



GS

SERIES

**STI TAP
(ST/SI)**

DESCRIPTION

USCTI 322

PAGE

474

THREADS

UNC/UNF

TAP MATERIALS

HSSE-V3

CHAMFER LENGTH

4-5P

SURFACE TREATMENT

Hardslick

SPIRAL FLUTE ANGLE

-

THREAD DEPTH

3.0D

HOLE TYPE

Through

HIGH PERFORMANCE TAPS RECOMMENDATION TABLE

Super HSS : Premium HSS Metallurgy

P-HSS : Powdered Metallurgy

HSSE-V3 : 3% Vanadium Alloy HSS-EX

HSS-V : Vanadium Alloy HSS

⊙ = RECOMMENDED

○ = SUITABLE

COOLANT

A = Cutting Oil

T = Oil Emulsion

X = Cutting Oil/Oil Emulsion

Material Group	Material Sub-Group	ISO	Hardness (HRC)	Hardness (BHN)	Cutting Speed (SFM)		COOLANT	Image
					Uncoated	Coated		
Steel	Low carbon steels Free machining carbon steels	P	< 15	< 180	25 - 50	50 - 80	T	⊙
	Medium to high carbon steels Low alloyed steels	P	< 23	< 240	25 - 50	50 - 80	T	⊙
	Steel castings & forgings Heat-treatable alloy steels	P	> 24 ≤ 38	> 250 ≤ 350	6 - 30	10 - 35	X	○
	Alloyed tool steels Mold steels	P	> 38 ≤ 44	> 350 ≤ 420	6 - 12	-	A	
Stainless Steel	Free machining stainless steels	M	< 23	< 240	12 - 35	20 - 50	A	
	Heat-and corrosion-resistant stainless steels Valve stainless steels	M	> 24 ≤ 38	> 250 ≤ 350	12 - 15	12 - 15	A	
	Stainless steel castings Precipitation hardening stainless steels	M	> 38 ≤ 44	> 350 ≤ 420	12 - 15	-	A	
Cast Iron	Grey cast iron	K	-	≤ 220	35 - 50	50 - 65	T	○
	Nodular cast iron / Chilled cast iron Meehanite iron / Ductile iron	K	-	≥ 250	12 - 45	25 - 55	X	
Copper	Pure and alloyed copper	N	-	-	50 - 60	65 - 100	T	
Brass	Free machining brass Alloyed brass	N	-	-	30 - 65	-	T	
Bronze		N	44	< 420	12 - 20	35 - 80	T	
Aluminum	Pure Aluminum Aluminum alloys	N	-	-	50 - 65	-	T	○
	Aluminum alloy castings	N	-	-	40 - 65	45 - 90	T	○
Zinc		N	-	-	25 - 65	50 - 80	T	
Magnesium		N	-	-	-	45 - 100	T	
Nickel Alloys	718 & 625 INCON / Waspaloy Hastelloy / Invar Monel / Incoloy	S	≤ 38	≤ 350	10 - 15	-	A	
	718 Inconel A286	S	> 38 ≤ 44	> 350 ≤ 420	10 - 12	-	A	
Titanium		S	≤ 38	≤ 350	3 - 15	-	A	

