



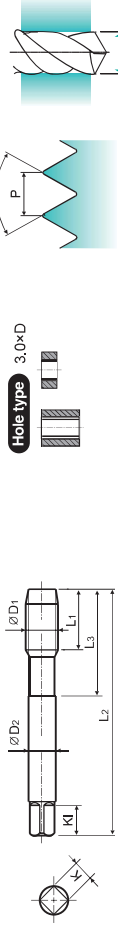
# MF ISO Metric Fine Threads DIN 13

# UNC Unified Coarse Threads

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



DIN 374



Hole type 3.0xD



## Machine Taps

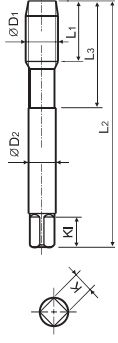
ISO	Metric Description	Pitch	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter	Unit : mm
			P	X-coating									
M18 x 2.0	TRJ16666GS	2.0	125.0	50.0	14.0	11.0	14.0	11.0	14.0	3	16.0		
M18 x 1.5	TRJ16676GS	25.0	110.0	44.0	14.0	11.0	14.0	11.0	14.0	3	16.5		
M18 x 1.0	TRJ16686GS	20.0	110.0	44.0	14.0	11.0	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	12.0	15.0	3	18.0		
M20 x 1.5	TRJ16726GS	25.0	125.0	50.0	16.0	12.0	15.0	12.0	15.0	3	18.5		
M20 x 1.0	TRJ16736GS	20.0	125.0	50.0	16.0	12.0	15.0	12.0	15.0	3	19.0		
M22 x 2.0	TRJ16756GS	27.0	140.0	54.0	18.0	14.5	17.0	14.5	17.0	3	20.0		
M22 x 1.5	TRJ16766GS	25.0	125.0	50.0	18.0	14.5	17.0	14.5	17.0	3	20.5		
M22 x 1.0	TRJ16776GS	20.0	125.0	50.0	18.0	14.5	17.0	14.5	17.0	3	21.0		
M24 x 2.0	TRJ16796GS	27.0	140.0	54.0	18.0	14.5	17.0	14.5	17.0	3	22.0		
M24 x 1.5	TRJ16806GS	27.0	140.0	54.0	18.0	14.5	17.0	14.5	17.0	3	22.5		
M24 x 1.0	TRJ16816GS	20.0	140.0	54.0	18.0	14.5	17.0	14.5	17.0	3	23.0		

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ISO	Metric Description	TPI	EDP No.		Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter	Unit : mm
			X-coating										
#4 - 40UNC	TRJ17162GS	11.0	56.0	18.0	11.0	56.0	18.0	3.5	2.7	6.0	2	2.30	
#5 - 40UNC	TRJ17202GS	11.0	56.0	18.0	11.0	56.0	18.0	3.5	2.7	6.0	3	2.60	
#6 - 32UNC	TRJ17242GS	12.0	56.0	20.0	4.0	3.0	6.0	4.0	3.0	6.0	3	2.80	
#8 - 32UNC	TRJ17282GS	13.0	63.0	21.0	4.5	3.4	6.0	4.5	3.4	6.0	3	3.40	
#10 - 24UNC	TRJ17322GS	15.0	70.0	25.0	6.0	4.9	8.0	6.0	4.9	8.0	3	3.90	
#12 - 24UNC	TRJ17362GS	16.0	80.0	30.0	6.0	4.9	8.0	6.0	4.9	8.0	3	4.50	
1/4 - 20UNC	TRJ17402GS	17.0	80.0	30.0	7.0	5.5	8.0	7.0	5.5	8.0	3	5.10	
5/16 - 18UNC	TRJ17442GS	20.0	90.0	35.0	8.0	6.2	9.0	8.0	6.2	9.0	3	6.60	
3/8 - 16UNC	TRJ17482GS	22.0	100.0	39.0	9.0	7.0	10.0	9.0	7.0	10.0	3	8.00	
7/16 - 14UNC	TRJ17522GS	22.0	100.0	40.0	8.0	6.2	9.0	8.0	6.2	9.0	3	9.40	
1/2 - 13UNC	TRJ17562GS	25.0	110.0	44.0	9.0	7.0	10.0	9.0	7.0	10.0	3	10.80	
9/16 - 12UNC	TRJ17602GS	26.0	110.0	44.0	11.0	9.0	12.0	11.0	9.0	12.0	3	12.20	
5/8 - 11UNC	TRJ17642GS	27.0	110.0	44.0	12.0	9.0	12.0	12.0	9.0	12.0	3	13.60	
3/4 - 10UNC	TRJ17702GS	30.0	125.0	50.0	14.0	11.0	14.0	14.0	11.0	14.0	3	16.50	
7/8 - 9UNC	TRJ17742GS	32.0	140.0	54.0	18.0	14.5	17.0	18.0	14.5	17.0	3	19.50	
1 - 8UNC	TRJ17782GS	36.0	160.0	60.0	20.0	16.0	19.0	20.0	16.0	19.0	3	22.20	

