YU-CT26 AMERICAS

BEST VALUE IN THE WORLD OF CUTTING TOOLS

YG

Combo TAP

HSS-E TAPS for Multi-Purpose

For Steels, Stainless Steels, Cast Iron and Non-Ferrous Materials

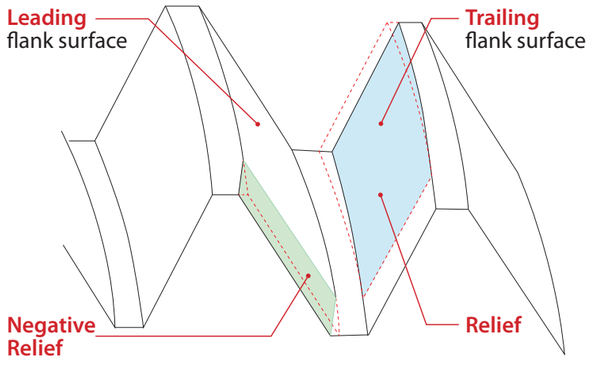
NEW ***AOS Tap (FSH Coated)***
- Spiral Flute
- Spiral Point

COMBO TAPS FOR MULTI-PURPOSE TAPPING

General Use for Various Materials

Combo Tap's geometry provides enough flute space resulting in smooth chip evacuation and therefore a continuous production process. Guarantee a high level of process reliability even under unfavorable conditions.

- ▶ For Steels, Stainless Steels, Cast Iron and Non-Ferrous Materials
- ▶ Prevents over & under feeding by its optimized flank geometry
- ▶ Constant threading quality preventing oversized threading



- **Optimized** flank **geometry** to **prevent over & under feeding**
- Enables **smoother tapping** with better chip evacuation
- **Compensation** of cutting force, which reduces tap wear and extends tool life

CASE STUDY

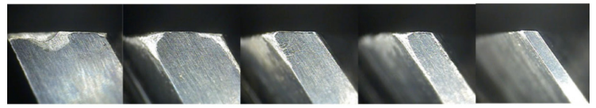
TEST I SPIRAL FLUTE

Cutting Condition

Tool	NEW Combo AOS Tap - Spiral Flute
Size	M10×1.5
Work Material	- ANSI: 4140 - DIN: 42CrMo4 - JIS: SCM440 (HRc30)
Tapping Depth	.79″
Coolant	Wet Cut
Vc	33 ft/min.

RESULT

Conventional (112 Holes)



FSH-Coating (112 Holes)

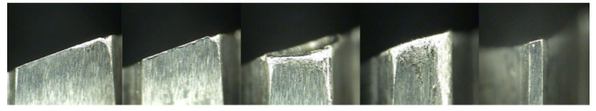
TEST II SPIRAL POINT

Cutting Condition

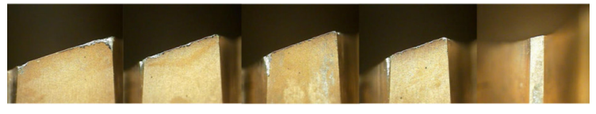
Tool	NEW Combo AOS Tap - Spiral Point
Size	M10×1.5
Work Material	- ANSI: 4140 - DIN: 42CrMo4 - JIS: SCM440 (HRc30)
Tapping Depth	.79″
Coolant	Wet Cut
Vc	33 ft/min.

RESULT

Conventional (168 Holes)



FSH-Coating (168 Holes)

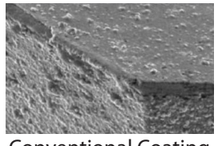


Working Material

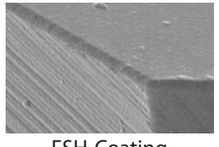
For Steels, Stainless Steels, Ductile Iron and Cast Aluminum materials

FSH-Coating NEW

Combining the advantages of all current coating technologies,
it features high hardness, high toughness, and an extremely smooth surface.
These characteristics provide highly reliable performance in threading processes.



Conventional Coating



FSH-Coating

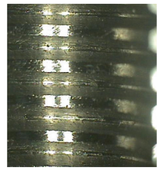
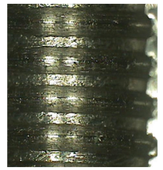
CASE STUDY

TEST Ⅲ SPIRAL FLUTE

Cutting Condition

Tool	Combo Spiral Flute Tap
Size	M8×1.25
Work Material	- AISI: 1045 - DIN: C45 - JIS: S45C (HRc35)
Tapping Depth	.79″
Coolant	Water Soluble Oil
Vc	33 ft/min.

Surface Roughness of Workpiece

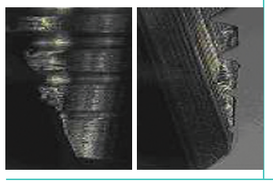
YG-1 Total Tapping 204 Holes	Competitor A Total Tapping 159 Holes	Competitor B Total Tapping 204 Holes
		

TEST Ⅳ SPIRAL POINT

Cutting Condition

Tool	Combo Spiral Point Tap
Size	M2×0.4
Work Material	- AISI: 1045 - DIN: C45 - JIS: S45C (HRc35)
Tapping Depth	.24″
Coolant	Tapping Oil
Vc	33 ft/min.

Surface Roughness of Workpiece

YG-1 Total Tapping 450 Holes	Competitor A Total Tapping 318 Holes	Competitor B Total Tapping 103 Holes
	Tool broke after tapping 318 holes	Tool broke after tapping 103 holes

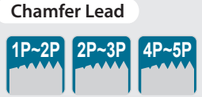
GUIDE TO ICONS

Working Material

Multi-Purpose

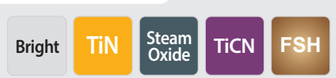
Thread Designation

Chamfer Lead



Tool Raw Material

Surface Treatment



Helix Angle

Thread Angle

Cutting Condition

YG SELECTION GUIDE

HSS-E COMBO TAPS

HSS-E Taps for Multi-Purpose

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

HOLE TYPE							Max. 2.5xD Blind Hole		
TOOL MATERIAL							HSS-E		
CHAMFER LEAD							2P-3P		
FLUTE TYPE							Spiral Flute		
SPIRAL FLUTE ANGLE							R40		
M	USCTI 302A								
M/MF	USCTI 302A								
	DIN Length-ANSI Shank								
UNC	USCTI Long Shank								
UNC/UNF	USCTI 302								
	USCTI 302A						T2 (p.10~13)	T2-S (p.10~13)	T2-C (p.10~13)
	DIN Length-ANSI Shank								
SURFACE TREATMENT / COATING							Bright	Steam Oxide	TiCN
MODEL									
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	Examples			
P	1	Non-alloy steel	About 0.15% C	Annealed	125		S15C, C15, 1015	○ (25-50)	○ (25-50)	○ (50-80)
	2		About 0.45% C	Annealed	190	13	S45C, C45, 1045	◎ (25-50)	◎ (25-50)	◎ (50-80)
	3		About 0.45% C	Quenched & Tempered	250	25		◎ (25-50)	◎ (25-50)	◎ (50-80)
	4		About 0.75% C	Annealed	270	28	SK5, Ck75, 1080	◎ (6-30)	◎ (6-30)	◎ (10-35)
	5		About 0.75% C	Quenched & Tempered	300	32		◎ (6-30)	◎ (6-30)	◎ (10-35)
	6	Low alloy steel		Annealed	180	10	SCM440, 42CrMo4, 410	◎ (6-30)	◎ (6-30)	◎ (10-35)
	7			Quenched & Tempered	275	29		◎ (6-30)	◎ (6-30)	◎ (10-35)
	8			Quenched & Tempered	300	32		◎ (6-30)	◎ (6-30)	◎ (10-35)
	9			Quenched & Tempered	350	38		◎ (6-30)	◎ (6-30)	◎ (10-35)
	10	High alloyed steel, and tool steel		Annealed	200	15	SKD, D2	○ (6-30)	○ (6-30)	○ (10-35)
	11			Quenched & Tempered	325	35	SKH, SUH, M42			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	SUS 420, X40Cr13, 420	◎ (12-35)	◎ (12-35)	◎ (20-50)
	13		Martensitic	Quenched & Tempered	240	23		◎ (12-35)	◎ (12-35)	◎ (20-50)
	14			Austenitic	180	10	SUS 316, 316, X5CrNiMo 17 12 2	◎ (12-15)	◎ (12-15)	◎ (12-15)
K	15	Grey cast iron	Pearlitic / Ferritic		180	10	FC, GG, EN-GJL-250	◎ (35-50)	◎ (35-50)	◎ (50-65)
	16		Pearlitic (Martensitic)		260	26		◎ (35-50)	◎ (35-50)	◎ (50-65)
	17	Nodular cast iron	Ferritic		160	3	FCD, GGG, EN-GJS-500-7	◎ (12-45)	◎ (12-45)	◎ (25-55)
	18		Pearlitic		250	25		◎ (12-45)	◎ (12-45)	◎ (25-55)
	19	Malleable cast iron	Ferritic		130		FCMW, FCMP, GTS, GJMB350-10			
	20		Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60		SAE 1000, AlMg 1, 3.3315			
	22		Curable	Hardened	100		SAE 7050, AlCuMg 1, 3.1325			
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		ADC12, G-AlSi12, 3.2581	◎ (40-65)		◎ (45-90)
	24		≤ 12% Si, Curable	Hardened	90		C4BS, G-AlSi10Mg, 3.2381			
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		CuZn36Pb 3, 2.0375	◎ (30-65)	◎ (30-65)	◎ (30-65)
	27		CuZn, CuSnZn (Brass)		90		CuZn 15, 2.0240	◎ (30-65)	◎ (30-65)	◎ (30-65)
	28		CuSn, lead-free copper and electrolytic copper		100		G-CuZn40Fe, 2.0590	◎ (30-65)	◎ (30-65)	◎ (30-65)
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				CFRP			
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	X12 NiCrSi 36-16, 1.4864			
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25	Inconel 718, NiCr20TiAl, 2.4631			
	34			Cured	350	38	NiCu30Al, 2.4375			
	35			Cast	320	34	G-X120Mn12, 1.3401			
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm		TiAl6V4, 3.7165			
H	38	Hardened steel		Hardened	550	55	SK3			
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

HSS-E COMBO TAPS

HSS-E Taps for Multi-Purpose

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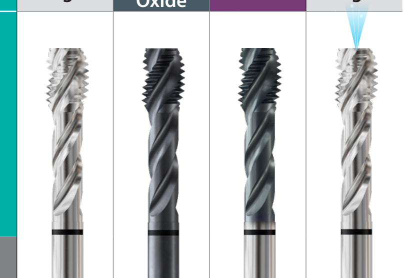
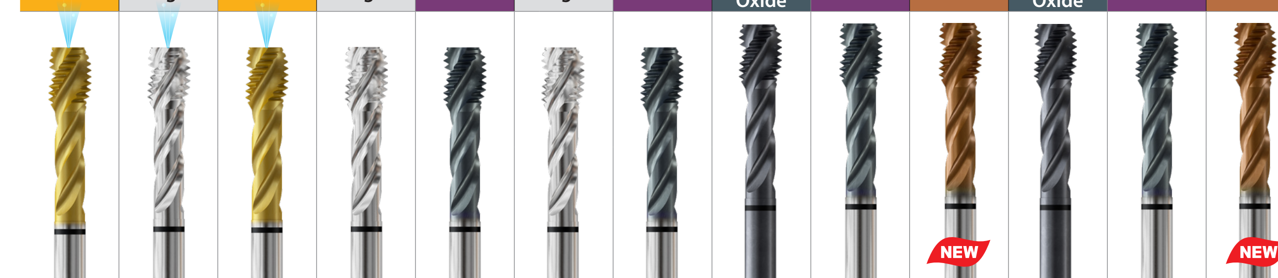
◎ : Excellent ○ : Good

MODEL	HOLE TYPE	TOOL MATERIAL	CHAMFER LEAD	FLUTE TYPE	SPIRAL FLUTE ANGLE	Thread / Standard	SURFACE TREATMENT / COATING
T5 (p.14~15)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	M/MF USCTI 302A	Bright
T5-S (p.14~15)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	M/MF USCTI 302A	Steam Oxide
T5-C (p.14~15)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	M/MF USCTI 302A	TiCN
T6 (p.16)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	UNC/UNF USCTI 302A	Bright
T6-N (p.16)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	UNC/UNF USCTI 302A	TiN
T8 (p.17)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	M USCTI 302A	Bright
T8-N (p.17)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	M USCTI 302A	TiN
T7 (p.18~19)	Max. 2.5xD Blind Hole	HSS-E	1P-2P	Spiral Flute	R40	UNC/UNF USCTI 302A	Bright
T7-C (p.18~19)	Max. 2.5xD Blind Hole	HSS-E	1P-2P	Spiral Flute	R40	UNC/UNF USCTI 302A	TiCN
T9 (p.20)	Max. 2.5xD Blind Hole	HSS-E	1P-2P	Spiral Flute	R40	M/MF USCTI 302A	Bright
T9-C (p.20)	Max. 2.5xD Blind Hole	HSS-E	1P-2P	Spiral Flute	R40	M/MF USCTI 302A	TiCN
T1-S (p.21)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	UNC/UNF DIN Length-ANSI Shank	Steam Oxide
T1-C (p.21)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	UNC/UNF DIN Length-ANSI Shank	TiCN
T1-F (p.21)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	UNC/UNF DIN Length-ANSI Shank	FSH (NEW)
TA-S (p.22)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	M/MF DIN Length-ANSI Shank	Steam Oxide
TA-C (p.22)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	M/MF DIN Length-ANSI Shank	TiCN
TA-F (p.22)	Max. 2.5xD Blind Hole	HSS-E	2P-3P	Spiral Flute	R40	M/MF DIN Length-ANSI Shank	FSH (NEW)

Thread/standard rows printed in the chart: M – USCTI 302A; M/MF – USCTI 302A, DIN Length-ANSI Shank; UNC – USCTI Long Shank; UNC/UNF – USCTI 302, USCTI 302A, DIN Length-ANSI Shank

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	Examples	T5	T5-S	T5-C	T6
P	1	Non-alloy steel	About 0.15% C	Annealed	125		S15C, C15, 1015	○ (25-50)	○ (25-50)	○ (50-80)	○ (25-50)
P	2	Non-alloy steel	About 0.45% C	Annealed	190	13	S45C, C45, 1045	◎ (25-50)	◎ (25-50)	◎ (50-80)	◎ (25-50)
P	3	Non-alloy steel	About 0.45% C	Quenched & Tempered	250	25		◎ (25-50)	◎ (25-50)	◎ (50-80)	◎ (25-50)
P	4	Non-alloy steel	About 0.75% C	Annealed	270	28	SK5, Ck75, 1080	◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)
P	5	Non-alloy steel	About 0.75% C	Quenched & Tempered	300	32		◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)
P	6	Low alloy steel		Annealed	180	10	SCM440, 42CrMo4, 410	◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)
P	7	Low alloy steel		Quenched & Tempered	275	29		◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)
P	8	Low alloy steel		Quenched & Tempered	300	32		◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)
P	9	Low alloy steel		Quenched & Tempered	350	38		◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)
P	10	High alloyed steel, and tool steel		Annealed	200	15	SKD, D2	○ (6-30)	○ (6-30)	○ (10-35)	○ (6-30)
P	11	High alloyed steel, and tool steel		Quenched & Tempered	325	35	SKH, SUH, M42				
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	SUS 420, X40Cr13, 420	◎ (12-35)	◎ (12-35)	◎ (20-50)	◎ (12-35)
M	13	Stainless steel	Martensitic	Quenched & Tempered	240	23		◎ (12-35)	◎ (12-35)	◎ (20-50)	◎ (12-35)
M	14	Stainless steel		Austenitic	180	10	SUS 316, 316, X5CrNiMo 17 12 2	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)
K	15	Grey cast iron	Pearlitic / Ferritic		180	10	FC, GG, EN-GJL-250	◎ (35-50)	◎ (35-50)	◎ (50-65)	◎ (35-50)
K	16	Grey cast iron	Pearlitic (Martensitic)		260	26		◎ (35-50)	◎ (35-50)	◎ (50-65)	◎ (35-50)
K	17	Nodular cast iron	Ferritic		160	3	FCD, GGG, EN-GJS-500-7	◎ (12-45)	◎ (12-45)	◎ (25-55)	◎ (12-45)
K	18	Nodular cast iron	Pearlitic		250	25		◎ (12-45)	◎ (12-45)	◎ (25-55)	◎ (12-45)
K	19	Malleable cast iron	Ferritic		130		FCMW, FCMP, GTS, GJMB350-10				
K	20	Malleable cast iron	Pearlitic		230	21					
N	21	Aluminum-wrought alloy	Not Curable		60		SAE 1000, AlMg 1, 3.3315				
N	22	Aluminum-wrought alloy	Curable	Hardened	100		SAE 7050, AlCuMg 1, 3.1325				
N	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		ADC12, G-AlSi12, 3.2581	◎ (40-65)		◎ (45-90)	◎ (40-65)
N	24	Aluminum-cast, alloyed	≤ 12% Si, Curable	Hardened	90		C4BS, G-AlSi10Mg, 3.2381				
N	25	Aluminum-cast, alloyed	> 12% Si, Not Curable		130						
N	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		CuZn36Pb 3, 2.0375	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)
N	27	Copper and Copper Alloys (Bronze / Brass)	CuZn, CuSnZn (Brass)		90		CuZn 15, 2.0240	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)
N	28	Copper and Copper Alloys (Bronze / Brass)	CuSn, lead-free copper and electrolytic copper		100		G-CuZn40Fe, 2.0590	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)
N	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				CFRP				
N	30	Non Metallic Materials	Rubber, Wood, etc.								
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	X12 NiCrSi 36-16, 1.4864				
S	32	Heat Resistant Super Alloys	Fe Based	Cured	280	30					
S	33	Heat Resistant Super Alloys	Ni or Co Based	Annealed	250	25	Inconel 718, NiCr20TiAl, 2.4631				
S	34	Heat Resistant Super Alloys	Ni or Co Based	Cured	350	38	NiCu30Al, 2.4375				
S	35	Heat Resistant Super Alloys	Ni or Co Based	Cast	320	34	G-X120Mn12, 1.3401				
S	36	Titanium Alloys	Pure Titanium		400 Rm						
S	37	Titanium Alloys	Alpha + Beta Alloys	Hardened	1050 Rm		TiAl6V4, 3.7165				
H	38	Hardened steel		Hardened	550	55	SK3				
H	39	Hardened steel		Hardened	630	60					
H	40	Chilled Cast Iron		Cast	400	42					
H	41	Hardened Cast Iron		Hardened	550	55					

ISO	VDI 3323	T6-N	T8	T8-N	T7	T7-C	T9	T9-C	T1-S	T1-C	T1-F	TA-S	TA-C	TA-F
P	1	○ (50-80)	○ (25-50)	○ (50-80)	○ (25-50)	○ (50-80)	○ (25-50)	○ (50-80)	○ (25-50)	○ (50-80)	○ (50-80)	○ (25-50)	○ (50-80)	○ (50-80)
P	2	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (50-80)
P	3	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (50-80)
P	4	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)
P	5	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)
P	6	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)
P	7	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)
P	8	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)
P	9	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)
P	10	○ (10-35)	○ (6-30)	○ (10-35)	○ (6-30)	○ (10-35)	○ (6-30)	○ (10-35)	○ (6-30)	○ (10-35)	○ (10-35)	○ (6-30)	○ (10-35)	○ (10-35)
P	11													
M	12	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (20-50)
M	13	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (20-50)
M	14	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)
K	15	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (50-65)
K	16	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (50-65)
K	17	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (25-55)
K	18	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (25-55)
K	19													
K	20													
N	21													
N	22													
N	23	◎ (45-90)	◎ (40-65)	◎ (45-90)	◎ (40-65)	◎ (45-90)	◎ (40-65)	◎ (45-90)		◎ (45-90)	◎ (45-90)		◎ (45-90)	◎ (45-90)
N	24													
N	25													
N	26	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)
N	27	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)
N	28	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)
N	29													
N	30													
S	31													
S	32													
S	33													
S	34													
S	35													
S	36													
S	37													
H	38													
H	39													
H	40													
H	41													

SELECTION GUIDE

HSS-E COMBO TAPS

HSS-E Taps for Multi-Purpose

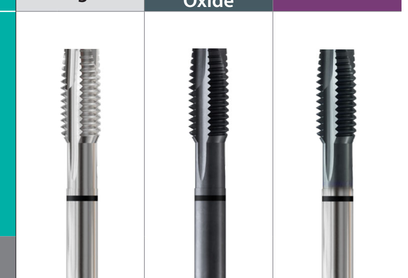
Please visit **globalyg1.com/mat** for material search

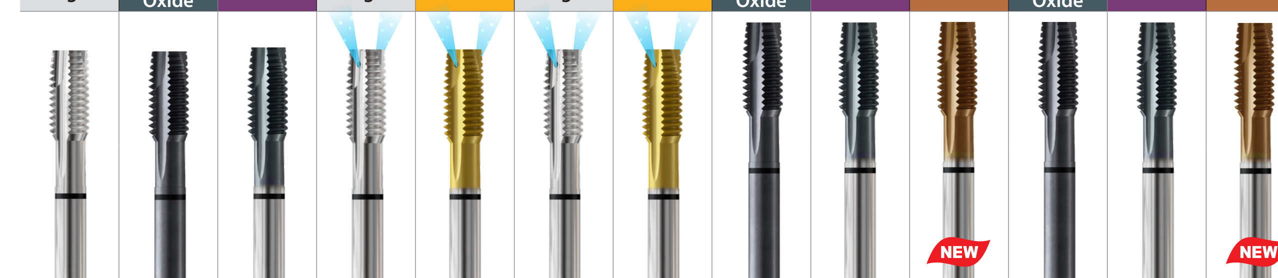
◎ : Excellent ○ : Good

HOLE TYPE	Max. 3.0xD Through Hole
TOOL MATERIAL	HSS-E
CHAMFER LEAD	4P-5P
FLUTE TYPE	Spiral Point
SPIRAL FLUTE ANGLE	-

Thread	Standard																
M	USCTI 302A										TH (p.31)	TH-N (p.31)						
M/MF	USCTI 302A				T3 (p.28~29)	T3-S (p.28~29)	T3-C (p.28~29)										
M/MF	DIN Length-ANSI Shank															TK-S (p.34)	TK-C (p.34)	TK-F (p.34)
UNC	USCTI Long Shank																
UNC/UNF	USCTI 302																
UNC/UNF	USCTI 302A	T4 (p.23~27)	T4-S (p.23~27)	T4-C (p.23~27)				TB (p.30)	TB-N (p.30)								
UNC/UNF	DIN Length-ANSI Shank											TC-S (p32~33)	TC-C (p32~33)	TC-F (p32~33)			
SURFACE TREATMENT / COATING		Bright	Steam Oxide	TiCN	Bright	Steam Oxide	TiCN	Bright	TiN	Bright	TiN	Steam Oxide	TiCN	FSH	Steam Oxide	TiCN	FSH

MODEL





ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	Examples	T4	T4-S	T4-C
P	1	Non-alloy steel	About 0.15% C	Annealed	125		S15C, C15, 1015	○ (25-50)	○ (25-50)	○ (50-80)
	2		About 0.45% C	Annealed	190	13	S45C, C45, 1045	◎ (25-50)	◎ (25-50)	◎ (50-80)
	3		About 0.45% C	Quenched & Tempered	250	25		◎ (25-50)	◎ (25-50)	◎ (50-80)
	4		About 0.75% C	Annealed	270	28	SK5, Ck75, 1080	◎ (6-30)	◎ (6-30)	◎ (10-35)
	5		About 0.75% C	Quenched & Tempered	300	32		◎ (6-30)	◎ (6-30)	◎ (10-35)
	6	Low alloy steel		Annealed	180	10	SCM440, 42CrMo4, 410	◎ (6-30)	◎ (6-30)	◎ (10-35)
	7			Quenched & Tempered	275	29		◎ (6-30)	◎ (6-30)	◎ (10-35)
	8			Quenched & Tempered	300	32		◎ (6-30)	◎ (6-30)	◎ (10-35)
	9			Quenched & Tempered	350	38		◎ (6-30)	◎ (6-30)	◎ (10-35)
	10	High alloyed steel, and tool steel		Annealed	200	15	SKD, D2	○ (6-30)	○ (6-30)	○ (10-35)
	11			Quenched & Tempered	325	35	SKH, SUH, M42			
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	SUS 420, X40Cr13, 420	◎ (12-35)	◎ (12-35)	◎ (20-50)
	13		Martensitic	Quenched & Tempered	240	23		◎ (12-35)	◎ (12-35)	◎ (20-50)
	14			Austenitic	180	10	SUS 316, 316, X5CrNiMo 17 12 2	◎ (12-15)	◎ (12-15)	◎ (12-15)
K	15	Grey cast iron	Pearlitic / Ferritic		180	10	FC, GG, EN-GJL-250	◎ (35-50)	◎ (35-50)	◎ (50-65)
	16		Pearlitic (Martensitic)		260	26		◎ (35-50)	◎ (35-50)	◎ (50-65)
	17	Nodular cast iron	Ferritic		160	3	FCD, GGG, EN-GJS-500-7	◎ (12-45)	◎ (12-45)	◎ (25-55)
	18		Pearlitic		250	25		◎ (12-45)	◎ (12-45)	◎ (25-55)
	19	Malleable cast iron	Ferritic		130		FCMW, FCMP, GTS, GJMB350-10			
	20		Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60		SAE 1000, AlMg 1, 3.3315			
	22		Curable	Hardened	100		SAE 7050, AlCuMg 1, 3.1325			
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		ADC12, G-AlSi12, 3.2581	◎ (40-65)		◎ (45-90)
	24		≤ 12% Si, Curable	Hardened	90		C4BS, G-AlSi10Mg, 3.2381			
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		CuZn36Pb 3, 2.0375	◎ (30-65)	◎ (30-65)	◎ (30-65)
	27		CuZn, CuSnZn (Brass)		90		CuZn 15, 2.0240	◎ (30-65)	◎ (30-65)	◎ (30-65)
	28		CuSn, lead-free copper and electrolytic copper		100		G-CuZn40Fe, 2.0590	◎ (30-65)	◎ (30-65)	◎ (30-65)
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic				CFRP			
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	X12 NiCrSi 36-16, 1.4864			
	32			Cured	280	30				
	33		Ni or Co Based	Annealed	250	25	Inconel 718, NiCr20TiAl, 2.4631			
	34			Cured	350	38	NiCu30Al, 2.4375			
	35			Cast	320	34	G-X120Mn12, 1.3401			
	36	Titanium Alloys	Pure Titanium		400 Rm					
	37		Alpha + Beta Alloys	Hardened	1050 Rm		TiAl6V4, 3.7165			
H	38	Hardened steel		Hardened	550	55	SK3			
	39			Hardened	630	60				
	40	Chilled Cast Iron		Cast	400	42				
	41	Hardened Cast Iron		Hardened	550	55				

