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**YG**  
**Combo** TAP

*HSS-E Taps for Multi-Purpose*

**NEW SIZES** SPIRAL FLUTE  
**NEW SIZES** SPIRAL POINT

## PRODUCT FEATURES

### MULTIPURPOSE TAPPING IN VARIOUS DUCTILE MATERIALS

Combo Tap's geometry is designed to provide smooth chip evacuation resulting in uninterrupted manufacturing. Guaranteed process reliability even in less rigid machining 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

MULTI-PURPOSE



**TiCN**

The TiCN brings advantages for machining very difficult steels or cutting interrupted bores. The TiCN-coating has a hardness of approx. 3,000 HV, but its heat resistance only holds up to approx. 400°C, meaning that the TiCN needs an excellent cooling system for a long service life.



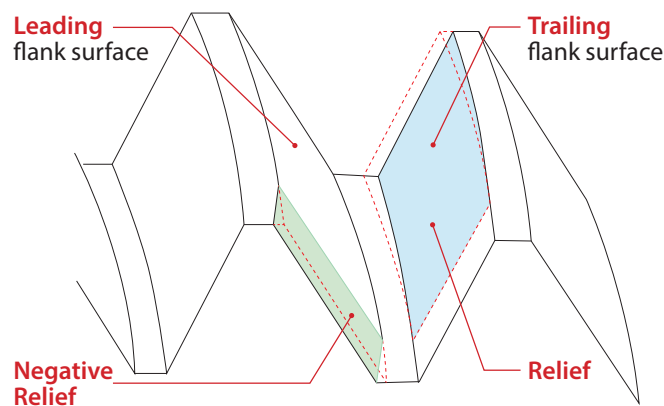
**TiN**

TiN-coating yields a hardness of approx. 2,300 HV and also a heat resistant up to approx. 600°C. The current coating is an excellent all-round coating for normal applications.



**Steam Oxide**

Steam Tempered is a Fe3O4-oxyd-coating which reduces friction between the tool and workpiece, also preventing cold welding.



- **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.

## TEST RESULT AGAINST COMPETITIVE TAPS

### COMBO TAP for Multi-Purpose

#### ▶TEST 1 - M8 x 1.25 (Spiral Flute)

Cutting Condition	
Work Material	Carbon Steel AISI: 1045 DIN: C45 WR: 1.0503 JIS: S45C
Tapping Depth	.79"
Coolant	Water Soluble Oil
Vc (Tapping Speed)	33 SFM

YG-1	COMPETITOR A	COMPETITOR B
		
▲ Total Tapping 204 Holes	▲ Total Tapping 159 Holes	▲ Total Tapping 204 Holes

#### ▶TEST 2 - M10 x 1.5 (Spiral Point)

Cutting Condition	
Work Material	Carbon Steel AISI: 1045 DIN: C45 WR: 1.0503 JIS: S45C
Tapping Depth	1"
Coolant	Water Soluble Oil
Vc (Tapping Speed)	33 SFM

YG-1	COMPETITOR A	COMPETITOR B
		
▲ Total Tapping 216 Holes	▲ Total Tapping 99 Holes	▲ Total Tapping 196 Holes

### ICON GUIDE

<b>Tool Raw Material</b>	<b>Thread Designation</b>	<b>Chamfer</b>	<b>Flute Helix</b>
HSS-E	UNC UNF M/MF	1P ~ 2P	R40
<b>Blank Standard</b>	<b>Finish</b>	2P ~ 3P	
USCTI 302A	Bright Steam Oxide	4P ~ 5P	
	TiCN TiN		

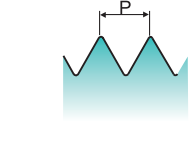
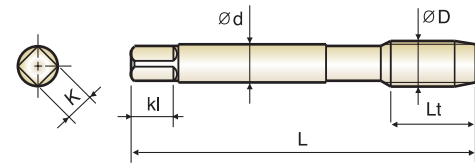




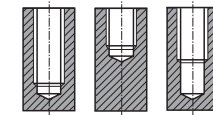
# UNC/UNF HSS-E COMBO TAP NEW SIZES SPIRAL FLUTE for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T2** SERIES  
**T2-S** SERIES  
**T2-C** SERIES



Hole type 2.5XD



HSS-E UNC UNF USCTI 302A 2P~3P Bright Steam Oxide TiCN R40

Unit : inch

\* NEW SIZE

SIZE ØD	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
#2 - 56 UNC	H2	1.75	.157	.141	.110	.188	2	* T2082	* T2082S	* T2082C	
#3 - 48 UNC	H2	1.81	.197	.141	.110	.188	2	* T2122	* T2122S	* T2122C	
#4 - 40 UNC	H2	1.88	.236	.141	.110	.188	2	T2162	T2162S	T2162C	
#4 - 40 UNC	H3	1.88	.236	.141	.110	.188	2	* T2163	* T2163S	* T2163C	
#4 - 40 UNC	H4	1.88	.236	.141	.110	.188	2	* T2164	* T2164S	* T2164C	
#4 - 40 UNC	H5	1.88	.236	.141	.110	.188	2	* T2165	* T2165S	* T2165C	
#4 - 48 UNF	H2	1.88	.236	.141	.110	.188	2	T2182	T2182S	T2182C	
#5 - 40 UNC	H2	1.94	.236	.141	.110	.188	3	T2202	T2202S	T2202C	
#5 - 44 UNF	H2	1.94	.236	.141	.110	.188	3	T2222	T2222S	T2222C	
#6 - 32 UNC	H2	2.00	.276	.141	.110	.188	3	* T2242	* T2242S	* T2242C	
#6 - 32 UNC	H3	2.00	.276	.141	.110	.188	3	T2243	T2243S	T2243C	
#6 - 32 UNC	H5	2.00	.276	.141	.110	.188	3	* T2245	* T2245S	* T2245C	
#6 - 32 UNC	H7	2.00	.276	.141	.110	.188	3	* T2247	* T2247S	* T2247C	
#6 - 32 UNC	H11	2.00	.276	.141	.110	.188	3	* T224A	* T224AS	* T224AC	
#6 - 40 UNF	H2	2.00	.276	.141	.110	.188	3	T2262	T2262S	T2262C	
#8 - 32 UNC	H2	2.13	.276	.168	.131	.250	3	* T2282	* T2282S	* T2282C	
#8 - 32 UNC	H3	2.13	.276	.168	.131	.250	3	T2283	T2283S	T2283C	
#8 - 32 UNC	H5	2.13	.276	.168	.131	.250	3	* T2285	* T2285S	* T2285C	
#8 - 32 UNC	H7	2.13	.276	.168	.131	.250	3	* T2287	* T2287S	* T2287C	
#8 - 32 UNC	H11	2.13	.276	.168	.131	.250	3	* T228A	* T228AS	* T228AC	
#8 - 36 UNF	H2	2.13	.276	.168	.131	.250	3	T2302	T2302S	T2302C	
#10 - 24 UNC	H3	2.38	.354	.194	.152	.250	3	T2323	T2323S	T2323C	
#10 - 24 UNC	H5	2.38	.354	.194	.152	.250	3	* T2325	* T2325S	* T2325C	
#10 - 24 UNC	H11	2.38	.354	.194	.152	.250	3	* T232A	* T232AS	* T232AC	
#10 - 32 UNF	H2	2.38	.276	.194	.152	.250	3	* T2342	* T2342S	* T2342C	
#10 - 32 UNF	H3	2.38	.276	.194	.152	.250	3	T2343	T2343S	T2343C	
#10 - 32 UNF	H5	2.38	.276	.194	.152	.250	3	* T2345	* T2345S	* T2345C	
#10 - 32 UNF	H7	2.38	.276	.194	.152	.250	3	* T2347	* T2347S	* T2347C	

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◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

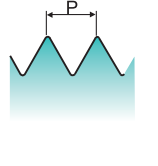
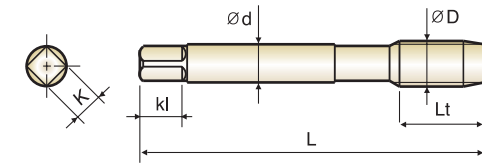
  

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28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

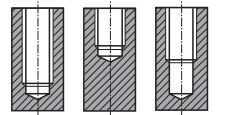
# UNC/UNF HSS-E COMBO TAP NEW SIZES SPIRAL FLUTE for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T2** SERIES  
**T2-S** SERIES  
**T2-C** SERIES



Hole type 2.5XD



HSS-E UNC UNF USCTI 302A 2P~3P Bright Steam Oxide TiCN R40

Unit : inch

\* NEW SIZE

SIZE ØD	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
#10 - 32 UNF	H11	2.38	.276	.194	.152	.250	3	* T234A	* T234AS	* T234AC	
#12 - 24 UNC	H3	2.38	.354	.220	.165	.281	3	T2363	T2363S	T2363C	
#12 - 28 UNF	H3	2.38	.276	.220	.165	.281	3	T2383	T2383S	T2383C	
1/4 - 20 UNC	H3	2.50	.433	.255	.191	.312	3	T2403	T2403S	T2403C	
1/4 - 20 UNC	H5	2.50	.433	.255	.191	.312	3	T2405	T2405S	T2405C	
1/4 - 20 UNC	H11	2.50	.433	.255	.191	.312	3	* T240A	* T240AS	* T240AC	
1/4 - 28 UNF	H2	2.50	.354	.255	.191	.312	3	* T2422	* T2422S	* T2422C	
1/4 - 28 UNF	H3	2.50	.354	.255	.191	.312	3	T2423	T2423S	T2423C	
1/4 - 28 UNF	H4	2.50	.354	.255	.191	.312	3	T2424	T2424S	T2424C	
1/4 - 28 UNF	H5	2.50	.354	.255	.191	.312	3	* T2425	* T2425S	* T2425C	
1/4 - 28 UNF	H7	2.50	.354	.255	.191	.312	3	* T2427	* T2427S	* T2427C	
1/4 - 28 UNF	H11	2.50	.354	.255	.191	.312	3	* T242A	* T242AS	* T242AC	
5/16 - 18 UNC	H2	2.72	.472	.318	.238	.375	3	* T2442	* T2442S	* T2442C	
5/16 - 18 UNC	H3	2.72	.472	.318	.238	.375	3	T2443	T2443S	T2443C	
5/16 - 18 UNC	H5	2.72	.472	.318	.238	.375	3	T2445	T2445S	T2445C	
5/16 - 18 UNC	H7	2.72	.472	.318	.238	.375	3	* T2447	* T2447S	* T2447C	
5/16 - 18 UNC	H11	2.72	.472	.318	.238	.375	3	* T244A	* T244AS	* T244AC	
5/16 - 24 UNF	H2	2.72	.394	.318	.238	.375	3	* T2462	* T2462S	* T2462C	
5/16 - 24 UNF	H3	2.72	.394	.318	.238	.375	3	T2463	T2463S	T2463C	
5/16 - 24 UNF	H4	2.72	.394	.318	.238	.375	3	T2464	* T2464S	T2464C	
5/16 - 24 UNF	H5	2.72	.394	.318	.238	.375	3	T2465	T2465S	T2465C	
5/16 - 24 UNF	H6	2.72	.394	.318	.238	.375	3	* T2466	* T2466S	* T2466C	
5/16 - 24 UNF	H7	2.72	.394	.318	.238	.375	3	* T2467	* T2467S	* T2467C	
5/16 - 24 UNF	H11	2.72	.394	.318	.238	.375	3	* T246A	* T246AS	* T246AC	
3/8 - 16 UNC	H2	2.94	.551	.381	.286	.438	3	* T2482	* T2482S	* T2482C	
3/8 - 16 UNC	H3	2.94	.551	.381	.286	.438	3	T2483	T2483S	T2483C	
3/8 - 16 UNC	H5	2.94	.551	.381	.286	.438	3	T2485	T2485S	T2485C	
3/8 - 16 UNC	H7	2.94	.551	.381	.286	.438	3	* T2487	* T2487S	* T2487C	

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◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

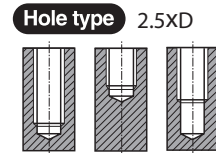
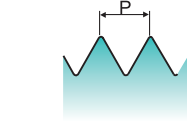
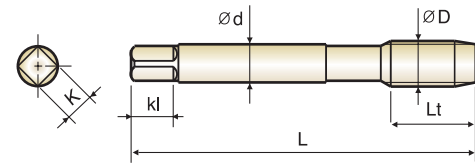
ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28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

# UNC/UNF HSS-E COMBO TAP

**NEW SIZES**  
SPIRAL FLUTE for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T2 SERIES**  
**T2-S SERIES**  
**T2-C SERIES**