▶ DIN371 (#4-3/8) and DIN376 (7/16-1)

ISO	Metal Description	P								M			H			Material Groups					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19
V01 3323	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
HRc	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Recommended	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
ISO	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
V01 3323	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
HRc	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Recommended	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

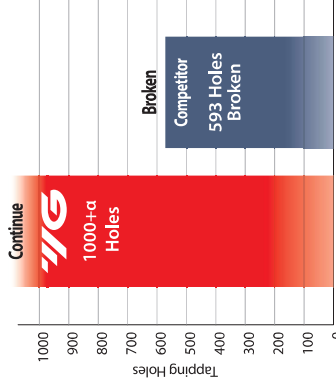
ISO	Metal Description	P								M			H			Material Groups					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14		15	16	17	18	19
V01 3323	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
HRc	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Recommended	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
ISO	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
V01 3323	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
HRc	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Recommended	Aluminum wrought alloy	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

## CASE STUDY

### TEST III SPIRAL FLUTE TAP (M6x1.0)

Cutting Condition	
Tool	Spiral Flute Tap
Size	M6x1.0
Work Material	JIS: SUS304 / DIN: X16CrNi1810 / WR: 1.4350
RPM	531 rev/min.
Vc	10 m/min.
Feed	531 mm/min.
Tap Drill Size	5.1mm
Tapping Depth	12 mm
Tapping Holes	YG-1: 1000+α / Competitor: 593
Coolant	Wet Cut

#### Prime Taps (1000 Holes+α)



#### Competitor (593 Holes, Broken)



### TEST IV SPIRAL FLUTE TAP (M8x1.25)

Cutting Condition	
Tool	Spiral Flute Tap
Size	M8x1.25
Work Material	JIS: S45C / DIN: CK45 / WR: 1.1191
RPM	796 rev/min
Vc	20 m/min
Feed	995 mm/min
Tap Drill Size	6.8mm
Tapping Depth	17 mm
Tapping Holes	YG-1: 1350+α / Competitor: 1350+α
Coolant	Wet Cut



## SELECTION GUIDE

# THREADING TOOLS

## HSS-PM PRIME TAPS

Premium Spiral Point and Spiral Flute Taps  
High Performance in Various Ductile Materials

HOLE TYPE		Max. 2.5xD Blind Hole		Max. 3.0xD Through Hole	
TOOL MATERIAL	HSS-PM				
CHAMFERED ANGLE	C	E	B		
FLUTE TYPE	R45	R45			
SPIRAL FLUTE ANGLE	TRE30 (p.8)	TRE34 (p.9)			
	UN371.676		TRJ15 (p.14)		
M	DN32				
	DN37/LONG				
MF	DN374	TRJ16 (p.15)			
	DN2181				
UKC	UN371.676	TRJ17 (p.17)			
	DN351				
UNF	UN371.974	TRJ18 (p.19)			
	DN2181				
BSW	DN3182/183				
	DN351				
GBSP	DN3156/5157				
EGM	UN371.976				
EG-UNC	UN371.676				
EG-UNF	UN371.974				
SUBSTRATE TREATMENT					