VDI 3323	T3	T3-S	T3-C	TB	TB-N	TH	TH-N	TC-S	TC-C	TC-F	TK-S	TK-C	TK-F	ISO
1	○ (25-50)	○ (25-50)	○ (50-80)	○ (25-50)	○ (50-80)	○ (25-50)	○ (50-80)	○ (25-50)	○ (50-80)	○ (50-80)	○ (25-50)	○ (50-80)	○ (50-80)	P
2	◎ (25-50)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (50-80)	
3	◎ (25-50)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (50-80)	◎ (25-50)	◎ (50-80)	◎ (50-80)	
4	◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	
5	◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	
6	◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	
7	◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	
8	◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	
9	◎ (6-30)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	◎ (6-30)	◎ (10-35)	◎ (10-35)	
10	○ (6-30)	○ (6-30)	○ (10-35)	○ (6-30)	○ (10-35)	○ (6-30)	○ (10-35)	○ (6-30)	○ (10-35)	○ (10-35)	○ (6-30)	○ (10-35)	○ (10-35)	
11														
12	◎ (12-35)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (20-50)	M
13	◎ (12-35)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (20-50)	◎ (12-35)	◎ (20-50)	◎ (20-50)	
14	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	◎ (12-15)	
15	◎ (35-50)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (50-65)	K
16	◎ (35-50)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (50-65)	◎ (35-50)	◎ (50-65)	◎ (50-65)	
17	◎ (12-45)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (25-55)	
18	◎ (12-45)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (25-55)	◎ (12-45)	◎ (25-55)	◎ (25-55)	
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22														
23	◎ (40-65)		◎ (45-90)	◎ (40-65)	◎ (45-90)	◎ (40-65)	◎ (45-90)		◎ (45-90)	◎ (45-90)		◎ (45-90)	◎ (45-90)	
24														
25														
26	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	
27	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	
28	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	◎ (30-65)	
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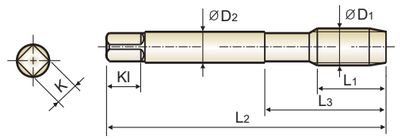
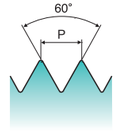
Spiral Flute Tap for Multi-Purpose

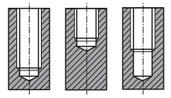
Bright **T2** | Steam Oxide **T2-S** | SERIES TiCN **T2-C**





Thread Depth / Hole Type

2.5×D



Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 2P~3P | Bright | Steam Oxide | TiCN | R40 p.5

Unit : Inch

Size D1	TPI	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
#2	56UNC	T2082	T2082S	T2082C	H2	1.752	.157	.433	.141	.110	.190	2
#3	48UNC	T2122	T2122S	T2122C	H2	1.811	.197	.492	.141	.110	.190	2
#4	40UNC	T2162	T2162S	T2162C	H2	1.874	.236	.563	.141	.110	.190	2
#4	40UNC	T2163	T2163S	T2163C	H3	1.874	.236	.563	.141	.110	.190	2
#4	40UNC	T2164	T2164S	T2164C	H4	1.874	.236	.563	.141	.110	.190	2
#4	40UNC	T2165	T2165S	T2165C	H5	1.874	.236	.563	.141	.110	.190	2
#4	48UNF	T2182	T2182S	T2182C	H2	1.874	.236	.563	.141	.110	.190	2
#5	40UNC	T2202	T2202S	T2202C	H2	1.937	.236	.626	.141	.110	.190	3
#5	44UNF	T2222	T2222S	T2222C	H2	1.937	.236	.626	.141	.110	.190	3
#6	32UNC	T2242	T2242S	T2242C	H2	2.000	.276	.689	.141	.110	.190	3
#6	32UNC	T2243	T2243S	T2243C	H3	2.000	.276	.689	.141	.110	.190	3
#6	32UNC	T2245	T2245S	T2245C	H5	2.000	.276	.689	.141	.110	.190	3
#6	32UNC	T2247	T2247S	T2247C	H7	2.000	.276	.689	.141	.110	.190	3
#6	32UNC	T224A	T224AS	T224AC	H11	2.000	.276	.689	.141	.110	.190	3
#6	40UNF	T2262	T2262S	T2262C	H2	2.000	.276	.689	.141	.110	.190	3
#8	32UNC	T2282	T2282S	T2282C	H2	2.126	.276	.752	.168	.131	.250	3
#8	32UNC	T2283	T2283S	T2283C	H3	2.126	.276	.752	.168	.131	.250	3
#8	32UNC	T2285	T2285S	T2285C	H5	2.126	.276	.752	.168	.131	.250	3
#8	32UNC	T2287	T2287S	T2287C	H7	2.126	.276	.752	.168	.131	.250	3
#8	32UNC	T228A	T228AS	T228AC	H11	2.126	.276	.752	.168	.131	.250	3
#8	36UNF	T2302	T2302S	T2302C	H2	2.126	.276	.752	.168	.131	.250	3
#10	24UNC	T2323	T2323S	T2323C	H3	2.374	.354	.906	.194	.152	.250	3
#10	24UNC	T2325	T2325S	T2325C	H5	2.374	.354	.906	.194	.152	.250	3
#10	24UNC	T232A	T232AS	T232AC	H11	2.374	.354	.906	.194	.152	.250	3
#10	32UNF	T2342	T2342S	T2342C	H2	2.374	.276	.906	.194	.152	.250	3
#10	32UNF	T2343	T2343S	T2343C	H3	2.374	.276	.906	.194	.152	.250	3
#10	32UNF	T2345	T2345S	T2345C	H5	2.374	.276	.906	.194	.152	.250	3
#10	32UNF	T2347	T2347S	T2347C	H7	2.374	.276	.906	.194	.152	.250	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

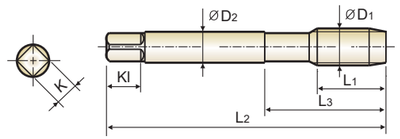
◎ : Excellent ○ : Good

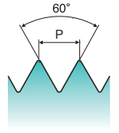
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

Spiral Flute Tap for Multi-Purpose

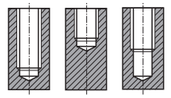
Bright **T2** | Steam Oxide **T2-S** | SERIES TiCN **T2-C**





Thread Depth / Hole Type

2.5×D



Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 2P~3P | Bright | Steam Oxide | TiCN | R40 p.5

Unit : Inch

Size D1	TPI	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
#10	32UNF	T234A	T234AS	T234AC	H11	2.374	.276	.906	.194	.152	.250	3
#12	24UNC	T2363	T2363S	T2363C	H3	2.374	.354	.906	.220	.165	.280	3
#12	28UNF	T2383	T2383S	T2383C	H3	2.374	.276	.906	.220	.165	.280	3
1/4	20UNC	T2403	T2403S	T2403C	H3	2.500	.433	1.000	.255	.191	.310	3
1/4	20UNC	T2405	T2405S	T2405C	H5	2.500	.433	1.000	.255	.191	.310	3
1/4	20UNC	T240A	T240AS	T240AC	H11	2.500	.433	1.000	.255	.191	.310	3
1/4	28UNF	T2422	T2422S	T2422C	H2	2.500	.354	1.000	.255	.191	.310	3
1/4	28UNF	T2423	T2423S	T2423C	H3	2.500	.354	1.000	.255	.191	.310	3
1/4	28UNF	T2424	T2424S	T2424C	H4	2.500	.354	1.000	.255	.191	.310	3
1/4	28UNF	T2425	T2425S	T2425C	H5	2.500	.354	1.000	.255	.191	.310	3
1/4	28UNF	T2427	T2427S	T2427C	H7	2.500	.354	1.000	.255	.191	.310	3
1/4	28UNF	T242A	T242AS	T242AC	H11	2.500	.354	1.000	.255	.191	.310	3
5/16	18UNC	T2442	T2442S	T2442C	H2	2.720	.472	1.126	.318	.238	.380	3
5/16	18UNC	T2443	T2443S	T2443C	H3	2.720	.472	1.126	.318	.238	.380	3
5/16	18UNC	T2445	T2445S	T2445C	H5	2.720	.472	1.126	.318	.238	.380	3
5/16	18UNC	T2447	T2447S	T2447C	H7	2.720	.472	1.126	.318	.238	.380	3
5/16	18UNC	T244A	T244AS	T244AC	H11	2.720	.472	1.126	.318	.238	.380	3
5/16	24UNF	T2462	T2462S	T2462C	H2	2.720	.394	1.126	.318	.238	.380	3
5/16	24UNF	T2463	T2463S	T2463C	H3	2.720	.394	1.126	.318	.238	.380	3
5/16	24UNF	T2464	T2464S	T2464C	H4	2.720	.394	1.126	.318	.238	.380	3
5/16	24UNF	T2465	T2465S	T2465C	H5	2.720	.394	1.126	.318	.238	.380	3
5/16	24UNF	T2466	T2466S	T2466C	H6	2.720	.394	1.126	.318	.238	.380	3
5/16	24UNF	T2467	T2467S	T2467C	H7	2.720	.394	1.126	.318	.238	.380	3
5/16	24UNF	T246A	T246AS	T246AC	H11	2.720	.394	1.126	.318	.238	.380	3
3/8	16UNC	T2482	T2482S	T2482C	H2	2.937	.551	1.252	.381	.286	.440	3
3/8	16UNC	T2483	T2483S	T2483C	H3	2.937	.551	1.252	.381	.286	.440	3
3/8	16UNC	T2485	T2485S	T2485C	H5	2.937	.551	1.252	.381	.286	.440	3
3/8	16UNC	T2487	T2487S	T2487C	H7	2.937	.551	1.252	.381	.286	.440	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

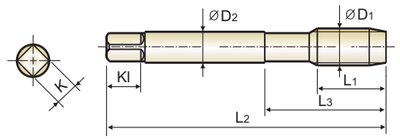
◎ : Excellent ○ : Good

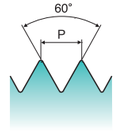
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

Spiral Flute Tap for Multi-Purpose

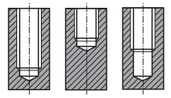
Bright **T2** | Steam Oxide **T2-S** | SERIES TiCN **T2-C**





Thread Depth / Hole Type

2.5×D



Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 2P~3P | Bright | Steam Oxide | TiCN | R40 p.5

Unit : Inch

Size D1	TPI	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
3/8	16UNC	T248A	T248AS	T248AC	H11	2.937	.551	1.252	.381	.286	.440	3
3/8	24UNF	T2502	T2502S	T2502C	H2	2.937	.394	1.252	.381	.286	.440	3
3/8	24UNF	T2503	T2503S	T2503C	H3	2.937	.394	1.252	.381	.286	.440	3
3/8	24UNF	T2504	T2504S	T2504C	H4	2.937	.394	1.252	.381	.286	.440	3
3/8	24UNF	T2505	T2505S	T2505C	H5	2.937	.394	1.252	.381	.286	.440	3
3/8	24UNF	T2507	T2507S	T2507C	H7	2.937	.394	1.252	.381	.286	.440	3
3/8	24UNF	T250A	T250AS	T250AC	H11	2.937	.394	1.252	.381	.286	.440	3
7/16	14UNC	T2523	T2523S	T2523C	H3	3.157	.591	1.850	.323	.242	.410	3
7/16	14UNC	T2525	T2525S	T2525C	H5	3.157	.591	1.850	.323	.242	.410	3
7/16	14UNC	T2527	T2527S	T2527C	H7	3.157	.591	1.850	.323	.242	.410	3
7/16	14UNC	T252A	T252AS	T252AC	H11	3.157	.591	1.850	.323	.242	.410	3
7/16	20UNF	T2543	T2543S	T2543C	H3	3.157	.472	1.850	.323	.242	.410	3
7/16	20UNF	T2545	T2545S	T2545C	H5	3.157	.472	1.850	.323	.242	.410	3
7/16	20UNF	T2547	T2547S	T2547C	H7	3.157	.472	1.850	.323	.242	.410	3
7/16	20UNF	T254A	T254AS	T254AC	H11	3.157	.472	1.850	.323	.242	.410	3
1/2	13UNC	T2563	T2563S	T2563C	H3	3.374	.630	2.067	.367	.275	.440	3
1/2	13UNC	T2565	T2565S	T2565C	H5	3.374	.630	2.067	.367	.275	.440	3
1/2	13UNC	T2567	T2567S	T2567C	H7	3.374	.630	2.067	.367	.275	.440	3
1/2	13UNC	T256A	T256AS	T256AC	H11	3.374	.630	2.067	.367	.275	.440	3
1/2	20UNF	T2582	T2582S	T2582C	H2	3.374	.472	2.067	.367	.275	.440	3
1/2	20UNF	T2583	T2583S	T2583C	H3	3.374	.472	2.067	.367	.275	.440	3
1/2	20UNF	T2585	T2585S	T2585C	H5	3.374	.472	2.067	.367	.275	.440	3
1/2	20UNF	T2587	T2587S	T2587C	H7	3.374	.472	2.067	.367	.275	.440	3
1/2	20UNF	T258A	T258AS	T258AC	H11	3.374	.472	2.067	.367	.275	.440	3
9/16	12UNC	T2603	T2603S	T2603C	H3	3.594	.709	2.067	.429	.322	.500	3
9/16	12UNC	T2605	T2605S	T2605C	H5	3.594	.709	2.067	.429	.322	.500	3
9/16	18UNF	T2623	T2623S	T2623C	H3	3.594	.512	2.067	.429	.322	.500	3
9/16	18UNF	T2625	T2625S	T2625C	H5	3.594	.512	2.067	.429	.322	.500	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

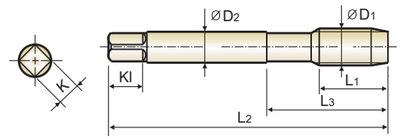
◎ : Excellent ○ : Good

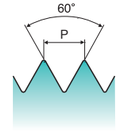
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

Spiral Flute Tap for Multi-Purpose

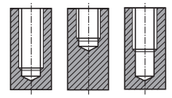
Bright **T2** | Steam Oxide **T2-S** | SERIES TiCN **T2-C**





Thread Depth / Hole Type

2.5×D



Material groups MU | HSS-E | UNC UNF | USCTI 302A | 2P~3P | Bright | Steam Oxide | TiCN | R40 p.5

Unit : Inch

Size D1	TPI	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
5/8	11UNC	T2645	T2645S	T2645C	H5	3.811	.748	2.205	.480	.360	.560	4
5/8	18UNF	T2663	T2663S	T2663C	H3	3.811	.512	2.205	.480	.360	.560	4
5/8	18UNF	T2665	T2665S	T2665C	H5	3.811	.512	2.205	.480	.360	.560	4
3/4	10UNC	T2703	T2703S	T2703C	H3	4.252	.827	2.480	.590	.442	.690	4
3/4	10UNC	T2705	T2705S	T2705C	H5	4.252	.827	2.480	.590	.442	.690	4
3/4	16UNF	T2723	T2723S	T2723C	H3	4.252	.591	2.480	.590	.442	.690	4
3/4	16UNF	T2725	T2725S	T2725C	H5	4.252	.591	2.480	.590	.442	.690	4
7/8	9UNC	T2746	T2746S	T2746C	H6	4.689	.827	2.815	.697	.523	.750	4
7/8	14UNF	T2764	T2764S	T2764C	H4	4.689	.709	2.815	.697	.523	.750	4
7/8	14UNF	T2766	T2766S	T2766C	H6	4.689	.709	2.815	.697	.523	.750	4
1"	8UNC	T2786	T2786S	T2786C	H6	5.126	.984	3.091	.800	.600	.810	4
1"	12UNF	T2806	T2806S	T2806C	H6	5.126	.709	3.091	.800	.600	.810	4
1-1/8	7UNC	T2826	T2826S	T2826C	H6	5.437	1.024	3.150	.896	.672	.880	4
1-1/8	8UN	T2836	T2836S	T2836C	H6	5.437	1.024	3.150	.896	.672	.880	4
1-1/8	12UNF	T2845	T2845S	T2845C	H5	5.437	.787	3.150	.896	.672	.880	4
1-1/4	7UNC	T2866	T2866S	T2866C	H6	5.752	1.024	3.150	1.021	.766	1.00	4
1-1/4	8UN	T2876	T2876S	T2876C	H6	5.752	1.024	3.150	1.021	.766	1.00	4
1-1/4	12UNF	T2885	T2885S	T2885C	H5	5.752	.787	3.150	1.021	.766	1.00	4
1-3/8	6UNC	T2906	T2906S	T2906C	H6	6.063	1.181	3.583	1.108	.831	1.06	4
1-3/8	8UN	T2916	T2916S	T2916C	H6	6.063	1.181	3.583	1.108	.831	1.06	4
1-3/8	12UNF	T2925	T2925S	T2925C	H5	6.063	.866	3.583	1.108	.831	1.06	4
1-1/2	6UNC	T2946	T2946S	T2946C	H6	6.374	1.181	3.583	1.233	.925	1.13	4
1-1/2	8UN	T2956	T2956S	T2956C	H6	6.374	1.181	3.583	1.233	.925	1.13	4
1-1/2	12UNF	T2965	T2965S	T2965C	H5	6.374	.866	3.583	1.233	.925	1.13	4

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

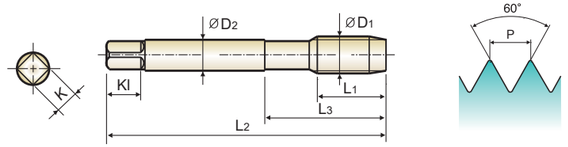
◎ : Excellent ○ : Good

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

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

Spiral Flute Tap for Multi-Purpose

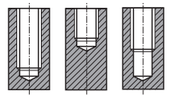
Bright **T5** | Steam Oxide **T5-S** | TiCN **T5-C** SERIES



Material groups **MU** | HSS-E | M/MF | USCTI 302A | 2P~3P | Bright | Steam Oxide | TiCN | R40 p.6

Thread Depth / Hole Type

2.5×D



Unit : Inch

Size D1	Pitch P	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
M3	x 0.5	**T5203**	**T5203S**	**T5203C**	D3	1.937	.197	.646	.141	.110	.188	3
M3	x 0.5	**T520A**	**T520AS**	**T520AC**	D11	1.937	.197	.646	.141	.110	.188	3
M3.5	x 0.6	**T5224**	**T5224S**	**T5224C**	D4	2.000	.276	.709	.141	.110	.188	3
M3.5	x 0.6	**T522A**	**T522AS**	**T522AC**	D11	2.000	.276	.709	.141	.110	.188	3
M4	x 0.7	**T5244**	**T5244S**	**T5244C**	D4	2.126	.276	.768	.168	.131	.250	3
M4	x 0.7	**T524A**	**T524AS**	**T524AC**	D11	2.126	.276	.768	.168	.131	.250	3
M5	x 0.8	**T5284**	**T5284S**	**T5284C**	D4	2.374	.354	.933	.194	.152	.250	3
M5	x 0.8	**T528A**	**T528AS**	**T528AC**	D11	2.374	.354	.933	.194	.152	.250	3
M6	x 1.0	**T5315**	**T5315S**	**T5315C**	D5	2.500	.433	1.000	.255	.191	.312	3
M6	x 1.0	**T531A**	**T531AS**	**T531AC**	D11	2.500	.433	1.000	.255	.191	.312	3
M7	x 1.0	**T5345**	**T5345S**	**T5345C**	D5	2.720	.433	1.126	.318	.238	.375	3
M7	x 1.0	**T534A**	**T534AS**	**T534AC**	D11	2.720	.433	1.126	.318	.238	.375	3
M8	x 1.25	**T5365**	**T5365S**	**T5365C**	D5	2.720	.472	1.126	.318	.238	.375	3
M8	x 1.25	**T536A**	**T536AS**	**T536AC**	D11	2.720	.472	1.126	.318	.238	.375	3
M8	x 1.0	**T5375**	**T5375S**	**T5375C**	D5	2.720	.433	1.126	.318	.238	.375	3
M8	x 1.0	**T537A**	**T537AS**	**T537AC**	D11	2.720	.433	1.126	.318	.238	.375	3
M10	x 1.5	**T5426**	**T5426S**	**T5426C**	D6	2.937	.512	1.252	.381	.286	.438	3
M10	x 1.5	**T542A**	**T542AS**	**T542AC**	D11	2.937	.512	1.252	.381	.286	.438	3
M10	x 1.25	**T5435**	**T5435S**	**T5435C**	D5	2.937	.472	1.252	.381	.286	.438	3
M10	x 1.25	**T543A**	**T543AS**	**T543AC**	D11	2.937	.472	1.252	.381	.286	.438	3
M10	x 1.0	**T5445**	**T5445S**	**T5445C**	D5	2.937	.433	1.252	.381	.286	.438	3
M10	x 1.0	**T544A**	**T544AS**	**T544AC**	D11	2.937	.433	1.252	.381	.286	.438	3
M12	x 1.75	**T5506**	**T5506S**	**T5506C**	D6	3.374	.591	2.067	.367	.275	.438	3
M12	x 1.75	**T550A**	**T550AS**	**T550AC**	D11	3.374	.591	2.067	.367	.275	.438	3
M12	x 1.5	**T5516**	**T5516S**	**T5516C**	D6	3.374	.591	2.067	.367	.275	.438	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

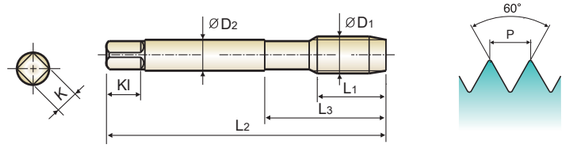
◎ : Excellent ○ : Good

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

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

Spiral Flute Tap for Multi-Purpose

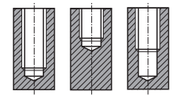
Bright **T5** | Steam Oxide **T5-S** | TiCN **T5-C** SERIES



Material groups **MU** | HSS-E | M/MF | USCTI 302A | 2P~3P | Bright | Steam Oxide | TiCN | R40 p.6

Thread Depth / Hole Type

2.5×D



Unit : Inch

Size D1	Pitch P	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
M12	x 1.5	**T551A**	**T551AS**	**T551AC**	D11	3.374	.591	2.067	.367	.275	.438	3
M12	x 1.25	**T5525**	**T5525S**	**T5525C**	D5	3.374	.551	2.067	.367	.275	.438	3
M12	x 1.25	**T552A**	**T552AS**	**T552AC**	D11	3.374	.551	2.067	.367	.275	.438	3
M14	x 2.0	**T5547**	**T5547S**	**T5547C**	D7	3.594	.709	2.067	.429	.322	.500	3
M14	x 1.5	**T5556**	**T5556S**	**T5556C**	D6	3.594	.551	2.067	.429	.322	.500	3
M16	x 2.0	**T5607**	**T5607S**	**T5607C**	D7	3.811	.709	2.205	.480	.360	.562	3
M16	x 1.5	**T5616**	**T5616S**	**T5616C**	D6	3.811	.551	2.205	.480	.360	.562	3
M18	x 2.5	**T5657**	**T5657S**	**T5657C**	D7	4.031	.787	2.205	.542	.406	.625	4
M18	x 1.5	**T5676**	**T5676S**	**T5676C**	D6	4.031	.551	2.205	.542	.406	.625	4
M20	x 2.5	**T5707**	**T5707S**	**T5707C**	D7	4.469	.787	2.480	.652	.489	.688	4
M20	x 1.5	**T5726**	**T5726S**	**T5726C**	D6	4.469	.551	2.480	.652	.489	.688	4
M22	x 2.5	**T5747**	**T5747S**	**T5747C**	D7	4.689	.787	2.815	.697	.523	.750	4
M22	x 1.5	**T5766**	**T5766S**	**T5766C**	D6	4.689	.551	2.815	.697	.523	.750	4
M24	x 3.0	**T5788**	**T5788S**	**T5788C**	D8	4.906	.945	2.815	.760	.570	.750	4
M24	x 1.5	**T5806**	**T5806S**	**T5806C**	D6	4.906	.551	2.815	.760	.570	.750	4
M27	x 3.0	**T5866**	**T5866S**	**T5866C**	D6	5.126	.945	3.091	.896	.672	.880	4
M27	x 3.0	**T5868**	**T5868S**	**T5868C**	D8	5.126	.945	3.091	.896	.672	.880	4
M27	x 3.0	**T5869**	**T5869S**	**T5869C**	D9	5.126	.945	3.091	.896	.672	.880	4
M27	x 1.5	**T5886**	**T5886S**	**T5886C**	D6	5.126	.591	3.091	.896	.672	.880	4