HSS-E UNC UNF USCTI 302A 2P~3P Bright Steam Oxide TiCN R40

Unit : inch \* NEW SIZE

SIZE ØD	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
3/8 - 16 UNC	H11	2.94	.551	.381	.286	.438	3	* T248A	* T248AS	* T248AC	
3/8 - 24 UNF	H2	2.94	.394	.381	.286	.438	3	* T2502	* T2502S	* T2502C	
3/8 - 24 UNF	H3	2.94	.394	.381	.286	.438	3	T2503	T2503S	T2503C	
3/8 - 24 UNF	H4	2.94	.394	.381	.286	.438	3	T2504	T2504S	T2504C	
3/8 - 24 UNF	H5	2.94	.394	.381	.286	.438	3	* T2505	* T2505S	* T2505C	
3/8 - 24 UNF	H7	2.94	.394	.381	.286	.438	3	* T2507	* T2507S	* T2507C	
3/8 - 24 UNF	H11	2.94	.394	.381	.286	.438	3	* T250A	* T250AS	* T250AC	
7/16 - 14 UNC	H3	3.16	.591	.323	.242	.406	3	T2523	T2523S	T2523C	
7/16 - 14 UNC	H5	3.16	.591	.323	.242	.406	3	T2525	T2525S	T2525C	
7/16 - 14 UNC	H7	3.16	.591	.323	.242	.406	3	* T2527	* T2527S	* T2527C	
7/16 - 14 UNC	H11	3.16	.591	.323	.242	.406	3	* T252A	* T252AS	* T252AC	
7/16 - 20 UNF	H3	3.16	.472	.323	.242	.406	3	T2543	T2543S	T2543C	
7/16 - 20 UNF	H5	3.16	.472	.323	.242	.406	3	T2545	T2545S	T2545C	
7/16 - 20 UNF	H7	3.16	.472	.323	.242	.406	3	* T2547	* T2547S	* T2547C	
7/16 - 20 UNF	H11	3.16	.472	.323	.242	.406	3	* T254A	* T254AS	* T254AC	
1/2 - 13 UNC	H3	3.38	.630	.367	.275	.438	3	* T2563	* T2563S	* T2563C	
1/2 - 13 UNC	H5	3.38	.630	.367	.275	.438	3	T2565	T2565S	T2565C	
1/2 - 13 UNC	H7	3.38	.630	.367	.275	.438	3	* T2567	* T2567S	* T2567C	
1/2 - 13 UNC	H11	3.38	.630	.367	.275	.438	3	* T256A	* T256AS	* T256AC	
1/2 - 20 UNF	H2	3.38	.472	.367	.275	.438	3	* T2582	* T2582S	* T2582C	
1/2 - 20 UNF	H3	3.38	.472	.367	.275	.438	3	* T2583	* T2583S	* T2583C	
1/2 - 20 UNF	H5	3.38	.472	.367	.275	.438	3	T2585	T2585S	T2585C	
1/2 - 20 UNF	H7	3.38	.472	.367	.275	.438	3	* T2587	* T2587S	* T2587C	
1/2 - 20 UNF	H11	3.38	.472	.367	.275	.438	3	* T258A	* T258AS	* T258AC	
9/16 - 12 UNC	H3	3.59	.709	.429	.322	.500	3	* T2603	* T2603S	* T2603C	
9/16 - 12 UNC	H5	3.59	.709	.429	.322	.500	3	T2605	T2605S	T2605C	
9/16 - 18 UNF	H3	3.59	.512	.429	.322	.500	3	* T2623	* T2623S	* T2623C	
9/16 - 18 UNF	H5	3.59	.512	.429	.322	.500	3	T2625	T2625S	T2625C	

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

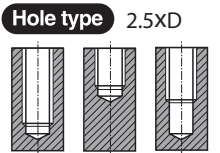
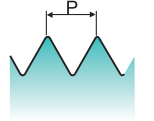
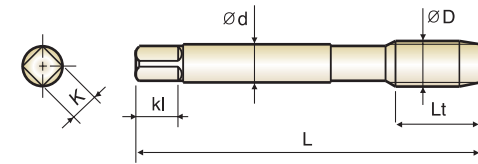
ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28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

# UNC/UNF HSS-E COMBO TAP

**NEW SIZES**  
SPIRAL FLUTE for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T2 SERIES**  
**T2-S SERIES**  
**T2-C SERIES**



HSS-E UNC UNF USCTI 302A 2P~3P Bright Steam Oxide TiCN R40

Unit : inch \* NEW SIZE

SIZE ØD	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
5/8 - 11 UNC	H5	3.81	.748	.480	.360	.562	4	T2645	T2645S	T2645C	
5/8 - 18 UNF	H3	3.81	.512	.480	.360	.562	4	* T2663	* T2663S	* T2663C	
5/8 - 18 UNF	H5	3.81	.512	.480	.360	.562	4	T2665	T2665S	T2665C	
3/4 - 10 UNC	H3	4.25	.827	.590	.442	.688	4	* T2703	* T2703S	* T2703C	
3/4 - 10 UNC	H5	4.25	.827	.590	.442	.688	4	T2705	T2705S	T2705C	
3/4 - 16 UNF	H3	4.25	.591	.590	.442	.688	4	* T2723	* T2723S	* T2723C	
3/4 - 16 UNF	H5	4.25	.591	.590	.442	.688	4	T2725	T2725S	T2725C	
7/8 - 9 UNC	H6	4.69	.827	.697	.523	.750	4	T2746	T2746S	T2746C	
7/8 - 14 UNF	H4	4.69	.709	.697	.523	.750	4	* T2764	* T2764S	* T2764C	
7/8 - 14 UNF	H6	4.69	.709	.697	.523	.750	4	T2766	T2766S	T2766C	
1" - 8 UNC	H6	5.13	.984	.800	.600	.812	4	T2786	T2786S	T2786C	
1" - 12 UNF	H6	5.13	.709	.800	.600	.812	4	T2806	T2806S	T2806C	
1_1/8 - 7 UNC	H6	5.44	1.023	.896	.672	.880	4	* T2826	* T2826S	* T2826C	
1_1/8 - 8 UN	H6	5.44	1.023	.896	.672	.880	4	* T2836	* T2836S	* T2836C	
1_1/8 - 12 UNF	H5	5.44	.787	.896	.672	.880	4	* T2845	* T2845S	* T2845C	
1_1/4 - 7 UNC	H6	5.75	1.023	1.021	.766	1.000	4	* T2866	* T2866S	* T2866C	
1_1/4 - 8 UN	H6	5.75	1.023	1.021	.766	1.000	4	* T2876	* T2876S	* T2876C	
1_1/4 - 12 UNF	H5	5.75	.787	1.021	.766	1.000	4	* T2885	* T2885S	* T2885C	
1_3/8 - 6 UNC	H6	6.06	1.181	1.108	.831	1.060	4	* T2906	* T2906S	* T2906C	
1_3/8 - 8 UN	H6	6.06	1.181	1.108	.831	1.060	4	* T2916	* T2916S	* T2916C	
1_3/8 - 12 UNF	H5	6.06	.866	1.108	.831	1.060	4	* T2925	* T2925S	* T2925C	
1_1/2 - 6 UNC	H6	6.38	1.181	1.233	.925	1.130	4	* T2946	* T2946S	* T2946C	
1_1/2 - 8 UN	H6	6.38	1.181	1.233	.925	1.130	4	* T2956	* T2956S	* T2956C	
1_1/2 - 12 UNF	H5	6.38	.866	1.233	.925	1.130	4	* T2965	* T2965S	* T2965C	

- ▶ Coating (TiN, TiAlN or Hardslick) is available on your request.
- ▶ Coating Codes for Combo Tap  
Bright Finish No. + N(TiN), F(TiAlN), H(Hardslick)
- ▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

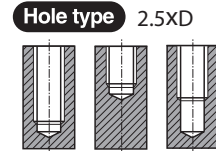
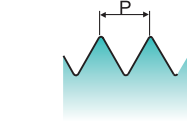
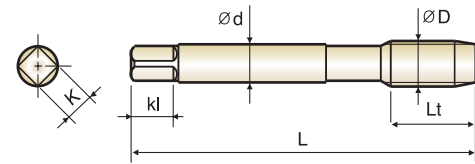
  

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28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

# M/MF HSS-E COMBO TAP NEW SIZES SPIRAL FLUTE for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T5** SERIES  
**T5-S** SERIES  
**T5-C** SERIES



HSS-E M/MF USCTI 302A 2P~3P Bright Steam Oxide TiCN R40

Unit : inch \* NEW SIZE

SIZE	PITCH	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
M3 x 0.5	D3	D3	1.94	.197	.141	.110	.188	3	T5203	T5203S	T5203C
M3 x 0.5	D11	D11	1.94	.197	.141	.110	.188	3	* T520A	* T520AS	* T520AC
M3.5 x 0.6	D4	D4	2.00	.276	.141	.110	.188	3	T5224	T5224S	T5224C
M3.5 x 0.6	D11	D11	2.00	.276	.141	.110	.188	3	* T522A	* T522AS	* T522AC
M4 x 0.7	D4	D4	2.13	.276	.168	.131	.250	3	T5244	T5244S	T5244C
M4 x 0.7	D11	D11	2.13	.276	.168	.131	.250	3	* T524A	* T524AS	* T524AC
M5 x 0.8	D4	D4	2.38	.354	.194	.152	.250	3	T5284	T5284S	T5284C
M5 x 0.8	D11	D11	2.38	.354	.194	.152	.250	3	* T528A	* T528AS	* T528AC
M6 x 1.0	D5	D5	2.50	.433	.255	.191	.312	3	T5315	T5315S	T5315C
M6 x 1.0	D11	D11	2.50	.433	.255	.191	.312	3	* T531A	* T531AS	* T531AC
M7 x 1.0	D5	D5	2.72	.433	.318	.238	.375	3	T5345	T5345S	T5345C
M7 x 1.0	D11	D11	2.72	.433	.318	.238	.375	3	* T534A	* T534AS	* T534AC
M8 x 1.25	D5	D5	2.72	.472	.318	.238	.375	3	T5365	T5365S	T5365C
M8 x 1.25	D11	D11	2.72	.472	.318	.238	.375	3	* T536A	* T536AS	* T536AC
M8 x 1.0	D5	D5	2.72	.433	.318	.238	.375	3	T5375	T5375S	T5375C
M8 x 1.0	D11	D11	2.72	.433	.318	.238	.375	3	* T537A	* T537AS	* T537AC
M10 x 1.5	D6	D6	2.94	.512	.381	.286	.438	3	T5426	T5426S	T5426C
M10 x 1.5	D11	D11	2.94	.512	.381	.286	.438	3	* T542A	* T542AS	* T542AC
M10 x 1.25	D5	D5	2.94	.472	.381	.286	.438	3	T5435	T5435S	T5435C
M10 x 1.25	D11	D11	2.94	.472	.381	.286	.438	3	* T543A	* T543AS	* T543AC
M10 x 1.0	D5	D5	2.94	.433	.381	.286	.438	3	* T5445	* T5445S	* T5445C
M10 x 1.0	D11	D11	2.94	.433	.381	.286	.438	3	* T544A	* T544AS	* T544AC
M12 x 1.75	D6	D6	3.38	.591	.367	.275	.438	3	T5506	T5506S	T5506C
M12 x 1.75	D11	D11	3.38	.591	.367	.275	.438	3	* T550A	* T550AS	* T550AC
M12 x 1.5	D6	D6	3.38	.591	.367	.275	.438	3	T5516	T5516S	T5516C
M12 x 1.5	D11	D11	3.38	.591	.367	.275	.438	3	T551A	T551AS	T551AC
M12 x 1.25	D5	D5	3.38	.551	.367	.275	.438	3	T5525	T5525S	T5525C
M12 x 1.25	D11	D11	3.38	.551	.367	.275	.438	3	T552A	T552AS	T552AC

▶ NEXT PAGE

◎ : Excellent ○ : Good

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

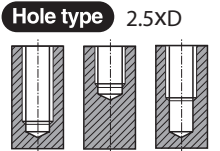
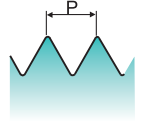
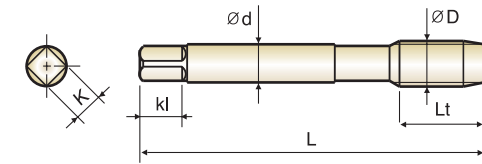
  

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31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

# M/MF HSS-E COMBO TAP NEW SIZES SPIRAL FLUTE for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T5** SERIES  
**T5-S** SERIES  
**T5-C** SERIES



HSS-E M/MF USCTI 302A 2P~3P Bright Steam Oxide TiCN R40

Unit : inch \* NEW SIZE

SIZE	PITCH	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
M14 x 2.0	D7	D7	3.59	.709	.429	.322	.500	3	T5547	T5547S	T5547C
M14 x 1.5	D6	D6	3.59	.551	.429	.322	.500	3	T5556	T5556S	T5556C
M16 x 2.0	D7	D7	3.81	.709	.480	.360	.562	3	T5607	T5607S	T5607C
M16 x 1.5	D6	D6	3.81	.551	.480	.360	.562	3	T5616	T5616S	T5616C
M18 x 2.5	D7	D7	4.03	.787	.542	.406	.625	4	T5657	T5657S	T5657C
M18 x 1.5	D6	D6	4.03	.551	.542	.406	.625	4	T5676	T5676S	T5676C
M20 x 2.5	D7	D7	4.47	.787	.652	.489	.688	4	T5707	T5707S	T5707C
M20 x 1.5	D6	D6	4.47	.551	.652	.489	.688	4	T5726	T5726S	T5726C
M22 x 2.5	D7	D7	4.69	.787	.697	.523	.750	4	T5747	T5747S	T5747C
M22 x 1.5	D6	D6	4.69	.551	.697	.523	.750	4	T5766	T5766S	T5766C
M24 x 3.0	D8	D8	4.91	.945	.760	.570	.750	4	T5788	T5788S	T5788C
M24 x 1.5	D6	D6	4.91	.551	.760	.570	.750	4	* T5806	* T5806S	* T5806C
M27 x 3.0	D6	D6	5.13	.945	.896	.672	.880	4	* T5866	* T5866S	* T5866C
M27 x 3.0	D8	D8	5.13	.945	.896	.672	.880	4	* T5868	* T5868S	* T5868C
M27 x 3.0	D9	D9	5.13	.945	.896	.672	.880	4	* T5869	* T5869S	* T5869C
M27 x 1.5	D6	D6	5.13	.591	.896	.672	.880	4	* T5886	* T5886S	* T5886C

