Gewindebohrer ist schlecht nachgescharft (Anschnittdurchmesser zu klein, deshalb zu wenige schneidende Zähne)	Ensure that original values are maintained when regrinding Beim Nachschärfen auf originale Geometrie achten
	Irregular workpiece material structure Materialfehler im Werkstück	Adjust cutting speed Improve lubricating quality of coolant Schnittgeschwindigkeit anpassen Die Schmierfähigkeit des Kühlmittels verbessern
<b>Excessive tap wear Übermäßiger Verschleiß des Gewindebohrers</b>	Incorrect cutting speed Falsche Schnittgeschwindigkeit	Adjust cutting speed to suit workpiece material Schnittgeschwindigkeit dem Werkstoff anpassen
	Coolant lacking in lubricating qualities and / or quantity Kühlmittel mit unzureichender Schmierqualität oder ?menge	Ensure the use of a suitable coolant and an ample supply Für qualitative und quantitative gute Kühlung und Schmierung sorgen Check that coolant is reaching the cutting zone Prüfen, ob das Kühlmittel den Schnittbereich erreicht
	Surface of the core hole is compacted Verfestigte Bohrungswand des Kernlochs	Check core hole drilling conditions (drill carefully to reduce risk of surface compacting) Einsatzwerte beim Kernlochbohren prüfen (vorsichtig bohren um eine Aufhärtung der Bohrungswand zu vermeiden) Check drill cutting edges Bohrerschneiden überprüfen
<b>Tap breakage Bruch des Gewindebohrers</b>	Incorrect tap in use (cutting geometry unsuitable for application) Falscher Gewindebohrer im Einsatz (Schneidengeometrie ungeeignet)	Use tap from the relevant material group Einen für den Werkstoff geeigneten Gewindebohrer auswählen
	Centering error Fehlerhafte Fluchtung	Ensure that axes of tap and core hole are aligned Dafür sorgen, daß Gewindebohrer und Kernloch axial genau fluchten
	Blunt tap Schneiden sind stumpf	Re-grind tap Neuen oder nachgescharften Gewindebohrer einsetzen Ensure that taps are stored carefully Auf sorgfältige Lagerung der Gewindebohrer achten
	Tap has reached bottom of core hole Gewindebohrer ist auf den Grund des Kernlochs gefahren	Use tapping spindle with axial float and slipping clutch Gewindeschneidspindel mit axialem Ausgleich und Rutschkupplung verwenden
	Core hole too small Kernloch ist zu klein	Select core hole as per chart, pages 317 of this catalogue Kernloch Durchmesser auf der Tabelle Seite 317 auswählen



## 6 RESHARPENING NACHSCHARFEN

The resharpening on taps is done for regenerating the active hedges worn by the destructive action of cutting and of friction, it has high importance for an economical exploitation of the tool and so far has to be made rationally, keeping away from wrong operations which can heavily compromise the accuracy and the life.

In order to execute the tap resharpening quickly and accurately we recommend the use of proper resharpening machines having all necessary equipments for this operation.

The tap resharpening take place in two steps:

- resharpening of (relieved) chamfer;
- resharpening of flutes. (See picture 1)

Das Nachscharfen der Gewindebohrer dient der Erneuerung der verschlissenen Schneidkanten.

Es ist wichtig, um das Leistungsvermögen des Werkzeugs voll auszuschöpfen und muss daher präzise durchgeführt werden, um Fehler zu vermeiden, die die Präzision des Gewindes und die Standzeit beeinträchtigen.

Um das Nachscharfen schnell und präzise durchzuführen, empfehlen wir den Einsatz von geeigneten Schleifmaschinen mit dem notwendigen Zubehör.