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

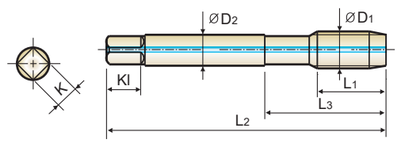
◎ : Excellent ○ : Good

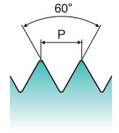
ISO	P																			M			K						
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron									
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20									
HRc		13	25	28	32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

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

SERIES
Bright **T6**
TiN **T6-N**

Spiral Flute Tap for Multi-Purpose

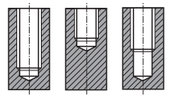




with Internal Coolant

Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 2P~3P | Bright | TiN | R40 | p.6-7

Thread Depth / Hole Type
2.5×D



Unit : Inch

Size D1	TPI	EDP No. Bright	EDP No. TiN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
1/4	- 20UNC	**T6405**	**T6405N**	H5	2.500	.433	1.000	.255	.191	.310	3
1/4	- 28UNF	**T6424**	**T6424N**	H4	2.500	.354	1.000	.255	.191	.310	3
5/16	- 18UNC	**T6445**	**T6445N**	H5	2.720	.472	1.126	.318	.238	.380	3
5/16	- 24UNF	**T6464**	**T6464N**	H4	2.720	.394	1.126	.318	.238	.380	3
3/8	- 16UNC	**T6485**	**T6485N**	H5	2.937	.551	1.252	.381	.286	.440	3
3/8	- 24UNF	**T6504**	**T6504N**	H4	2.937	.394	1.252	.381	.286	.440	3
7/16	- 14UNC	**T6525**	**T6525N**	H5	3.157	.591	1.850	.323	.242	.410	3
7/16	- 20UNF	**T6545**	**T6545N**	H5	3.157	.472	1.850	.323	.242	.410	3
1/2	- 13UNC	**T6565**	**T6565N**	H5	3.374	.630	2.067	.367	.275	.440	3
1/2	- 20UNF	**T6585**	**T6585N**	H5	3.374	.472	2.067	.367	.275	.440	3
9/16	- 12UNC	**T6605**	**T6605N**	H5	3.594	.709	2.067	.429	.322	.500	3
9/16	- 18UNF	**T6625**	**T6625N**	H5	3.594	.512	2.067	.429	.322	.500	3
5/8	- 11UNC	**T6645**	**T6645N**	H5	3.811	.748	2.205	.480	.360	.560	4
5/8	- 18UNF	**T6665**	**T6665N**	H5	3.811	.512	2.205	.480	.360	.560	4
3/4	- 10UNC	**T6705**	**T6705N**	H5	4.252	.827	2.480	.590	.442	.690	4
3/4	- 16UNF	**T6725**	**T6725N**	H5	4.252	.591	2.480	.590	.442	.690	4
7/8	- 9UNC	**T6746**	**T6746N**	H6	4.689	.827	2.815	.697	.523	.750	4
7/8	- 14UNF	**T6766**	**T6766N**	H6	4.689	.709	2.815	.697	.523	.750	4
1"	- 8UNC	**T6786**	**T6786N**	H6	5.126	.984	3.091	.800	.600	.810	4
1"	- 12UNF	**T6806**	**T6806N**	H6	5.126	.709	3.091	.800	.600	.810	4

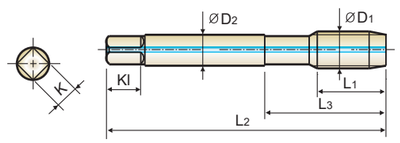
◎ : Excellent ○ : Good

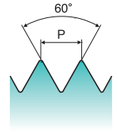
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

TAP Combo
SERIES
Bright **T8**
TiN **T8-N**

Spiral Flute Tap for Multi-Purpose

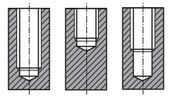




with Internal Coolant

Material groups **MU** | HSS-E | M | USCTI 302A | 2P~3P | Bright | TiN | R40 | p.7

Thread Depth / Hole Type
2.5×D



Unit : Inch

Size D1	Pitch P	EDP No. Bright	EDP No. TiN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
M6	x 1.0	**T8315**	**T8315N**	D5	2.500	.433	1.000	.255	.191	.310	3
M8	x 1.25	**T8365**	**T8365N**	D5	2.720	.472	1.126	.318	.238	.380	3
M10	x 1.5	**T8426**	**T8426N**	D6	2.937	.512	1.252	.381	.286	.440	3
M12	x 1.75	**T8506**	**T8506N**	D6	3.374	.591	2.067	.367	.275	.440	3
M14	x 2.0	**T8547**	**T8547N**	D7	3.594	.709	2.067	.429	.322	.500	3
M16	x 2.0	**T8607**	**T8607N**	D7	3.811	.709	2.205	.480	.360	.560	3
M18	x 2.5	**T8657**	**T8657N**	D7	4.031	.787	2.205	.542	.406	.630	4
M24	x 2.5	**T8707**	**T8707N**	D7	4.469	.787	2.480	.652	.489	.690	4

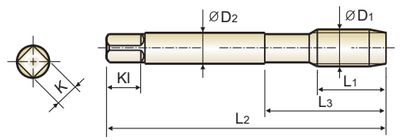
◎ : Excellent ○ : Good

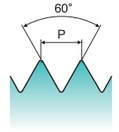
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

SERIES
Bright T7
TiCN T7-C

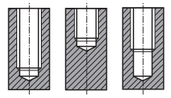
Spiral Flute Tap for Multi-Purpose





Short Chamfer

Thread Depth / Hole Type
2.5×D



Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 1P~2P | Bright | TiCN | R40 | p.7

Unit : Inch

Size D1		TPI	EDP No. Bright	EDP No. TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
#4	-	40UNC	**T7162**	**T7162C**	H2	1.874	.236	.563	.141	.110	.190	2
#4	-	48UNF	**T7182**	**T7182C**	H2	1.874	.236	.563	.141	.110	.190	2
#5	-	40UNC	**T7202**	**T7202C**	H2	1.937	.236	.626	.141	.110	.190	3
#5	-	44UNF	**T7222**	**T7222C**	H2	1.937	.236	.626	.141	.110	.190	3
#6	-	32UNC	**T7243**	**T7243C**	H3	2.000	.276	.689	.141	.110	.190	3
#6	-	40UNF	**T7262**	**T7262C**	H2	2.000	.276	.689	.141	.110	.190	3
#8	-	32UNC	**T7283**	**T7283C**	H3	2.126	.276	.752	.168	.131	.250	3
#8	-	36UNF	**T7302**	**T7302C**	H2	2.126	.276	.752	.168	.131	.250	3
#10	-	24UNC	**T7323**	**T7323C**	H3	2.374	.354	.906	.194	.152	.250	3
#10	-	32UNF	**T7343**	**T7343C**	H3	2.374	.276	.906	.194	.152	.250	3
#12	-	24UNC	**T7363**	**T7363C**	H3	2.374	.354	.906	.220	.165	.280	3
#12	-	28UNF	**T7383**	**T7383C**	H3	2.374	.276	.906	.220	.165	.280	3
1/4	-	20UNC	**T7405**	**T7405C**	H5	2.500	.433	1.000	.255	.191	.310	3
1/4	-	28UNF	**T7424**	**T7424C**	H4	2.500	.354	1.000	.255	.191	.310	3
5/16	-	18UNC	**T7445**	**T7445C**	H5	2.720	.472	1.126	.318	.238	.380	3
5/16	-	24UNF	**T7465**	**T7465C**	H4	2.720	.394	1.126	.318	.238	.380	3
3/8	-	16UNC	**T7485**	**T7485C**	H5	2.937	.551	1.252	.381	.286	.440	3
3/8	-	24UNF	**T7504**	**T7504C**	H4	2.937	.394	1.252	.381	.286	.440	3
7/16	-	14UNC	**T7525**	**T7525C**	H5	3.157	.591	1.850	.323	.242	.410	3
7/16	-	20UNF	**T7545**	**T7545C**	H5	3.157	.472	1.850	.323	.242	.410	3
1/2	-	13UNC	**T7565**	**T7565C**	H5	3.374	.630	2.067	.367	.275	.440	3
1/2	-	20UNF	**T7585**	**T7585C**	H5	3.374	.472	2.067	.367	.275	.440	3
9/16	-	12UNC	**T7605**	**T7605C**	H5	3.594	.709	2.067	.429	.322	.500	3
9/16	-	18UNF	**T7625**	**T7625C**	H5	3.594	.512	2.067	.429	.322	.500	3
5/8	-	11UNC	**T7645**	**T7645C**	H5	3.811	.748	2.205	.480	.360	.560	4
5/8	-	18UNF	**T7665**	**T7665C**	H5	3.811	.512	2.205	.480	.360	.560	4

▶ NEXT PAGE

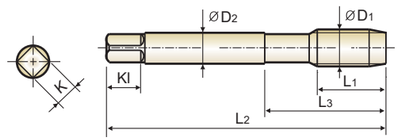
◎ : Excellent ○ : Good

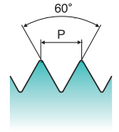
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

SERIES
Bright T7
TiCN T7-C

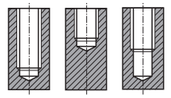
Spiral Flute Tap for Multi-Purpose





Short Chamfer

Thread Depth / Hole Type
2.5×D



Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 1P~2P | Bright | TiCN | R40 p.7

Unit : Inch

Size D1		TPI	EDP No. Bright	EDP No. TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
3/4	-	10UNC	**T7705**	**T7705C**	H5	4.252	.827	2.480	.590	.442	.690	4
3/4	-	16UNF	**T7725**	**T7725C**	H5	4.252	.591	2.480	.590	.442	.690	4
7/8	-	9UNC	**T7746**	**T7746C**	H6	4.689	.827	2.815	.697	.523	.750	4
7/8	-	14UNF	**T7766**	**T7766C**	H6	4.689	.709	2.815	.697	.523	.750	4
1"	-	8UNC	**T7786**	**T7786C**	H6	5.126	.984	3.091	.800	.600	.810	4
1"	-	12UNF	**T7806**	**T7806C**	H6	5.126	.709	3.091	.800	.600	.810	4

◎ : Excellent ○ : Good

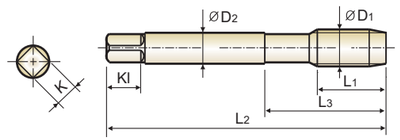
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

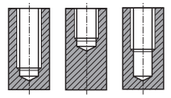
SERIES
Bright **T9**
TiCN **T9-C**

Spiral Flute Tap for Multi-Purpose

Short Chamfer



Thread Depth / Hole Type
2.5×D



Material groups **MU** | HSS-E | M/MF | USCTI 302A | 1P~2P | Bright | TiCN | R40 | p.7

Unit : Inch

Size D1	Pitch P	EDP No. Bright	EDP No. TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
M3	x 0.5	**T9203**	**T9203C**	D3	1.937	.197	.646	.141	.110	.188	3
M3.5	x 0.6	**T9224**	**T9224C**	D4	2.000	.276	.709	.141	.110	.188	3
M4	x 0.7	**T9244**	**T9244C**	D4	2.126	.276	.768	.168	.131	.250	3
M5	x 0.8	**T9284**	**T9284C**	D4	2.374	.354	.933	.194	.152	.250	3
M6	x 1.0	**T9315**	**T9315C**	D5	2.500	.433	1.000	.255	.191	.312	3
M7	x 1.0	**T9345**	**T9345C**	D5	2.720	.433	1.126	.318	.238	.375	3
M8	x 1.25	**T9365**	**T9365C**	D5	2.720	.472	1.126	.318	.238	.375	3
M8	x 1.0	**T9375**	**T9375C**	D5	2.720	.433	1.126	.318	.238	.375	3
M10	x 1.5	**T9426**	**T9426C**	D6	2.937	.512	1.252	.381	.286	.438	3
M10	x 1.25	**T9435**	**T9435C**	D5	2.937	.472	1.252	.381	.286	.438	3
M12	x 1.75	**T9506**	**T9506C**	D6	3.374	.591	2.067	.367	.275	.438	3
M12	x 1.25	**T9525**	**T9525C**	D5	3.374	.551	2.067	.367	.275	.438	3
M14	x 2.0	**T9547**	**T9547C**	D7	3.594	.709	2.067	.429	.322	.500	3
M14	x 1.5	**T9556**	**T9556C**	D6	3.594	.551	2.067	.429	.322	.500	3
M16	x 2.0	**T9607**	**T9607C**	D7	3.811	.709	2.205	.480	.360	.562	3
M16	x 1.5	**T9616**	**T9616C**	D6	3.811	.551	2.205	.480	.360	.562	3
M18	x 2.5	**T9657**	**T9657C**	D7	4.031	.787	2.205	.542	.406	.625	4
M18	x 1.5	**T9676**	**T9676C**	D6	4.031	.551	2.205	.542	.406	.625	4
M20	x 2.5	**T9707**	**T9707C**	D7	4.469	.787	2.480	.652	.489	.688	4
M20	x 1.5	**T9726**	**T9726C**	D6	4.469	.551	2.480	.652	.489	.688	4
M22	x 2.5	**T9747**	**T9747C**	D7	4.689	.787	2.815	.697	.523	.750	4
M22	x 1.5	**T9766**	**T9766C**	D6	4.689	.551	2.815	.697	.523	.750	4
M24	x 3.0	**T9788**	**T9788C**	D8	4.906	.945	2.815	.760	.570	.750	4

◎ : Excellent ○ : Good

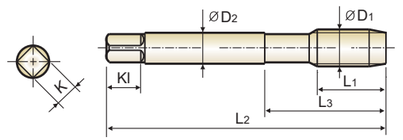
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

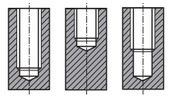
Steam Oxide **T1-S**
TiCN **T1-C**
SERIES FSH **T1-F**

Spiral Flute Tap for Multi-Purpose

DIN Length-ANSI Shank



Thread Depth / Hole Type
2.5×D



Material groups **MU** | HSS-E | UNC UNF | 2P~3P | Steam Oxide | TiCN | FSH | R40 | p.7

Unit : Inch

Size D1	TPI	EDP No. Steam Oxide	EDP No. TiCN	EDP No. FSH (NEW AOSTAP)	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
#2	- 56UNC	**T1082S**	**T1082C**	**T1082F**	H2	1.772	.157	.433	.141	.110	.190	2
#3	- 48UNC	**T1122S**	**T1122C**	**T1122F**	H2	1.969	.197	.492	.141	.110	.190	2
#4	- 40UNC	**T1162S**	**T1162C**	**T1162F**	H2	2.205	.236	.563	.141	.110	.190	2
#4	- 48UNF	**T1182S**	**T1182C**	**T1182F**	H2	2.205	.236	.563	.141	.110	.190	2
#5	- 40UNC	**T1202S**	**T1202C**	**T1202F**	H2	2.205	.236	.626	.141	.110	.190	3
#6	- 32UNC	**T1243S**	**T1243C**	**T1243F**	H3	2.205	.276	.689	.141	.110	.190	3
#6	- 40UNF	**T1262S**	**T1262C**	**T1262F**	H2	2.205	.276	.689	.141	.110	.190	3
#8	- 32UNC	**T1283S**	**T1283C**	**T1283F**	H3	2.480	.276	.752	.168	.131	.250	3
#10	- 24UNC	**T1323S**	**T1323C**	**T1323F**	H3	2.756	.354	.906	.194	.152	.250	3
#10	- 32UNF	**T1343S**	**T1343C**	**T1343F**	H3	2.756	.276	.906	.194	.152	.250	3
#12	- 24UNC	**T1363S**	**T1363C**	**T1363F**	H3	3.150	.354	.906	.220	.165	.280	3
#12	- 28UNF	**T1383S**	**T1383C**	**T1383F**	H3	3.150	.276	.906	.220	.165	.280	3
1/4	- 20UNC	**T1405S**	**T1405C**	**T1405F**	H5	3.150	.433	1.000	.255	.191	.310	3
1/4	- 28UNF	**T1424S**	**T1424C**	**T1424F**	H4	3.150	.354	1.000	.255	.191	.310	3
5/16	- 18UNC	**T1445S**	**T1445C**	**T1445F**	H5	3.543	.472	1.126	.318	.238	.380	3
5/16	- 24UNF	**T1464S**	**T1464C**	**T1464F**	H4	3.543	.394	1.126	.318	.238	.380	3
3/8	- 16UNC	**T1485S**	**T1485C**	**T1485F**	H5	3.937	.551	1.252	.381	.286	.440	3
3/8	- 24UNF	**T1504S**	**T1504C**	**T1504F**	H4	3.937	.394	1.252	.381	.286	.440	3
7/16	- 14UNC	**T1525S**	**T1525C**	**T1525F**	H5	3.937	.591	1.850	.323	.242	.410	3
7/16	- 20UNF	**T1545S**	**T1545C**	**T1545F**	H5	3.937	.472	1.850	.323	.242	.410	3
1/2	- 13UNC	**T1565S**	**T1565C**	**T1565F**	H5	4.331	.630	2.067	.367	.275	.440	3
1/2	- 20UNF	**T1585S**	**T1585C**	**T1585F**	H5	3.937	.472	2.067	.367	.275	.440	3
9/16	- 12UNC	**T1605S**	**T1605C**	**T1605F**	H5	4.331	.709	2.067	.429	.322	.500	3
9/16	- 18UNF	**T1625S**	**T1625C**	**T1625F**	H5	3.937	.512	2.067	.429	.322	.500	3
5/8	- 11UNC	**T1645S**	**T1645C**	**T1645F**	H5	4.331	.748	2.205	.480	.360	.560	4
5/8	- 18UNF	**T1665S**	**T1665C**	**T1665F**	H5	3.937	.512	2.205	.480	.360	.560	4
3/4	- 10UNC	**T1705S**	**T1705C**	**T1705F**	H5	4.921	.827	2.480	.590	.442	.690	4
3/4	- 16UNF	**T1725S**	**T1725C**	**T1725F**	H5	4.331	.591	2.480	.590	.442	.690	4
7/8	- 9UNC	**T1746S**	**T1746C**	**T1746F**	H6	5.512	.827	2.815	.697	.523	.750	4
7/8	- 14UNF	**T1766S**	**T1766C**	**T1766F**	H6	4.921	.709	2.815	.697	.523	.750	4
1"	- 8UNC	**T1786S**	**T1786C**	**T1786F**	H6	6.299	.984	3.091	.800	.600	.810	4
1"	- 12UNF	**T1806S**	**T1806C**	**T1806F**	H6	5.512	.709	3.091	.800	.600	.810	4

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

◎ : Excellent ○ : Good

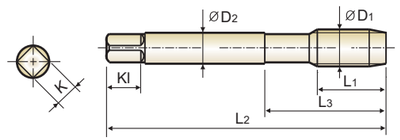
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

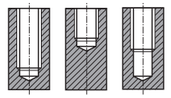
Spiral Flute Tap for Multi-Purpose

Steam Oxide **TA-S**
TiCN **TA-C**
FSH **TA-F**
SERIES

DIN Length-ANSI Shank



Thread Depth / Hole Type
2.5×D



Material groups **MU** | HSS-E | M/MF | 2P~3P | Steam Oxide | TiCN | FSH | R40 p.7

Unit : Inch

Size D1		Pitch P	EDP No. Steam Oxide	EDP No. TiCN	EDP No. FSH	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
M3	x	0.5	**TA203S**	**TA203C**	**TA203F**	D3	2.205	.197	.646	.141	.110	.188	3
M3.5	x	0.6	**TA224S**	**TA224C**	**TA224F**	D4	2.205	.276	.709	.141	.110	.188	3
M4	x	0.7	**TA244S**	**TA244C**	**TA244F**	D4	2.480	.276	.768	.168	.131	.250	3
M5	x	0.8	**TA284S**	**TA284C**	**TA284F**	D4	2.756	.354	.933	.194	.152	.250	3
M6	x	1.0	**TA315S**	**TA315C**	**TA315F**	D5	3.150	.433	1.000	.255	.191	.312	3
M7	x	1.0	**TA345S**	**TA345C**	**TA345F**	D5	3.150	.433	1.126	.318	.238	.375	3
M8	x	1.25	**TA365S**	**TA365C**	**TA365F**	D5	3.543	.472	1.126	.318	.238	.375	3
M8	x	1.0	**TA375S**	**TA375C**	**TA375F**	D5	3.543	.433	1.126	.318	.238	.375	3
M10	x	1.5	**TA426S**	**TA426C**	**TA426F**	D6	3.937	.512	1.252	.381	.286	.438	3
M10	x	1.25	**TA435S**	**TA435C**	**TA435F**	D5	3.937	.472	1.252	.381	.286	.438	3
M12	x	1.75	**TA506S**	**TA506C**	**TA506F**	D6	4.331	.591	2.067	.367	.275	.438	3
M12	x	1.5	**TA51AS**	**TA51AC**	**TA51AF**	D11	3.937	.551	2.067	.367	.275	.438	3
M12	x	1.25	**TA525S**	**TA525C**	**TA525F**	D5	3.937	.551	2.067	.367	.275	.438	3
M14	x	2.0	**TA547S**	**TA547C**	**TA547F**	D7	4.331	.709	2.067	.429	.322	.500	3
M14	x	1.5	**TA556S**	**TA556C**	**TA556F**	D6	3.937	.551	2.067	.429	.322	.500	3
M16	x	2.0	**TA607S**	**TA607C**	**TA607F**	D7	4.331	.709	2.205	.480	.360	.562	3
M16	x	1.5	**TA616S**	**TA616C**	**TA616F**	D6	3.937	.551	2.205	.480	.360	.562	3
M18	x	2.5	**TA657S**	**TA657C**	**TA657F**	D7	4.921	.787	2.205	.542	.406	.625	4
M18	x	1.5	**TA676S**	**TA676C**	**TA676F**	D6	4.331	.551	2.205	.542	.406	.625	4
M20	x	2.5	**TA707S**	**TA707C**	**TA707F**	D7	5.512	.787	2.815	.652	.489	.688	4
M20	x	1.5	**TA726S**	**TA726C**	**TA726F**	D6	4.921	.551	2.480	.652	.489	.688	4

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

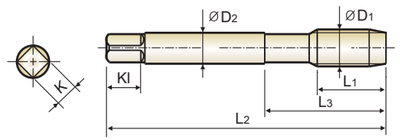
◎ : Excellent ○ : Good

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

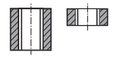
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29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

Spiral Point Tap for Multi-Purpose

Bright **T4**
Steam Oxide **T4-S**
TiCN **T4-C**
SERIES



Thread Depth / Hole Type
3.0×D



Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 4P~5P | Bright | Steam Oxide | TiCN p.8

Unit : Inch

Size D1		TPI	EDP No. Bright	EDP No. Steam Oxide	EDP No. TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
#2	-	56UNC	**T4082**	**T4082S**	**T4082C**	H2	1.752	.256	.433	.141	.110	.190	2
#3	-	48UNC	**T4122**	**T4122S**	**T4122C**	H2	1.811	.295	.492	.141	.110	.190	2
#4	-	40UNC	**T4162**	**T4162S**	**T4162C**	H2	1.874	.335	.563	.141	.110	.190	2
#4	-	40UNC	**T4163**	**T4163S**	**T4163C**	H3	1.874	.335	.563	.141	.110	.190	2
#4	-	40UNC	**T4164**	**T4164S**	**T4164C**	H4	1.874	.335	.563	.141	.110	.190	2
#4	-	40UNC	**T4165**	**T4165S**	**T4165C**	H5	1.874	.335	.563	.141	.110	.190	2
#4	-	48UNF	**T4182**	**T4182S**	**T4182C**	H2	1.874	.335	.563	.141	.110	.190	2
#5	-	40UNC	**T4202**	**T4202S**	**T4202C**	H2	1.937	.374	.626	.141	.110	.190	3
#5	-	44UNF	**T4222**	**T4222S**	**T4222C**	H2	1.937	.374	.626	.141	.110	.190	3
#6	-	32UNC	**T4243**	**T4243S**	**T4243C**	H3	2.000	.413	.689	.141	.110	.190	3
#6	-	32UNC	**T4242**	**T4242S**	**T4242C**	H2	2.000	.413	.689	.141	.110	.190	3
#6	-	32UNC	**T4244**	**T4244S**	**T4244C**	H4	2.000	.413	.689	.141	.110	.190	3
#6	-	32UNC	**T4245**	**T4245S**	**T4245C**	H5	2.000	.413	.689	.141	.110	.190	3
#6	-	32UNC	**T4246**	**T4246S**	**T4246C**	H6	2.000	.413	.689	.141	.110	.190	3
#6	-	32UNC	**T4247**	**T4247S**	**T4247C**	H7	2.000	.413	.689	.141	.110	.190	3
#6	-	32UNC	**T424A**	**T424AS**	**T424AC**	H11	2.000	.413	.689	.141	.110	.190	3
#6	-	40UNF	**T4262**	**T4262S**	**T4262C**	H2	2.000	.413	.689	.141	.110	.190	3
#8	-	32UNC	**T4283**	**T4283S**	**T4283C**	H3	2.126	.453	.752	.168	.131	.250	3
#8	-	32UNC	**T4282**	**T4282S**	**T4282C**	H2	2.126	.453	.752	.168	.131	.250	3
#8	-	32UNC	**T4284**	**T4284S**	**T4284C**	H4	2.126	.453	.752	.168	.131	.250	3
#8	-	32UNC	**T4285**	**T4285S**	**T4285C**	H5	2.126	.453	.752	.168	.131	.250	3
#8	-	32UNC	**T4286**	**T4286S**	**T4286C**	H6	2.126	.453	.752	.168	.131	.250	3
#8	-	32UNC	**T4287**	**T4287S**	**T4287C**	H7	2.126	.453	.752	.168	.131	.250	3
#8	-	32UNC	**T428A**	**T428AS**	**T428AC**	H11	2.126	.453	.752	.168	.131	.250	3
#8	-	36UNF	**T4302**	**T4302S**	**T4302C**	H2	2.126	.453	.752	.168	.131	.250	3
#10	-	24UNC	**T4323**	**T4323S**	**T4323C**	H3	2.374	.531	.906	.194	.152	.250	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