- ▶ Coating (TiN, TiAlN or Hardslick) is available on your request.
- ▶ Coating Codes for Combo Tap  
Bright Finish No. + N (TiN), F (TiAlN), H (Hardslick)
- ▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

◎ : Excellent ○ : Good

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

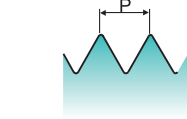
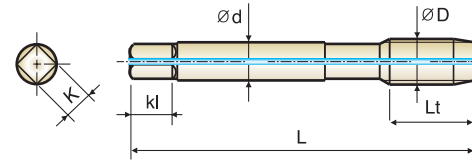
  

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31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

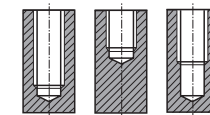
# UNC/UNF HSS-E COMBO TAP SPIRAL FLUTE for Multi-Purpose

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

with Internal Coolant



Hole type 2.5XD



HSS-E UNC UNF USCTI 302A 2P~3P Bright TiN R40

Unit : inch

SIZE	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.	
									Bright	TiN
1/4 - 20 UNC	H5	2.50	.433	.255	.191	.312	3	T6405	T6405N	
1/4 - 28 UNF	H4	2.50	.354	.255	.191	.312	3	T6424	T6424N	
5/16 - 18 UNC	H5	2.72	.472	.318	.238	.375	3	T6445	T6445N	
5/16 - 24 UNF	H4	2.72	.394	.318	.238	.375	3	T6464	T6464N	
3/8 - 16 UNC	H5	2.94	.551	.381	.286	.438	3	T6485	T6485N	
3/8 - 24 UNF	H4	2.94	.394	.381	.286	.438	3	T6504	T6504N	
7/16 - 14 UNC	H5	3.16	.591	.323	.242	.406	3	T6525	T6525N	
7/16 - 20 UNF	H5	3.16	.472	.323	.242	.406	3	T6545	T6545N	
1/2 - 13 UNC	H5	3.38	.630	.367	.275	.438	3	T6565	T6565N	
1/2 - 20 UNF	H5	3.38	.472	.367	.275	.438	3	T6585	T6585N	
9/16 - 12 UNC	H5	3.59	.709	.429	.322	.500	3	T6605	T6605N	
9/16 - 18 UNF	H5	3.59	.512	.429	.322	.500	3	T6625	T6625N	
5/8 - 11 UNC	H5	3.81	.748	.480	.360	.562	4	T6645	T6645N	
5/8 - 18 UNF	H5	3.81	.512	.480	.360	.562	4	T6665	T6665N	
3/4 - 10 UNC	H5	4.25	.827	.590	.442	.688	4	T6705	T6705N	
3/4 - 16 UNF	H5	4.25	.591	.590	.442	.688	4	T6725	T6725N	
7/8 - 9 UNC	H6	4.69	.827	.697	.523	.750	4	T6746	T6746N	
7/8 - 14 UNF	H6	4.69	.709	.697	.523	.750	4	T6766	T6766N	
1" - 8 UNC	H6	5.13	.984	.800	.600	.812	4	T6786	T6786N	
1" - 12 UNF	H6	5.13	.709	.800	.600	.812	4	T6806	T6806N	

- ▶ Coating(TiCN, TiAlN or Hardslick) or Surface Treatment(Steam Oxide) is available on your request.
- ▶ Coating Codes for Combo Tap  
Bright Finish No. + C(TiCN), F(TiAlN), H(Hardslick), S(Steam Oxide)

◎ : Excellent ○ : Good

ISO Material Description	P										M			K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

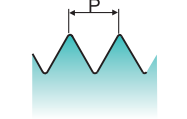
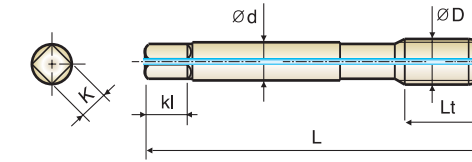
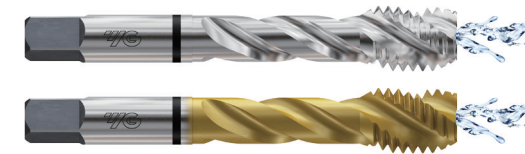
  

ISO Material Description	N				S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28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

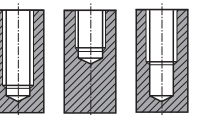
# M HSS-E COMBO TAP SPIRAL FLUTE for Multi-Purpose

Bright  
TiN **T8** SERIES  
**T8-N** SERIES

with Internal Coolant



Hole type 2.5XD



HSS-E M USCTI 302A 2P~3P Bright TiN R40

Unit : inch

SIZE	PITCH	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.	
									Bright	TiN
M6 x 1.0	D5	2.50	.433	.255	.191	.312	3	T8315	T8315N	
M8 x 1.25	D5	2.72	.472	.318	.238	.375	3	T8365	T8365N	
M10 x 1.5	D6	2.94	.512	.381	.286	.438	3	T8426	T8426N	
M12 x 1.75	D6	3.38	.591	.367	.275	.438	3	T8506	T8506N	
M14 x 2.0	D7	3.59	.709	.429	.322	.500	3	T8547	T8547N	
M16 x 2.0	D7	3.81	.709	.480	.360	.562	3	T8607	T8607N	
M18 x 2.5	D7	4.03	.787	.542	.406	.625	4	T8657	T8657N	
M20 x 2.5	D7	4.47	.787	.652	.489	.688	4	T8707	T8707N	

- ▶ Coating(TiCN, TiAlN or Hardslick) or Surface Treatment(Steam Oxide) is available on your request.
- ▶ Coating Codes for Combo Tap  
Bright Finish No. + C(TiCN), F(TiAlN), H(Hardslick), S(Steam Oxide)

◎ : Excellent ○ : Good

ISO Material Description	P										M			K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron	Nodular cast iron	Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	10	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

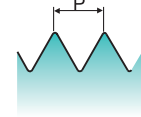
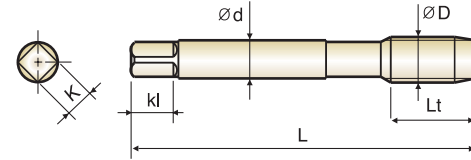
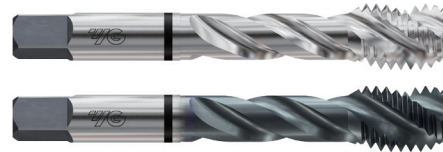
  

ISO Material Description	N				S					H											
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron					
VDI 3323	21	22	23	24	25	26	27	28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

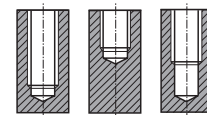
# UNC/UNF HSS-E COMBO TAP SPIRAL FLUTE for Multi-Purpose

Bright  
TiCN **T7** SERIES  
**T7-C** SERIES

Short Chamfer



Hole type 2.5XD



HSS-E UNC UNF USCT1 302A 1P~2P Bright TiCN R40

Unit : inch

SIZE	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.	
									Bright	TiCN
#4	- 40 UNC	H2	1.88	.236	.141	.110	.188	2	T7162	T7162C
#4	- 48 UNF	H2	1.88	.236	.141	.110	.188	2	T7182	T7182C
#5	- 40 UNC	H2	1.94	.236	.141	.110	.188	3	T7202	T7202C
#5	- 44 UNF	H2	1.94	.236	.141	.110	.188	3	T7222	T7222C
#6	- 32 UNC	H3	2.00	.276	.141	.110	.188	3	T7243	T7243C
#6	- 40 UNF	H2	2.00	.276	.141	.110	.188	3	T7262	T7262C
#8	- 32 UNC	H3	2.13	.276	.168	.131	.250	3	T7283	T7283C
#8	- 36 UNF	H2	2.13	.276	.168	.131	.250	3	T7302	T7302C
#10	- 24 UNC	H3	2.38	.354	.194	.152	.250	3	T7323	T7323C
#10	- 32 UNF	H3	2.38	.276	.194	.152	.250	3	T7343	T7343C
#12	- 24 UNC	H3	2.38	.354	.220	.165	.281	3	T7363	T7363C
#12	- 28 UNF	H3	2.38	.276	.220	.165	.281	3	T7383	T7383C
1/4	- 20 UNC	H5	2.50	.433	.255	.191	.312	3	T7405	T7405C
1/4	- 28 UNF	H4	2.50	.354	.255	.191	.312	3	T7424	T7424C
5/16	- 18 UNC	H5	2.72	.472	.318	.238	.375	3	T7445	T7445C
5/16	- 24 UNF	H4	2.72	.394	.318	.238	.375	3	T7464	T7464C
3/8	- 16 UNC	H5	2.94	.551	.381	.286	.438	3	T7485	T7485C
3/8	- 24 UNF	H4	2.94	.394	.381	.286	.438	3	T7504	T7504C
7/16	- 14 UNC	H5	3.16	.591	.323	.242	.406	3	T7525	T7525C
7/16	- 20 UNF	H5	3.16	.472	.323	.242	.406	3	T7545	T7545C
1/2	- 13 UNC	H5	3.38	.630	.367	.275	.438	3	T7565	T7565C
1/2	- 20 UNF	H5	3.38	.472	.367	.275	.438	3	T7585	T7585C
9/16	- 12 UNC	H5	3.59	.709	.429	.322	.500	3	T7605	T7605C
9/16	- 18 UNF	H5	3.59	.512	.429	.322	.500	3	T7625	T7625C
5/8	- 11 UNC	H5	3.81	.748	.480	.360	.562	4	T7645	T7645C
5/8	- 18 UNF	H5	3.81	.512	.480	.360	.562	4	T7665	T7665C
3/4	- 10 UNC	H5	4.25	.827	.590	.442	.688	4	T7705	T7705C
3/4	- 16 UNF	H5	4.25	.591	.590	.442	.688	4	T7725	T7725C

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

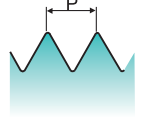
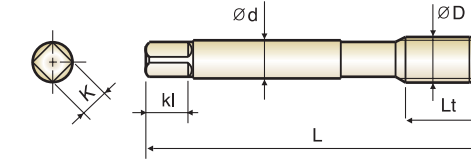
  

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28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

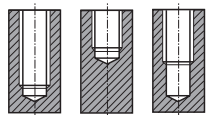
# UNC/UNF HSS-E COMBO TAP SPIRAL FLUTE for Multi-Purpose

Bright  
TiCN **T7** SERIES  
**T7-C** SERIES

Short Chamfer



Hole type 2.5XD



HSS-E UNC UNF USCT1 302A 1P~2P Bright TiCN R40

Unit : inch

SIZE	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.	
									Bright	TiCN
7/8	- 9 UNC	H6	4.69	.827	.697	.523	.750	4	T7746	T7746C
7/8	- 14 UNF	H6	4.69	.709	.697	.523	.750	4	T7766	T7766C
1"	- 8 UNC	H6	5.13	.984	.800	.600	.812	4	T7786	T7786C
1"	- 12 UNF	H6	5.13	.709	.800	.600	.812	4	T7806	T7806C

▶ Coating(TiN, TiAlN or Hardslick) or Surface Treatment(Steam Oxide) is available on your request.