Das Nachscharfen der Gewindebohrer erfolgt in zwei Stufen :

- scharfen der Freiflächen im Anschnitt;
- scharfen der Nuten (Spanfläche) (siehe Abb. 1)

### RESHARPENING OF (RELIEVED) CHAMFER

#### RESHARPENING OF (RELIEVED) CHAMFER

The chamfer resharpening must be executed both on specific for taps machines or on conventional resharpening machines equipped with an auxiliary system proper to generate the circular relief on back.

The picture 2 shows the resharpening made with the cylindrical surface of a grinding wheel.

Before resharpening, verify that the tap, fixed between points or on pincer, runs concentric; verify also the angle  $\beta$  which has to be correct in order to keep the same number of threads on chamfer.

Das Scharfen des Anschnitts muss entweder auf besonderen Gewindeschleifmaschinen erfolgen, oder auf konventionellen Schleifmaschinen mit entsprechenden Vorrichtungen für einen genauen Hinterschliff.

Abb. 2 zeigt das Nachscharfen mit einer zylindrischen Schleifscheibe.

Vor dem Schleifen überprüfen, ob der Gewindebohrer, zwischen Spitzen oder in einer Spannzange gehalten, rund läuft; prüfen Sie auch den Winkel  $\beta$ , der korrekt sein muss, um die gleiche Anzahl Gänge im Anschnitt zu haben

### RESHARPENING OF FLUTES

#### NACHSCHARFEN DER NUTEN

This operation must be done on a specific resharpening machine for taps, equipped with: deviding head, lead screw of "barrasinus" for executing the helix and cooling equipment.

The rake angle  $\tau$  is obtained moving the tap axis,

in relation to the resharpening surface, of an amount X to be calculated with the formula:  $X = \frac{1}{2} d_1 \sin \tau$  (see picture 3).

( $d_1$  = tap major diameter)

Dieser Arbeitsgang muss auf einer speziellen Gewindebohrer ? Schleifmaschine erfolgen, die ausgerüstet ist mit :

Teilkopf, Leitspindel zum Schleifen entlang gedrahter Nuten und Kühlmittelversorgung. Den Spanwinkel  $\tau$  bei Gewindebohrern mit geraden Nuten erhält man durch Verstellen der Bohrerachse im Verhältnis zu der zu schleifenden Oberfläche um den Einstellwert X, der nach folgender Formel errechnet wird :

$X = \frac{1}{2} d_1 \sin \tau$  (siehe Abb. 3).

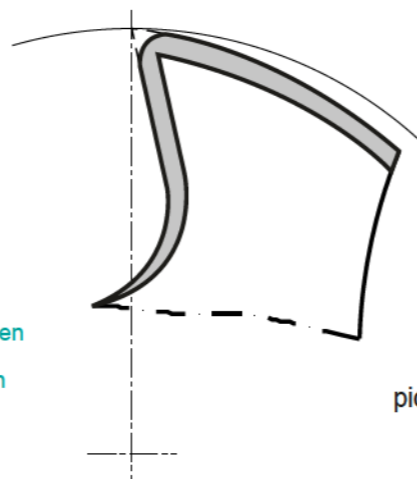
( $d_1$  = Gewindebohrerdurchmesser)

Example:

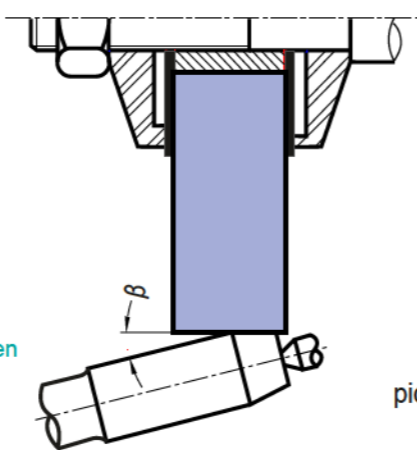
Tap 10 x 1,5 to cut on steel strength = 600 N/mm<sup>2</sup>

$d_1 = 10\text{mm}$  ;  $\tau = 15^\circ$  ;  $\sin \tau = 0,25882$ ;