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◎ : Excellent ○ : Good

ISO 3323	VDI 12	Material Description	Composition / Structure / Heat Treatment	HB	HRC	Recommended cutting conditions
1	1	Non-alloy steel	About 0.15% C Annealed	125	12	○ 5-20 ○ 15-45
2	2	Non-alloy steel	About 0.45% C Annealed	190	13	◎ 10-50 ◎ 10-55
3	3	Non-alloy steel	About 0.45% C Quenched & Tempered	250	25	◎ 10-50 ◎ 10-55
4	4	Non-alloy steel	About 0.75% C Annealed	270	28	◎ 15-40 ◎ 15-50
5	5	Low alloy steel	About 0.75% C Quenched & Tempered	300	32	◎ 15-40 ◎ 15-50
6	6	Low alloy steel	Annealed	180	10	◎ 8-30 ◎ 8-30
7	7	Low alloy steel	Quenched & Tempered	275	29	◎ 8-30 ◎ 8-30
8	8	Low alloy steel	Quenched & Tempered	300	32	◎ 8-30 ◎ 8-30
9	9	High alloyed steel and tool steel	Quenched & Tempered	350	38	○ 8-30 ○ 8-30
10	10	High alloyed steel and tool steel	Annealed	200	15	○ 8-30 ○ 8-30
11	11	Stainless steel	Annealed	325	35	○ 8-30 ○ 8-30
12	12	Stainless steel	Ferritic / Martensitic	200	15	◎ 5-15 ◎ 5-15
13	13	Stainless steel	Annealed	240	23	◎ 5-15 ◎ 5-15
14	14	Stainless steel	Quenched & Tempered	180	10	◎ 5-15 ◎ 5-15
15	15	Grey cast iron	Pearlitic / ferritic	180	10	○ 15-35 ○ 15-35
16	16	Grey cast iron	Pearlitic (Martensitic)	260	26	○ 15-35 ○ 15-35
17	17	Nodular cast iron	Ferritic	160	3	◎ 15-35 ◎ 15-35
18	18	Nodular cast iron	Pearlitic	250	25	◎ 15-35 ◎ 15-35
19	19	Malleable cast iron	Ferritic	130	10	◎ 15-35 ◎ 15-35
20	20	Malleable cast iron	Pearlitic	230	21	○ 15-35 ○ 15-35
21	21	Aluminum-wrought alloy	Not Curable	60	15	○ 15-35 ○ 15-35
22	22	Aluminum-wrought alloy	Curable	70	15	○ 15-35 ○ 15-35
23	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	100	15	◎ 15-35 ◎ 15-35
24	24	Aluminum-cast, alloyed	≤ 12% Si, Curable	90	15	◎ 15-35 ◎ 15-35
25	25	Copper and Copper Alloys	> 12% Si, Not Curable	130	10	○ 15-35 ○ 15-35
26	26	Copper and Copper Alloys	Cutting Alloys, PB-1 %	110	10	◎ 15-35 ◎ 15-35
27	27	Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)	90	10	◎ 15-35 ◎ 15-35
28	28	Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper	100	10	◎ 15-35 ◎ 15-35
29	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic			◎ 15-35 ◎ 15-35
30	30	Non Metallic Materials	Rubber, Wood, etc.			
31	31	Heat Resistant Super Alloys	Fe Based	200	15	
32	32	Heat Resistant Super Alloys	Annealed	280	30	
33	33	Heat Resistant Super Alloys	Cured	250	25	
34	34	Heat Resistant Super Alloys	Ni or Co Based	350	38	
35	35	Heat Resistant Super Alloys	Cured	320	34	
36	36	Titanium Alloys	Pure Titanium	400 firm		
37	37	Titanium Alloys	Alpha + Beta Alloys	1050 firm		
38	38	Hardened steel	Hardened	550	55	
39	39	Chilled Cast Iron	Hardened	630	60	
40	40	Chilled Cast Iron	Cast	400	42	
41	41	Hardened Cast Iron	Hardened	550	55	