▶ Coating Codes for Combo Tap  
Bright Finish No. + N(TiN), F(TiAlN), H(Hardslick), S(Steam Oxide)

◎ : Excellent ○ : Good

ISO Material Description	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

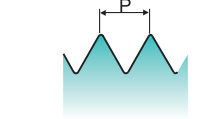
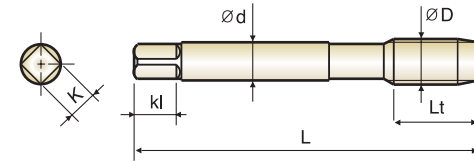
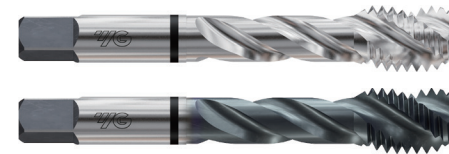
  

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28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

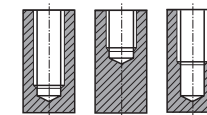
# M/MF HSS-E COMBO TAP SPIRAL FLUTE for Multi-Purpose

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

Short Chamfer



Hole type 2.5XD



HSS-E M/MF USCT1 302A 1P~2P Bright TiCN R40

Unit : inch

SIZE	PITCH	Limit	Overall Length	Thread Length	Shank Diameter	Square Size	Square Length	No. of Flute	EDP No.	
									Bright	TiCN
M3	x 0.5	D3	1.94	.197	.141	.110	.188	3	T9203	T9203C
M3.5	x 0.6	D4	2.00	.276	.141	.110	.188	3	T9224	T9224C
M4	x 0.7	D4	2.13	.276	.168	.131	.250	3	T9244	T9244C
M5	x 0.8	D4	2.38	.354	.194	.152	.250	3	T9284	T9284C
M6	x 1.0	D5	2.50	.433	.255	.191	.312	3	T9315	T9315C
M7	x 1.0	D5	2.72	.433	.318	.238	.375	3	T9345	T9345C
M8	x 1.25	D5	2.72	.472	.318	.238	.375	3	T9365	T9365C
M8	x 1.0	D5	2.72	.433	.318	.238	.375	3	T9375	T9375C
M10	x 1.5	D6	2.94	.512	.381	.286	.438	3	T9426	T9426C
M10	x 1.25	D5	2.94	.472	.381	.286	.438	3	T9435	T9435C
M12	x 1.75	D6	3.38	.591	.367	.275	.438	3	T9506	T9506C
M12	x 1.25	D5	3.38	.551	.367	.275	.438	3	T9525	T9525C
M14	x 2.0	D7	3.59	.709	.429	.322	.500	3	T9547	T9547C
M14	x 1.5	D6	3.59	.551	.429	.322	.500	3	T9556	T9556C
M16	x 2.0	D7	3.81	.709	.480	.360	.562	3	T9607	T9607C
M16	x 1.5	D6	3.81	.551	.480	.360	.562	3	T9616	T9616C
M18	x 2.5	D7	4.03	.787	.542	.406	.625	4	T9657	T9657C
M18	x 1.5	D6	4.03	.551	.542	.406	.625	4	T9676	T9676C
M20	x 2.5	D7	4.47	.787	.652	.489	.688	4	T9707	T9707C
M20	x 1.5	D6	4.47	.551	.652	.489	.688	4	T9726	T9726C
M22	x 2.5	D7	4.69	.787	.697	.523	.750	4	T9747	T9747C
M22	x 1.5	D6	4.69	.551	.697	.523	.750	4	T9766	T9766C
M24	x 3.0	D8	4.91	.945	.760	.570	.750	4	T9788	T9788C

- ▶ Coating (TiN, TiAlN or Hardslick) or Surface Treatment (Steam Oxide) is available on your request.
- ▶ Coating Codes for Combo Tap  
Bright Finish No. + N (TiN), F (TiAlN), H (Hardslick), S (Steam Oxide)

◎ : Excellent ○ : Good

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

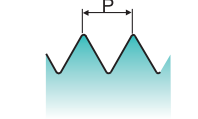
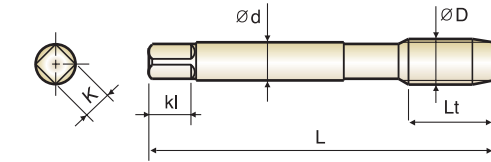
  

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28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

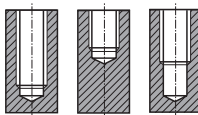
# UNC/UNF HSS-E COMBO TAP SPIRAL FLUTE for Multi-Purpose

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

DIN Length-ANSI Shank



Hole type 2.5XD



HSS-E UNC UNF 2P~3P Steam Oxide TiCN R40

Unit : inch

SIZE	TPI	Limit	Overall Length	Thread Length	Shank Diameter	Square Size	Square Length	No. of Flute	EDP No.	
									Steam Oxide	TiCN
#2	- 56 UNC	H2	1.77	.157	.141	.110	.188	2	T1082S	T1082C
#3	- 48 UNC	H2	1.97	.197	.141	.110	.188	2	* T1122S	* T1122C
#4	- 40 UNC	H2	2.21	.236	.141	.110	.188	2	T1162S	T1162C
#4	- 48 UNF	H2	2.21	.236	.141	.110	.188	2	* T1182S	* T1182C
#5	- 40 UNC	H2	2.21	.236	.141	.110	.188	3	T1202S	T1202C
#6	- 32 UNC	H3	2.21	.276	.141	.110	.188	3	T1243S	T1243C
#6	- 40 UNF	H2	2.21	.276	.141	.110	.188	3	* T1262S	* T1262C
#8	- 32 UNC	H3	2.48	.276	.168	.131	.250	3	T1283S	T1283C
#10	- 24 UNC	H3	2.76	.354	.194	.152	.250	3	T1323S	T1323C
#10	- 32 UNF	H3	2.76	.276	.194	.152	.250	3	T1343S	T1343C
#12	- 24 UNC	H3	3.15	.354	.220	.165	.281	3	T1363S	T1363C
#12	- 28 UNF	H3	3.15	.276	.220	.165	.281	3	T1383S	T1383C
1/4	- 20 UNC	H5	3.15	.433	.255	.191	.312	3	T1405S	T1405C
1/4	- 28 UNF	H4	3.15	.354	.255	.191	.312	3	T1424S	T1424C
5/16	- 18 UNC	H5	3.54	.472	.318	.238	.375	3	T1445S	T1445C
5/16	- 24 UNF	H4	3.54	.394	.318	.238	.375	3	T1464S	T1464C
3/8	- 16 UNC	H5	3.94	.551	.381	.286	.438	3	T1485S	T1485C
3/8	- 24 UNF	H4	3.94	.394	.381	.286	.438	3	T1504S	T1504C
7/16	- 14 UNC	H5	3.94	.591	.323	.242	.406	3	T1525S	T1525C
7/16	- 20 UNF	H5	3.94	.472	.323	.242	.406	3	T1545S	T1545C
1/2	- 13 UNC	H5	4.33	.630	.367	.275	.438	3	T1565S	T1565C
1/2	- 20 UNF	H5	3.94	.472	.367	.275	.438	3	T1585S	T1585C
9/16	- 12 UNC	H5	4.33	.709	.429	.322	.500	3	T1605S	T1605C
9/16	- 18 UNF	H5	3.94	.512	.429	.322	.500	3	T1625S	T1625C
5/8	- 11 UNC	H5	4.33	.748	.480	.360	.562	4	T1645S	T1645C
5/8	- 18 UNF	H5	3.94	.512	.480	.360	.562	4	T1665S	T1665C
3/4	- 10 UNC	H5	4.92	.827	.590	.442	.688	4	T1705S	T1705C
3/4	- 16 UNF	H5	4.33	.591	.590	.442	.688	4	T1725S	T1725C

\* NEW SIZE

▶ NEXT PAGE

◎ : Excellent ○ : Good

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

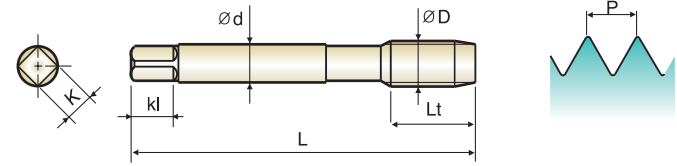
ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28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



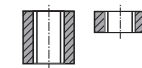
# UNC/UNF HSS-E COMBO TAP NEW SIZES SPIRAL POINT for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T4** SERIES  
**T4-S** SERIES  
**T4-C** SERIES



Hole type 3.0XD



HSS-E UNC UNF USCTI 302A 4P~5P Bright Steam Oxide TiCN

Unit : inch

\* NEW SIZE

SIZE	TPI	Limit	Overall Length	Thread Length	Shank Diameter	Square Size	Square Length	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
#2 - 56 UNC	H2	1.75	.256	.141	.110	.188	2	* T4082	* T4082S	* T4082C	
#3 - 48 UNC	H2	1.81	.295	.141	.110	.188	2	* T4122	* T4122S	* T4122C	
#4 - 40 UNC	H2	1.88	.335	.141	.110	.188	2	T4162	T4162S	T4162C	
#4 - 40 UNC	H3	1.88	.335	.141	.110	.188	2	* T4163	* T4163S	* T4163C	
#4 - 40 UNC	H4	1.88	.335	.141	.110	.188	2	* T4164	* T4164S	* T4164C	
#4 - 40 UNC	H5	1.88	.335	.141	.110	.188	2	* T4165	* T4165S	* T4165C	
#4 - 48 UNF	H2	1.88	.335	.141	.110	.188	2	T4182	T4182S	T4182C	
#5 - 40 UNC	H2	1.94	.374	.141	.110	.188	3	T4202	T4202S	T4202C	
#5 - 44 UNF	H2	1.94	.374	.141	.110	.188	3	T4222	T4222S	T4222C	
#6 - 32 UNC	H2	2.00	.413	.141	.110	.188	3	* T4242	* T4242S	* T4242C	
#6 - 32 UNC	H3	2.00	.413	.141	.110	.188	3	T4243	T4243S	T4243C	
#6 - 32 UNC	H4	2.00	.413	.141	.110	.188	3	* T4244	* T4244S	* T4244C	
#6 - 32 UNC	H5	2.00	.413	.141	.110	.188	3	* T4245	* T4245S	* T4245C	
#6 - 32 UNC	H6	2.00	.413	.141	.110	.188	3	* T4246	* T4246S	* T4246C	
#6 - 32 UNC	H7	2.00	.413	.141	.110	.188	3	* T4247	* T4247S	* T4247C	
#6 - 32 UNC	H11	2.00	.413	.141	.110	.188	3	* T424A	* T424AS	* T424AC	
#6 - 40 UNF	H2	2.00	.413	.141	.110	.188	3	T4262	T4262S	T4262C	
#8 - 32 UNC	H2	2.13	.453	.168	.131	.250	3	* T4282	* T4282S	* T4282C	
#8 - 32 UNC	H3	2.13	.453	.168	.131	.250	3	T4283	T4283S	T4283C	
#8 - 32 UNC	H4	2.13	.453	.168	.131	.250	3	* T4284	* T4284S	* T4284C	
#8 - 32 UNC	H5	2.13	.453	.168	.131	.250	3	* T4285	* T4285S	* T4285C	
#8 - 32 UNC	H6	2.13	.453	.168	.131	.250	3	* T4286	* T4286S	* T4286C	
#8 - 32 UNC	H7	2.13	.453	.168	.131	.250	3	* T4287	* T4287S	* T4287C	
#8 - 32 UNC	H11	2.13	.453	.168	.131	.250	3	* T428A	* T428AS	* T428AC	
#8 - 36 UNF	H2	2.13	.453	.168	.131	.250	3	T4302	T4302S	T4302C	
#10 - 24 UNC	H3	2.38	.531	.194	.152	.250	3	T4323	T4323S	T4323C	
#10 - 24 UNC	H5	2.38	.531	.194	.152	.250	3	* T4325	* T4325S	* T4325C	
#10 - 24 UNC	H11	2.38	.531	.194	.152	.250	3	* T432A	* T432AS	* T432AC	

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◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

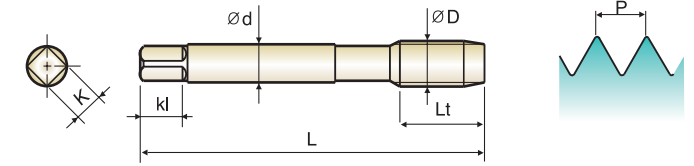
  

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31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

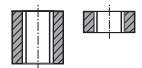
# UNC/UNF HSS-E COMBO TAP NEW SIZES SPIRAL POINT for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T4** SERIES  
**T4-S** SERIES  
**T4-C** SERIES



Hole type 3.0XD



HSS-E UNC UNF USCTI 302A 4P~5P Bright Steam Oxide TiCN

Unit : inch

\* NEW SIZE

SIZE	TPI	Limit	Overall Length	Thread Length	Shank Diameter	Square Size	Square Length	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
#10 - 32 UNF	H2	2.38	.531	.194	.152	.250	3	* T4342	* T4342S	* T4342C	
#10 - 32 UNF	H3	2.38	.531	.194	.152	.250	3	T4343	T4343S	T4343C	
#10 - 32 UNF	H4	2.38	.531	.194	.152	.250	3	* T4344	* T4344S	* T4344C	
#10 - 32 UNF	H5	2.38	.531	.194	.152	.250	3	* T4345	* T4345S	* T4345C	
#10 - 32 UNF	H6	2.38	.531	.194	.152	.250	3	* T4346	* T4346S	* T4346C	
#10 - 32 UNF	H7	2.38	.531	.194	.152	.250	3	* T4347	* T4347S	* T4347C	
#10 - 32 UNF	H11	2.38	.531	.194	.152	.250	3	* T434A	* T434AS	* T434AC	
#12 - 24 UNC	H3	2.38	.571	.220	.165	.281	3	T4363	T4363S	T4363C	
#12 - 28 UNF	H3	2.38	.571	.220	.165	.281	3	T4383	T4383S	T4383C	
1/4 - 20 UNC	H2	2.50	.591	.255	.191	.312	3	* T4402	* T4402S	* T4402C	
1/4 - 20 UNC	H3	2.50	.591	.255	.191	.312	3	T4403	T4403S	T4403C	
1/4 - 20 UNC	H5	2.50	.591	.255	.191	.312	3	T4405	T4405S	T4405C	
1/4 - 20 UNC	H7	2.50	.591	.255	.191	.312	3	* T4407	* T4407S	* T4407C	
1/4 - 20 UNC	H11	2.50	.591	.255	.191	.312	3	* T440A	* T440AS	* T440AC	
1/4 - 28 UNF	H2	2.50	.591	.255	.191	.312	3	* T4422	* T4422S	* T4422C	
1/4 - 28 UNF	H3	2.50	.591	.255	.191	.312	3	T4423	T4423S	T4423C	
1/4 - 28 UNF	H4	2.50	.591	.255	.191	.312	3	T4424	T4424S	T4424C	
1/4 - 28 UNF	H5	2.50	.591	.255	.191	.312	3	* T4425	* T4425S	* T4425C	
1/4 - 28 UNF	H6	2.50	.591	.255	.191	.312	3	* T4426	* T4426S	* T4426C	
1/4 - 28 UNF	H7	2.50	.591	.255	.191	.312	3	* T4427	* T4427S	* T4427C	
1/4 - 28 UNF	H11	2.50	.591	.255	.191	.312	3	* T442A	* T442AS	* T442AC	
5/16 - 18 UNC	H3	2.72	.669	.318	.238	.375	3	T4443	T4443S	T4443C	
5/16 - 18 UNC	H5	2.72	.669	.318	.238	.375	3	T4445	T4445S	T4445C	
5/16 - 18 UNC	H7	2.72	.669	.318	.238	.375	3	* T4447	* T4447S	* T4447C	
5/16 - 18 UNC	H11	2.72	.669	.318	.238	.375	3	* T444A	* T444AS	* T444AC	
5/16 - 24 UNF	H2	2.72	.669	.318	.238	.375	3	* T4462	* T4462S	* T4462C	
5/16 - 24 UNF	H3	2.72	.669	.318	.238	.375	3	T4463	T4463S	T4463C	
5/16 - 24 UNF	H4	2.72	.669	.318	.238	.375	3	* T4464	* T4464S	* T4464C	