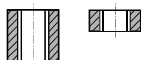


SCREW THREAD INSERT TAPS

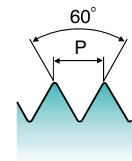
ST/SI SERIES

SPIRAL POINT TAPS SCREW THREAD INSERT for General Purpose

Hole type 3.0×D



USCTI



GS
HSSE-V3
UNC UNF
USCTI 322
2B
60°
4P~5P
Hardslick

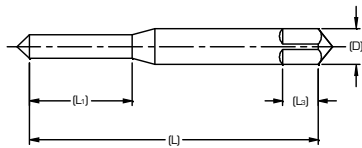
SIZE	Thread Per Inch		Limit	No. of Flute	EDP No.
	UNC	UNF			Hardslick
#4	40	—	2B	3	SI162
#4	—	48	2B	3	ST182
#6	32	—	2B	3	SI242
#6	—	40	2B	3	ST262
#8	32	—	2B	3	SI282
#8	—	36	2B	3	ST302
#10	24	—	2B	3	SI322
#10	—	32	2B	3	ST342
1/4	20	—	2B	3	SI402
1/4	—	28	2B	3	ST422
5/16	18	—	2B	3	SI442
5/16	—	24	2B	3	ST462
3/8	16	—	2B	3	SI482
3/8	—	24	2B	3	ST502
7/16	14	—	2B	3	SI522
7/16	—	20	2B	3	ST542
1/2	13	—	2B	3	SI562
1/2	—	20	2B	3	ST582
9/16	12	—	2B	3	SI602
9/16	—	18	2B	3	ST622
5/8	11	—	2B	3	SI642
5/8	—	18	2B	3	ST662
3/4	10	—	2B	3	SI702
3/4	—	16	2B	3	ST722

► For tapping depth on ANSI Length Taps, refer to MCTI 302 on page 499.

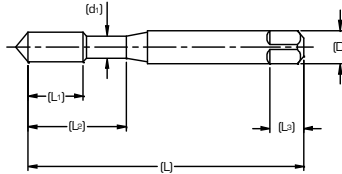
◎ : Excellent ○ : Good

P				M				K		
Low carbon steels / Free machining carbon steels	Medium to high carbon steels / Low alloyed steels	Steel castings & forgings / Heat-treatable alloy steels	Alloyed tool steels / Mold steels	Free machining stainless steels	Heat and corrosion resistant stainless steels / Valve stainless steels	Stainless steel castings / Precipitation hardening stainless steels	Grey cast iron			
◎	◎	○					○			
K		N				S				
Nodular cast iron / Chilled cast iron / Meehanite iron / Ductile iron	Pure and alloyed copper	Free machining brass / Alloyed brass	Bronze	Pure Aluminum / Aluminum alloy	Aluminum alloy castings	Zinc	Magnesium	718 & 625 INCO / Waspaloy / Hastelloy / Invar / Monel / Incoloy	718 Inconel / A286	Titanium
				○	○					

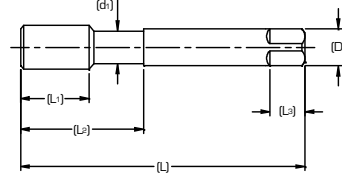
10 STI SPIRAL FLUTE & SPIRAL POINT TAP DIMENSION



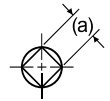
Blank Design (1)



Blank Design (2)



Blank Design (3)



STI Tap blank (Inch)

Nominal Size (STI)	Threads per Inch		Overall Length (L)	Thread Length		Neck Length (L ₂)	Shank Diameter (D)	Square Length (L ₃)	Square Size (a)	Blank Design No.	Table 302 Blank Equivalent
	UNC	UNF		SP	SF						
#2	56	-	1.88	.335	.236	.56	.141	.190	.110	1	No.4
#2		64	1.88	.335	.236	.56	.141	.190	.110	1	No.4
#3	48	-	1.94	.374	.236	.63	.141	.190	.110	1	No.5
#3		56	1.94	.374	.236	.63	.141	.190	.110	1	No.5
#4	40	-	2.00	.413	.276	.68	.141	.190	.110	1	No.6
#4		48	2.00	.413	.276	.68	.141	.190	.110	1	No.6
#5	40	-	2.13	.453	.276	.75	.168	.250	.131	1	No.8
#6	32	-	2.38	.531	.354	.88	.194	.250	.152	1	No.10
#6		40	2.13	.453	.276	.75	.168	.250	.131	1	No.8
#8	32	-	2.38	.571	.354	.94	.220	.280	.165	1	No.12
#8		36	2.38	.571	.354	.94	.220	.280	.165	1	No.12
#10	24	-	2.50	.591	.433	1.0	.255	.310	.191	2	1/4
#10		32	2.50	.591	.433	1.0	.255	.310	.191	2	1/4
#12	24	-	2.72	.669	.472	1.13	.318	.380	.238	2	5/16
1/4	20	-	2.72	.669	.472	1.13	.318	.380	.238	2	5/16
1/4		28	2.72	.669	.472	1.13	.318	.380	.238	2	5/16
5/16	18	-	2.94	.748	.551	1.25	.381	.440	.286	2	3/8
5/16		24	2.94	.748	.551	1.25	.381	.440	.286	2	3/8
3/8	16	-	3.38	.984	.630	1.66	.367	.440	.275	3	1/2
3/8		24	3.16	.866	.591	1.44	.323	.410	.242	3	7/16
7/16	14	-	3.59	.984	.709	1.66	.429	.500	.322	3	9/16
7/16		20	3.38	.984	.630	1.66	.367	.440	.275	3	1/2
1/2	13	-	3.81	1.083	.748	1.81	.480	.560	.360	3	5/8
1/2		20	3.59	.984	.709	1.66	.429	.500	.322	3	9/16