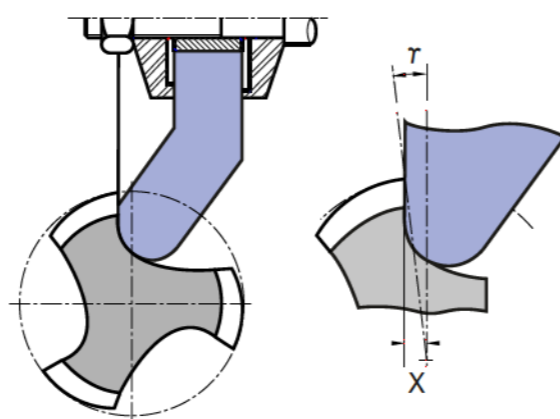
$$X = \frac{0,25882 \times 10}{2} ; X = 1,29\text{mm}$$



pic. 1



pic. 2



pic. 3



On all taps having spiral-flutes, in addition to the trade mark and identification of the dimension and type, it is possible to find also the pitch of the spiral referred to the lead screw necessary for the resharpening.

In case of employment of taps equipped with deburring tool Burr-Bit it is necessary to extend the flutes following what suggested by the supplier.

Because the wear on a tap is mainly on the chamfer area, on taps having "gun nose" the resharpening of the flutes can be made on the front area only (see picture 4).

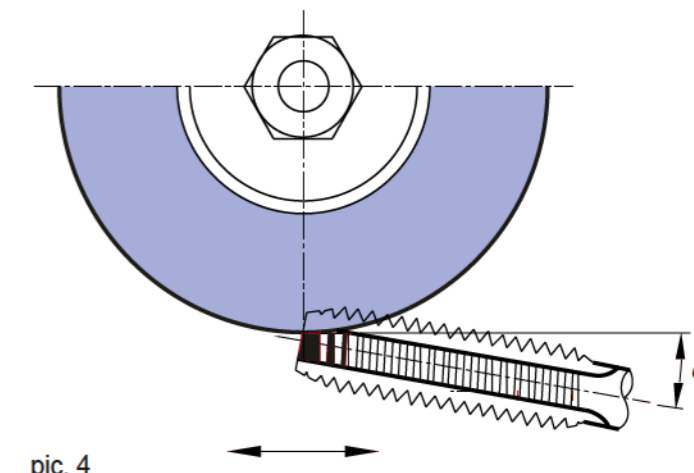
Bei allen Gewindebohrern mit gedrahten Nuten werden allgemein spezielle Schleifmaschinen eingesetzt, die die Drallsteigung messen und selbständig einstellen können.

Beim Einsatz von Gewindebohrern mit dem Entgratwerkzeug Burr-Bit ist es notwendig, die Nuten entsprechend den Vorgaben des Herstellers zu verlängern.

Da der Verschleiß eines Gewindebohrers hauptsächlich im Anschnitt und dem erstenvollen Gewindezahn liegt,

können Gewindebohrer mit Schalanschnitt und gerader Nute auch nur im vorderen

Gewindeteil nachgeschliffen werden (siehe Abb. 4).



pic. 4

It is very important to pay attention that, when also the thread flanks are worn (in addition to the active hedges) the resharpening as above described is practically useless.