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◎ : Excellent ○ : Good

ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel				Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRC	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	

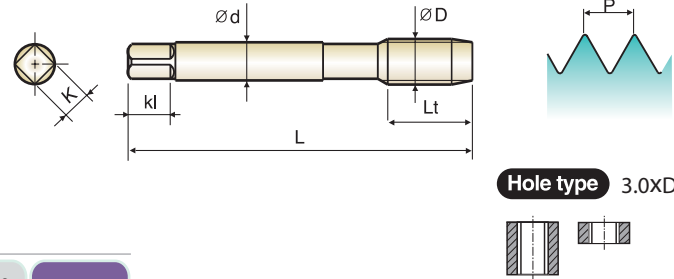
  

ISO	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
Material Description	21	22	23	24	25	26	27	28	29	30	31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

# UNC/UNF HSS-E COMBO TAP NEW SIZES SPIRAL POINT for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T4** SERIES  
**T4-S** SERIES  
**T4-C** SERIES



HSS-E UNC UNF USCTI 302A 4P~5P Bright Steam Oxide TiCN

Unit : inch \* NEW SIZE

SIZE ØD	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
5/16 - 24 UNF	H5	H5	2.72	.669	.318	.238	.375	3	T4465	T4465S	T4465C
5/16 - 24 UNF	H6	H6	2.72	.669	.318	.238	.375	3	* T4466	* T4466S	* T4466C
5/16 - 24 UNF	H7	H7	2.72	.669	.318	.238	.375	3	* T4467	* T4467S	* T4467C
5/16 - 24 UNF	H11	H11	2.72	.669	.318	.238	.375	3	* T446A	* T446AS	* T446AC
3/8 - 16 UNC	H3	H3	2.94	.748	.381	.286	.438	3	T4483	T4483S	T4483C
3/8 - 16 UNC	H5	H5	2.94	.748	.381	.286	.438	3	T4485	T4485S	T4485C
3/8 - 16 UNC	H7	H7	2.94	.748	.381	.286	.438	3	* T4487	* T4487S	* T4487C
3/8 - 16 UNC	H11	H11	2.94	.748	.381	.286	.438	3	* T448A	* T448AS	* T448AC
3/8 - 24 UNF	H2	H2	2.94	.748	.381	.286	.438	3	* T4502	* T4502S	* T4502C
3/8 - 24 UNF	H3	H3	2.94	.748	.381	.286	.438	3	T4503	T4503S	T4503C
3/8 - 24 UNF	H4	H4	2.94	.748	.381	.286	.438	3	T4504	T4504S	T4504C
3/8 - 24 UNF	H5	H5	2.94	.748	.381	.286	.438	3	* T4505	* T4505S	* T4505C
3/8 - 24 UNF	H6	H6	2.94	.748	.381	.286	.438	3	* T4506	* T4506S	* T4506C
3/8 - 24 UNF	H7	H7	2.94	.748	.381	.286	.438	3	* T4507	* T4507S	* T4507C
3/8 - 24 UNF	H11	H11	2.94	.748	.381	.286	.438	3	* T450A	* T450AS	* T450AC
7/16 - 14 UNC	H3	H3	3.16	.866	.323	.242	.406	3	T4523	T4523S	T4523C
7/16 - 14 UNC	H5	H5	3.16	.866	.323	.242	.406	3	T4525	T4525S	T4525C
7/16 - 14 UNC	H7	H7	3.16	.866	.323	.242	.406	3	* T4527	* T4527S	* T4527C
7/16 - 14 UNC	H11	H11	3.16	.866	.323	.242	.406	3	* T452A	* T452AS	* T452AC
7/16 - 20 UNF	H3	H3	3.16	.866	.323	.242	.406	3	T4543	T4543S	T4543C
7/16 - 20 UNF	H5	H5	3.16	.866	.323	.242	.406	3	T4545	T4545S	T4545C
7/16 - 20 UNF	H7	H7	3.16	.866	.323	.242	.406	3	* T4547	* T4547S	* T4547C
7/16 - 20 UNF	H11	H11	3.16	.866	.323	.242	.406	3	* T454A	* T454AS	* T454AC
1/2 - 13 UNC	H3	H3	3.38	.984	.367	.275	.438	3	* T4563	* T4563S	* T4563C
1/2 - 13 UNC	H5	H5	3.38	.984	.367	.275	.438	3	T4565	T4565S	T4565C
1/2 - 13 UNC	H7	H7	3.38	.984	.367	.275	.438	3	* T4567	* T4567S	* T4567C
1/2 - 13 UNC	H11	H11	3.38	.984	.367	.275	.438	3	* T456A	* T456AS	* T456AC
1/2 - 20 UNF	H2	H2	3.38	.984	.367	.275	.438	3	* T4582	* T4582S	* T4582C

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

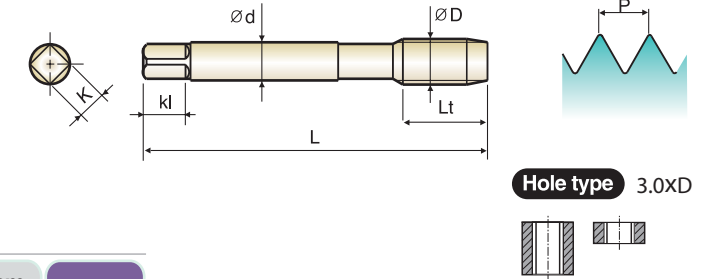
  

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28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

# UNC/UNF HSS-E COMBO TAP NEW SIZES SPIRAL POINT for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T4** SERIES  
**T4-S** SERIES  
**T4-C** SERIES



HSS-E UNC UNF USCTI 302A 4P~5P Bright Steam Oxide TiCN

Unit : inch \* NEW SIZE

SIZE ØD	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
1/2 - 20 UNF	H3	H3	3.38	.984	.367	.275	.438	3	* T4583	* T4583S	* T4583C
1/2 - 20 UNF	H5	H5	3.38	.984	.367	.275	.438	3	T4585	T4585S	T4585C
1/2 - 20 UNF	H7	H7	3.38	.984	.367	.275	.438	3	* T4587	* T4587S	* T4587C
1/2 - 20 UNF	H11	H11	3.38	.984	.367	.275	.438	3	* T458A	* T458AS	* T458AC
9/16 - 12 UNC	H3	H3	3.59	.984	.429	.322	.500	3	* T4603	* T4603S	* T4603C
9/16 - 12 UNC	H5	H5	3.59	.984	.429	.322	.500	3	T4605	T4605S	T4605C
9/16 - 18 UNF	H3	H3	3.59	.984	.429	.322	.500	3	* T4623	* T4623S	* T4623C
9/16 - 18 UNF	H5	H5	3.59	.984	.429	.322	.500	3	T4625	T4625S	T4625C
5/8 - 11 UNC	H3	H3	3.81	1.083	.480	.360	.562	3	* T4643	* T4643S	* T4643C
5/8 - 11 UNC	H5	H5	3.81	1.083	.480	.360	.562	3	T4645	T4645S	T4645C
5/8 - 18 UNF	H3	H3	3.81	1.083	.480	.360	.562	3	* T4663	* T4663S	* T4663C
5/8 - 18 UNF	H5	H5	3.81	1.083	.480	.360	.562	3	T4665	T4665S	T4665C
5/8 - 18 UNF	H7	H7	3.81	1.083	.480	.360	.562	3	* T4667	* T4667S	* T4667C
3/4 - 10 UNC	H3	H3	4.25	1.201	.590	.442	.688	3	* T4703	* T4703S	* T4703C
3/4 - 10 UNC	H5	H5	4.25	1.201	.590	.442	.688	3	T4705	T4705S	T4705C
3/4 - 16 UNF	H3	H3	4.25	1.201	.590	.442	.688	3	* T4723	* T4723S	* T4723C
3/4 - 16 UNF	H5	H5	4.25	1.201	.590	.442	.688	3	T4725	T4725S	T4725C
7/8 - 9 UNC	H5	H5	4.69	1.339	.697	.523	.750	3	* T4745	* T4745S	* T4745C
7/8 - 9 UNC	H6	H6	4.69	1.339	.697	.523	.750	3	T4746	T4746S	T4746C
7/8 - 14 UNF	H4	H4	4.69	1.339	.697	.523	.750	3	* T4764	* T4764S	* T4764C
7/8 - 14 UNF	H6	H6	4.69	1.339	.697	.523	.750	3	T4766	T4766S	T4766C
1" - 8 UNC	H4	H4	5.13	1.496	.800	.600	.812	3	* T4784	* T4784S	* T4784C
1" - 8 UNC	H6	H6	5.13	1.496	.800	.600	.812	3	T4786	T4786S	T4786C
1" - 12 UNF	H4	H4	5.13	1.496	.800	.600	.812	3	* T4804	* T4804S	* T4804C
1" - 12 UNF	H6	H6	5.13	1.496	.800	.600	.812	3	T4806	T4806S	T4806C
1_1/8 - 7 UNC	H6	H6	5.44	1.535	.896	.672	.880	4	* T4826	* T4826S	* T4826C
1_1/8 - 8 UN	H6	H6	5.44	1.535	.896	.672	.880	4	* T4836	* T4836S	* T4836C
1_1/8 - 12 UNF	H5	H5	5.44	1.535	.896	.672	.880	4	* T4845	* T4845S	* T4845C

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO Material Description	P										M				K					
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel		Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

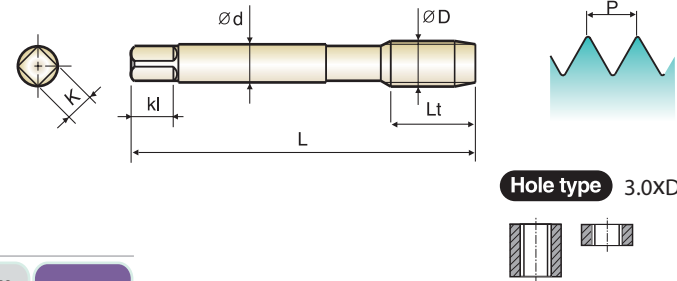
  

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys				Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron		
VDI 3323	21	22	23	24	25	26	27	28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

# UNC/UNF HSS-E COMBO TAP NEW SIZES SPIRAL POINT for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T4** SERIES  
**T4-S** SERIES  
**T4-C** SERIES



HSS-E UNC UNF USCTI 302A 4P~5P Bright Steam Oxide TiCN

Unit : inch \* (NEW SIZE)

SIZE	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
1_1/4 - 7 UNC	H6	5.75	1.535	1.021	.766	1.000	4	* T4866	* T4866S	* T4866C	
1_1/4 - 8 UN	H6	5.75	1.535	1.021	.766	1.000	4	* T4876	* T4876S	* T4876C	
1_1/4 - 12 UNF	H5	5.75	1.535	1.021	.766	1.000	4	* T4885	* T4885S	* T4885C	
1_3/8 - 6 UNC	H6	6.06	1.791	1.108	.831	1.060	4	* T4906	* T4906S	* T4906C	
1_3/8 - 8 UN	H6	6.06	1.791	1.108	.831	1.060	4	* T4916	* T4916S	* T4916C	
1_3/8 - 12 UNF	H5	6.06	1.791	1.108	.831	1.060	4	* T4925	* T4925S	* T4925C	
1_1/2 - 6 UNC	H6	6.38	1.791	1.233	.925	1.130	4	* T4946	* T4946S	* T4946C	
1_1/2 - 8 UN	H6	6.38	1.791	1.233	.925	1.130	4	* T4956	* T4956S	* T4956C	
1_1/2 - 12 UNF	H5	6.38	1.791	1.233	.925	1.130	4	* T4965	* T4965S	* T4965C	

- ▶ Coating (TiN, TiAlN or Hardslick) is available on your request.
- ▶ Coating Codes for Combo Tap  
Bright Finish No. + N (TiN), F (TiAlN), H (Hardslick)
- ▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

◎ : Excellent ○ : Good

ISO	P										M			K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron	Malleable cast iron
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