STI Tap blank (Metric)

Nominal Size (STI)	Thread Pitch (mm)	Overall Length (L)	Thread Length		Neck Length (L ₂)	Shank Diameter (D)	Square Length (L ₃)	Square Size (a)	Blank Design No.	Table 302 Blank Equivalent
			SP	SF						
M2	0.4	1.81	.295	.236	.56	.141	.190	.110	1	No.3
M2.5	0.45	1.94	.374	.197	.63	.141	.190	.110	1	No.5
M3	0.5	2.00	.413	.276	.69	.141	.190	.110	1	No.6
M4	0.7	2.38	.531	.354	.93	.194	.250	.152	1	No.10
M5	0.8	2.50	.591	.433	1.0	.255	.310	.191	2	1/4
M6	1	2.72	.669	.433	1.13	.318	.380	.238	2	5/16
M8	1.25	2.94	.748	.512	1.25	.381	.440	.286	2	3/8
M10	1.5	3.38	.984	.591	2.07	.367	.440	.275	3	1/2
M12	1.75	3.59	.984	.709	2.07	.429	.500	.322	3	9/16

SCREW THREAD INSERT (STI) TAP DRILL CHART

NOMINAL THREAD SIZE (COARSE SERIES)	SUGGESTED DRILL SIZE (INCH)		NOMINAL THREAD SIZE	SUGGESTED DRILL SIZE (INCH)	
	ALUMINUM	STEEL, MAGNESIUM PLASTIC		ALUMINUM	STEEL, MAGNESIUM PLASTIC
M2.2X0.45	#42 (.0935)	#42 (.0935)	2 (.086)-56	3/32 (.0938)	#41 (.0960)
M2.5X0.45	#37 (.1040)	#37 (.1040)	3 (.099)-48	#36 (.1065)	7/64 (.1094)
M3X0.5	1/8 (.1250)	1/8 (.1250)	4 (.112)-40	#31 (.1200)	#31 (.1200)
M3.5X0.6	#27 (.1440)	#26 (.1470)	5 (.125)-40	3.4mm (.1339)	#29 (.1360)
M4X0.7	#19 (.1660)	#19 (.1660)	6 (.138)-32	#26 (.1470)	#25 (.1495)
M5X0.8	#5 (.2055)	#4 (.2090)	8 (.164)-32	#17 (.1730)	#16 (.1770)
M6X1	D (.2460)	1/4 (.2500)	10 (.190)-24	13/64 (.2031)	#5 (.2055)
M7X1	L (.2900)	L (.2900)	12 (.216)-24	#1 (.2280)	#1 (.2280)
M8X1.25	21/64 (.3281)	Q (.3320)	1/4 (.2500)-20	H (.2660)	H (.2660)
M10X1.5	Z (.4130)	Z (.4130)	5/16 (.3125)-18	Q (.3320)	Q (.3320)
M12X1.75	31/64 (.4844)	1/2 (.5000)	3/8 (.3750)-16	X (.3970)	X (.3970)
M14X2	37/64 (.5781)	37/64 (.5781)	7/16 (.4375)-14	29/64 (.4531)	29/64 (.4531)
M16X2	21/32 (.6562)	21/32 (.6562)	1/2 (.5000)-13	33/64 (.5156)	17/32 (.5312)
M18X2.5	47/64 (.7344)	47/64 (.7344)	9/16 (.5625)-12	37/64 (.5781)	19/32 (.5938)
M20X2.5	13/16 (.8125)	13/16 (.8125)	5/8 (.6250)-11	21/32 (.6562)	21/32 (.6562)
M22X2.5	57/64 (.8906)	57/64 (.8906)	3/4 (.7500)-10	25/32 (.7812)	25/32 (.7812)
M24X3	63/64 (.9844)	63/64 (.9844)	7/8 (.8750)-9	29/32 (.9062)	29/32 (.9062)