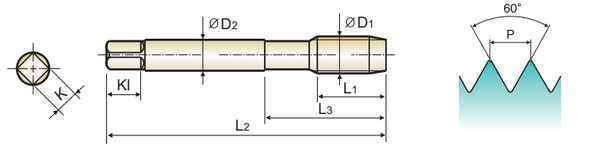
◎ : Excellent ○ : Good

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

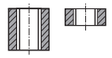
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29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

Spiral Point Tap for Multi-Purpose

Bright **T4** | Steam Oxide **T4-S** | TiCN **T4-C** SERIES



Thread Depth / Hole Type



3.0×D

Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 4P~5P | Bright | Steam Oxide | TiCN

p.8

Unit : Inch

Size D1	TPI	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
#10	24UNC	T4325	T4325S	T4325C	H5	2.374	.531	.906	.194	.152	.250	3
#10	24UNC	T432A	T432AS	T432AC	H11	2.374	.531	.906	.194	.152	.250	3
#10	32UNF	T4343	T4343S	T4343C	H3	2.374	.531	.906	.194	.152	.250	3
#10	32UNF	T4342	T4342S	T4342C	H2	2.374	.531	.906	.194	.152	.250	3
#10	32UNF	T4344	T4344S	T4344C	H4	2.374	.531	.906	.194	.152	.250	3
#10	32UNF	T4345	T4345S	T4345C	H5	2.374	.531	.906	.194	.152	.250	3
#10	32UNF	T4346	T4346S	T4346C	H6	2.374	.531	.906	.194	.152	.250	3
#10	32UNF	T4347	T4347S	T4347C	H7	2.374	.531	.906	.194	.152	.250	3
#10	32UNF	T434A	T434AS	T434AC	H11	2.374	.531	.906	.194	.152	.250	3
#12	24UNC	T4363	T4363S	T4363C	H3	2.374	.571	.906	.220	.165	.280	3
#12	28UNF	T4383	T4383S	T4383C	H3	2.374	.571	.906	.220	.165	.280	3
1/4	20UNC	T4403	T4403S	T4403C	H3	2.500	.591	1.000	.255	.191	.310	3
1/4	20UNC	T4405	T4405S	T4405C	H5	2.500	.591	1.000	.255	.191	.310	3
1/4	20UNC	T4402	T4402S	T4402C	H2	2.500	.591	1.000	.255	.191	.310	3
1/4	20UNC	T4407	T4407S	T4407C	H7	2.500	.591	1.000	.255	.191	.310	3
1/4	20UNC	T440A	T440AS	T440AC	H11	2.500	.591	1.000	.255	.191	.310	3
1/4	28UNF	T4423	T4423S	T4423C	H3	2.500	.591	1.000	.255	.191	.310	3
1/4	28UNF	T4424	T4424S	T4424C	H4	2.500	.591	1.000	.255	.191	.310	3
1/4	28UNF	T4422	T4422S	T4422C	H2	2.500	.591	1.000	.255	.191	.310	3
1/4	28UNF	T4425	T4425S	T4425C	H5	2.500	.591	1.000	.255	.191	.310	3
1/4	28UNF	T4426	T4426S	T4426C	H6	2.500	.591	1.000	.255	.191	.310	3
1/4	28UNF	T4427	T4427S	T4427C	H7	2.500	.591	1.000	.255	.191	.310	3
1/4	28UNF	T442A	T442AS	T442AC	H11	2.500	.591	1.000	.255	.191	.310	3
5/16	18UNC	T4443	T4443S	T4443C	H3	2.720	.669	1.126	.318	.238	.380	3
5/16	18UNC	T4445	T4445S	T4445C	H5	2.720	.669	1.126	.318	.238	.380	3
5/16	18UNC	T4447	T4447S	T4447C	H7	2.720	.669	1.126	.318	.238	.380	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

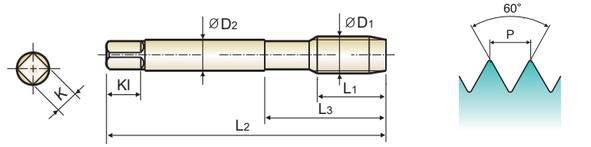
◎ : Excellent ○ : Good

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

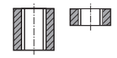
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29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

Spiral Point Tap for Multi-Purpose

Bright **T4** | Steam Oxide **T4-S** | TiCN **T4-C** SERIES



Thread Depth / Hole Type



3.0×D

Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 4P~5P | Bright | Steam Oxide | TiCN

p.8

Unit : Inch

Size D1	TPI	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
5/16	18UNC	T444A	T444AS	T444AC	H11	2.720	.669	1.126	.318	.238	.380	3
5/16	24UNF	T4463	T4463S	T4463C	H3	2.720	.669	1.126	.318	.238	.380	3
5/16	24UNF	T4465	T4465S	T4465C	H5	2.720	.669	1.126	.318	.238	.380	3
5/16	24UNF	T4462	T4462S	T4462C	H2	2.720	.669	1.126	.318	.238	.380	3
5/16	24UNF	T4464	T4464S	T4464C	H4	2.720	.669	1.126	.318	.238	.380	3
5/16	24UNF	T4466	T4466S	T4466C	H6	2.720	.669	1.126	.318	.238	.380	3
5/16	24UNF	T4467	T4467S	T4467C	H7	2.720	.669	1.126	.318	.238	.380	3
5/16	24UNF	T446A	T446AS	T446AC	H11	2.720	.669	1.126	.318	.238	.380	3
3/8	16UNC	T4483	T4483S	T4483C	H3	2.937	.748	1.252	.381	.286	.440	3
3/8	16UNC	T4485	T4485S	T4485C	H5	2.937	.748	1.252	.381	.286	.440	3
3/8	16UNC	T4487	T4487S	T4487C	H7	2.937	.748	1.252	.381	.286	.440	3
3/8	16UNC	T448A	T448AS	T448AC	H11	2.937	.748	1.252	.381	.286	.440	3
3/8	24UNF	T4503	T4503S	T4503C	H3	2.937	.748	1.252	.381	.286	.440	3
3/8	24UNF	T4504	T4504S	T4504C	H4	2.937	.748	1.252	.381	.286	.440	3
3/8	24UNF	T4502	T4502S	T4502C	H2	2.937	.748	1.252	.381	.286	.440	3
3/8	24UNF	T4505	T4505S	T4505C	H5	2.937	.748	1.252	.381	.286	.440	3
3/8	24UNF	T4506	T4506S	T4506C	H6	2.937	.748	1.252	.381	.286	.440	3
3/8	24UNF	T4507	T4507S	T4507C	H7	2.937	.748	1.252	.381	.286	.440	3
3/8	24UNF	T450A	T450AS	T450AC	H11	2.937	.748	1.252	.381	.286	.440	3
7/16	14UNC	T4523	T4523S	T4523C	H3	3.157	.866	1.437	.323	.242	.410	3
7/16	14UNC	T4525	T4525S	T4525C	H5	3.157	.866	1.437	.323	.242	.410	3
7/16	14UNC	T4527	T4527S	T4527C	H7	3.157	.866	1.437	.323	.242	.410	3
7/16	14UNC	T452A	T452AS	T452AC	H11	3.157	.866	1.437	.323	.242	.410	3
7/16	20UNF	T4543	T4543S	T4543C	H3	3.157	.866	1.437	.323	.242	.410	3
7/16	20UNF	T4545	T4545S	T4545C	H5	3.157	.866	1.437	.323	.242	.410	3
7/16	20UNF	T4547	T4547S	T4547C	H7	3.157	.866	1.437	.323	.242	.410	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

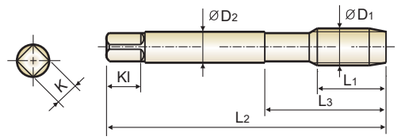
◎ : Excellent ○ : Good

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

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

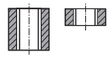
Spiral Point Tap for Multi-Purpose

Bright **T4** | Steam Oxide **T4-S** | TiCN **T4-C** SERIES



Thread Depth / Hole Type

3.0×D



Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 4P~5P | Bright | Steam Oxide | TiCN p.8

Unit : Inch

Size D1	TPI	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
7/16	20UNF	**T454A**	**T454AS**	**T454AC**	H11	3.157	.866	1.437	.323	.242	.410	3
1/2	13UNC	**T4565**	**T4565S**	**T4565C**	H5	3.374	.984	1.657	.367	.275	.440	3
1/2	13UNC	**T4563**	**T4563S**	**T4563C**	H3	3.374	.984	1.657	.367	.275	.440	3
1/2	13UNC	**T4567**	**T4567S**	**T4567C**	H7	3.374	.984	1.657	.367	.275	.440	3
1/2	13UNC	**T456A**	**T456AS**	**T456AC**	H11	3.374	.984	1.657	.367	.275	.440	3
1/2	20UNF	**T4585**	**T4585S**	**T4585C**	H5	3.374	.984	1.657	.367	.275	.440	3
1/2	20UNF	**T4582**	**T4582S**	**T4582C**	H2	3.374	.984	1.657	.367	.275	.440	3
1/2	20UNF	**T4583**	**T4583S**	**T4583C**	H3	3.374	.984	1.657	.367	.275	.440	3
1/2	20UNF	**T4587**	**T4587S**	**T4587C**	H7	3.374	.984	1.657	.367	.275	.440	3
1/2	20UNF	**T458A**	**T458AS**	**T458AC**	H11	3.374	.984	1.657	.367	.275	.440	3
9/16	12UNC	**T4605**	**T4605S**	**T4605C**	H5	3.594	.984	1.657	.429	.322	.500	3
9/16	12UNC	**T4603**	**T4603S**	**T4603C**	H3	3.594	.984	1.657	.429	.322	.500	3
9/16	18UNF	**T4623**	**T4623S**	**T4623C**	H3	3.594	.984	1.657	.429	.322	.500	3
9/16	18UNF	**T4625**	**T4625S**	**T4625C**	H5	3.594	.984	1.657	.429	.322	.500	3
5/8	11UNC	**T4645**	**T4645S**	**T4645C**	H5	3.811	1.083	1.811	.480	.360	.560	3
5/8	11UNC	**T4643**	**T4643S**	**T4643C**	H3	3.811	1.083	1.811	.480	.360	.560	3
5/8	18UNF	**T4665**	**T4665S**	**T4665C**	H5	3.811	1.083	1.811	.480	.360	.560	3
5/8	18UNF	**T4663**	**T4663S**	**T4663C**	H3	3.811	1.083	1.811	.480	.360	.560	3
5/8	18UNF	**T4667**	**T4667S**	**T4667C**	H7	3.811	1.083	1.811	.480	.360	.560	3
3/4	10UNC	**T4705**	**T4705S**	**T4705C**	H5	4.252	1.201	2.000	.590	.442	.690	3
3/4	10UNC	**T4703**	**T4703S**	**T4703C**	H3	4.252	1.201	2.000	.590	.442	.690	3
3/4	16UNF	**T4725**	**T4725S**	**T4725C**	H5	4.252	1.201	2.000	.590	.442	.690	3
3/4	16UNF	**T4723**	**T4723S**	**T4723C**	H3	4.252	1.201	2.000	.590	.442	.690	3
7/8	9UNC	**T4746**	**T4746S**	**T4746C**	H6	4.689	1.339	2.220	.697	.523	.750	3
7/8	9UNC	**T4745**	**T4745S**	**T4745C**	H5	4.689	1.339	2.220	.697	.523	.750	3
7/8	14UNF	**T4766**	**T4766S**	**T4766C**	H6	4.689	1.339	2.220	.697	.523	.750	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

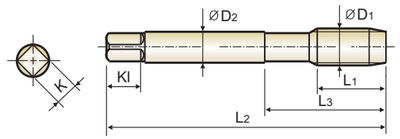
◎ : Excellent ○ : Good

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

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

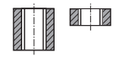
Spiral Point Tap for Multi-Purpose

Bright **T4** | Steam Oxide **T4-S** | TiCN **T4-C** SERIES



Thread Depth / Hole Type

3.0×D



Material groups **MU** | HSS-E | UNC UNF | USCTI 302A | 4P~5P | Bright | Steam Oxide | TiCN p.8

Unit : Inch

Size D1	TPI	EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
7/8	14UNF	**T4764**	**T4764S**	**T4764C**	H4	4.689	1.339	2.220	.697	.523	.750	3
1"	8UNC	**T4786**	**T4786S**	**T4786C**	H6	5.126	1.496	2.500	.800	.600	.810	3
1"	8UNC	**T4784**	**T4784S**	**T4784C**	H4	5.126	1.496	2.500	.800	.600	.810	3
1"	12UNF	**T4806**	**T4806S**	**T4806C**	H6	5.126	1.496	2.500	.800	.600	.810	3
1"	12UNF	**T4804**	**T4804S**	**T4804C**	H4	5.126	1.496	2.500	.800	.600	.810	3
1-1/8	7UNC	**T4826**	**T4826S**	**T4826C**	H6	5.437	1.535	2.563	.896	.672	.880	4
1-1/8	8UN	**T4836**	**T4836S**	**T4836C**	H6	5.437	1.535	2.563	.896	.672	.880	4
1-1/8	12UNF	**T4845**	**T4845S**	**T4845C**	H5	5.437	1.535	2.563	.896	.672	.880	4
1-1/4	7UNC	**T4866**	**T4866S**	**T4866C**	H6	5.752	1.535	2.563	1.021	.766	1.000	4
1-1/4	8UN	**T4876**	**T4876S**	**T4876C**	H6	5.752	1.535	2.563	1.021	.766	1.000	4
1-1/4	12UNF	**T4885**	**T4885S**	**T4885C**	H5	5.752	1.535	2.563	1.021	.766	1.000	4
1-3/8	6UNC	**T4906**	**T4906S**	**T4906C**	H6	6.063	1.791	3.000	1.108	.831	1.060	4
1-3/8	8UN	**T4916**	**T4916S**	**T4916C**	H6	6.063	1.791	3.000	1.108	.831	1.060	4
1-3/8	12UNF	**T4925**	**T4925S**	**T4925C**	H5	6.063	1.791	3.000	1.108	.831	1.060	4
1-1/2	6UNC	**T4946**	**T4946S**	**T4946C**	H6	6.374	1.791	3.000	1.233	.925	1.130	4
1-1/2	8UN	**T4956**	**T4956S**	**T4956C**	H6	6.374	1.791	3.000	1.233	.925	1.130	4
1-1/2	12UNF	**T4965**	**T4965S**	**T4965C**	H5	6.374	1.791	3.000	1.233	.925	1.130	4

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

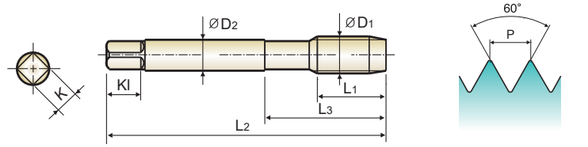
◎ : Excellent ○ : Good

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

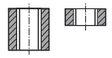
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29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

Spiral Point Tap for Multi-Purpose

Bright **T3** | Steam Oxide **T3-S** | TiCN **T3-C** SERIES



Thread Depth / Hole Type



3.0×D

Material groups **MU** | HSS-E | M/MF | USCTI 302A | 4P~5P | Bright | Steam Oxide | TiCN

p.9

Unit : Inch

Size D1		Pitch P		EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
M3	x	0.5		**T3203**	**T3203S**	**T3203C**	D3	1.937	.374	.646	.141	.110	.188	3
M3	x	0.5		**T320A**	**T320AS**	**T320AC**	D11	1.937	.374	.646	.141	.110	.188	3
M3.5	x	0.6		**T3224**	**T3224S**	**T3224C**	D4	2.000	.413	.709	.141	.110	.188	3
M3.5	x	0.6		**T322A**	**T322AS**	**T322AC**	D11	2.000	.413	.709	.141	.110	.188	3
M4	x	0.7		**T3244**	**T3244S**	**T3244C**	D4	2.126	.453	.768	.168	.131	.250	3
M4	x	0.7		**T324A**	**T324AS**	**T324AC**	D11	2.126	.453	.768	.168	.131	.250	3
M5	x	0.8		**T3284**	**T3284S**	**T3284C**	D4	2.374	.531	.933	.194	.152	.250	3
M5	x	0.8		**T328A**	**T328AS**	**T328AC**	D11	2.374	.531	.933	.194	.152	.250	3
M6	x	1.0		**T3315**	**T3315S**	**T3315C**	D5	2.500	.591	1.000	.255	.191	.312	3
M6	x	1.0		**T331A**	**T331AS**	**T331AC**	D11	2.500	.591	1.000	.255	.191	.312	3
M7	x	1.0		**T3345**	**T3345S**	**T3345C**	D5	2.720	.669	1.126	.318	.238	.375	3
M7	x	1.0		**T334A**	**T334AS**	**T334AC**	D11	2.720	.669	1.126	.318	.238	.375	3
M8	x	1.25		**T3365**	**T3365S**	**T3365C**	D5	2.720	.669	1.126	.318	.238	.375	3
M8	x	1.25		**T336A**	**T336AS**	**T336AC**	D11	2.720	.669	1.126	.318	.238	.375	3
M8	x	1.0		**T3375**	**T3375S**	**T3375C**	D5	2.720	.669	1.126	.318	.238	.375	3
M8	x	1.0		**T337A**	**T337AS**	**T337AC**	D11	2.720	.669	1.126	.318	.238	.375	3
M10	x	1.5		**T3426**	**T3426S**	**T3426C**	D6	2.937	.748	1.252	.381	.286	.438	3
M10	x	1.5		**T342A**	**T342AS**	**T342AC**	D11	2.937	.748	1.252	.381	.286	.438	3
M10	x	1.25		**T3435**	**T3435S**	**T3435C**	D5	2.937	.748	1.252	.381	.286	.438	3
M10	x	1.25		**T343A**	**T343AS**	**T343AC**	D11	2.937	.748	1.252	.381	.286	.438	3
M10	x	1.0		**T3445**	**T3445S**	**T3445C**	D5	2.937	.748	1.252	.381	.286	.438	3
M10	x	1.0		**T344A**	**T344AS**	**T344AC**	D11	2.937	.748	1.252	.381	.286	.438	3
M12	x	1.75		**T3506**	**T3506S**	**T3506C**	D6	3.374	.984	1.657	.367	.275	.438	3
M12	x	1.75		**T350A**	**T350AS**	**T350AC**	D11	3.374	.984	1.657	.367	.275	.438	3
M12	x	1.5		**T3516**	**T3516S**	**T3516C**	D6	3.374	.984	1.657	.367	.275	.438	3
M12	x	1.5		**T351A**	**T351AS**	**T351AC**	D11	3.374	.984	1.657	.367	.275	.438	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

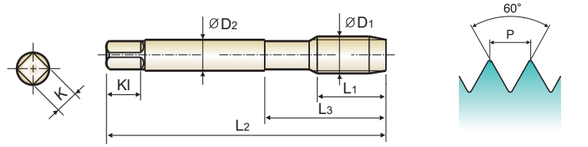
◎ : Excellent ○ : Good

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

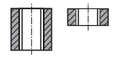
ISO	N										S							H		
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29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

Spiral Point Tap for Multi-Purpose

Bright **T3** | Steam Oxide **T3-S** | TiCN **T3-C** SERIES



Thread Depth / Hole Type



3.0×D

Material groups **MU** | HSS-E | M/MF | USCTI 302A | 4P~5P | Bright | Steam Oxide | TiCN

p.9

Unit : Inch

Size D1		Pitch P		EDP No. Bright	Steam Oxide	TiCN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
M12	x	1.25		**T3525**	**T3525S**	**T3525C**	D5	3.374	.984	1.657	.367	.275	.438	3
M12	x	1.25		**T352A**	**T352AS**	**T352AC**	D11	3.374	.984	1.657	.367	.275	.438	3
M14	x	2.0		**T3547**	**T3547S**	**T3547C**	D7	3.594	.984	1.657	.429	.322	.500	3
M14	x	1.5		**T3556**	**T3556S**	**T3556C**	D6	3.594	.984	1.657	.429	.322	.500	3
M16	x	2.0		**T3607**	**T3607S**	**T3607C**	D7	3.811	1.083	1.811	.480	.360	.562	3
M16	x	1.5		**T3616**	**T3616S**	**T3616C**	D6	3.811	1.083	1.811	.480	.360	.562	3
M18	x	2.5		**T3657**	**T3657S**	**T3657C**	D7	4.031	1.083	1.811	.542	.406	.625	3
M18	x	1.5		**T3676**	**T3676S**	**T3676C**	D6	4.031	1.083	1.811	.542	.406	.625	3
M20	x	2.5		**T3707**	**T3707S**	**T3707C**	D7	4.469	1.201	2.000	.652	.489	.688	3
M20	x	1.5		**T3726**	**T3726S**	**T3726C**	D6	4.469	1.201	2.000	.652	.489	.688	3
M22	x	2.5		**T3747**	**T3747S**	**T3747C**	D7	4.689	1.339	2.220	.697	.523	.750	3
M22	x	1.5		**T3766**	**T3766S**	**T3766C**	D6	4.689	1.339	2.220	.697	.523	.750	3
M24	x	3.0		**T3788**	**T3788S**	**T3788C**	D8	4.906	1.339	2.220	.760	.570	.750	3
M24	x	1.5		**T3806**	**T3806S**	**T3806C**	D6	4.906	1.339	2.220	.760	.570	.750	3
M27	x	3.0		**T3868**	**T3868S**	**T3868C**	D8	5.126	1.496	2.500	.896	.672	.880	4
M27	x	1.5		**T3886**	**T3886S**	**T3886C**	D6	5.126	1.496	2.500	.896	.672	.880	4
M30	x	3.5		**T3949**	**T3949S**	**T3949C**	D9	5.437	1.535	2.638	1.021	.766	1.000	4
M30	x	3.0		**T3959**	**T3959S**	**T3959C**	D9	5.437	1.535	2.638	1.021	.766	1.000	4
M30	x	1.5		**T3976**	**T3976S**	**T3976C**	D6	5.437	1.535	2.638	1.021	.766	1.000	4

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

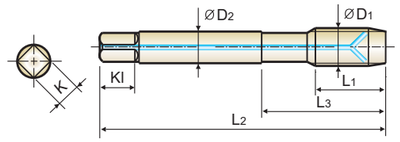
◎ : Excellent ○ : Good

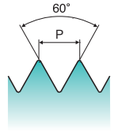
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

SERIES
Bright TB
TiN TB-N

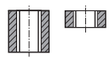
Spiral Point Tap for Multi-Purpose





with Internal Coolant

Thread Depth / Hole Type
3.0×D



Material groups MU | HSS-E | UNC UNF | USCTI 302A | 4P~5P | Bright | TiN | p.9

Unit : Inch

Size D1		TPI	EDP No. Bright	EDP No. TiN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
1/4	-	20UNC	**TB405**	**TB405N**	H5	2.500	.591	1.000	.255	.191	.310	3
1/4	-	28UNF	**TB424**	**TB424N**	H4	2.500	.591	1.000	.255	.191	.310	3
5/16	-	18UNF	**TB445**	**TB445N**	H5	2.720	.669	1.126	.318	.238	.380	3
5/16	-	24UNF	**TB464**	**TB464N**	H4	2.720	.669	1.126	.318	.238	.380	3
3/8	-	16UNC	**TB485**	**TB485N**	H5	2.937	.748	1.252	.381	.286	.440	3
3/8	-	24UNF	**TB504**	**TB504N**	H4	2.937	.748	1.252	.381	.286	.440	3
7/16	-	14UNC	**TB525**	**TB525N**	H5	3.157	.866	1.437	.323	.242	.410	3
7/16	-	20UNF	**TB545**	**TB545N**	H5	3.157	.866	1.437	.323	.242	.410	3
1/2	-	13UNC	**TB565**	**TB565N**	H5	3.374	.984	1.657	.367	.275	.440	3
1/2	-	20UNF	**TB585**	**TB585N**	H5	3.374	.984	1.657	.367	.275	.440	3
9/16	-	12UNC	**TB605**	**TB605N**	H5	3.594	.984	1.657	.429	.322	.500	3
9/16	-	18UNF	**TB625**	**TB625N**	H5	3.594	.984	1.657	.429	.322	.500	3
5/8	-	11UNC	**TB645**	**TB645N**	H5	3.811	1.083	1.811	.480	.360	.560	3
5/8	-	18UNF	**TB665**	**TB665N**	H5	3.811	1.083	1.811	.480	.360	.560	3
3/4	-	10UNC	**TB705**	**TB705N**	H5	4.252	1.201	2.000	.590	.442	.690	3
3/4	-	16UNF	**TB725**	**TB725N**	H5	4.252	1.201	2.000	.590	.442	.690	3
7/8	-	9UNC	**TB746**	**TB746N**	H6	4.689	1.339	2.220	.697	.523	.750	3
7/8	-	14UNF	**TB766**	**TB766N**	H6	4.689	1.339	2.220	.697	.523	.750	3
1"	-	8UNC	**TB786**	**TB786N**	H6	5.126	1.496	2.500	.800	.600	.810	3
1"	-	12UNF	**TB806**	**TB806N**	H6	5.126	1.496	2.500	.800	.600	.810	3