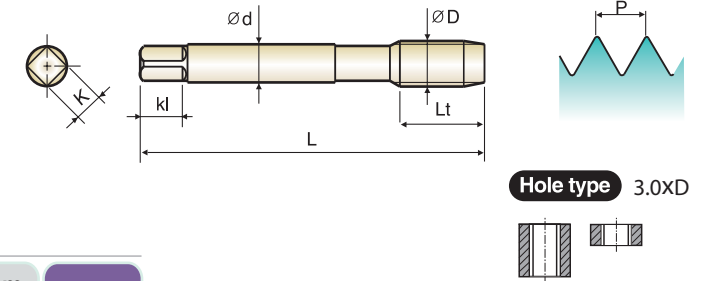
  

ISO	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31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

# M/MF HSS-E COMBO TAP NEW SIZES SPIRAL POINT for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T3** SERIES  
**T3-S** SERIES  
**T3-C** SERIES



HSS-E M/MF USCTI 302A 4P~5P Bright Steam Oxide TiCN

Unit : inch \* (NEW SIZE)

SIZE	PITCH	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
M3 x 0.5	D3	1.94	.374	.141	.110	.188	3	T3203	T3203S	T3203C	
M3 x 0.5	D11	1.94	.374	.141	.110	.188	3	* T320A	* T320AS	* T320AC	
M3.5 x 0.6	D4	2.00	.413	.141	.110	.188	3	T3224	T3224S	T3224C	
M3.5 x 0.6	D11	2.00	.413	.141	.110	.188	3	* T322A	* T322AS	* T322AC	
M4 x 0.7	D4	2.13	.453	.168	.131	.250	3	T3244	T3244S	T3244C	
M4 x 0.7	D11	2.13	.453	.168	.131	.250	3	* T324A	* T324AS	* T324AC	
M5 x 0.8	D4	2.38	.531	.194	.152	.250	3	T3284	T3284S	T3284C	
M5 x 0.8	D11	2.38	.531	.194	.152	.250	3	* T328A	* T328AS	* T328AC	
M6 x 1.0	D5	2.50	.591	.255	.191	.312	3	T3315	T3315S	T3315C	
M6 x 1.0	D11	2.50	.591	.255	.191	.312	3	* T331A	* T331AS	* T331AC	
M7 x 1.0	D5	2.72	.669	.318	.238	.375	3	T3345	T3345S	T3345C	
M7 x 1.0	D11	2.72	.669	.318	.238	.375	3	* T334A	* T334AS	* T334AC	
M8 x 1.25	D5	2.72	.669	.318	.238	.375	3	T3365	T3365S	T3365C	
M8 x 1.25	D11	2.72	.669	.318	.238	.375	3	* T336A	* T336AS	* T336AC	
M8 x 1.0	D5	2.72	.669	.318	.238	.375	3	T3375	T3375S	T3375C	
M8 x 1.0	D11	2.72	.669	.318	.238	.375	3	* T337A	* T337AS	* T337AC	
M10 x 1.5	D6	2.94	.748	.381	.286	.438	3	T3426	T3426S	T3426C	
M10 x 1.5	D11	2.94	.748	.381	.286	.438	3	* T342A	* T342AS	* T342AC	
M10 x 1.25	D5	2.94	.748	.381	.286	.438	3	T3435	T3435S	T3435C	
M10 x 1.25	D11	2.94	.748	.381	.286	.438	3	* T343A	* T343AS	* T343AC	
M10 x 1.0	D5	2.94	.748	.381	.286	.438	3	* T3445	* T3445S	* T3445C	
M10 x 1.0	D11	2.94	.748	.381	.286	.438	3	* T344A	* T344AS	* T344AC	
M12 x 1.75	D6	3.38	.984	.367	.275	.438	3	T3506	T3506S	T3506C	
M12 x 1.75	D11	3.38	.984	.367	.275	.438	3	* T350A	* T350AS	* T350AC	
M12 x 1.5	D6	3.38	.984	.367	.275	.438	3	* T3516	* T3516S	* T3516C	
M12 x 1.5	D11	3.38	.984	.367	.275	.438	3	* T351A	* T351AS	* T351AC	
M12 x 1.25	D5	3.38	.984	.367	.275	.438	3	T3525	T3525S	T3525C	
M12 x 1.25	D11	3.38	.984	.367	.275	.438	3	* T352A	* T352AS	* T352AC	

▶ NEXT PAGE

◎ : Excellent ○ : Good

ISO	P										M			K							
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron	Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230	
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

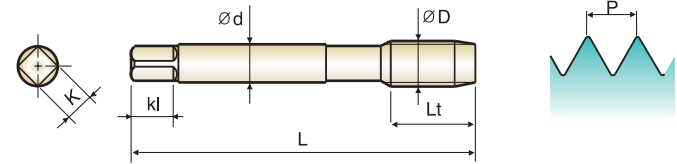
ISO	N				S						H										
	Aluminum-wrought alloy		Aluminum-cast, alloyed		Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials			Heat Resistant Super Alloys			Titanium Alloys	Hardened steel	Chilled Cast Iron	Hardened Cast Iron				
Material Description	21	22	23	24	25	26	27	28	29	30	31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

# M/MF HSS-E COMBO TAP

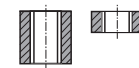
NEW SIZES  
SPIRAL POINT for Multi-Purpose

Bright  
Steam Oxide  
TiCN

**T3** SERIES  
**T3-S** SERIES  
**T3-C** SERIES



Hole type 3.0XD



HSS-E M/MF USCTI 302A 4P~5P Bright Steam Oxide TiCN

Unit : inch \* NEW SIZE

SIZE	PITCH	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.		
									Bright	Steam Oxide	TiCN
M14 x 2.0	D7	D7	3.59	.984	.429	.322	.500	3	T3547	T3547S	T3547C
M14 x 1.5	D6	D6	3.59	.984	.429	.322	.500	3	T3556	T3556S	T3556C
M16 x 2.0	D7	D7	3.81	1.083	.480	.360	.562	3	T3607	T3607S	T3607C
M16 x 1.5	D6	D6	3.81	1.083	.480	.360	.562	3	T3616	T3616S	T3616C
M18 x 2.5	D7	D7	4.03	1.083	.542	.406	.625	3	T3657	T3657S	T3657C
M18 x 1.5	D6	D6	4.03	1.083	.542	.406	.625	3	T3676	T3676S	T3676C
M20 x 2.5	D7	D7	4.47	1.201	.652	.489	.688	3	T3707	T3707S	T3707C
M20 x 1.5	D6	D6	4.47	1.201	.652	.489	.688	3	T3726	T3726S	T3726C
M22 x 2.5	D7	D7	4.69	1.339	.697	.523	.750	3	T3747	T3747S	T3747C
M22 x 1.5	D6	D6	4.69	1.339	.697	.523	.750	3	T3766	T3766S	T3766C
M24 x 3.0	D8	D8	4.91	1.339	.760	.570	.750	3	T3788	T3788S	T3788C
M24 x 1.5	D6	D6	4.91	1.339	.760	.570	.750	3	* T3806	* T3806S	* T3806C
M27 x 3.0	D8	D8	5.13	1.496	.896	.672	.880	4	* T3868	* T3868S	* T3868C
M27 x 1.5	D6	D6	5.13	1.496	.896	.672	.880	4	* T3886	* T3886S	* T3886C
M30 x 3.5	D9	D9	5.44	1.535	1.021	.766	1.000	4	* T3949	* T3949S	* T3949C
M30 x 3.0	D9	D9	5.44	1.535	1.021	.766	1.000	4	* T3959	* T3959S	* T3959C
M30 x 1.5	D6	D6	5.44	1.535	1.021	.766	1.000	4	* T3976	* T3976S	* T3976C

- ▶ Coating(TiN, TiAlN or Hardslick) is available on your request.
- ▶ Coating Codes for Combo Tap  
Bright Finish No. + N(TiN), F(TiAlN), H(Hardslick)
- ▶ Steam Oxide is not recommended for Aluminum and Aluminum alloys.

◎ : Excellent ○ : Good

ISO Material Description	P										M			K										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron			Nodular cast iron			Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230				
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				

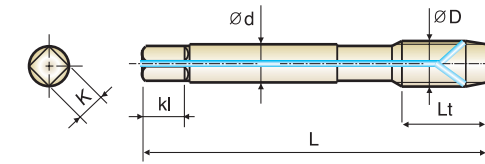
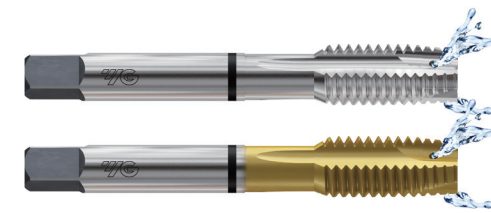
ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28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

# UNC/UNF HSS-E COMBO TAP

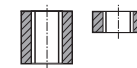
SPIRAL POINT for Multi-Purpose

Bright  
TiN

**TB** SERIES  
**TB-N** SERIES



Hole type 3.0XD



HSS-E UNC UNF USCTI 302A 4P~5P Bright TiN

Unit : inch

SIZE	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.	
									Bright	TiN
1/4 - 20 UNC	H5	H5	2.50	.591	.255	.191	.312	3	TB405	TB405N
1/4 - 28 UNF	H4	H4	2.50	.591	.255	.191	.312	3	TB424	TB424N
5/16 - 18 UNC	H5	H5	2.72	.669	.318	.238	.375	3	TB445	TB445N
5/16 - 24 UNF	H4	H4	2.72	.669	.318	.238	.375	3	TB464	TB464N
3/8 - 16UNC	H5	H5	2.94	.748	.381	.286	.438	3	TB485	TB485N
3/8 - 24 UNF	H4	H4	2.94	.748	.381	.286	.438	3	TB504	TB504N
7/16 - 14 UNC	H5	H5	3.16	.866	.323	.242	.406	3	TB525	TB525N
7/16 - 20 UNF	H5	H5	3.16	.866	.323	.242	.406	3	TB545	TB545N
1/2 - 13 UNC	H5	H5	3.38	.984	.367	.275	.438	3	TB565	TB565N
1/2 - 20 UNF	H5	H5	3.38	.984	.367	.275	.438	3	TB585	TB585N
9/16 - 12 UNC	H5	H5	3.59	.984	.429	.322	.500	3	TB605	TB605N
9/16 - 18 UNF	H5	H5	3.59	.984	.429	.322	.500	3	TB625	TB625N
5/8 - 11 UNC	H5	H5	3.81	1.083	.480	.360	.562	3	TB645	TB645N
5/8 - 18 UNF	H5	H5	3.81	1.083	.480	.360	.562	3	TB665	TB665N
3/4 - 10 UNC	H5	H5	4.25	1.201	.590	.442	.688	3	TB705	TB705N
3/4 - 16 UNF	H5	H5	4.25	1.201	.590	.442	.688	3	TB725	TB725N
7/8 - 9 UNC	H6	H6	4.69	1.339	.697	.523	.750	3	TB746	TB746N
7/8 - 14 UNF	H6	H6	4.69	1.339	.697	.523	.750	3	TB766	TB766N
1" - 8 UNC	H6	H6	5.13	1.496	.800	.600	.812	3	TB786	TB786N
1" - 12 UNF	H6	H6	5.13	1.496	.800	.600	.812	3	TB806	TB806N

- ▶ Coating(TiCN, TiAlN or Hardslick) or Surface Treatment(Steam Oxide) is available on your request.
- ▶ Coating Codes for Combo Tap  
Bright Finish No. + N(TiN), F(TiAlN), H(Hardslick), S(Steam Oxide)

◎ : Excellent ○ : Good

ISO Material Description	P										M			K										
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron			Nodular cast iron			Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
HRc	13	25	28	32	35	38	40	42	45	48	50	52	55	58	60	62	65	68	70	72				
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230				
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎				

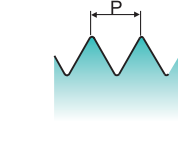
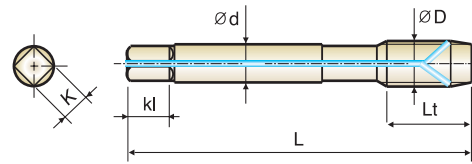
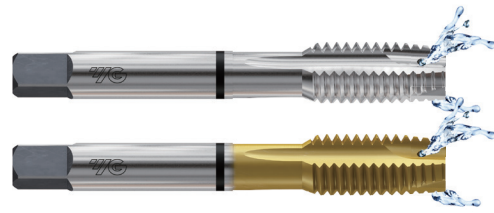
  

ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28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

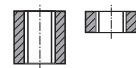
# M HSS-E COMBO TAP SPIRAL POINT for Multi-Purpose

Bright  
TiN **TH** SERIES  
**TH-N** SERIES

with Internal Coolant



Hole type 3.0XD



HSS-E M USCTI 302A 4P ~ 5P Bright TiN

Unit : inch

SIZE ØD	PITCH P	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.	
									Bright	TiN
M6	x 1.0	D5	2.50	.591	.255	.191	.312	3	TH315	TH315N
M8	x 1.25	D5	2.72	.669	.318	.238	.375	3	TH365	TH365N
M10	x 1.5	D6	2.94	.748	.381	.286	.438	3	TH426	TH426N
M12	x 1.75	D6	3.38	.984	.367	.275	.438	3	TH506	TH506N
M14	x 2.0	D7	3.59	.984	.429	.322	.500	3	TH547	TH547N
M16	x 2.0	D7	3.81	1.083	.480	.360	.562	3	TH607	TH607N
M18	x 2.5	D7	4.03	1.083	.542	.406	.625	3	TH657	TH657N
M20	x 2.5	D7	4.47	1.201	.652	.489	.688	3	TH707	TH707N