M27X3	1-3/32 (1.0938)	1-3/32 (1.0938)	1 (1.0000)-8	1-1/32 (1.0312)	1-1/32 (1.0312)
M30X3.5	1-7/32 (1.1288)	1-7/32 (1.1288)	1-1/8 (1.1250)-7	1-11/64 (1.1719)	1-11/64 (1.1719)
M33X3.5	1-11/32 (1.3438)	1-11/32 (1.3438)	1-1/4 (1.2500)-7	1-19/64 (1.2969)	1-19/64 (1.2969)
M36X4	1-29/64 (1.4531)	1-15/32 (1.4688)	1-3/8 (1.3750)-6	1-27/64 (1.4219)	1-27/64 (1.4219)
M39X4	1-37/64 (1.5781)	1-37/64 (1.5781)	1-1/2 (1.5000)-6	1-35/64 (1.5469)	1-35/64 (1.5469)
(FINE SERIES)					
M8X1	21/64 (.3281)	21/64 (.3281)	3 (.099)-56	#37 (.1040)	#36 (.1065)
M10X1	Y (.4040)	13/32 (.4062)	4 (.112)-48	3mm (.1181)	#31 (.1200)
M10X1.25	Y (.4040)	13/32 (.4062)	6 (.138)-40	#26 (.1470)	#25 (.1495)
M12X1.25	31/64 (.4844)	31/64 (.4844)	8 (.164)-36	#17 (.1730)	#16 (.1770)
M12X1.5	31/64 (.4844)	1/2 (.5000)	10 (.190)-32	#7 (.2010)	13/64 (.2031)
M14X1.5	9/16 (.5625)	37/64 (.5781)	1/4 (.2500)-28	G (.2610)	6.7mm (.2638)
M16X1.5	41/64 (.6406)	21/32 (.6562)	5/16 (.3125)-24	21/64 (.3281)	21/64 (.3281)
M18X1.5	23/32 (.7188)	47/64 (.7344)	3/8 (.3750)-24	25/64 (.3906)	25/64 (.3906)
M20X1.5	51/64 (.7969)	13/16 (.8125)	7/16 (.4375)-20	29/64 (.4531)	29/64 (.4531)
M22X1.5	7/8 (.8750)	57/64 (.8906)	1/2 (.5000)-20	33/64 (.5156)	33/64 (.5156)
M18X2	47/64 (.7344)	47/64 (.7344)	9/16 (.5625)-18	37/64 (.5781)	37/64 (.5781)
M20X2	13/16 (.8125)	13/16 (.8125)	5/8 (.6250)-18	41/64 (.6406)	41/64 (.6406)
M22X2	57/64 (.8906)	57/64 (.8906)	3/4 (.7500)-16	49/64 (.7656)	49/64 (.7656)
M24X2	31/32 (.9688)	31/32 (.9688)	7/8 (.8750)-14	57/64 (.8906)	57/64 (.8906)
M27X2	1-5/64 (1.0781)	1-3/32 (1.0938)	1 (1.0000)-14	1-1/64 (1.0156)	1-1/32 (1.0312)
M30X2	1-13/64 (1.2031)	1-13/64 (1.2031)	1 (1.0000)-12	1-1/64 (1.0156)	1-1/32 (1.0312)
M33X2	1-5/16 (1.3125)	1-21/64 (1.3281)	1-1/8 (1.1250)-12	1-9/64 (1.1406)	1-5/32 (1.1562)
M36X2	1-7/16 (1.4375)	1-7/16 (1.4375)	1-1/4 (1.2500)-12	1-17/64 (1.2656)	1-9/32 (1.2812)
M39X2	1-35/64 (1.5469)	1-9/16 (1.5625)	1-3/8 (1.3750)-12	1-25/64 (1.3906)	1-13/32 (1.4062)
M36X3	1-29/64 (1.4531)	1-29/64 (1.4531)	1-1/2 (1.5000)-12	1-33/64 (1.5156)	1-17/32 (1.5312)
M39X3	1-9/16 (1.5625)	1-9/16 (1.5625)			