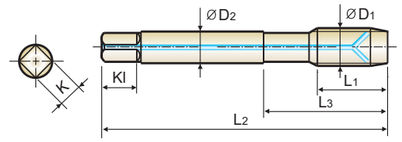
◎ : Excellent ○ : Good

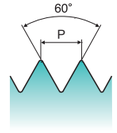
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

TAP Combo
SERIES
Bright TH
TiN TH-N

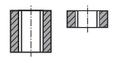
Spiral Point Tap for Multi-Purpose





with Internal Coolant

Thread Depth / Hole Type
3.0×D



Material groups MU | HSS-E | M | USCTI 302A | 4P~5P | Bright | TiN | p.9

Unit : Inch

Size D1		Pitch P	EDP No. Bright	EDP No. TiN	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
M6	x	1.0	**TH315**	**TH315N**	D5	2.500	.591	1.000	.255	.191	.310	3
M8	x	1.25	**TH365**	**TH365N**	D5	2.720	.669	1.126	.318	.238	.380	3
M10	x	1.5	**TH426**	**TH426N**	D6	2.937	.748	1.252	.381	.286	.440	3
M12	x	1.75	**TH506**	**TH506N**	D6	3.374	.984	1.657	.367	.275	.440	3
M14	x	2.0	**TH547**	**TH547N**	D7	3.594	.984	1.657	.429	.322	.500	3
M16	x	2.0	**TH607**	**TH607N**	D7	3.811	1.083	1.811	.480	.360	.560	3
M18	x	2.5	**TH657**	**TH657N**	D7	4.031	1.083	1.811	.542	.406	.630	3
M20	x	2.5	**TH707**	**TH707N**	D7	4.469	1.201	2.000	.652	.489	.690	3

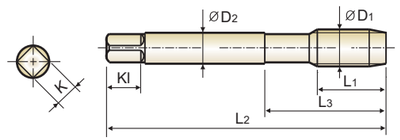
◎ : Excellent ○ : Good

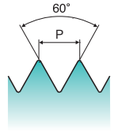
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

Spiral Point Tap for Multi-Purpose

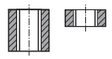
Steam Oxide **TC-S**
TiCN **TC-C**
SERIES FSH **TC-F**





DIN Length-ANSI Shank

Thread Depth / Hole Type
3.0×D



Material groups **MU** | HSS-E | UNC UNF | 4P~5P | Steam Oxide | TiCN | FSH

p.9

Unit : Inch

Size D1	TPI	EDP No. Steam Oxide	EDP No. TiCN	EDP No. FSH (NEW AOSTAP)	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
#2 -	56UNC	TC082S	TC082C	TC082F	H2	1.772	.256	.433	.141	.110	.190	2
#3 -	48UNC	TC122S	TC122C	TC122F	H2	1.969	.295	.492	.141	.110	.190	2
#4 -	40UNC	TC162S	TC162C	TC162F	H2	2.205	.335	.563	.141	.110	.190	2
#4 -	48UNF	TC182S	TC182C	TC182F	H2	2.205	.335	.563	.141	.110	.190	2
#5 -	40UNC	TC202S	TC202C	TC202F	H2	2.205	.374	.626	.141	.110	.190	3
#6 -	32UNC	TC243S	TC243C	TC243F	H3	2.205	.413	.689	.141	.110	.190	3
#6 -	40UNF	TC262S	TC262C	TC262F	H2	2.205	.413	.689	.141	.110	.190	3
#8 -	32UNC	TC283S	TC283C	TC283F	H3	2.480	.453	.752	.168	.131	.250	3
#10 -	24UNC	TC323S	TC323C	TC323F	H3	2.756	.531	.906	.194	.152	.250	3
#10 -	32UNF	TC343S	TC343C	TC343F	H3	2.756	.531	.906	.194	.152	.250	3
#12 -	24UNC	TC363S	TC363C	TC363F	H3	3.150	.571	.906	.220	.165	.280	3
#12 -	28UNF	TC383S	TC383C	TC383F	H3	3.150	.571	.906	.220	.165	.280	3
1/4 -	20UNC	TC405S	TC405C	TC405F	H5	3.150	.591	1.000	.255	.191	.310	3
1/4 -	28UNF	TC424S	TC424C	TC424F	H4	3.150	.591	1.000	.255	.191	.310	3
5/16 -	18UNC	TC445S	TC445C	TC445F	H5	3.543	.669	1.126	.318	.238	.380	3
5/16 -	24UNF	TC464S	TC464C	TC464F	H4	3.543	.669	1.126	.318	.238	.380	3
3/8 -	16UNC	TC485S	TC485C	TC485F	H5	3.937	.748	1.252	.381	.286	.440	3
3/8 -	24UNF	TC504S	TC504C	TC504F	H4	3.937	.748	1.252	.381	.286	.440	3
7/16 -	14UNC	TC525S	TC525C	TC525F	H5	3.937	.866	1.437	.323	.242	.410	3
7/16 -	20UNF	TC545S	TC545C	TC545F	H5	3.937	.866	1.437	.323	.242	.410	3
1/2 -	13UNC	TC565S	TC565C	TC565F	H5	4.331	.984	1.657	.367	.275	.440	3
1/2 -	20UNF	TC585S	TC585C	TC585F	H5	3.937	.984	1.657	.367	.275	.440	3
9/16 -	12UNC	TC605S	TC605C	TC605F	H5	4.331	.984	1.657	.429	.322	.500	3
9/16 -	18UNF	TC625S	TC625C	TC625F	H5	3.937	.984	1.657	.429	.322	.500	3
5/8 -	11UNC	TC645S	TC645C	TC645F	H5	4.331	1.083	1.811	.480	.360	.560	3
5/8 -	18UNF	TC665S	TC665C	TC665F	H5	3.937	1.083	1.811	.480	.360	.560	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

▶ NEXT PAGE

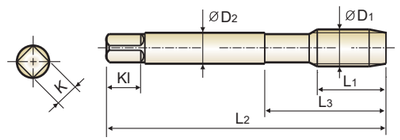
◎ : Excellent ○ : Good

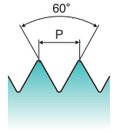
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

Spiral Point Tap for Multi-Purpose

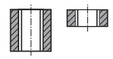
Steam Oxide **TC-S**
TiCN **TC-C**
SERIES FSH **TC-F**





DIN Length-ANSI Shank

Thread Depth Hole Type
3.0×D



Material groups **MU** | HSS-E | UNC UNF | 4P~5P | Steam Oxide | TiCN | FSH

p.9

Unit : Inch

Size D1	TPI	EDP No. Steam Oxide	EDP No. TiCN	EDP No. FSH (NEW AOSTAP)	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
3/4 -	10UNC	TC705S	TC705C	TC705F	H5	4.921	1.201	2.000	.590	.442	.690	3
3/4 -	16UNF	TC725S	TC725C	TC725F	H5	4.331	1.201	2.000	.590	.442	.690	3
7/8 -	9UNC	TC746S	TC746C	TC746F	H6	5.512	1.339	2.224	.697	.523	.750	3
7/8 -	14UNF	TC766S	TC766C	TC766F	H6	4.921	1.339	2.224	.697	.523	.750	3
1" -	8UNC	TC786S	TC786C	TC786F	H6	6.299	1.496	2.500	.800	.600	.810	3
1" -	12UNF	TC806S	TC806C	TC806F	H6	5.512	1.496	2.500	.800	.600	.810	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

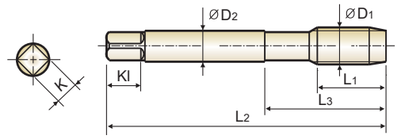
◎ : Excellent ○ : Good

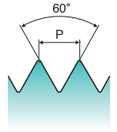
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc		13	25	28	32	10	29	32	38	15	35	15	23	10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

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

Spiral Point Tap for Multi-Purpose

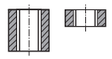
Steam Oxide **TK-S**
TiCN **TK-C**
SERIES FSH **TK-F**





DIN Length-ANSI Shank

Thread Depth / Hole Type
3.0×D



Material groups **MU** | HSS-E | M/MF | 4P~5P | Steam Oxide | TiCN | FSH

p.9

Unit : Inch

Size D1	Pitch P	EDP No. Steam Oxide	EDP No. TiCN	EDP No. FSH (NEW AOSTAP)	Limits	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
M3	x 0.5	TK203S	TK203C	TK203F	D3	2.205	.374	.646	.141	.110	.188	3
M3.5	x 0.6	TK224S	TK224C	TK224F	D4	2.205	.413	.709	.141	.110	.188	3
M4	x 0.7	TK244S	TK244C	TK244F	D4	2.480	.453	.768	.168	.131	.250	3
M5	x 0.8	TK284S	TK284C	TK284F	D4	2.756	.531	.933	.194	.152	.250	3
M6	x 1.0	TK315S	TK315C	TK315F	D5	3.150	.591	1.000	.255	.191	.312	3
M7	x 1.0	TK345S	TK345C	TK345F	D5	3.150	.669	1.126	.318	.238	.375	3
M8	x 1.25	TK365S	TK365C	TK365F	D5	3.543	.669	1.126	.318	.238	.375	3
M8	x 1.0	TK375S	TK375C	TK375F	D5	3.543	.669	1.126	.318	.238	.375	3
M10	x 1.5	TK426S	TK426C	TK426F	D6	3.937	.748	1.252	.381	.286	.438	3
M10	x 1.25	TK435S	TK435C	TK435F	D5	3.937	.748	1.252	.381	.286	.438	3
M12	x 1.75	TK506S	TK506C	TK506F	D6	4.331	.984	1.657	.367	.275	.438	3
M12	x 1.5	TK516S	TK516C	TK516F	D6	3.937	.984	1.657	.367	.275	.438	3
M12	x 1.25	TK525S	TK525C	TK525F	D5	3.937	.984	1.657	.367	.275	.438	3
M14	x 2.0	TK547S	TK547C	TK547F	D7	4.331	.984	1.657	.429	.322	.500	3
M14	x 1.5	TK556S	TK556C	TK556F	D6	3.937	.984	1.657	.429	.322	.500	3
M16	x 2.0	TK607S	TK607C	TK607F	D7	4.331	1.083	1.811	.480	.360	.562	3
M16	x 1.5	TK616S	TK616C	TK616F	D6	3.937	1.083	1.811	.480	.360	.562	3
M18	x 2.5	TK657S	TK657C	TK657F	D7	4.921	1.083	1.811	.542	.406	.625	3
M18	x 1.5	TK676S	TK676C	TK676F	D6	4.331	1.083	1.811	.542	.406	.625	3
M20	x 2.5	TK707S	TK707C	TK707F	D7	5.512	1.201	2.224	.652	.489	.688	3
M20	x 1.5	TK726S	TK726C	TK726F	D6	4.921	1.201	2.000	.652	.489	.688	3

▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

◎ : Excellent ○ : Good

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

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

Combo Spiral Flute Tap Set

EDP No.	Series	Standard	Surface Treatment	Size	Q'ty
T2836SET8	T2	UNC/UNF	Bright	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16 -14, 7/16 -20	8 pcs
TG836SET8	T2-C	UNC/UNF	TiCN	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16 -14, 7/16 -20	8 pcs
T2836SET8 -1	T2	UNC/UNF	Bright	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 1/2-13, 1/2-20	8 pcs
TG836SET8 -1	T2-C	UNC/UNF	TiCN	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 1/2-13, 1/2-20	8 pcs
T2805SET7	T5	M/MF	Bright	M3, M4, M5, M6, M8, M10, M12	7 pcs
TG805SET7	T5-C	M/MF	TiCN	M3, M4, M5, M6, M8, M10, M12	7 pcs

* Hardslick Coated Set available upon request

TROUBLE SHOOTING GUIDE

Specific Problem	Cause	Solution
Dimensional Accuracy		
Oversize Pitch Diameter	Incorrect Tap	1. Use proper limits of taps 2. Use longer chamfered taps
	Chip Packing	1. Use spiral point or spiral fluted taps 2. Reduce number of flutes to provide extra chip room 3. Use larger hole size 4. If tapping a hole, allow deeper hole where applicable or shorten the thread length of the parts 5. Use proper lubricant
	Galling	1. Apply proper surface treatment such as Hardslick or chrome 2. Use proper cutting lubricant 3. Reduce tapping speed 4. Use proper cutting angle in accordance with material being tapped 5. Use large hole size
	Operating Conditions	1. Apply proper tapping speed 2. Correct alignment of tap and drill hole 3. Free cutting either tap or workpiece 4. Use proper tapping speed to avoid torn or rough threads 5. Use lead screw tapper 6. Use proper tapping machine with suitable power 7. Avoid misalignment of the tap and drill hole from loose spindle or worn holder
	Tool Condition	1. Obtain proper indexing angle for the flutes at the cutting edge 2. Grind proper cutting angle and chamfer angle 3. Avoid too narrow a land width 4. Remove burrs from regrinding
Oversize Internal Diameter	Hole Size	1. Use minimum hole size 2. Avoid tapered hole 3. Use proper chamfered taps
	Galling	1. Galling solutions 1 through 4 above can be applied to this specific problem
Undersize Pitch Diameter	Incorrect Tap	1. Use oversize taps 2. Apply proper chamfer angle 3. Increase cutting angle
	Damaged Thread	1. Use proper reversing speed to avoid damaging tapped thread on the way out of the hole
	Left-over Chips	1. Increase cutting performance to avoid any left over chips in the hole 2. Remove left over chips from the hole for gage checking
Undersize Internal Diameter	Hole Size	1. Use maximum drill size
Breakage	Incorrect Tap Selection	1. Avoid chip packing in the flutes or on the bottom of the hole Use spiral pointed or spiral fluted taps or fluteless taps 2. Apply correct surface treatment such as Hardslick or bright
	Excessive Tapping Torque	1. Use larger drill size 2. Try to shorten thread length 3. Increase cutting angle 4. Apply a tap with more thread relief and reduced land width 5. Apply correct surface treatment such as Hardslick

Specific Problem	Cause	Solution
Dimensional Accuracy		
Breakage	Operating Conditions	1. Reduce tapping speed 2. Avoid misalignment between tap and the hole and tapered hole 3. Use floating type of tapping holder 4. Use tapping holder with torque adjustment 5. Avoid hitting bottom of the hole with tap
	Tool Condition	1. Do not grind the bottom of the flute 2. Avoid too narrow a land width 3. Remove all worn sections when regrinding the flutes 4. Regrind tool more frequently
Chipping	Incorrect Tap Selection	1. Reduce cutting angle 2. Use a different kind of high-speed steel tap 3. Reduce hardness of the tap 4. Increase chamfer length 5. Avoid chip packing in the flutes or in the bottom of the hole by using spiral fluted or spiral pointed taps
	Wear	1. Reduce tapping speed 2. Avoid misalignment between tap and hole 3. Avoid sudden return of reverse in blind hole tapping 4. Avoid galling 5. Use larger hole size
Wear	Incorrect Tap Selection	1. Apply specially designed tap for tapping heat treated material 2. Change to a type of high-speed steel tap that contains vanadium 3. Apply special surface treatment such as TiCN, TiAlN or Hardslick 4. Increase chamfer length
	Operating Conditions	1. Reduce tapping speed 2. Apply proper cutting lubricants 3. Avoid work hardened hole 4. Use larger hole size
	Tool Condition	1. Grind proper cutting angle 2. Avoid hardness reduction from grinding process
Torn or Rough Thread	Chamfer Too Short	1. Increase chamfer length
	Wrong Cutting Angle	1. Apply proper cutting angle
	Galling	1. Use thread relieved taps 2. Reduce land width 3. Apply surface treatment such as Hardslick or chrome 4. Use proper cutting lubricant 5. Reduce tapping speed 6. Use larger hole size 7. Obtain proper alignment between tap and work
	Chip Packing	1. Use spiral pointed or spiral fluted taps 2. Use larger drill size
Chattering on Tapped Thread	Tool Free Cutting	1. Reduce cutting angle 2. Reduce amount of thread relief
	Tool Condition	1. Avoid too narrow land width 2. Do not grind the bottom of the flute

TAP DRILL SIZES - UNIFIED THREAD

Size	Threads Per Inch				Minor Diameter			Tap Drill Diameter (Cutting Tap)				
	UNC	UNF	UNEF	UN	Min. 2B&3B	Max. 2B	Max. 3B	80% Thread	75% Thread	70% Thread	65% Thread	60% Thread
#0	-	80	-	-	.0465	.0514	.0514	.0470	.0478	.0486	.0494	.0503
#1	64	-	-	-	.0561	.0623	.0623	.0568	.0578	.0588	.0598	.0608
	-	72	-	-	.0580	.0635	.0635	.0586	.0595	.0604	.0613	.0622
#2	56	-	-	-	.0667	.0737	.0737	.0674	.0686	.0698	.0709	.0721
	-	64	-	-	.0691	.0753	.0753	.0698	.0708	.0718	.0728	.0738
#3	48	-	-	-	.0764	.0845	.0845	.0774	.0787	.0801	.0814	.0828
	-	56	-	-	.0797	.0865	.0865	.0804	.0816	.0828	.0839	.0851
#4	40	-	-	-	.0849	.0939	.0939	.0860	.0876	.0893	.0909	.0925
	-	48	-	-	.0894	.0968	.0968	.0904	.0917	.0931	.0944	.0958
#5	40	-	-	-	.0979	.1062	.1062	.0990	.1006	.1023	.1039	.1055
	-	44	-	-	.1004	.1079	.1079	.1014	.1029	.1043	.1058	.1073
#6	32	-	-	-	.1040	.1140	.1140	.1055	.1076	.1096	.1116	.1136
	-	40	-	-	.1110	.1190	.1186	.1120	.1136	.1153	.1169	.1185
#8	32	-	-	-	.1300	.1390	.1389	.1315	.1336	.1356	.1376	.1396
	-	36	-	-	.1340	.1420	.1416	.1351	.1369	.1387	.1405	.1424
#10	24	-	-	-	.1450	.1560	.1555	.1467	.1494	.1521	.1548	.1575
	-	32	-	-	.1560	.1640	.1641	.1575	.1596	.1616	.1636	.1656
#12	24	-	-	-	.1710	.1810	.1807	.1727	.1754	.1781	.1808	.1835
	-	28	-	-	.1770	.1860	.1857	.1789	.1812	.1835	.1858	.1882
	-	-	32	-	.1820	.1900	.1895	.1835	.1856	.1876	.1896	.1916
1/4	20	-	-	-	.1960	.2070	.2067	.1980	.2013	.2045	.2078	.2110
	-	28	-	-	.2110	.2200	.2190	.2129	.2152	.2175	.2198	.2222
	-	-	32	-	.2160	.2240	.2229	.2175	.2196	.2216	.2236	.2256
5/16	18	-	-	-	.2520	.2650	.2630	.2548	.2584	.2620	.2656	.2692
	-	-	-	20	.2580	.2700	.2680	.2605	.2638	.2670	.2703	.2735
	-	24	-	-	.2670	.2770	.2754	.2692	.2719	.2746	.2773	.2800
	-	-	-	28	.2740	.2820	.2807	.2754	.2777	.2800	.2823	.2847
	-	-	32	-	.2790	.2860	.2847	.2800	.2821	.2841	.2861	.2881
3/8	16	-	-	-	.3070	.3210	.3182	.3101	.3141	.3182	.3222	.3263
	-	-	-	20	.3210	.3320	.3297	.3230	.3263	.3295	.3328	.3360
	-	24	-	-	.3300	.3400	.3372	.3317	.3344	.3371	.3398	.3425
	-	-	-	28	.3360	.3450	.3426	.3379	.3402	.3425	.3448	.3472
	-	-	32	-	.3410	.3490	.3469	.3425	.3446	.3466	.3486	.3506
7/16	14	-	-	-	.3600	.3760	.3717	.3633	.3679	.3726	.3772	.3818
	-	-	-	16	.3700	.3840	.3800	.3726	.3766	.3807	.3847	.3888
	-	20	-	-	.3830	.3950	.3916	.3855	.3888	.3920	.3953	.3985
	-	-	28	-	.3990	.4070	.4051	.4004	.4027	.4050	.4073	.4097
	-	-	-	32	.4040	.4110	.4094	.4050	.4071	.4091	.4111	.4131
1/2	13	-	-	-	.4170	.4340	.4284	.4201	.4251	.4301	.4351	.4400
	-	-	-	16	.4320	.4460	.4419	.4351	.4391	.4432	.4472	.4513
	-	20	-	-	.4460	.4570	.4537	.4480	.4513	.4545	.4578	.4610
	-	-	28	-	.4610	.4700	.4676	.4629	.4652	.4675	.4698	.4722
	-	-	-	32	.4660	.4740	.4719	.4675	.4696	.4716	.4736	.4756
9/16	12	-	-	-	.4720	.4900	.4843	.4759	.4813	.4867	.4921	.4976
	-	-	-	16	.4950	.5090	.5040	.4976	.5016	.5057	.5097	.5138
	-	18	-	-	.5020	.5150	.5106	.5048	.5084	.5120	.5156	.5192
	-	-	-	20	.5080	.5200	.5162	.5105	.5138	.5170	.5203	.5235
	-	-	24	-	.5170	.5270	.5244	.5192	.5219	.5246	.5273	.5300
	-	-	-	28	.5240	.5320	.5301	.5254	.5277	.5300	.5323	.5347
	-	-	-	32	.5290	.5360	.5344	.5300	.5321	.5341	.5361	.5381
5/8	11	-	-	-	.5270	.5460	.5391	.5305	.5364	.5423	.5482	.5541
	-	-	-	12	.5350	.5530	.5463	.5384	.5438	.5492	.5546	.5601
	-	-	-	16	.5570	.5710	.5662	.5601	.5641	.5682	.5722	.5763