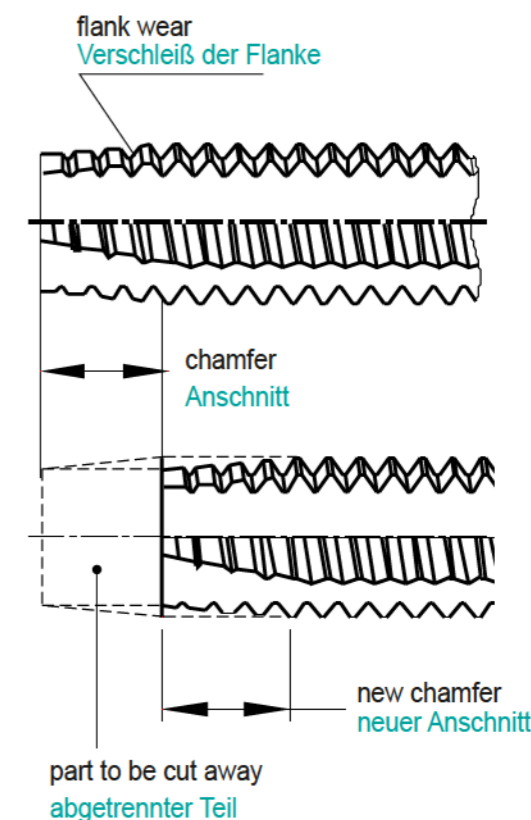
In this case the "regeneration" is made, by means of cutting completely the chamfer away (this means a shorter tap) and reproducing then the chamfer with same angle and relief. (see picture 5)

The regeneration is also advisable on taps with spiral flutes, because that way the flutes grinding is not necessary, in absence of special resharpening machines with lead screw with proper angle.

Es ist wichtig zu wissen, daß beim Verschleiß der Gewindezahnflanken (zusätzlich zur Hauptschneidkante) das oben beschriebene Nachschleifen praktisch nutzlos ist !

In diesem Fall wird die "Erneuerung" dadurch erreicht, daß der Anschnitt komplett abgetrennt wird ( das bedeutet eine Kürzung des Gewindebohrers und Verlust der entrierung ) und neu angeschliffen wird, mit gleichen Winkeln und Hinterschliff (siehe Abb. 5).

Diese "Erneuerung" ist auch für drallgenutete Gewindebohrer zu empfehlen, weil dann das Nutenschleifen entfällt, wenn keine geeignete Schleifmaschine mit Leitspindel vorhanden ist



pic. 5

**7 IMPORTANT RECOMMENDATIONS**  
**WICHTIGE EMPFEHLUNGEN****RESHARPEN TIMELY****RECHTZEITIGES NACHSCHARFEN**

It is important to resharpen timely the worn tap. In these conditions in fact defective threads can be produced, risking to brake the tool; in addition the wear is increasing quickly, damaging a wide area of the cutter and rapidly.

Es ist wichtig, den Gewindebohrer rechtzeitig nachzuschleifen.

Stumpfe Gewindebohrer können defekte Gewinde schneiden, die Bruchgefahr ist erhöht; zudem nimmt der Verschleiß schnell zu und zerstört weite Bereiche der Schneiden

**PROPER GRINDING WHEELS****RICHTIGE SCHLEIFSCHLEIBEN**

The structure and grain of grinding wheels must be the right one for the tap to be resharpened. Our technicians are at complete disposal to give the proper recommendations.

Bindung und Korn der Schleifscheiben müssen auf die Gewindebohrer abgestimmt sein.

Unsere Techniker sind bereit, Ihnen die geeignete Empfehlung zu geben

**TAPS FOR CAST IRONS****GEWINDEBOHRER FÜR GUSS**

On these taps the resharpening is rarely possible because, due to cast iron is abrasive, the tap is wearing on flank of the thread and so far out of tolerance.

Bei diesen Gewindebohrern ist Nachschleifen kaum möglich. Der verschleißfordernde

Guß greift die Schneidenflanken an, wodurch die Toleranz verloren geht.

**TAPS FOR ALUMINIUM****GEWINDEBOHRER FÜR ALUMINIUM**

It is advisable, after resharpening as above described, to remove steel burrs from the grinding wheel action.

This operation, easy with iron brushes, avoid the danger of boring or over tolerance tapping instead of accurate tapping.

Es ist empfehlenswert nach dem oben beschriebenen Nachschleifen Schleifgrate vom Gewindebohrer mit Stahlbursten zu entfernen.

Dadurch wird die Gefahr vermieden, Gewinde zu groß zu schneiden.