- ▶ Coating (TiCN, TiAlN or Hardslick) or Surface Treatment (Steam Oxide) is available on your request.
- ▶ Coating Codes for Combo Tap  
Bright Finish No. + C (TiCN), F (TiAlN), H (Hardslick), S (Steam Oxide)

◎ : Excellent ○ : Good

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

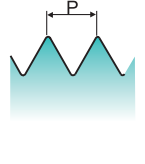
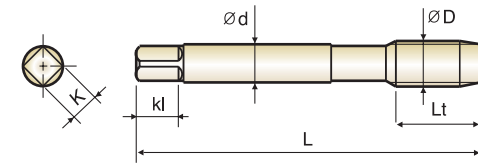
  

ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28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

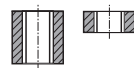
# UNC/UNF HSS-E COMBO TAP NEW SIZES SPIRAL POINT for Multi-Purpose

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

DIN Length-ANSI Shank



Hole type 3.0XD



HSS-E UNC UNF 4P ~ 5P Steam Oxide TiCN

Unit : inch

SIZE ØD	TPI	Limit	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size K	Square Length kl	No. of Flute	EDP No.	
									Steam Oxide	TiCN
#2	- 56 UNC	H2	1.77	.256	.141	.110	.188	2	* TC082S	* TC082C
#3	- 48 UNC	H2	1.97	.295	.141	.110	.188	2	* TC122S	* TC122C
#4	- 40 UNC	H2	2.21	.335	.141	.110	.188	2	TC162S	TC162C
#4	- 48 UNF	H2	2.21	.335	.141	.110	.188	2	* TC182S	* TC182C
#5	- 40 UNC	H2	2.21	.374	.141	.110	.188	3	TC202S	TC202C
#6	- 32 UNC	H3	2.21	.413	.141	.110	.188	3	TC243S	TC243C
#6	- 40 UNF	H2	2.21	.413	.141	.110	.188	3	* TC262S	* TC262C
#8	- 32 UNC	H3	2.48	.453	.168	.131	.250	3	TC283S	TC283C
#10	- 24 UNC	H3	2.76	.531	.194	.152	.250	3	TC323S	TC323C
#10	- 32 UNF	H3	2.76	.531	.194	.152	.250	3	TC343S	TC343C
#12	- 24 UNC	H3	3.15	.571	.220	.165	.281	3	TC363S	TC363C
#12	- 28 UNF	H3	3.15	.571	.220	.165	.281	3	TC383S	TC383C
1/4	- 20 UNC	H5	3.15	.591	.255	.191	.312	3	TC405S	TC405C
1/4	- 28 UNF	H4	3.15	.591	.255	.191	.312	3	TC424S	TC424C
5/16	- 18 UNC	H5	3.54	.669	.318	.238	.375	3	TC445S	TC445C
5/16	- 24 UNF	H4	3.54	.669	.318	.238	.375	3	TC464S	TC464C
3/8	- 16 UNC	H5	3.94	.748	.381	.286	.438	3	TC485S	TC485C
3/8	- 24 UNF	H4	3.94	.748	.381	.286	.438	3	TC504S	TC504C
7/16	- 14 UNC	H5	3.94	.866	.323	.242	.406	3	TC525S	TC525C
7/16	- 20 UNF	H5	3.94	.866	.323	.242	.406	3	TC545S	TC545C
1/2	- 13 UNC	H5	4.33	.984	.367	.275	.438	3	TC565S	TC565C
1/2	- 20 UNF	H5	3.94	.984	.367	.275	.438	3	TC585S	TC585C
9/16	- 12 UNC	H5	4.33	.984	.429	.322	.500	3	TC605S	TC605C
9/16	- 18 UNF	H5	3.94	.984	.429	.322	.500	3	TC625S	TC625C
5/8	- 11 UNC	H5	4.33	1.083	.480	.360	.562	3	TC645S	TC645C
5/8	- 18 UNF	H5	3.94	1.083	.480	.360	.562	3	TC665S	TC665C
3/4	- 10 UNC	H5	4.92	1.201	.590	.442	.688	3	TC705S	TC705C
3/4	- 16 UNF	H5	4.33	1.201	.590	.442	.688	3	TC725S	TC725C
7/8	- 9 UNC	H6	5.51	1.339	.697	.523	.750	3	TC746S	TC746C
7/8	- 14 UNF	H6	4.92	1.339	.697	.523	.750	3	TC766S	TC766C
1"	- 8 UNC	H6	6.30	1.496	.800	.600	.812	3	TC786S	TC786C
1"	- 12 UNF	H6	5.51	1.496	.800	.600	.812	3	TC806S	TC806C

\* NEW SIZE

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

◎ : Excellent ○ : Good

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

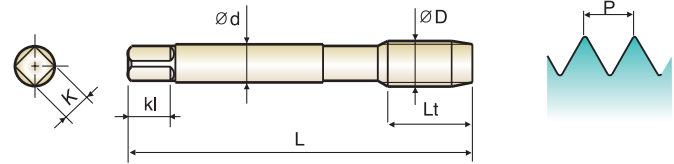
ISO Material Description	N										S						H				
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys						Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28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

# M/MF HSS-E COMBO TAP SPIRAL POINT for Multi-Purpose

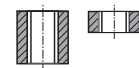
NEW SIZES

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

DIN Length-ANSI Shank



Hole type 3.0XD



HSS-E M/MF 4P~5P Steam Oxide TiCN

Unit : inch

\* (NEW SIZE)

SIZE	PITCH	Limit	Overall Length	Thread Length	Shank Diameter	Square Size	Square Length	No. of Flute	EDP No.	
									Steam Oxide	TiCN
ØD	P		L	Lt	d	K	kl			
M3	x 0.5	D3	2.21	.374	.141	.110	.188	3	TK203S	TK203C
M3.5	x 0.6	D4	2.21	.413	.141	.110	.188	3	TK224S	TK224C
M4	x 0.7	D4	2.48	.453	.168	.131	.250	3	TK244S	TK244C
M5	x 0.8	D4	2.76	.531	.194	.152	.250	3	TK284S	TK284C
M6	x 1	D5	3.15	.591	.255	.191	.312	3	TK315S	TK315C
M7	x 1	D5	3.15	.669	.318	.238	.375	3	* TK345S	* TK345C
M8	x 1.25	D5	3.54	.669	.318	.238	.375	3	TK365S	TK365C
M8	x 1	D5	3.54	.669	.318	.238	.375	3	* TK375S	* TK375C
M10	x 1.5	D6	3.94	.748	.381	.286	.438	3	TK426S	TK426C
M10	x 1.25	D5	3.94	.748	.381	.286	.438	3	TK435S	TK435C
M12	x 1.75	D6	4.33	.984	.367	.275	.438	3	TK506S	TK506C
M12	x 1.5	D6	3.94	.984	.367	.275	.438	3	* TK516S	* TK516C
M12	x 1.25	D5	3.94	.984	.367	.275	.438	3	TK525S	TK525C
M14	x 2	D7	4.33	.984	.429	.322	.500	3	TK547S	TK547C
M14	x 1.5	D6	3.94	.984	.429	.322	.500	3	TK556S	TK556C
M16	x 2	D7	4.33	1.083	.480	.360	.562	3	TK607S	TK607C
M16	x 1.5	D6	3.94	1.083	.480	.360	.562	3	TK616S	TK616C
M18	x 2.5	D7	4.92	1.083	.542	.406	.625	3	TK657S	TK657C
M18	x 1.5	D6	4.33	1.083	.542	.406	.625	3	TK676S	TK676C
M20	x 2.5	D7	4.92	1.201	.652	.489	.688	3	* TK707S	* TK707C
M20	x 1.5	D6	5.51	1.201	.652	.489	.688	3	* TK726S	* TK726C

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

## COMBO SPIRAL FLUTE TAP SETS



Series	Series	Standard	Surface Treatment	Size	Q'ty
T2836SET8	T2	UNC/F	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/F	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/F	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/F	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

◎ : Excellent ○ : Good

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

TROUBLE SHOOTING GUIDE

Specific Problem	Cause	Solution
<b>Dimensional Accuracy</b>		
<b>Oversize Pitch Diameter</b>	Incorrect Tap	<ol style="list-style-type: none"> <li>1. Use proper limits of taps</li> <li>2. Use longer chamfered taps</li> </ol>
	Chip Packing	<ol style="list-style-type: none"> <li>1. Use spiral point or spiral fluted taps</li> <li>2. Reduce number of flutes to provide extra chip room</li> <li>3. Use larger hole size</li> <li>4. If tapping a hole, allow deeper hole where applicable or shorten the thread length of the parts</li> <li>5. Use proper lubricant</li> </ol>
	Galling	<ol style="list-style-type: none"> <li>1. Apply coated tap: HardSlick or Chrome</li> <li>2. Use proper coolant/concentration</li> <li>3. Reduce tapping speed</li> <li>4. Use proper cutting angle in accordance with material being tapped</li> <li>5. Use large hole size</li> </ol>
	Operating Conditions	<ol style="list-style-type: none"> <li>1. Check tapping speed</li> <li>2. Be sure of correct to tool alignment</li> <li>3. Free cutting either tap or workpiece</li> <li>4. Use proper tapping speed to avoid torn or rough threads</li> <li>5. Use lead screw tapper</li> <li>6. Use proper tapping machine with suitable power</li> <li>7. Avoid misalignment of the tap and drill hole from loose spindle or worn holder</li> </ol>
	Tool Condition	<ol style="list-style-type: none"> <li>1. Obtain proper indexing angle for the flutes at the cutting edge</li> <li>2. Grind proper cutting angle and chamfer angle</li> <li>3. Avoid too narrow a land width</li> <li>4. Remove burrs from regrinding</li> </ol>
<b>Oversize Internal Diameter</b>	Hole Size	<ol style="list-style-type: none"> <li>1. Use minimum hole size</li> <li>2. Avoid tapered hole</li> <li>3. Use proper chamfered taps</li> </ol>
	Galling	1. Galling solutions 1 through 4 above can be applied to this specific problem
<b>Undersize Pitch Diameter</b>	Incorrect Tap	<ol style="list-style-type: none"> <li>1. Use oversize taps</li> <li>2. Apply proper chamfer angle</li> <li>3. Increase cutting angle</li> </ol>
	Damaged Thread	1. Use proper reversing speed to avoid damaging tapped thread on the way out of the hole
	Left-over Chips	<ol style="list-style-type: none"> <li>1. Increase cutting performance to avoid any left over chips in the hole</li> <li>2. Remove left over chips from the hole for gage checking</li> </ol>
<b>Undersize Internal Diameter</b>	Hole Size	1. Use maximum drill size
<b>Breakage</b>	Incorrect Tap Selection	<ol style="list-style-type: none"> <li>1. Avoid chip packing in the flutes or on the bottom of the hole</li> <li>2. Use spiral pointed or spiral fluted taps or fluteless taps</li> <li>3. Apply correct surface treatment such as Hardslick or bright</li> </ol>
	Excessive Tapping Torque	<ol style="list-style-type: none"> <li>1. Use larger drill size</li> <li>2. Try to shorten thread length</li> <li>3. Increase cutting angle</li> <li>4. Apply a tap with more thread relief and reduced land width</li> <li>5. Apply correct surface treatment such as Hardslick</li> </ol>

TROUBLE SHOOTING GUIDE

Specific Problem	Cause	Solution
<b>Dimensional Accuracy</b>		
<b>Breakage</b>	Operating Conditions	<ol style="list-style-type: none"> <li>1. Reduce tapping speed</li> <li>2. Avoid misalignment between tap and the hole and tapered hole</li> <li>3. Use floating type of tapping holder</li> <li>4. Use tapping holder with torque adjustment</li> <li>5. Avoid hitting bottom of the hole with tap</li> </ol>
	Tool Condition	<ol style="list-style-type: none"> <li>1. Do not grind the bottom of the flute</li> <li>2. Avoid too narrow a land width</li> <li>3. Remove all worn sections when regrinding the flutes</li> <li>4. Regrind tool more frequently</li> </ol>
<b>Chipping</b>	Incorrect Tap Selection	<ol style="list-style-type: none"> <li>1. Reduce cutting angle</li> <li>2. Use a different kind of high-speed steel tap</li> <li>3. Reduce hardness of the tap</li> <li>4. Increase chamfer length</li> <li>5. Avoid chip packing in the flutes or in the bottom of the hole by using spiral fluted or spiral pointed taps</li> </ol>
	Operating Conditions	<ol style="list-style-type: none"> <li>1. Reduce tapping speed</li> <li>2. Avoid misalignment between tap and hole</li> <li>3. Avoid sudden return of reverse in blind hole tapping</li> <li>4. Avoid galling</li> <li>5. Use larger hole size</li> </ol>
<b>Wear</b>	Incorrect Tap Selection	<ol style="list-style-type: none"> <li>1. Apply specially designed tap for tapping heat treated material</li> <li>2. Change to a type of high-speed steel tap that contains vanadium</li> <li>3. Apply special surface treatment such as TiCN, TiAlN or Hardslick</li> <li>4. Increase chamfer length</li> </ol>
	Operating Conditions	<ol style="list-style-type: none"> <li>1. Reduce tapping speed</li> <li>2. Apply proper cutting lubricants</li> <li>3. Avoid work hardened hole</li> <li>4. Use larger hole size</li> </ol>
	Tool Condition	<ol style="list-style-type: none"> <li>1. Grind proper cutting angle</li> <li>2. Avoid hardness reduction from grinding process</li> </ol>
<b>Torn or Rough Thread</b>	Chamfer Too Short	1. Increase chamfer length
	Wrong Cutting Angle	1. Apply proper cutting angle
	Galling	<ol style="list-style-type: none"> <li>1. Use thread relieved taps</li> <li>2. Reduce land width</li> <li>3. Apply surface treatment such as Hardslick or chrome</li> <li>4. Use proper cutting lubricant</li> <li>5. Reduce tapping speed</li> <li>6. Use larger hole size</li> <li>7. Obtain proper alignment between tap and work</li> </ol>
	Chip Packing	<ol style="list-style-type: none"> <li>1. Use spiral pointed or spiral fluted taps</li> <li>2. Use larger drill size</li> </ol>
<b>Chattering on Tapped Thread</b>	Tool Free Cutting	<ol style="list-style-type: none"> <li>1. Reduce cutting angle</li> <li>2. Reduce amount of thread relief</li> </ol>
	Tool Condition	<ol style="list-style-type: none"> <li>1. Avoid too narrow land width</li> <li>2. Do not grind the bottom of the flute</li> </ol>