Size	Threads Per Inch				Minor Diameter			Tap Drill Diameter (Cutting Tap)				
	UNC	UNF	UNEF	UN	Min. 2B&3B	Max. 2B	Max. 3B	80% Thread	75% Thread	70% Thread	65% Thread	60% Thread
5/8	-	18	-	-	.5650	.5780	.5730	.5673	.5709	.5745	.5781	.5817
	-	-	-	20	.5710	.5820	.5787	.5730	.5763	.5795	.5828	.5860
	-	-	24	-	.5800	.5900	.5869	.5817	.5844	.5871	.5898	.5925
	-	-	-	28	.5860	.5950	.5926	.5879	.5902	.5925	.5948	.5972
	-	-	-	32	.5910	.5980	.5969	.5925	.5946	.5966	.5986	.6006
11/16	-	-	-	12	.5970	.6150	.6085	.6009	.6063	.6117	.6171	.6226
	-	-	-	16	.6200	.6340	.6284	.6226	.6266	.6307	.6347	.6388
	-	-	-	20	.6330	.6450	.6412	.6355	.6388	.6420	.6453	.6485
	-	-	24	-	.6420	.6520	.6494	.6442	.6469	.6496	.6523	.6550
	-	-	-	28	.6490	.6570	.6551	.6504	.6527	.6550	.6573	.6597
	-	-	-	32	.6540	.6610	.6594	.6550	.6571	.6591	.6611	.6631
3/4	10	-	-	-	.6420	.6630	.6545	.6461	.6526	.6591	.6656	.6721
	-	-	-	12	.6600	.6780	.6707	.6634	.6688	.6742	.6796	.6851
	-	16	-	-	.6820	.6960	.6908	.6851	.6891	.6932	.6972	.7013
	-	-	20	-	.6960	.7070	.7037	.6980	.7013	.7045	.7078	.7110
	-	-	-	28	.7110	.7200	.7176	.7129	.7152	.7175	.7198	.7222
	-	-	-	32	.7160	.7240	.7219	.7175	.7196	.7216	.7236	.7256
13/16	-	-	-	12	.7220	.7400	.7329	.7259	.7313	.7367	.7421	.7476
	-	-	-	16	.7450	.7590	.7533	.7476	.7516	.7557	.7597	.7638
	-	-	20	-	.7580	.7700	.7662	.7605	.7638	.7670	.7703	.7735
	-	-	-	28	.7740	.7820	.7801	.7754	.7777	.7800	.7823	.7847
	-	-	-	32	.7790	.7860	.7844	.7800	.7821	.7841	.7861	.7881
7/8	9	-	-	-	.7550	.7780	.7681	.7595	.7668	.7740	.7812	.7884
	-	-	-	12	.7850	.8030	.7948	.7884	.7938	.7992	.8046	.8101
	-	14	-	-	.7980	.8140	.8068	.8008	.8054	.8101	.8147	.8193
	-	-	-	16	.8070	.8210	.8158	.8101	.8141	.8182	.8222	.8263
	-	-	20	-	.8210	.8320	.8287	.8230	.8263	.8295	.8328	.8360
	-	-	-	28	.8360	.8450	.8426	.8379	.8402	.8425	.8448	.8472
	-	-	-	32	.8410	.8490	.8469	.8425	.8446	.8466	.8486	.8506
15/16	-	-	-	12	.8470	.8650	.8575	.8509	.8563	.8617	.8671	.8726
	-	-	-	16	.8700	.8840	.8783	.8726	.8766	.8807	.8847	.8888
	-	-	20	-	.8830	.8950	.8912	.8855	.8888	.8920	.8953	.8985
	-	-	-	28	.8990	.9070	.9051	.9004	.9027	.9050	.9073	.9097
	-	-	-	32	.9040	.9110	.9094	.9050	.9071	.9091	.9111	.9131
1"	8	-	-	-	.8650	.8900	.8797	.8701	.8782	.8863	.8945	.9026
	-	12	-	-	.9100	.9280	.9198	.9134	.9188	.9242	.9296	.9351
	-	-	-	16	.9320	.9460	.9408	.9351	.9391	.9432	.9472	.9513
	-	-	20	-	.9460	.9570	.9537	.9480	.9513	.9545	.9578	.9610
	-	-	-	28	.9610	.9700	.9676	.9629	.9652	.9675	.9698	.9722
	-	-	-	32	.9660	.9740	.9719	.9675	.9696	.9716	.9736	.9756
1-1/16	-	-	-	8	.9270	.9520	.9422	.9326	.9407	.9488	.9570	.9651
	-	-	-	12	.9720	.9900	.9823	.9759	.9813	.9867	.9921	.9976
	-	-	-	16	.9950	1.0090	1.0033	.9976	1.0016	1.0057	1.0097	1.0138
	-	-	18	-	1.0020	1.0150	1.0105	1.0048	1.0084	1.0120	1.0156	1.0192
	-	-	-	20	1.0080	1.0200	1.0162	1.0105	1.0138	1.0170	1.0203	1.0235
	-	-	-	28	1.0240	1.0320	1.0301	1.0254	1.0277	1.0300	1.0323	1.0347
1-1/8	7	-	-	-	.9700	.9980	.9875	.9765	.9858	.9951	1.0044	1.0137
	-	-	-	8	.9900	1.0150	1.0047	.9951	1.0032	1.0113	1.0195	1.0276
	-	12	-	-	1.0350	1.0530	1.0448	1.0384	1.0438	1.0492	1.0546	1.0601
	-	-	-	16	1.0570	1.0710	1.0658	1.0601	1.0641	1.0682	1.0722	1.0763
	-	-	18	-	1.0650	1.0780	1.0730	1.0673	1.0709	1.0745	1.0781	1.0817
	-	-	-	20	1.0710	1.0820	1.0787	1.0730	1.0763	1.0795	1.0828	1.0860
	-	-	-	28	1.0860	1.0950	1.0926	1.0879	1.0902	1.0925	1.0948	1.0972

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TAP DRILL SIZES - UNIFIED THREAD

Size	Threads Per Inch				Minor Diameter			Tap Drill Diameter (Cutting Tap)				
	UNC	UNF	UNEF	UN	Min. 2B&3B	Max. 2B	Max. 3B	80% Thread	75% Thread	70% Thread	65% Thread	60% Thread
1-3/16	-	-	-	8	1.0520	1.0770	1.0672	1.0576	1.0657	1.0738	1.0820	1.0901
	-	-	-	12	1.0970	1.1150	1.1073	1.1009	1.1063	1.1117	1.1171	1.1226
	-	-	-	16	1.1200	1.1340	1.1283	1.1226	1.1266	1.1307	1.1347	1.1388
	-	-	18	-	1.1270	1.1400	1.1355	1.1298	1.1334	1.1370	1.1406	1.1442
	-	-	-	20	1.1330	1.1450	1.1412	1.1355	1.1388	1.1420	1.1453	1.1485
	-	-	-	28	1.1490	1.1570	1.1551	1.1504	1.1527	1.1550	1.1573	1.1597
1-1/4	7	-	-	-	1.0950	1.1230	1.1125	1.1015	1.1108	1.1201	1.1294	1.1387
	-	-	-	8	1.1150	1.1400	1.1297	1.1201	1.1282	1.1363	1.1445	1.1526
	-	12	-	-	1.1600	1.1780	1.1698	1.1634	1.1688	1.1742	1.1796	1.1851
	-	-	-	16	1.1820	1.1960	1.1908	1.1851	1.1891	1.1932	1.1972	1.2013
	-	-	18	-	1.1900	1.2030	1.1980	1.1923	1.1959	1.1995	1.2031	1.2067
	-	-	-	20	1.1960	1.2070	1.2037	1.1980	1.2013	1.2045	1.2078	1.2110
	-	-	-	28	1.2110	1.2200	1.2176	1.2129	1.2152	1.2175	1.2198	1.2222
1-5/16	-	-	-	8	1.1770	1.2020	1.1922	1.1826	1.1907	1.1988	1.2070	1.2151
	-	-	-	12	1.2220	1.2400	1.2323	1.2259	1.2313	1.2367	1.2421	1.2476
	-	-	-	16	1.2450	1.2590	1.2533	1.2476	1.2516	1.2557	1.2597	1.2638
	-	-	18	-	1.2520	1.2650	1.2605	1.2548	1.2584	1.2620	1.2656	1.2692
	-	-	-	20	1.2580	1.2700	1.2662	1.2605	1.2638	1.2670	1.2703	1.2735
	-	-	-	28	1.2740	1.2820	1.2801	1.2754	1.2777	1.2800	1.2823	1.2847
1-3/8	6	-	-	-	1.1950	1.2250	1.2146	1.2018	1.2126	1.2235	1.2343	1.2451
	-	-	-	8	1.2400	1.2650	1.2547	1.2451	1.2532	1.2613	1.2695	1.2776
	-	12	-	-	1.2850	1.3030	1.2948	1.2884	1.2938	1.2992	1.3046	1.3101
	-	-	-	16	1.3070	1.3210	1.3158	1.3101	1.3141	1.3182	1.3222	1.3263
	-	-	18	-	1.3150	1.3280	1.3230	1.3173	1.3209	1.3245	1.3281	1.3317
	-	-	-	20	1.3210	1.3320	1.3287	1.3230	1.3263	1.3295	1.3328	1.3360
	-	-	-	28	1.3360	1.3450	1.3426	1.3379	1.3402	1.3425	1.3448	1.3472
1-7/16	-	-	-	6	1.2570	1.2880	1.2771	1.2643	1.2751	1.2860	1.2968	1.3076
	-	-	-	8	1.3020	1.3270	1.3172	1.3076	1.3157	1.3238	1.3320	1.3401
	-	-	-	12	1.3470	1.3650	1.3573	1.3509	1.3563	1.3617	1.3671	1.3726
	-	-	-	16	1.3700	1.3840	1.3783	1.3726	1.3766	1.3807	1.3847	1.3888
	-	-	18	-	1.3770	1.3900	1.3855	1.3798	1.3834	1.3870	1.3906	1.3942
	-	-	-	20	1.3830	1.3950	1.3912	1.3855	1.3888	1.3920	1.3953	1.3985
	-	-	-	28	1.3990	1.4070	1.4051	1.4004	1.4027	1.4050	1.4073	1.4097
1-1/2	6	-	-	-	1.3200	1.3500	1.3396	1.3268	1.3376	1.3485	1.3593	1.3701
	-	-	-	8	1.3650	1.3900	1.3797	1.3701	1.3782	1.3863	1.3945	1.4026
	-	12	-	-	1.4100	1.4280	1.4198	1.4134	1.4188	1.4242	1.4296	1.4351
	-	-	-	16	1.4320	1.4460	1.4408	1.4351	1.4391	1.4432	1.4472	1.4513
	-	-	18	-	1.4400	1.4520	1.4480	1.4423	1.4459	1.4495	1.4531	1.4567
	-	-	-	20	1.4460	1.4570	1.4537	1.4480	1.4513	1.4545	1.4578	1.4610
	-	-	-	28	1.4610	1.4700	1.4676	1.4629	1.4652	1.4675	1.4698	1.4722
1-9/16	-	-	-	6	1.3820	1.4130	1.4021	1.3893	1.4001	1.4110	1.4218	1.4326
	-	-	-	8	1.4270	1.4520	1.4422	1.4326	1.4407	1.4488	1.4570	1.4651
	-	-	-	12	1.4720	1.4900	1.4823	1.4759	1.4813	1.4867	1.4921	1.4976
	-	-	-	16	1.4950	1.5090	1.5033	1.4976	1.5016	1.5057	1.5097	1.5138
	-	-	18	-	1.5020	1.5150	1.5105	1.5048	1.5084	1.5120	1.5156	1.5192
	-	-	-	20	1.5080	1.5200	1.5162	1.5105	1.5138	1.5170	1.5203	1.5235
1-5/8	-	-	-	6	1.4450	1.4750	1.4646	1.4518	1.4626	1.4735	1.4843	1.4951
	-	-	-	8	1.4900	1.5150	1.5047	1.4951	1.5032	1.5113	1.5195	1.5276
	-	-	-	12	1.5350	1.5530	1.5448	1.5384	1.5438	1.5492	1.5546	1.5601
	-	-	-	16	1.5570	1.5710	1.5658	1.5601	1.5641	1.5682	1.5722	1.5763
	-	-	18	-	1.5650	1.5780	1.5730	1.5673	1.5709	1.5745	1.5781	1.5817
	-	-	-	20	1.5710	1.5820	1.5787	1.5730	1.5763	1.5795	1.5828	1.5860

Size	Threads Per Inch				Minor Diameter			Tap Drill Diameter (Cutting Tap)				
	UNC	UNF	UNEF	UN	Min. 2B&3B	Max. 2B	Max. 3B	80% Thread	75% Thread	70% Thread	65% Thread	60% Thread
1-11/16	-	-	-	6	1.5070	1.5380	1.5271	1.5143	1.5251	1.5360	1.5468	1.5576
	-	-	-	8	1.5520	1.5770	1.5672	1.5576	1.5657	1.5738	1.5820	1.5901
	-	-	-	12	1.5970	1.6150	1.6073	1.6009	1.6063	1.6117	1.6171	1.6226
	-	-	-	16	1.6200	1.6340	1.6283	1.6226	1.6266	1.6307	1.6347	1.6388
	-	-	18	-	1.6270	1.6400	1.6355	1.6298	1.6334	1.6370	1.6406	1.6442
	-	-	-	20	1.6330	1.6450	1.6412	1.6355	1.6388	1.6420	1.6453	1.6485
1-3/4	5	-	-	-	1.5340	1.5680	1.5575	1.5422	1.5552	1.5681	1.5811	1.5941
	-	-	-	6	1.5700	1.6000	1.5896	1.5768	1.5876	1.5985	1.6093	1.6201
	-	-	-	8	1.6150	1.6400	1.6297	1.6201	1.6282	1.6363	1.6445	1.6526
	-	-	-	12	1.6600	1.6780	1.6698	1.6634	1.6688	1.6742	1.6796	1.6851
	-	-	-	16	1.6820	1.6960	1.6908	1.6851	1.6891	1.6932	1.6972	1.7013
	-	-	-	20	1.6960	1.7070	1.7037	1.6980	1.7013	1.7045	1.7078	1.7110
1-13/16	-	-	-	6	1.6320	1.6630	1.6521	1.6393	1.6501	1.6610	1.6718	1.6826
	-	-	-	8	1.6770	1.7020	1.6922	1.6826	1.6907	1.6988	1.7070	1.7151
	-	-	-	12	1.7220	1.7400	1.7323	1.7259	1.7313	1.7367	1.7421	1.7476
	-	-	-	16	1.7450	1.7590	1.7533	1.7476	1.7516	1.7557	1.7597	1.7638
	-	-	-	20	1.7580	1.7700	1.7662	1.7605	1.7638	1.7670	1.7703	1.7735
1-7/8	-	-	-	6	1.6950	1.7250	1.7146	1.7018	1.7126	1.7235	1.7343	1.7451
	-	-	-	8	1.7400	1.7650	1.7547	1.7451	1.7532	1.7613	1.7695	1.7776
	-	-	-	12	1.7850	1.8030	1.7948	1.7884	1.7938	1.7992	1.8046	1.8101
	-	-	-	16	1.8070	1.8210	1.8158	1.8101	1.8141	1.8182	1.8222	1.8263
	-	-	-	20	1.8210	1.8320	1.8287	1.8230	1.8263	1.8295	1.8328	1.8360
1-15/16	-	-	-	6	1.7570	1.7880	1.7771	1.7643	1.7751	1.7860	1.7968	1.8076
	-	-	-	8	1.8020	1.8270	1.8172	1.8076	1.8157	1.8238	1.8320	1.8401
	-	-	-	12	1.8470	1.8650	1.8573	1.8509	1.8563	1.8617	1.8671	1.8726
	-	-	-	16	1.8700	1.8840	1.8783	1.8726	1.8766	1.8807	1.8847	1.8888
	-	-	-	20	1.8830	1.8950	1.8912	1.8855	1.8888	1.8920	1.8953	1.8985
2"	4 1/2	-	-	-	1.7590	1.7950	1.7861	1.7691	1.7835	1.7979	1.8124	1.8268
	-	-	-	6	1.8200	1.8500	1.8396	1.8268	1.8376	1.8485	1.8593	1.8701
	-	-	-	8	1.8650	1.8900	1.8797	1.8701	1.8782	1.8863	1.8945	1.9026
	-	-	-	12	1.9100	1.9280	1.9198	1.9134	1.9188	1.9242	1.9296	1.9351
	-	-	-	16	1.9320	1.9460	1.9408	1.9351	1.9391	1.9432	1.9472	1.9513
	-	-	-	20	1.9460	1.9570	1.9537	1.9480	1.9513	1.9545	1.9578	1.9610
2-1/8	-	-	-	6	1.9450	1.9750	1.9646	1.9518	1.9626	1.9735	1.9843	1.9951
	-	-	-	8	1.9900	2.0150	2.0047	1.9951	2.0032	2.0113	2.0195	2.0276
	-	-	-	12	2.0350	2.0530	2.0448	2.0384	2.0438	2.0492	2.0546	2.0601
	-	-	-	16	2.0570	2.0710	2.0658	2.0601	2.0641	2.0682	2.0722	2.0763
	-	-	-	20	2.0710	2.0820	2.0787	2.0730	2.0763	2.0795	2.0828	2.0860
2-1/4	4 1/2	-	-	-	2.0090	2.0450	2.0361	2.0191	2.0335	2.0479	2.0624	2.0768
	-	-	-	6	2.0700	2.1000	2.0896	2.0768	2.0876	2.0985	2.1093	2.1201
	-	-	-	8	2.1150	2.1400	2.1297	2.1201	2.1282	2.1363	2.1445	2.1526
	-	-	-	12	2.1600	2.1780	2.1698	2.1634	2.1688	2.1742	2.1796	2.1851
	-	-	-	16	2.1820	2.1960	2.1908	2.1851	2.1891	2.1932	2.1972	2.2013
	-	-	-	20	2.1960	2.2070	2.2037	2.1980	2.2013	2.2045	2.2078	2.2110
2-3/8	-	-	-	6	2.1950	2.2260	2.2146	2.2018	2.2126	2.2235	2.2343	2.2451
	-	-	-	8	2.2400	2.2650	2.2547	2.2451	2.2532	2.2613	2.2695	2.2776
	-	-	-	12	2.2850	2.3030	2.2948	2.2884	2.2938	2.2992	2.3046	2.3101
	-	-	-	16	2.3070	2.3210	2.3158	2.3101	2.3141	2.3182	2.3222	2.3263
	-	-	-	20	2.3210	2.3320	2.3287	2.3230	2.3263	2.3295	2.3328	2.3360
2-1/2	4	-	-	-	2.2290	2.2670	2.2594	2.2402	2.2564	2.2727	2.2889	2.3052
	-	-	-	6	2.3200	2.3500	2.3396	2.3268	2.3376	2.3485	2.3593	2.3701
	-	-	-	8	2.3650	2.3900	2.3797	2.3701	2.3782	2.3863	2.3945	2.4026
	-	-	-	12	2.4100	2.4280	2.4198	2.4134	2.4188	2.4242	2.4296	2.4351
	-	-	-	16	2.4320	2.4460	2.4408	2.4351	2.4391	2.4432	2.4472	2.4513
	-	-	-	20	2.4460	2.4570	2.4537	2.4480	2.4513	2.4545	2.4578	2.4610

TAP DRILL SIZES - METRIC THREAD

Size	Pitch		Minor dia.		Tap Drill Diameter									
	M	MF	Min. 6H	Max. 6H	80% Thread		75% Thread		70% Thread		65% Thread		60% Thread	
					mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
M1	0.25	-	.729	.798	0.74	.0291	0.76	.0298	0.77	.0304	0.79	.0311	0.81	.0317
	-	0.2	.783	.841	0.79	.0312	0.81	.0317	0.82	.0322	0.83	.0327	0.84	.0332
M1.1	0.25	-	.829	.898	0.84	.0331	0.86	.0337	0.87	.0344	0.89	.0350	0.91	.0356
	-	0.2	.883	.941	0.89	.0351	0.91	.0356	0.92	.0361	0.93	.0367	0.94	.0372
M1.2	0.25	-	.929	.998	0.94	.0370	0.96	.0377	0.97	.0383	0.99	.0389	1.01	.0396
	-	0.2	.983	1.041	0.99	.0391	1.01	.0396	1.02	.0401	1.03	.0406	1.04	.0411
M1.4	0.3	-	1.075	1.159	1.09	.0428	1.11	.0436	1.13	.0444	1.15	.0451	1.17	.0459
	-	0.2	1.183	1.241	1.19	.0469	1.21	.0474	1.22	.0480	1.23	.0485	1.24	.0490
M1.6	0.35	-	1.221	1.321	1.24	.0487	1.26	.0496	1.28	.0505	1.30	.0514	1.33	.0523
	-	0.2	1.383	1.441	1.39	.0548	1.41	.0553	1.42	.0558	1.43	.0563	1.44	.0569
M1.7	0.35	-	1.321	1.421	1.34	.0526	1.36	.0535	1.38	.0544	1.40	.0553	1.43	.0562
	-	0.3	1.375	1.459	1.39	.0547	1.41	.0554	1.43	.0562	1.45	.0570	1.47	.0577
	-	0.25	1.429	1.498	1.44	.0567	1.46	.0573	1.47	.0580	1.49	.0586	1.51	.0593
	-	0.2	1.483	1.541	1.49	.0587	1.51	.0593	1.52	.0598	1.53	.0603	1.54	.0608
M1.8	0.35	-	1.421	1.521	1.44	.0565	1.46	.0574	1.48	.0583	1.50	.0592	1.53	.0601
	-	0.2	1.583	1.641	1.59	.0627	1.61	.0632	1.62	.0637	1.63	.0642	1.64	.0647
M2	0.4	-	1.567	1.679	1.58	.0624	1.61	.0634	1.64	.0644	1.66	.0654	1.69	.0665
	-	0.25	1.729	1.798	1.74	.0685	1.76	.0692	1.77	.0698	1.79	.0704	1.81	.0711
M2.2	0.45	-	1.713	1.838	1.73	.0682	1.76	.0694	1.79	.0705	1.82	.0717	1.85	.0728
	-	0.25	1.929	1.998	1.94	.0764	1.96	.0770	1.97	.0777	1.99	.0783	2.01	.0789
M2.3	0.4	-	1.867	1.979	1.88	.0742	1.91	.0752	1.94	.0762	1.96	.0773	1.99	.0783
	-	0.35	1.921	2.021	1.94	.0762	1.96	.0771	1.98	.0780	2.00	.0789	2.03	.0798
	-	0.25	2.029	2.098	2.04	.0803	2.06	.0810	2.07	.0816	2.09	.0822	2.11	.0829
M2.5	0.45	-	2.013	2.138	2.03	.0800	2.06	.0812	2.09	.0823	2.12	.0835	2.15	.0846
	-	0.35	2.121	2.221	2.14	.0841	2.16	.0850	2.18	.0859	2.20	.0868	2.23	.0877
M2.6	0.45	-	2.113	2.238	2.13	.0840	2.16	.0851	2.19	.0863	2.22	.0874	2.25	.0886
	-	0.35	2.221	2.321	2.24	.0880	2.26	.0889	2.28	.0898	2.30	.0907	2.33	.0916
M3	0.5	-	2.459	2.599	2.48	.0977	2.51	.0989	2.55	.1002	2.58	.1015	2.61	.1028
	-	0.35	2.621	2.721	2.64	.1038	2.66	.1047	2.68	.1056	2.70	.1065	2.73	.1074
M3.5	0.6	-	2.850	3.010	2.88	.1132	2.92	.1148	2.95	.1163	2.99	.1178	3.03	.1194
	-	0.35	3.121	3.221	3.14	.1235	3.16	.1244	3.18	.1253	3.20	.1262	3.23	.1271
M4	0.7	-	3.242	3.422	3.27	.1288	3.32	.1306	3.36	.1324	3.41	.1342	3.45	.1360
	-	0.5	3.459	3.599	3.48	.1370	3.51	.1383	3.55	.1396	3.58	.1409	3.61	.1421
M4.5	0.75	-	3.688	3.878	3.72	.1465	3.77	.1484	3.82	.1503	3.87	.1522	3.92	.1542
	-	0.5	3.959	4.099	3.98	.1567	4.01	.1580	4.05	.1593	4.08	.1605	4.11	.1618
M5	0.9	-	4.026	4.226	4.06	.1600	4.12	.1623	4.18	.1646	4.24	.1669	4.30	.1692
	0.8	-	4.134	4.334	4.17	.1641	4.22	.1662	4.27	.1682	4.32	.1703	4.38	.1723
	-	0.5	4.459	4.599	4.48	.1764	4.51	.1777	4.55	.1790	4.58	.1802	4.61	.1815
M5.5	-	0.9	4.526	4.726	4.56	.1797	4.62	.1820	4.68	.1843	4.74	.1866	4.80	.1889
	-	0.75	4.688	4.878	4.72	.1858	4.77	.1878	4.82	.1897	4.87	.1916	4.92	.1935
	-	0.5	4.959	5.099	4.98	.1961	5.01	.1974	5.05	.1986	5.08	.1999	5.11	.2012
M6	1	-	4.917	5.153	4.96	.1953	5.03	.1979	5.09	.2004	5.16	.2030	5.22	.2055
	-	0.75	5.188	5.378	5.22	.2055	5.27	.2075	5.32	.2094	5.37	.2113	5.42	.2132
	-	0.5	5.459	5.599	5.48	.2158	5.51	.2170	5.55	.2183	5.58	.2196	5.61	.2209
M7	1	-	5.917	6.153	5.96	.2347	6.03	.2372	6.09	.2398	6.16	.2423	6.22	.2449
	-	0.75	6.188	6.378	6.22	.2449	6.27	.2468	6.32	.2487	6.37	.2507	6.42	.2526
	-	0.5	6.459	6.599	6.48	.2551	6.51	.2564	6.55	.2577	6.58	.2590	6.61	.2602
M8	1.25	-	6.647	6.912	6.70	.2638	6.78	.2670	6.86	.2702	6.94	.2734	7.03	.2766
	-	1	6.917	7.153	6.96	.2740	7.03	.2766	7.09	.2792	7.16	.2817	7.22	.2843
	-	0.75	7.188	7.378	7.22	.2843	7.27	.2862	7.32	.2881	7.37	.2900	7.42	.2919
	-	0.5	7.459	7.599	7.48	.2945	7.51	.2958	7.55	.2971	7.58	.2983	7.61	.2996