**CONTROLS (TESTS)****KONTROLLEN (TESTS)**

Once resharpened the tap, it is always better to make some tests to obtain correct threads same as when the tap was new.

- The chamfer must be perfectly on axis to avoid the effects of picture 6.

- The cutters must have correct divisions. The results of a resharpening with a wrong division is shown on picture 7.

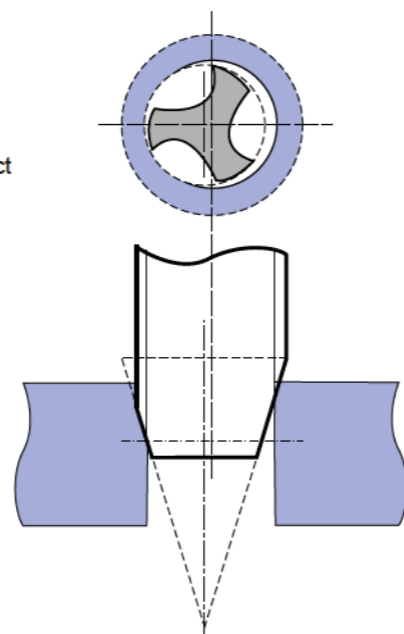
- The length and number of threads on chamfer must be rigorously identical to those of the new tap.

Nach dem Nachschleifen sollte der Gewindebohrer genau kontrolliert werden um sicher zu stellen, daß er genauso gut schneidet, wie ein neuer Bohrer.

- Der Anschnitt muss genau axial sein, um den Effekt wie in Abb. 7 zu vermeiden.

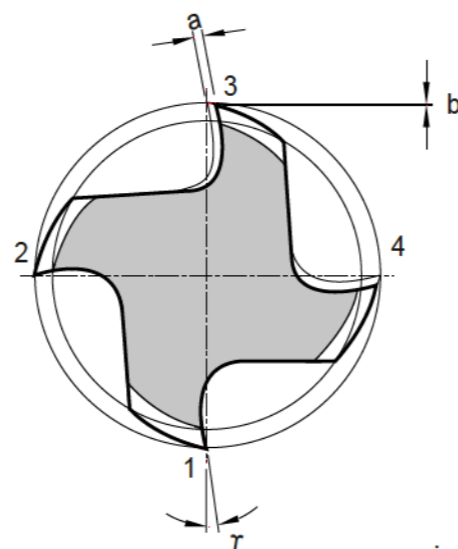
- Die Schneiden müssen eine genaue Teilung haben. Das Ergebnis des Nachschleifens mit falscher Teilung ist in Abb. 7 zu sehen.

- Die Länge und Anzahl der Gewindegänge im Anschnitt muss absolut genau so sein, wie bei einem neuen Gewindebohrer.



pic. 6

chamfer out of center  
unrund geschliffener Anschnitt



pic. 7

incorrect division  
Teilungsfehler  
cutters not concentric  
Schneiden nicht konzentrisch

**8 ORDERS / INQUIRIES SPECIAL TAPS**  
**Bestellungen / Anfragen ; SONDERGEWINDEBOHRER**

For photocopying

**Orders / Inquiries**

This form may be returned to your local YG-1 distributor or to YG-1.

Company \_\_\_\_\_  
Address \_\_\_\_\_  
Department \_\_\_\_\_  
Phone \_\_\_\_\_

Tool	Thread $\varnothing$ and pitch _____
Tolerance class _____	Overall length _____ mm

Hole			
------	--	--	--

Unusual characteristics of the threaded product or of the tapping method, e.g. counterbore, tapping on an angle, etc. \_\_\_\_\_

Material to be tapped	Material No. or designation _____
	Tensile strength _____ N/mm <sup>2</sup> _____ HB _____ HRC
	Chip form _____ short _____ long
	Annealed steel _____ Hardened steel _____ Heat treated steel

Special requirements : \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Person to be contacted within the company \_\_\_\_\_  
Date \_\_\_\_\_ Signature \_\_\_\_\_