# UNC/UNF RECOMMENDED TAP DRILL SIZE

- 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

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# UNC/UNF RECOMMENDED TAP DRILL SIZE

- 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
	-	-	-	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
	-	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

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# UNC/UNF RECOMMENDED TAP DRILL SIZE

- 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
-	-	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
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	-	-	1.2580	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

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# UNC/UNF RECOMMENDED TAP DRILL SIZE

- 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*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
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

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# UNC/UNF RECOMMENDED TAP DRILL SIZE

- 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
	-	-	-	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



# M/MF RECOMMENDED TAP DRILL SIZE

- METRIC THREAD

Size	Pitch		Minor Diameter		Tap Drill Diameter (Cutting Tap)									
	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	-	0.729	0.798	0.74	.0291	0.76	.0298	0.77	.0304	0.79	.0311	0.81	.0317
	-	0.2	0.783	0.841	0.79	.0312	0.81	.0317	0.82	.0322	0.83	.0327	0.84	.0332
M1.1	0.25	-	0.829	0.898	0.84	.0331	0.86	.0337	0.87	.0344	0.89	.0350	0.91	.0356
	-	0.2	0.883	0.941	0.89	.0351	0.91	.0356	0.92	.0361	0.93	.0367	0.94	.0372
M1.2	0.25	-	0.929	0.998	0.94	.0370	0.96	.0377	0.97	.0383	0.99	.0389	1.01	.0396
	-	0.2	0.983	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	.0997	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

▶ NEXT PAGE



# M/MF RECOMMENDED TAP DRILL SIZE - METRIC THREAD

Size	Pitch		Minor Diameter		Tap Drill Diameter(Cutting Tap)									
	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	-	0.5	7.459	7.599	7.48	.2945	7.51	.2958	7.55	.2971	7.58	.2983	7.61	.2996
	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
M10	-	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
	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
M11	-	0.5	9.459	9.599	9.48	.3732	9.51	.3745	9.55	.3758	9.58	.3771	9.61	.3784
	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
	1.75	-	10.106	10.441	10.18	.4008	10.30	.4053	10.41	.4098	10.52	.4143	10.64	.4187
M12	-	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
	1.75	-	11.106	11.441	11.18	.4402	11.30	.4447	11.41	.4492	11.52	.4536	11.64	.4581
M13	-	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
	2	-	11.835	12.210	11.92	.4694	12.05	.4745	12.18	.4796	12.31	.4847	12.44	.4898
M14	-	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
	2	-	12.835	13.210	12.92	.5087	13.05	.5138	13.18	.5190	13.31	.5241	13.44	.5292
M15	-	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
	2	-	13.835	14.210	13.92	.5481	14.05	.5532	14.18	.5583	14.31	.5634	14.44	.5685
M16	-	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
	-	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
M17	-	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
	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

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# M/MF RECOMMENDED TAP DRILL SIZE - METRIC THREAD

Size	Pitch		Minor Diameter		Tap Drill Diameter(Cutting Tap)									
	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	-	1	16.917	17.153	16.96	.6677	17.03	.6703	17.09	.6729	17.16	.6754	17.22	.6780
	-	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
M20	-	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
	2.5	-	17.294	17.744	17.40	.6851	17.56	.6915	17.73	.6979	17.89	.7043	18.05	.7107
M21	-	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
	-	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
	-	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
M23	-	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
	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
M24	-	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
	-	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
M25	-	1.5	24.376	24.676	24.44	.9623	24.54	.96						



# M/MF RECOMMENDED TAP DRILL SIZE - METRIC THREAD

Size	Pitch		Minor Diameter		Tap Drill Diameter(Cutting Tap)									
	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
M33	-	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
	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
M34	-	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
M35	-	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
M36	-	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
	-	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
M37	-	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
	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
M38	-	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
M39	-	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
	-	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
M40	-	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
M41	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
M42	-	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
	-	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
M43	-	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
M44	-	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
	4.5	-	37.129	37.729	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
M45	-	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
M46	4.5	-	40.129	40.729	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
M47	-	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
M48	-	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
	5	-	42.587	43.187	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
M49	-	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

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# M/MF RECOMMENDED TAP DRILL SIZE - METRIC THREAD

Size	Pitch		Minor Diameter		Tap Drill Diameter(Cutting Tap)									
	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
M50	-	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
	-	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
M51	-	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
M52	-	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
	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
M53	-	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
M54	-	1	50.917	51.153	50.96	2.0017	51.10	2.0119	51.36	2.0222	51.62	2.0324	51.88	2.0426
	5	-	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
M55	-	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
	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
M56	-	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
M57	-	1	54.917	55.153	54.96	2.1587	55.03	2.1607	55.09	2.1627	55.16	2.1647	55.22	2.1667
	5	-	55.752	56.252	55.88	2.2026	56.08	2.2103	56.27	2.2180	56.47	2.2257	56.66	2.2334
	-	3	56.835	57.335	56.96	2.2334	57.16	2.2411	57.35	2.2488	57.54	2.2565	57.73	2.2642
M58	-	2	57.917	58.417	58.04	2.2642	58.24	2.2719	58.43	2.2796	58.62	2.2873	58.81	2.2950
	-	1.5	58.458	58.758	58.52	2.2950	58.65	2.3027	58.74	2.3065	58.83	2.3103	58.92	2.3141
	-	1	58.999	59.239	59.04	2.3141	59.11	2.3161	59.17	2.3181	59.23	2.3201	59.29	



### TAP RECOMMENDATIONS FOR CLASSES OF THREAD - INCH

#### Internal Screw Thread Classes and Tap Recommendations

Size	Threads per Inch		Recommended Tap for Class of Thread				Pitch Diameter Limits for Class of Thread				
	UNC	UNF	Unified Class of Thread		American National Class of Thread		Min. All Class (Basic)	Unified Class of Thread		American National Class of Thread	
			Class 2	Class 3	Class 2B	Class 3B		Max. Class 2	Max. Class 3	Max. Class 2B	Max. Class 3B
#0	-	80	H1	H1	H2	H1	.0519	.0536	.0532	.0542	.0536
#1	64	-	H1	H1	H2	H1	.0629	.0648	.0643	.0655	.0648
#1	-	72	H1	H1	H2	H1	.0640	.0658	.0653	.0665	.0659
#2	56	-	H1	H1	H2	H1	.0744	.0764	.0759	.0772	.0765
#2	-	64	H1	H1	H2	H1	.0759	.0778	.0773	.0786	.0779
#3	48	-	H1	H1	H2	H1	.0855	.0877	.0871	.0885	.0877
#3	-	56	H1	H1	H2	H1	.0874	.0894	.8890	.0902	.0895
#4	40	-	H2	H1	H2	H2	.0958	.0982	.0975	.0991	.0982
#4	-	48	H1	H1	H2	H1	.0985	.1007	.1001	.1016	.1008
#5	40	-	H2	H1	H2	H2	.1088	.1112	.1105	.1121	.1113
#5	-	44	H1	H1	H2	H1	.1102	.1125	.1118	.1134	.1126
#6	32	-	H2	H1	H3	H2	.1177	.1204	.1196	.1214	.1204
#6	-	40	H2	H1	H2	H2	.1218	.1242	.1235	.1252	.1243
#8	32	-	H2	H1	H3	H2	.1437	.1464	.1456	.1475	.1465
#8	-	36	H2	H1	H2	H2	.1460	.1485	.1478	.1496	.1487
#10	24	-	H3	H1	H3	H3	.1629	.1662	.1653	.1672	.1661
#10	-	32	H2	H1	H3	H2	.1697	.1724	.1716	.1736	.1726
#12	24	-	H3	H1	H3	H3	.1889	.1922	.1913	.1933	.1922
#12	-	28	H3	H1	H3	H3	.1928	.1959	.1950	.1970	.1959
1/4	20	-	H3	H2	H5	H3	.2175	.2211	.2201	.2223	.2211
1/4	-	28	H3	H1	H4	H3	.2268	.2299	.2290	.2311	.2300
5/16	18	-	H3	H2	H5	H3	.2764	.2805	.2794	.2817	.2803
5/16	-	24	H3	H1	H4	H3	.2854	.2887	.2878	.2902	.2890
3/8	16	-	H3	H2	H5	H3	.3344	.3389	.3376	.3401	.3387
3/8	-	24	H3	H1	H4	H3	.3479	.3512	.3503	.3528	.3516
7/16	14	-	H5	H3	H5	H3	.3911	.3960	.3947	.3972	.3957
7/16	-	20	H3	H1	H5	H3	.4050	.4086	.4076	.4104	.4091
1/2	13	-	H5	H3	H5	H3	.4500	.4552	.4537	.4565	.4548
1/2	-	20	H3	H1	H5	H3	.4675	.4711	.4701	.4731	.4717
9/16	12	-	H5	H3	H5	H3	.5084	.5140	.5124	.5152	.5135
9/16	-	18	H3	H2	H5	H3	.5264	.5305	.5294	.5323	.5308
5/8	11	-	H5	H3	H5	H3	.5660	.5719	.5702	.5732	.5714
5/8	-	18	H3	H2	H5	H3	.5889	.5930	.5919	.5949	.5934
3/4	10	-	H5	H3	H5	H3	.6850	.6914	.6895	.6927	.6907
3/4	-	16	H3	H2	H5	H3	.7094	.7139	.7126	.7159	.7143
7/8	9	-	H6	H4	H6	H4	.8028	.8098	.8077	.8110	.8089
7/8	-	14	H4	H2	H6	H4	.8286	.8335	.8322	.8356	.8339
1	8	-	H6	H4	H6	H4	.9188	.9264	.9242	.9276	.9254
1	-	12	H4	H2	H6	H4	.9459	.9515	.9499	.9535	.9516

The above recommended taps normally produce the Class of Thread indicated in average materials when used with reasonable care. However, if the tap specified does not give a satisfactory gage fit in the work, a choice of some other limit tap will be necessary.



### TAP RECOMMENDATIONS FOR CLASSES OF THREAD - METRIC

Size	Pitch	Recommended Tap for Class of Thread		Pitch Diameter Limits for Class of Thread (mm)			Pitch Diameter Limits for Class of Thread (inch)		
		4H	6H	Min. (Basic)	Max. 4H	Max. 6H	Min. (Basic)	Max. 4H	Max. 6H
M2	0.40	D1	D3	1.740	1.796	1.830	.06850	.07071	.07205
M2.5	0.45	D1	D3	2.208	2.268	2.303	.08693	.08929	.09067
M3	0.50	D1	D3	2.675	2.738	2.775	.10531	.10780	.10925
M3.5	0.60	D1	D4	3.110	3.181	3.222	.12244	.12524	.12685
M4	0.70	D2	D4	3.545	3.620	3.663	.13957	.14252	.14421
M4.5	0.75	D2	D4	4.013	4.088	4.131	.15789	.16094	.16264
M5	0.80	D2	D4	4.480	4.560	4.605	.17638	.17953	.18130
M6	1.00	D3	D5	5.350	5.445	5.500	.21063	.21437	.21654
M7	1.00	D3	D5	6.350	6.445	6.500	.25000	.25374	.25591
M8	1.25	D3	D5	7.188	7.288	7.348	.28299	.28693	.28929
M10	1.50	D3	D6	9.026	9.138	9.206	.35535	.35976	.36244
M12	1.75	D3	D6	10.863	10.988	11.063	.42768	.43260	.43555
M14	2.00	D3	D7	12.701	12.833	12.913	.50004	.50524	.50839
M16	2.00	D4	D7	14.701	14.833	14.913	.57878	.58398	.58713
M20	2.50	D4	D7	18.376	18.516	18.600	.72346	.72898	.73228
M24	3.00	D4	D8	22.051	22.221	22.316	.86815	.87484	.87858
M30	3.50	D5	D9	27.727	27.907	28.007	1.09161	1.0987	1.10264
M36	4.00	D5	D9	33.402	33.592	33.702	1.31504	1.32252	1.32685