Size	Pitch		Minor dia.		Tap Drill Diameter									
	M	MF	Min. 6H	Max. 6H	80% Thread		75% Thread		70% Thread		65% Thread		60% Thread	
					mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
M9	1.25	-	7.647	7.912	7.70	.3032	7.78	.3064	7.86	.3096	7.94	.3128	8.03	.3160
	-	1	7.917	8.153	7.96	.3134	8.03	.3160	8.09	.3185	8.16	.3211	8.22	.3236
	-	0.75	8.188	8.378	8.22	.3236	8.27	.3256	8.32	.3275	8.37	.3294	8.42	.3313
	-	0.5	8.459	8.599	8.48	.3339	8.51	.3352	8.55	.3364	8.58	.3377	8.61	.3390
M10	1.5	-	8.376	8.676	8.44	.3323	8.54	.3362	8.64	.3400	8.73	.3438	8.83	.3477
	-	1.25	8.647	8.912	8.70	.3426	8.78	.3458	8.86	.3490	8.94	.3521	9.03	.3553
	-	1	8.917	9.153	8.96	.3528	9.03	.3553	9.09	.3579	9.16	.3605	9.22	.3630
	-	0.75	9.188	9.378	9.22	.3630	9.27	.3649	9.32	.3669	9.37	.3688	9.42	.3707
	-	0.5	9.459	9.599	9.48	.3732	9.51	.3745	9.55	.3758	9.58	.3771	9.61	.3784
M11	1.5	-	9.376	9.676	9.44	.3717	9.54	.3755	9.64	.3794	9.73	.3832	9.83	.3870
	-	1	9.917	10.153	9.96	.3922	10.03	.3947	10.09	.3973	10.16	.3998	10.22	.4024
	-	0.75	10.188	10.378	10.22	.4024	10.27	.4043	10.32	.4062	10.37	.4081	10.42	.4101
	-	0.5	10.459	10.599	10.48	.4126	10.51	.4139	10.55	.4152	10.58	.4164	10.61	.4177
M12	1.75	-	10.106	10.441	10.18	.4008	10.30	.4053	10.41	.4098	10.52	.4143	10.64	.4187
	-	1.5	10.376	10.676	10.44	.4111	10.54	.4149	10.64	.4187	10.73	.4226	10.83	.4264
	-	1.25	10.647	10.912	10.70	.4213	10.78	.4245	10.86	.4277	10.94	.4309	11.03	.4341
	-	1	10.917	11.153	10.96	.4315	11.03	.4341	11.09	.4366	11.16	.4392	11.22	.4418
	-	0.75	11.188	11.378	11.22	.4418	11.27	.4437	11.32	.4456	11.37	.4475	11.42	.4494
	-	0.5	11.459	11.599	11.48	.4520	11.51	.4533	11.55	.4545	11.58	.4558	11.61	.4571
M13	-	1.75	11.106	11.441	11.18	.4402	11.30	.4447	11.41	.4492	11.52	.4536	11.64	.4581
	-	1.5	11.376	11.676	11.44	.4504	11.54	.4543	11.64	.4581	11.73	.4619	11.83	.4658
	-	1.25	11.647	11.912	11.70	.4607	11.78	.4639	11.86	.4671	11.94	.4703	12.03	.4735
	-	1	11.917	12.153	11.96	.4709	12.03	.4735	12.09	.4760	12.16	.4786	12.22	.4811
	-	0.75	12.188	12.378	12.22	.4811	12.27	.4830	12.32	.4850	12.37	.4869	12.42	.4888
	-	0.5	12.459	12.599	12.48	.4914	12.51	.4926	12.55	.4939	12.58	.4952	12.61	.4965
M14	2	-	11.835	12.210	11.92	.4694	12.05	.4745	12.18	.4796	12.31	.4847	12.44	.4898
	-	1.5	12.376	12.676	12.44	.4898	12.54	.4936	12.64	.4975	12.73	.5013	12.83	.5052
	-	1.25	12.647	12.912	12.70	.5000	12.78	.5032	12.86	.5064	12.94	.5096	13.03	.5128
	-	1	12.917	13.153	12.96	.5103	13.03	.5128	13.09	.5154	13.16	.5179	13.22	.5205
	-	0.75	13.188	13.378	13.22	.5205	13.27	.5224	13.32	.5243	13.37	.5262	13.42	.5282
	-	0.5	13.459	13.599	13.48	.5307	13.51	.5320	13.55	.5333	13.58	.5346	13.61	.5358
M15	-	2	12.835	13.210	12.92	.5087	13.05	.5138	13.18	.5190	13.31	.5241	13.44	.5292
	-	1.5	13.376	13.676	13.44	.5292	13.54	.5330	13.64	.5369	13.73	.5407	13.83	.5445
	-	1.25	13.647	13.912	13.70	.5394	13.78	.5426	13.86	.5458	13.94	.5490	14.03	.5522
	-	1	13.917	14.153	13.96	.5496	14.03	.5522	14.09	.5548	14.16	.5573	14.22	.5599
	-	0.75	14.188	14.378	14.22	.5599	14.27	.5618	14.32	.5637	14.37	.5656	14.42	.5675
	-	0.5	14.459	14.599	14.48	.5701	14.51	.5714	14.55	.5727	14.58	.5739	14.61	.5752
M16	2	-	13.835	14.210	13.92	.5481	14.05	.5532	14.18	.5583	14.31	.5634	14.44	.5685
	-	1.5	14.376	14.676	14.44	.5685	14.54	.5724	14.64	.5762	14.73	.5801	14.83	.5839
	-	1	14.917	15.153	14.96	.5890	15.03	.5916	15.09	.5941	15.16	.5967	15.22	.5992
M17	-	2	14.835	15.210	14.92	.5875	15.05	.5926	15.18	.5977	15.31	.6028	15.44	.6079
	-	1.5	15.376	15.676	15.44	.6079	15.54	.6118	15.64	.6156	15.73	.6194	15.83	.6233
	-	1.25	15.647	15.912	15.70	.6181	15.78	.6213	15.86	.6245	15.94	.6277	16.03	.6309
	-	1	15.917	16.153	15.96	.6284	16.03	.6309	16.09	.6335	16.16	.6360	16.22	.6386
	-	0.75	16.188	16.378	16.22	.6386	16.27	.6405	16.32	.6424	16.37	.6444	16.42	.6463
	-	0.5	16.459	16.599	16.48	.6488	16.51	.6501	16.55	.6514	16.58	.6527	16.61	.6539
M18	2.5	-	15.294	15.744	15.40	.6064	15.56	.6128	15.73	.6192	15.89	.6256	16.05	.6319
	-	2	15.835	16.210	15.92	.6268	16.05	.6319	16.18	.6371	16.31	.6422	16.44	.6473
	-	1.5	16.376	16.676	16.44	.6473	16.54	.6511	16.64	.6550	16.73	.6588	16.83	.6626
	-	1	16.917	17.153	16.96	.6677	17.03	.6703	17.09	.6729	17.16	.6754	17.22	.6780

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TAP DRILL SIZES - METRIC THREAD

Size	Pitch		Minor dia.		Tap Drill Diameter									
	M	MF	Min. 6H	Max. 6H	80% Thread		75% Thread		70% Thread		65% Thread		60% Thread	
					mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
M19	-	2.5	16.294	16.744	16.40	.6457	16.56	.6521	16.73	.6585	16.89	.6649	17.05	.6713
	-	2	16.835	17.210	16.92	.6662	17.05	.6713	17.18	.6764	17.31	.6815	17.44	.6867
	-	1.5	17.376	17.676	17.44	.6867	17.54	.6905	17.64	.6943	17.73	.6982	17.83	.7020
	-	1.25	17.647	17.912	17.70	.6969	17.78	.7001	17.86	.7033	17.94	.7065	18.03	.7097
	-	1	17.917	18.153	17.96	.7071	18.03	.7097	18.09	.7122	18.16	.7148	18.22	.7173
	-	0.75	18.188	18.378	18.22	.7173	18.27	.7193	18.32	.7212	18.37	.7231	18.42	.7250
	-	0.5	18.459	18.599	18.48	.7276	18.51	.7289	18.55	.7301	18.58	.7314	18.61	.7327
M20	2.5	-	17.294	17.744	17.40	.6851	17.56	.6915	17.73	.6979	17.89	.7043	18.05	.7107
	-	2	17.835	18.210	17.92	.7056	18.05	.7107	18.18	.7158	18.31	.7209	18.44	.7260
	-	1.5	18.376	18.676	18.44	.7260	18.54	.7299	18.64	.7337	18.73	.7375	18.83	.7414
	-	1	18.917	19.153	18.96	.7465	19.03	.7490	19.09	.7516	19.16	.7542	19.22	.7567
M21	-	2.5	18.294	18.744	18.40	.7245	18.56	.7309	18.73	.7373	18.89	.7437	19.05	.7501
	-	1.5	19.376	19.676	19.44	.7654	19.54	.7692	19.64	.7731	19.73	.7769	19.83	.7807
	-	1	19.917	20.153	19.96	.7859	20.03	.7884	20.09	.7910	20.16	.7935	20.22	.7961
M22	2.5	-	19.294	19.744	19.40	.7639	19.56	.7702	19.73	.7766	19.89	.7830	20.05	.7894
	-	2	19.835	20.210	19.92	.7843	20.05	.7894	20.18	.7945	20.31	.7997	20.44	.8048
	-	1.5	20.376	20.676	20.44	.8048	20.54	.8086	20.64	.8124	20.73	.8163	20.83	.8201
	-	1	20.917	21.153	20.96	.8252	21.03	.8278	21.09	.8303	21.16	.8329	21.22	.8355
M23	-	2.5	20.294	20.744	20.40	.8032	20.56	.8096	20.73	.8160	20.89	.8224	21.05	.8288
	-	2	20.835	21.210	20.92	.8237	21.05	.8288	21.18	.8339	21.31	.8390	21.44	.8441
	-	1.5	21.376	21.676	21.44	.8441	21.54	.8480	21.64	.8518	21.73	.8556	21.83	.8595
	-	1	21.917	22.153	21.96	.8646	22.03	.8672	22.09	.8697	22.16	.8723	22.22	.8748
M24	3	-	20.752	21.252	20.88	.8221	21.08	.8298	21.27	.8375	21.47	.8452	21.66	.8528
	-	2	21.835	22.210	21.92	.8631	22.05	.8682	22.18	.8733	22.31	.8784	22.44	.8835
	-	1.5	22.376	22.676	22.44	.8835	22.54	.8873	22.64	.8912	22.73	.8950	22.83	.8989
	-	1	22.917	23.153	22.96	.9040	23.03	.9065	23.09	.9091	23.16	.9116	23.22	.9142
M25	-	3	21.752	22.252	21.88	.8615	22.08	.8692	22.27	.8769	22.47	.8845	22.66	.8922
	-	2	22.835	23.210	22.92	.9024	23.05	.9075	23.18	.9127	23.31	.9178	23.44	.9229
	-	1.5	23.376	23.676	23.44	.9229	23.54	.9267	23.64	.9306	23.73	.9344	23.83	.9382
	-	1	23.917	24.153	23.96	.9433	24.03	.9459	24.09	.9485	24.16	.9510	24.22	.9536
M26	-	3	22.752	23.252	22.88	.9009	23.08	.9085	23.27	.9162	23.47	.9239	23.66	.9316
	-	2	23.835	24.210	23.92	.9418	24.05	.9469	24.18	.9520	24.31	.9571	24.44	.9623
	-	1.5	24.376	24.676	24.44	.9623	24.54	.9661	24.64	.9699	24.73	.9738	24.83	.9776
M27	3	-	23.752	24.252	23.88	.9402	24.08	.9479	24.27	.9556	24.47	.9633	24.66	.9709
	-	2.5	24.294	24.744	24.40	.9607	24.56	.9671	24.73	.9735	24.89	.9799	25.05	.9863
	-	2	24.835	25.210	24.92	.9812	25.05	.9863	25.18	.9914	25.31	.9965	25.44	1.0016
	-	1.5	25.376	25.676	25.44	1.0016	25.54	1.0055	25.64	1.0093	25.73	1.0131	25.83	1.0170
	-	1	25.917	26.153	25.96	1.0221	26.03	1.0246	26.09	1.0272	26.16	1.0297	26.22	1.0323
M28	-	3	24.752	25.252	24.88	.9796	25.08	.9873	25.27	.9950	25.47	1.0026	25.66	1.0103
	-	2	25.835	26.210	25.92	1.0205	26.05	1.0256	26.18	1.0308	26.31	1.0359	26.44	1.0410
	-	1.5	26.376	26.676	26.44	1.0410	26.54	1.0448	26.64	1.0487	26.73	1.0525	26.83	1.0563
	-	1	26.917	27.153	26.96	1.0614	27.03	1.0640	27.09	1.0666	27.16	1.0691	27.22	1.0717
M30	3.5	-	26.211	26.771	26.36	1.0379	26.59	1.0469	26.82	1.0558	27.04	1.0648	27.27	1.0737
	-	3	26.752	27.252	26.88	1.0584	27.08	1.0660	27.27	1.0737	27.47	1.0814	27.66	1.0890
	-	2	27.835	28.210	27.92	1.0993	28.05	1.1044	28.18	1.1095	28.31	1.1146	28.44	1.1197
	-	1.5	28.376	28.676	28.44	1.1197	28.54	1.1236	28.64	1.1274	28.73	1.1312	28.83	1.1351
	-	1	28.917	29.153	28.96	1.1402	29.03	1.1427	29.09	1.1453	29.16	1.1479	29.22	1.1504
M32	-	3	28.752	29.252	28.88	1.1371	29.08	1.1448	29.27	1.1524	29.47	1.1601	29.66	1.1678
	-	2	29.835	30.210	29.92	1.1780	30.05	1.1831	30.18	1.1882	30.31	1.1934	30.44	1.1985
	-	1.5	30.376	30.676	30.44	1.1985	30.54	1.2023	30.64	1.2061	30.73	1.2100	30.83	1.2138
M33	3.5	-	29.211	29.771	29.36	1.1560	29.59	1.1650	29.82	1.1739	30.04	1.1829	30.27	1.1918
	-	3	29.752	30.252	29.88	1.1765	30.08	1.1841	30.27	1.1918	30.47	1.1995	30.66	1.2072
	-	2	30.835	31.210	30.92	1.2174	31.05	1.2225	31.18	1.2276	31.31	1.2327	31.44	1.2378
	-	1.5	31.376	31.676	31.44	1.2378	31.54	1.2417	31.64	1.2455	31.73	1.2493	31.83	1.2532
	-	1	31.917	32.153	31.96	1.2583	32.03	1.2609	32.09	1.2634	32.16	1.2660	32.22	1.2685

Size	Pitch		Minor dia.		Tap Drill Diameter									
	M	MF	Min. 6H	Max. 6H	80% Thread		75% Thread		70% Thread		65% Thread		60% Thread	
					mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
M34	-	3	30.752	31.252	30.88	1.2158	31.08	1.2235	31.27	1.2312	31.47	1.2389	31.66	1.2465
	-	2	31.835	32.210	31.92	1.2568	32.05	1.2619	32.18	1.2670	32.31	1.2721	32.44	1.2772
	-	1.5	32.376	32.676	32.44	1.2772	32.54	1.2810	32.64	1.2849	32.73	1.2887	32.83	1.2926
	-	1	32.917	33.153	32.96	1.2977	33.03	1.3002	33.09	1.3028	33.16	1.3053	33.22	1.3079
M35	-	3	31.752	32.252	31.88	1.2552	32.08	1.2629	32.27	1.2706	32.47	1.2782	32.66	1.2859
	-	1.5	33.376	33.676	33.44	1.3166	33.54	1.3204	33.64	1.3243	33.73	1.3281	33.83	1.3319
	-	1	33.917	34.153	33.96	1.3370	34.03	1.3396	34.09	1.3422	34.16	1.3447	34.22	1.3473
M36	4	-	31.670	32.270	31.84	1.2537	32.10	1.2639	32.36	1.2741	32.62	1.2844	32.88	1.2946
	-	3	32.752	33.252	32.88	1.2946	33.08	1.3023	33.27	1.3099	33.47	1.3176	33.66	1.3253
	-	2	33.835	34.210	33.92	1.3355	34.05	1.3406	34.18	1.3457	34.31	1.3508	34.44	1.3560
	-	1.5	34.376	34.676	34.44	1.3560	34.54	1.3598	34.64	1.3636	34.73	1.3675	34.83	1.3713
	-	1	34.917	35.153	34.96	1.3764	35.03	1.3790	35.09	1.3815	35.16	1.3841	35.22	1.3866
M37	-	1.5	35.376	35.676	35.44	1.3953	35.54	1.3992	35.64	1.4030	35.73	1.4068	35.83	1.4107
	-	1	35.917	36.153	35.96	1.4158	36.03	1.4183	36.09	1.4209	36.16	1.4234	36.22	1.4260
M38	-	4	33.670	34.270	33.84	1.3324	34.10	1.3426	34.36	1.3529	34.62	1.3631	34.88	1.3733
	-	3	34.752	35.252	34.88	1.3733	35.08	1.3810	35.27	1.3887	35.47	1.3963	35.66	1.4040
	-	2	35.835	36.210	35.92	1.4142	36.05	1.4193	36.18	1.4245	36.31	1.4296	36.44	1.4347
	-	1.5	36.376	36.676	36.44	1.4347	36.54	1.4385	36.64	1.4424	36.73	1.4462	36.83	1.4500
M39	4	-	34.670	35.270	34.84	1.3718	35.10	1.3820	35.36	1.3922	35.62	1.4025	35.88	1.4127
	-	3	35.752	36.252	35.88	1.4127	36.08	1.4204	36.27	1.4280	36.47	1.4357	36.66	1.4434
	-	2	36.835	37.210	36.92	1.4536	37.05	1.4587	37.18	1.4638	37.31	1.4689	37.44	1.4741
	-	1.5	37.376	37.676	37.44	1.4741	37.54	1.4779	37.64	1.4817	37.73	1.4856	37.83	1.4894
	-	1	37.917	38.153	37.96	1.4945	38.03	1.4971	38.09	1.4996	38.16	1.5022	38.22	1.5047
M40	-	4	35.670	36.270	35.84	1.4111	36.10	1.4214	36.36	1.4316	36.62	1.4418	36.88	1.4521
	-	3	36.752	37.252	36.88	1.4521	37.08	1.4597	37.27	1.4674	37.47	1.4751	37.66	1.4827
	-	2	37.835	38.210	37.92	1.4930	38.05	1.4981	38.18	1.5032	38.31	1.5083	38.44	1.5134
	-	1.5	38.376	38.676	38.44	1.5134	38.54	1.5173	38.64	1.5211	38.73	1.5249	38.83	1.5288
	-	1	38.917	39.153	38.96	1.5339	39.03	1.5364	39.09	1.5390	39.16	1.5416	39.22	1.5441
M42	4.5	-	37.129	37.799	37.32	1.4694	37.62	1.4809	37.91	1.4924	38.20	1.5039	38.49	1.5155
	-	4	37.670	38.270	37.84	1.4899	38.10	1.5001	38.36	1.5103	38.62	1.5206	38.88	1.5308
	-	3	38.752	39.252	38.88	1.5308	39.08	1.5385	39.27	1.5461	39.47	1.5538	39.66	1.5615
	-	2	39.835	40.210	39.92	1.5717	40.05	1.5768	40.18	1.5819	40.31	1.5871	40.44	1.5922
	-	1.5	40.376	40.676	40.44	1.5922	40.54	1.5960	40.64	1.5998	40.73	1.6037	40.83	1.6075
M45	4.5	-	40.129	40.799	40.32	1.5875	40.62	1.5990	40.91	1.6106	41.20	1.6221	41.49	1.6336
	-	4	40.670	41.270	40.84	1.6080	41.10	1.6182	41.36	1.6285	41.62	1.6387	41.88	1.6489
	-	3	41.752	42.252	41.88	1.6489	42.08	1.6566	42.27	1.6643	42.47	1.6719	42.66	1.6796
	-	2	42.835	43.210	42.92	1.6898	43.05	1.6949	43.18	1.7001	43.31	1.7052	43.44	1.7103
	-	1.5	43.376	43.676	43.44	1.7103	43.54	1.7141	43.64	1.7180	43.73	1.7218	43.83	1.7256
	-	1	43.917	44.153	43.96	1.7307	44.03	1.7333	44.09	1.7359	44.16	1.7384	44.22	1.7410
M46	-	1.5	44.376	44.676	44.44	1.7497	44.54	1.7535	44.64	1.7573	44.73	1.7612	44.83	1.7650
M48	5	-	42.587	43.297	42.80	1.6852	43.13	1.6980	43.45	1.7108	43.78	1.7235	44.10	1.7363
	-	4	43.670	44.270	43.84	1.7261	44.10	1.7363	44.36	1.7466	44.62	1.7568	44.88	1.7670
	-	3	44.752	45.252	44.88	1.7670	45.08	1.7747	45.27	1.7824	45.47	1.7900	45.66	1.7977
	-	2	45.835	46.210	45.92	1.8079	46.05	1.8130	46.18	1.8182	46.31	1.8233	46.44	1.8284
	-	1.5	46.376	46.676	46.44	1.8284	46.54	1.8322	46.64	1.8361	46.73	1.8399	46.83	1.8437
	-	1	46.917	47.153	46.96	1.8488	47.03	1.8514	47.09	1.8540	47.16	1.8565	47.22	1.8591
M50	-	5	44.587	45.297	44.80	1.7639	45.13	1.7767	45.45	1.7895	45.78	1.8023	46.10	1.8151
	-	3	46.752	47.252	46.88	1.8458	47.08	1.8534	47.27	1.8611	47.47	1.8688	47.66	1.8764
	-	2	47.835	48.210	47.92	1.8867	48.05	1.8918	48.18	1.8969	48.31	1.9020	48.44	1.9071
	-	1.5	48.376	48.676	48.44	1.9071	48.54	1.9110	48.64	1.9148	48.73	1.9186	48.83	1.9225
	-	1	48.917	49.153	48.96	1.9276	49.03	1.9301	49.09	1.9327	49.16	1.9353	49.22	1.9378

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TAP DRILL SIZES - METRIC THREAD

Size	Pitch		Minor dia.		Tap Drill Diameter									
	M	MF	Min. 6H	Max. 6H	80% Thread		75% Thread		70% Thread		65% Thread		60% Thread	
					mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
M52	5	-	46.587	47.297	46.80	1.8427	47.13	1.8555	47.45	1.8682	47.78	1.8810	48.10	1.8938
	-	4	47.670	48.270	47.84	1.8836	48.10	1.8938	48.36	1.9040	48.62	1.9143	48.88	1.9245
	-	3	48.752	49.252	48.88	1.9245	49.08	1.9322	49.27	1.9398	49.47	1.9475	49.66	1.9552
	-	2	49.835	50.210	49.92	1.9654	50.05	1.9705	50.18	1.9756	50.31	1.9808	50.44	1.9859
	-	1.5	50.376	50.676	50.44	1.9859	50.54	1.9897	50.64	1.9935	50.73	1.9974	50.83	2.0012
M55	-	4	50.670	51.270	50.84	2.0017	51.10	2.0119	51.36	2.0222	51.62	2.0324	51.88	2.0426
	-	3	51.752	52.252	51.88	2.0426	52.08	2.0503	52.27	2.0580	52.47	2.0656	52.66	2.0733
	-	2	52.835	53.210	52.92	2.0835	53.05	2.0886	53.18	2.0938	53.31	2.0989	53.44	2.1040
	-	1.5	53.376	53.676	53.44	2.1040	53.54	2.1078	53.64	2.1117	53.73	2.1155	53.83	2.1193
M56	5.5	-	50.046	50.796	50.28	1.9797	50.64	1.9938	51.00	2.0078	51.36	2.0219	51.71	2.0360
	-	4	51.670	52.270	51.84	2.0411	52.10	2.0513	52.36	2.0615	52.62	2.0718	52.88	2.0820
	-	3	52.752	53.252	52.88	2.0820	53.08	2.0897	53.27	2.0973	53.47	2.1050	53.66	2.1127
	-	2	53.835	54.210	53.92	2.1229	54.05	2.1280	54.18	2.1331	54.31	2.1382	54.44	2.1434
	-	1.5	54.376	54.676	54.44	2.1434	54.54	2.1472	54.64	2.1510	54.73	2.1549	54.83	2.1587
M58	-	4	53.670	54.270	53.84	2.1198	54.10	2.1300	54.36	2.1403	54.62	2.1505	54.88	2.1607
	-	3	54.752	55.252	54.88	2.1607	55.08	2.1684	55.27	2.1761	55.47	2.1837	55.66	2.1914
	-	2	55.835	56.210	55.92	2.2016	56.05	2.2067	56.18	2.2119	56.31	2.2170	56.44	2.2221
	-	1.5	56.376	56.676	56.44	2.2221	56.54	2.2259	56.64	2.2298	56.73	2.2336	56.83	2.2374
M60	5.5	-	54.046	54.796	54.28	2.1372	54.64	2.1512	55.00	2.1653	55.36	2.1794	55.71	2.1934
	-	4	55.670	56.270	55.84	2.1985	56.10	2.2088	56.36	2.2190	56.62	2.2292	56.88	2.2395
	-	3	56.752	57.252	56.88	2.2395	57.08	2.2471	57.27	2.2548	57.47	2.2625	57.66	2.2701
	-	2	57.835	58.210	57.92	2.2804	58.05	2.2855	58.18	2.2906	58.31	2.2957	58.44	2.3008
	-	1.5	58.376	58.676	58.44	2.3008	58.54	2.3047	58.64	2.3085	58.73	2.3123	58.83	2.3162
M62	-	4	57.670	58.270	57.84	2.2773	58.10	2.2875	58.36	2.2977	58.62	2.3080	58.88	2.3182
	-	3	58.752	59.252	58.88	2.3182	59.08	2.3259	59.27	2.3335	59.47	2.3412	59.66	2.3489
	-	1	60.917	61.153	60.96	2.4000	61.03	2.4026	61.09	2.4051	61.16	2.4077	61.22	2.4103
	-	1.5	60.376	60.676	60.44	2.3796	60.54	2.3834	60.64	2.3872	60.73	2.3911	60.83	2.3949
M64	6	-	57.505	58.305	57.76	2.2742	58.15	2.2895	58.54	2.3049	58.93	2.3202	59.32	2.3356
	-	4	59.670	60.270	59.84	2.3560	60.10	2.3663	60.36	2.3765	60.62	2.3867	60.88	2.3969
	-	3	60.752	61.252	60.88	2.3969	61.08	2.4046	61.27	2.4123	61.47	2.4200	61.66	2.4276
	-	2	61.835	62.210	61.92	2.4379	62.05	2.4430	62.18	2.4481	62.31	2.4532	62.44	2.4583
	-	1.5	62.376	62.676	62.44	2.4583	62.54	2.4621	62.64	2.4660	62.73	2.4698	62.83	2.4737
M65	-	4	60.670	61.270	60.84	2.3954	61.10	2.4056	61.36	2.4159	61.62	2.4261	61.88	2.4363
	-	3	61.752	62.252	61.88	2.4363	62.08	2.4440	62.27	2.4517	62.47	2.4593	62.66	2.4670
	-	2	62.835	63.210	62.92	2.4772	63.05	2.4823	63.18	2.4875	63.31	2.4926	63.44	2.4977
	-	1.5	63.376	63.676	63.44	2.4977	63.54	2.5015	63.64	2.5054	63.73	2.5092	63.83	2.5130