SEND US YOUR TAPPING PROBLEMS  
SENDEN SIE UNS IHR GEWINDESCHNEIDPROBLEM

For photocopying

This form may be returned to your local YG-1 distributor or to YG-1.		Company _____ Address _____ Department _____ Phone _____	
<b>Tool</b>	Description of the tap being used at present Thread Ø and pitch _____ <input type="radio"/> right-hand cutting <input type="radio"/> fluteless <input type="radio"/> straight flutes <input type="radio"/> spiral point Additional information for special pitches or thread forms pitch Ø _____ major Ø _____ minor Ø _____	Make _____ Type _____ Class of tolerance _____ <input type="radio"/> left-hand cutting <input type="radio"/> right hand spiral flutes _____ degrees <input type="radio"/> left hand spiral flutes _____ degrees <input type="radio"/> length of chamfer _____ thread chamfer	flank angle _____ degrees
<b>Hole</b>	Tap drill Ø _____ <input type="radio"/> through hole Special requirements or unusual characteristics of the threaded product _____	length of hole _____ depth of full thread _____ <input type="radio"/> bottoming hole	
<b>Tapping speed</b>	_____ meters per minute _____ revolutions per minute		
<b>Lubricant</b>	<input type="radio"/> without <input type="radio"/> emulsion _____% <input type="radio"/> cutting oil <input type="radio"/> other _____ Application <input type="radio"/> under pressure <input type="radio"/> vaporization <input type="radio"/> other _____		
<b>Machine</b>	Type _____ <input type="radio"/> horizontal tapping <input type="radio"/> vertical tapping		
<b>Driving</b>	<input type="radio"/> tap revolves <input type="radio"/> work revolves Number of spindles _____		
<b>Feed</b>	<input type="radio"/> without <input type="radio"/> power <input type="radio"/> CNC _____%		
<b>Tool holder</b>	<input type="radio"/> rigid <input type="radio"/> floating <input type="radio"/> with safety clutch Make _____ Type _____		
<b>Material to be tapped</b>	Material No. or designation _____ Composition, if possible _____ Tensile strength or hardness _____ N/mm <sup>2</sup> HB _____ HRc Chip form <input type="radio"/> short <input type="radio"/> long		
Short description of problem : _____ _____ _____ _____			
Person to be contacted within the company _____ Date _____		Signature _____	

MAIN THREAD SYMBOLS  
HAUFIGE GEWINDEARTE

## AMERICAN STANDARD

## Cylindrical threads

UNC	Unified Coarse-Thread Series
UNF	Unified Fine-Thread Series
UNEF	Unified Extra-Fine-Thread Series
UN	Constant Pitch Series-Threads with constant pitch of T.P.I. 4,6,8,12,16,20,28,32
UNS	Selected combinations-Threads with special dia-pitch combinations
UNJ	Unified threads with constant pitch with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJC	Unified coarse thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJEF	Unified extra fine thread with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch
UNJF	Unified fine threads with radius on minor diameter from 0,15011 Pitch to 0,18042 Pitch

## Pipe cylindrical threads

NPS	Cylindrical threads for pipe
NPSC	American Standard for pipe coupling
NPSF	American Standard for internal thread on pipe, dryseal
NPSH	American Standard for cylindrical threads for pipe, joints and nipples
NPSI	American Standard for internal cylindrical threads on pipe(dryseal)
NPSL	American Standard for cylindrical threads on pipe for nuts
NPSM	American Standard for cylindrical threads on pipe for mechanical joints
NGO	American National pipe threads for gas exhaust
NGS	American National pipe threads for gas