TAP DRILL SIZES - UNIFIED THREAD / FORMING TAPS

Size	Threads Per Inch			Minor Diameter			Tap Drill Diameter (Cutting Tap)				
	UNC	UNF	UNEF	Min. 2B&3B	Max. 2B	Max. 3B	75% Thread	70% Thread	65% Thread	60% Thread	55% Thread
#0	-	80	-	.0465	.0514	.0514	.0536	.0541	.0545	.0549	.0553
#1	64	-	-	.0561	.0623	.0623	.0650	.0656	.0661	.0666	.0672
	-	72	-	.0580	.0635	.0635	.0659	.0664	.0669	.0673	.0678
#2	56	-	-	.0667	.0737	.0737	.0769	.0775	.0781	.0787	.0793
	-	64	-	.0691	.0753	.0753	.0780	.0786	.0791	.0796	.0802
#3	48	-	-	.0764	.0845	.0845	.0884	.0891	.0898	.0905	.0912
	-	56	-	.0797	.0865	.0865	.0899	.0905	.0911	.0917	.0923
#4	40	-	-	.0849	.0939	.0939	.0993	.1001	.1010	.1018	.1027
	-	48	-	.0894	.0968	.0968	.1014	.1021	.1028	.1035	.1042
#5	40	-	-	.0979	.1062	.1062	.1123	.1131	.1140	.1148	.1157
	-	44	-	.1004	.1079	.1079	.1134	.1142	.1150	.1157	.1165
#6	32	-	-	.1040	.1140	.1140	.1221	.1231	.1242	.1253	.1263
	-	40	-	.1110	.1190	.1186	.1253	.1261	.1270	.1278	.1287
#8	32	-	-	.1300	.1390	.1389	.1481	.1491	.1502	.1513	.1523
	-	36	-	.1340	.1420	.1416	.1498	.1508	.1517	.1527	.1536
#10	24	-	-	.1450	.1560	.1555	.1688	.1702	.1716	.1730	.1744
	-	32	-	.1560	.1640	.1641	.1741	.1751	.1762	.1773	.1783
#12	24	-	-	.1710	.1810	.1807	.1948	.1962	.1976	.1990	.2004
	-	28	-	.1770	.1860	.1857	.1978	.1990	.2002	.2014	.2026
	-	-	32	.1820	.1900	.1895	.2001	.2011	.2022	.2033	.2043
1/4	20	-	-	.1960	.2070	.2067	.2245	.2262	.2279	.2296	.2313
	-	28	-	.2110	.2200	.2190	.2318	.2330	.2342	.2354	.2366
	-	-	32	.2160	.2240	.2229	.2341	.2351	.2362	.2373	.2383
5/16	18	-	-	.2520	.2650	.2630	.2842	.2861	.2879	.2898	.2917
	-	24	-	.2670	.2770	.2754	.2913	.2927	.2941	.2955	.2969
	-	-	-	.2740	.2820	.2807	.2943	.2955	.2967	.2979	.2991
	-	-	32	.2790	.2860	.2847	.2966	.2976	.2987	.2998	.3008
3/8	16	-	-	.3070	.3210	.3182	.3431	.3453	.3474	.3495	.3516
	-	24	-	.3300	.3400	.3372	.3538	.3552	.3566	.3580	.3594
	-	-	-	.3360	.3450	.3426	.3568	.3580	.3592	.3604	.3616
	-	-	32	.3410	.3490	.3469	.3591	.3601	.3612	.3623	.3633
7/16	14	-	-	.3600	.3760	.3717	.4011	.4035	.4059	.4084	.4108
	-	20	-	.3830	.3950	.3916	.4120	.4137	.4154	.4171	.4188
	-	-	28	.3990	.4070	.4051	.4193	.4205	.4217	.4229	.4241
1/2	13	-	-	.4170	.4340	.4284	.4608	.4634	.4660	.4686	.4712
	-	20	-	.4460	.4570	.4537	.4745	.4762	.4779	.4796	.4813
	-	-	28	.4610	.4700	.4676	.4818	.4830	.4842	.4854	.4866
9/16	12	-	-	.4720	.4900	.4843	.5200	.5228	.5257	.5285	.5313
	-	18	-	.5020	.5150	.5106	.5342	.5361	.5379	.5398	.5417
	-	-	24	.5170	.5270	.5244	.5413	.5427	.5441	.5455	.5469
5/8	11	-	-	.5270	.5460	.5391	.5786	.5817	.5848	.5879	.5910
	-	-	-	.5570	.5710	.5662	.5931	.5953	.5974	.5995	.6016
	-	18	-	.5650	.5780	.5730	.5967	.5986	.6004	.6023	.6042
	-	-	24	.5800	.5900	.5869	.6038	.6052	.6066	.6080	.6094
3/4	10	-	-	.6420	.6630	.6545	.6990	.7024	.7058	.7092	.7126
	-	16	-	.6820	.6960	.6908	.7181	.7203	.7224	.7245	.7266
	-	-	20	.6960	.7070	.7037	.7245	.7262	.7279	.7296	.7313

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TAP DRILL SIZES - UNIFIED THREAD / FORMING TAPS

Size	Threads Per Inch			Minor Diameter			Tap Drill Diameter (Cutting Tap)				
	UNC	UNF	UNEF	Min. 2B&3B	Max. 2B	Max. 3B	75% Thread	70% Thread	65% Thread	60% Thread	55% Thread
7/8	9	-	-	.7550	.7780	.7681	.8183	.8221	.8259	.8297	.8334
	-	14	-	.7980	.8140	8068	.8386	.8410	.8434	.8459	.8483
	-	-	20	.8210	.8320	.8287	.8495	.8512	.8529	.8546	.8563
1"	8	-	-	.8650	.8900	.8797	.9363	.9405	.9448	.9490	.9533
	-	12	-	.9100	.9280	.9198	.9575	.9603	.9632	.9660	.9688
	-	-	20	.9460	.9570	.9537	.9745	.9762	.9779	.9796	.9813
1-1/8	7	-	-	.9700	.9980	.9875	1.0521	1.0570	1.0619	1.0667	1.0716
	-	12	-	1.0350	1.0530	1.0448	1.0825	1.0853	1.0882	1.0910	1.0938
	-	-	18	1.0650	1.0780	1.0730	1.0967	1.0986	1.1004	1.1023	1.1042
1-1/4	7	-	-	1.0950	1.1230	1.1125	1.1771	1.1820	1.1869	1.1917	1.1966
	-	12	-	1.1600	1.1780	1.1698	1.2075	1.2103	1.2132	1.2160	1.2188
	-	-	18	1.1900	1.2030	1.1980	1.2217	1.2236	1.2254	1.2273	1.2292

TAP DRILL SIZES - METRIC THREAD / FORMING TAPS

Size	Pitch		Minor dia.		Tap Drill Diameter									
	M	MF	Min. 6H	Max. 6H	75% Thread		70% Thread		65% Thread		60% Thread		55% Thread	
					mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
M1	0.25	-	0.729	0.798	0.87	.0344	0.88	.0347	0.89	.0350	0.90	.0354	0.91	.0357
	-	0.2	0.783	0.841	0.90	.0354	0.90	.0356	0.91	.0359	0.92	.0362	0.93	.0364
M1.1	0.25	-	0.829	0.898	0.97	.0383	0.98	.0386	0.99	.0390	1.00	.0393	1.01	.0396
	-	0.2	0.883	0.941	1.00	.0393	1.00	.0396	1.01	.0398	1.02	.0401	1.03	.0404
M1.2	0.25	-	0.929	0.998	1.07	.0422	1.08	.0426	1.09	.0429	1.10	.0432	1.11	.0436
	-	0.2	0.983	1.041	1.10	.0432	1.10	.0435	1.11	.0438	1.12	.0440	1.13	.0443
M1.4	0.3	-	1.075	1.159	1.25	.0491	1.26	.0495	1.27	.0499	1.28	.0503	1.29	.0507
	-	0.2	1.183	1.241	1.30	.0511	1.30	.0514	1.31	.0516	1.32	.0519	1.33	.0522
M1.6	0.35	-	1.221	1.321	1.42	.0560	1.43	.0564	1.45	.0569	1.46	.0574	1.47	.0578
	-	0.2	1.383	1.441	1.50	.0590	1.50	.0592	1.51	.0595	1.52	.0598	1.53	.0600
M1.7	0.35	-	1.321	1.421	1.52	.0599	1.53	.0604	1.55	.0608	1.56	.0613	1.57	.0618
	-	0.3	1.375	1.459	1.55	.0609	1.56	.0613	1.57	.0617	1.58	.0621	1.59	.0625
	-	0.25	1.429	1.498	1.57	.0619	1.58	.0622	1.59	.0626	1.60	.0629	1.61	.0632
	-	0.2	1.483	1.541	1.60	.0629	1.60	.0632	1.61	.0634	1.62	.0637	1.63	.0640
M1.8	0.35	-	1.421	1.521	1.62	.0638	1.63	.0643	1.65	.0648	1.66	.0652	1.67	.0657
	-	0.2	1.583	1.641	1.70	.0669	1.70	.0671	1.71	.0674	1.72	.0677	1.73	.0679
M2	0.4	-	1.567	1.679	1.80	.0707	1.81	.0712	1.82	.0718	1.84	.0723	1.85	.0729
	-	0.25	1.729	1.798	1.87	.0737	1.88	.0741	1.89	.0744	1.90	.0747	1.91	.0751
M2.2	0.45	-	1.713	1.838	1.97	.0776	1.99	.0782	2.00	.0788	2.02	.0794	2.03	.0800
	-	0.25	1.929	1.998	2.07	.0816	2.08	.0819	2.09	.0823	2.10	.0826	2.11	.0829
M2.3	0.4	-	1.867	1.979	2.10	.0825	2.11	.0831	2.12	.0836	2.14	.0841	2.15	.0847
	-	0.35	1.921	2.021	2.12	.0835	2.13	.0840	2.15	.0845	2.16	.0849	2.17	.0854
	-	0.25	2.029	2.098	2.17	.0855	2.18	.0859	2.19	.0862	2.20	.0865	2.21	.0869
M2.5	0.45	-	2.013	2.138	2.27	.0894	2.29	.0900	2.30	.0906	2.32	.0912	2.33	.0918
	-	0.35	2.121	2.221	2.32	.0914	2.33	.0919	2.35	.0923	2.36	.0928	2.37	.0933
M2.6	0.45	-	2.113	2.238	2.37	.0933	2.39	.0939	2.40	.0945	2.42	.0951	2.43	.0957
	-	0.35	2.221	2.321	2.42	.0953	2.43	.0958	2.45	.0963	2.46	.0967	2.47	.0972
M3	0.5	-	2.459	2.599	2.75	.1081	2.76	.1087	2.78	.1094	2.80	.1101	2.81	.1107
	-	0.35	2.621	2.721	2.82	.1111	2.83	.1116	2.85	.1120	2.86	.1125	2.87	.1130
M3.5	0.6	-	2.850	3.010	3.19	.1257	3.21	.1266	3.23	.1274	3.26	.1282	3.28	.1290
	-	0.35	3.121	3.221	3.32	.1308	3.33	.1312	3.35	.1317	3.36	.1322	3.37	.1326
M4	0.7	-	3.242	3.422	3.64	.1434	3.67	.1444	3.69	.1453	3.71	.1462	3.74	.1472
	-	0.5	3.459	3.599	3.75	.1474	3.76	.1481	3.78	.1488	3.80	.1494	3.81	.1501
M4.5	0.75	-	3.688	3.878	4.12	.1621	4.14	.1631	4.17	.1641	4.19	.1651	4.22	.1661
	-	0.5	3.959	4.099	4.25	.1671	4.26	.1678	4.28	.1685	4.30	.1691	4.31	.1698
M5	0.9	-	4.026	4.226	4.54	.1788	4.57	.1800	4.60	.1812	4.63	.1824	4.66	.1836
	0.8	-	4.134	4.334	4.59	.1808	4.62	.1819	4.65	.1829	4.67	.1840	4.70	.1851
	-	0.5	4.459	4.599	4.75	.1868	4.76	.1875	4.78	.1881	4.80	.1888	4.81	.1895
M6	1	-	4.917	5.153	5.49	.2161	5.52	.2175	5.56	.2188	5.59	.2202	5.63	.2215
	-	0.75	5.188	5.378	5.62	.2212	5.64	.2222	5.67	.2232	5.69	.2242	5.72	.2252
	-	0.5	5.459	5.599	5.75	.2262	5.76	.2269	5.78	.2275	5.80	.2282	5.81	.2289
M7	1	-	5.917	6.153	6.49	.2555	6.52	.2569	6.56	.2582	6.59	.2595	6.63	.2609
	-	0.75	6.188	6.378	6.62	.2605	6.64	.2615	6.67	.2625	6.69	.2635	6.72	.2645
	-	0.5	6.459	6.599	6.75	.2656	6.76	.2662	6.78	.2669	6.80	.2676	6.81	.2682
M8	1.25	-	6.647	6.912	7.36	.2899	7.41	.2915	7.45	.2932	7.49	.2949	7.53	.2966
	-	1	6.917	7.153	7.49	.2949	7.52	.2962	7.56	.2976	7.59	.2989	7.63	.3002
	-	0.75	7.188	7.378	7.62	.2999	7.64	.3009	7.67	.3019	7.69	.3029	7.72	.3039
	-	0.5	7.459	7.599	7.75	.3049	7.76	.3056	7.78	.3063	7.80	.3069	7.81	.3076
M9	1.25	-	7.647	7.912	8.36	.3292	8.41	.3309	8.45	.3326	8.49	.3343	8.53	.3359
	-	1	7.917	8.153	8.49	.3343	8.52	.3356	8.56	.3369	8.59	.3383	8.63	.3396
	-	0.75	8.188	8.378	8.62	.3393	8.64	.3403	8.67	.3413	8.69	.3423	8.72	.3433
	-	0.5	8.459	8.599	8.75	.3443	8.76	.3450	8.78	.3456	8.80	.3463	8.81	.3470

▶ NEXT PAGE

TAP DRILL SIZES - METRIC THREAD / FORMING TAPS

Size	Pitch		Minor dia.		Tap Drill Diameter									
	M	MF	Min. 6H	Max. 6H	75% Thread		70% Thread		65% Thread		60% Thread		55% Thread	
					mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
M10	1.5	-	8.376	8.676	9.24	.3636	9.29	.3656	9.34	.3676	9.39	.3696	9.44	.3716
	-	1.25	8.647	8.912	9.36	.3686	9.41	.3703	9.45	.3719	9.49	.3736	9.53	.3753
	-	1	8.917	9.153	9.49	.3736	9.52	.3750	9.56	.3763	9.59	.3776	9.63	.3790
	-	0.75	9.188	9.378	9.62	.3786	9.64	.3796	9.67	.3806	9.69	.3817	9.72	.3827
	-	0.5	9.459	9.599	9.75	.3837	9.76	.3843	9.78	.3850	9.80	.3857	9.81	.3863
M12	1.75	-	10.106	10.441	11.11	.4373	11.17	.4396	11.23	.4420	11.29	.4443	11.35	.4467
	-	1.5	10.376	10.676	11.24	.4423	11.29	.4443	11.34	.4463	11.39	.4483	11.44	.4504
	-	1.25	10.647	10.912	11.36	.4473	11.41	.4490	11.45	.4507	11.49	.4524	11.53	.4540
	-	1	10.917	11.153	11.49	.4524	11.52	.4537	11.56	.4550	11.59	.4564	11.63	.4577
	-	0.75	11.188	11.378	11.62	.4574	11.64	.4584	11.67	.4594	11.69	.4604	11.72	.4614
	-	0.5	11.459	11.599	11.75	.4624	11.76	.4631	11.78	.4637	11.80	.4644	11.81	.4651
M14	2	-	11.835	12.210	12.98	.5110	13.05	.5137	13.12	.5164	13.18	.5191	13.25	.5217
	-	1.5	12.376	12.676	13.24	.5211	13.29	.5231	13.34	.5251	13.39	.5271	13.44	.5291
	-	1.25	12.647	12.912	13.36	.5261	13.41	.5278	13.45	.5294	13.49	.5311	13.53	.5328
	-	1	12.917	13.153	13.49	.5311	13.52	.5324	13.56	.5338	13.59	.5351	13.63	.5365
	-	0.75	13.188	13.378	13.62	.5361	13.64	.5371	13.67	.5381	13.69	.5391	13.72	.5401
	-	0.5	13.459	13.599	13.75	.5411	13.76	.5418	13.78	.5425	13.80	.5431	13.81	.5438
M16	2	-	13.835	14.210	14.98	.5898	15.05	.5924	15.12	.5951	15.18	.5978	15.25	.6005
	-	1.5	14.376	14.676	15.24	.5998	15.29	.6018	15.34	.6038	15.39	.6058	15.44	.6078
	-	1	14.917	15.153	15.49	.6098	15.52	.6112	15.56	.6125	15.59	.6139	15.63	.6152
M18	2.5	-	15.294	15.744	16.73	.6585	16.81	.6618	16.90	.6652	16.98	.6685	17.07	.6719
	-	2	15.835	16.210	16.98	.6685	17.05	.6712	17.12	.6739	17.18	.6765	17.25	.6792
	-	1.5	16.376	16.676	17.24	.6785	17.29	.6806	17.34	.6826	17.39	.6846	17.44	.6866
	-	1	16.917	17.153	17.49	.6886	17.52	.6899	17.56	.6913	17.59	.6926	17.63	.6939
M20	2.5	-	17.294	17.744	18.73	.7372	18.81	.7406	18.90	.7439	18.98	.7472	19.07	.7506
	-	2	17.835	18.210	18.98	.7472	19.05	.7499	19.12	.7526	19.18	.7553	19.25	.7580
	-	1.5	18.376	18.676	19.24	.7573	19.29	.7593	19.34	.7613	19.39	.7633	19.44	.7653
	-	1	18.917	19.153	19.49	.7673	19.52	.7687	19.56	.7700	19.59	.7713	19.63	.7727
M22	2.5	-	19.294	19.744	20.73	.8159	20.81	.8193	20.90	.8226	20.98	.8260	21.07	.8293
	-	2	19.835	20.210	20.98	.8260	21.05	.8287	21.12	.8313	21.18	.8340	21.25	.8367
	-	1.5	20.376	20.676	21.24	.8360	21.29	.8380	21.34	.8400	21.39	.8420	21.44	.8441
	-	1	20.917	21.153	21.49	.8461	21.52	.8474	21.56	.8487	21.59	.8501	21.63	.8514
M24	3	-	20.752	21.252	22.47	.8846	22.57	.8887	22.67	.8927	22.78	.8967	22.88	.9007
	-	2	21.835	22.210	22.98	.9047	23.05	.9074	23.12	.9101	23.18	.9128	23.25	.9154
	-	1.5	22.376	22.676	23.24	.9148	23.29	.9168	23.34	.9188	23.39	.9208	23.44	.9228
	-	1	22.917	23.153	23.49	.9248	23.52	.9261	23.56	.9275	23.59	.9288	23.63	.9302
M26	-	3	22.752	23.252	24.47	.9634	24.57	.9674	24.67	.9714	24.78	.9754	24.88	.9794
	-	2	23.835	24.210	24.98	.9835	25.05	.9861	25.12	.9888	25.18	.9915	25.25	.9942
	-	1.5	24.376	24.676	25.24	.9935	25.29	.9955	25.34	.9975	25.39	.9995	25.44	1.0015
M27	3	-	23.752	24.252	25.47	1.0028	25.57	1.0068	25.67	1.0108	25.78	1.0148	25.88	1.0188
	-	2.5	24.294	24.744	25.73	1.0128	25.81	1.0161	25.90	1.0195	25.98	1.0228	26.07	1.0262
	-	2	24.835	25.210	25.98	1.0228	26.05	1.0255	26.12	1.0282	26.18	1.0309	26.25	1.0335
	-	1.5	25.376	25.676	26.24	1.0329	26.29	1.0349	26.34	1.0369	26.39	1.0389	26.44	1.0409
	-	1	25.917	26.153	26.49	1.0429	26.52	1.0443	26.56	1.0456	26.59	1.0469	26.63	1.0483
M30	3.5	-	26.211	26.771	28.22	1.1108	28.33	1.1155	28.45	1.1202	28.57	1.1249	28.69	1.1296
	-	3	26.752	27.252	28.47	1.1209	28.57	1.1249	28.67	1.1289	28.78	1.1329	28.88	1.1369
	-	2	27.835	28.210	28.98	1.1409	29.05	1.1436	29.12	1.1463	29.18	1.1490	29.25	1.1517
	-	1.5	28.376	28.676	29.24	1.1510	29.29	1.1530	29.34	1.1550	29.39	1.1570	29.44	1.1590
	-	1	28.917	29.153	29.49	1.1610	29.52	1.1624	29.56	1.1637	29.59	1.1650	29.63	1.1664

TAP DRILL SIZES - METRIC, UNIFIED THREAD / STI

Metric

Size	RECOMMENDATION Drill Size	
	Inch	Metric (mm)
M2 × 0.4	.0827	2.10
M2.2 × 0.45	.0906	2.30
M2.5 × 0.45	.1024	2.60
M3 × 0.5	.1240	3.15
M3.5 × 0.6	.1457	3.70
M4 × 0.7	.1654	4.20
M5 × 0.8	.2047	5.20
M6 × 1.0	.2480	6.30
M7 × 1.0	.2874	7.30
M8 × 1.0	.3268	8.30
M8 × 1.25	.3307	8.40
M9 × 1.25	.3701	9.40
M10 × 1.25	.4094	10.40
M10 × 1.5	.4134	10.50
M11 × 1.5	.4528	11.50
M12 × 1.25	.4882	12.40
M12 × 1.5	.4921	12.50
M12 × 1.75	.4921	12.50
M14 × 1.5	.5709	14.50
M14 × 2.0	.5709	14.50
M16 × 1.5	.6496	16.50
M16 × 2.0	.6496	16.50
M18 × 1.5	.7283	18.50
M18 × 2.0	.7283	18.50
M18 × 2.5	.7382	18.75
M20 × 1.5	.8071	20.50
M20 × 2.0	.8071	20.50
M20 × 2.5	.8169	20.75
M22 × 1.5	.8858	22.50
M22 × 2.0	.8858	22.50
M22 × 2.5	.8957	22.75
M24 × 2.0	.9646	24.50
M24 × 3.0	.9843	25.00
M27 × 3.0	1.1024	28.00
M30 × 3.5	1.2205	31.00

Unified

Size	RECOMMENDATION Drill Size	
	Inch	Metric (mm)
#2 - 56UNC	.0906	2.30
#3 - 48UNC	.1063	2.70
#3 - 56UNF	.1043	2.65
#4 - 40UNC	.1181	3.00
#4 - 48UNF	.1181	3.00
#5 - 40UNC	.1339	3.40
#5 - 44UNF	.1299	3.30
#6 - 32UNC	.1457	3.70
#6 - 40UNF	.1457	3.70
#8 - 32UNC	.1732	4.40
#8 - 36UNF	.1732	4.40
#10 - 24UNC	.2008	5.10
#10 - 32UNF	.2008	5.10
#12 - 24UNC	.2283	5.80
1/4 - 20UNC	.2638	6.70
1/4 - 28UNF	.2598	6.60
5/16 - 18UNC	.3307	8.40
5/16 - 24UNF	.3228	8.20
3/8 - 16UNC	.3937	10.00
3/8 - 24UNF	.3858	9.80
7/16 - 14UNC	.4528	11.50
7/16 - 20UNF	.4528	11.50
1/2 - 13UNC	.5236	13.30
1/2 - 20UNF	.5157	13.10
9/16 - 12UNC	.5866	14.90
9/16 - 18UNF	.5787	14.70
5/8 - 11UNC	.6496	16.50
5/8 - 18UNF	.6417	16.30
3/4 - 10UNC	.7795	19.80
3/4 - 16UNF	.7677	19.50
7/8 - 9UNC	.9055	23.00
7/8 - 14UNF	.8858	22.50
1" - 8UNC	1.0433	26.50
1" - 12UNF	1.0236	26.00
1-1/8 - 7UNC	1.1713	29.75
1-1/8 - 8UN	1.1417	29.00
1-1/8 - 12UNF	1.1516	29.25
1-1/4 - 7UNC	1.2992	33.00
1-1/4 - 8UN	1.2795	32.50
1-1/4 - 12UNF	1.2795	32.50
1-3/8 - 6UNC	1.4173	36.00
1-3/8 - 8UN	1.3976	35.50
1-3/8 - 12UNF	1.4173	36.00
1-1/2 - 6UNC	1.5354	39.00
1-1/2 - 8UN	1.5354	39.00
1-1/2 - 12UNF	1.5354	39.00

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