## Taper pipe threads

ANPT	Taper pipe threads for Army, Navy and Airforce
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F-PTE	Taper pipe fine threads(dryseal)
NPT	Taper pipe thread
NPTF	Taper pipe thread (dryseal)
NPTR	Taper pipe thread for railways equipments
PTF-SAE SHORT	Taper pipe short thread(dryseal)-SAE
PTF-SPL SHORT	Taper pipe special thread(dryseal)-SAE
PTF-SPL EXTRA SHORT	Extra short special thread(dryseal)-SAE
SPL-PTF	Special taper pipe dryseal thread
NGT	National American taper pipe thread
SGT	Special taper pipe thread
API	American petroleum Institute taper pipe thread

## Trapezoidal and saw tooth threads

ACME-C	ACME selfcentering thread
ACME-G	ACME general application
STUB-ACME	ACME flat thread with reduced thread depth
60° STUB-ACME	ACME flat thread with 60° flank angle
N BUTT	American National Saw tooth thread

## BRITISH STANDARD

BSW	Whitworth British Standard coarse pitch
BSF	Whitworth British Standard fine pitch
WHIT	Whitworth Standard special pitch
R	British Standard external threading for taper pipe(dryseal)(already BSP-Tr)
Rc	British Standard internal threading taper thread for pipe(BSP-Tr)
Rp	British Standard cylindrical thread for pipe(already BSP.PI)
BA	British Standard Association thread
BSC	British Standard thread for bicycle
CEI	British Standard for bicycle

**11** COMPARISON CHART SCALE FOR HARDNESS  
VERGLEICHSTABELLE FÜR HÄRTESKALEN

Rockwell Hardness C Scale 150kg Brale (HRC)	Diamond Pyramid Hardness Number, Vickers (HV)	Brinell Hardness Standard 10mm Ball 29.42kN (HB)	Rockwell Hardness A Scale 60kg Brale (HRA)	Shore Scleroscope Hardness Number (HS)	Approx. Tensile Strength N/mm <sup>2</sup>
68	940	-	85.6	97	-
67	900	-	85.5	95	-
66	865	-	84.5	92	-
65	832	-	83.9	91	-
64	800	-	83.4	88	-
63	772	-	82.8	87	-
62	746	-	82.3	85	-
61	720	-	81.8	83	-
60	697	-	81.2	81	-
59	674	-	80.7	80	-
58	653	-	80.1	78	-
57	633	-	79.6	76	-
56	613	-	79.0	75	-
55	595	-	78.5	74	2079
54	577	-	78.0	72	2010
53	560	-	77.4	71	1952
52	544	500	76.8	69	1883
51	528	487	76.3	68	1824
50	513	475	75.9	67	1755
49	498	464	75.2	66	1687
48	484	451	74.7	64	1639
47	471	442	74.1	63	1578
46	458	432	73.6	62	1530
45	446	421	73.1	60	1481
44	434	409	72.5	58	1432
43	423	400	72.0	57	1383
42	412	390	71.5	56	1334
41	402	381	70.9	55	1294
40	392	371	70.4	54	1245
39	382	362	69.9	52	1216
38	372	353	69.4	51	1177
37	363	344	68.9	50	1157
36	354	336	68.4	49	1118
35	345	327	67.9	48	1079
34	336	319	67.4	47	1059
33	327	311	66.8	46	1030
32	318	301	66.3	44	1000
31	310	294	65.8	43	981
30	302	286	65.3	42	952
29	294	279	64.7	41	932
28	285	271	64.3	41	912
27	279	264	63.8	40	883
26	272	258	63.3	38	863
25	266	253	62.8	38	843
24	260	247	62.4	37	824
23	254	243	62.0	36	804
22	248	237	61.5	35	785
21	243	231	61.0	35	775
20	238	226	60.5	34	755
(18)	230	219	-	33	736
(16)	222	212	-	32	706
(14)	213	203	-	31	677
(12)	204	194	-	29	647
(10)	196	187	-	28	618
(8)	188	179	-	27	598
(6)	180	171	-	26	579
(4)	173	165	-	25	549
(2)	166	158	-	24	530
(0)	160	152	-	24	520

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