SELECTION GUIDE

THREADING TOOLS

HSS-E & HSS PIPE TAP

- For Tapping National Pipe Threads

Please visit globalyg1.com/mat for material search

◎ : Excellent ○ : Good

HOLE TYPE							Max. 2.0xD Blind /Through Hole																				
TOOL MATERIAL							HSS-E																				
CHAMFER LEAD							2P-3P																				
FLUTE TYPE							Straight Flute																				
SPIRAL FLUTE ANGLE							-																				
SERIES	M																										M
	M/MF																										M/MF
	UNC																										UNC
	UNC/UNF																										UNC/UNF
	UNC/UNF/UNS																										UNC/UNF/UNS
	UNC/UN8																										UNC/UN8
	NPT																										NPT
	NPTF						S1 (p.B315)						S2 (p.B315)														NPTF
	NPS/NPSF																										NPS/NPSF
SURFACE TREATMENT / COATING							Bright						TiCN														
MODEL																											
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc																					
P	1	Non-alloy steel	About 0.15% C	Annealed	125		◎	15-40			○	15-40			○	15-40			○	15-40			○	15-40			1
	2		About 0.45% C	Annealed	190	13	◎	15-40			○	15-40			○	15-40			○	15-40			○	15-40			2
	3		About 0.45% C	Quenched &Tempered	250	25	◎	10-25			◎	10-25			○	10-25			○	10-25			○	10-25			3
	4		About 0.75% C	Annealed	270	28	○	10-20			○	10-20															4
	5		About 0.75% C	Quenched &Tempered	300	32	○	10-20			○	10-20															5
	6	Low alloy steel		Annealed	180	10	◎	10-25			◎	10-25			○	10-25			○	10-25			○	10-25			6
	7			Quenched &Tempered	275	29	○	10-25			○	10-25															7
	8			Quenched &Tempered	300	32	○	10-25			○	10-25															8
	9			Quenched &Tempered	350	38																					9
	10	High alloyed steel, and tool steel		Annealed	200	15																					10
	11			Quenched &Tempered	325	35																					11
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15																					12
	13		Martensitic	Quenched &Tempered	240	23																					13
	14		Austenitic		180	10																					14
K	15	Grey cast iron	Pearlitic / ferritic		180	10	◎	15-50			◎	15-50			○	15-50			○	15-50			○	15-50			15
	16		Pearlitic (Martensitic)		260	26	◎	15-50			◎	15-50			○	15-50			○	15-50			○	15-50			16
	17	Nodular cast iron	Ferritic		160	3	◎	15-50			◎	15-50															17
	18		Pearlitic		250	25	◎	15-50			◎	15-50															18
	19	Malleable cast iron	Ferritic		130																						19
	20		Pearlitic		230	21																					20
N	21	Aluminum-wrought alloy	Not Curable		60										○	15-40			○	15-40			○	15-40			21
	22		Curable	Hardened	100										○	15-40			○	15-40			○	15-40			22
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75										○	20-35			○	20-35			○	20-35			23
	24		≤ 12% Si, Curable	Hardened	90																						24
	25		> 12% Si, Not Curable		130																						25
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110																						26
	27		CuZn, CuSnZn (Brass)		90																						27
	28		CuSn, lead-free copper and electrolytic copper		100																						28
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic																								29
	30		Rubber, Wood, etc.																								30
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15																					31
	32			Cured	280	30																					32
	33		Ni or Co Based	Annealed	250	25																					33
	34			Cured	350	38																					34
	35			Cast	320	34																					35
	36	Titanium Alloys	Pure Titanium		400 Rm																						36
	37		Alpha + Beta Alloys	Hardened	1050 Rm																						37
H	38	Hardened steel		Hardened	550	55																					38
	39			Hardened	630	60																					39
	40	Chilled Cast Iron		Cast	400	42																					40
	41	Hardened Cast Iron		Hardened	550	55																					41

HOLE TYPE							Max. 2.0xD Blind /Through Hole																				
TOOL MATERIAL							HSS																				
CHAMFER LEAD							2P-3P						2P-3P						4P~5P								
FLUTE TYPE							Straight Flute																				
SPIRAL FLUTE ANGLE							-						-						-								
SERIES	M																										M
	M/MF																										M/MF
	UNC																										UNC
	UNC/UNF																										UNC/UNF
	UNC/UNF/UNS																										UNC/UNF/UNS
	UNC/UN8																										UNC/UN8
	NPT						T7505 (p.B316)		T6505 (p.B316)		TH505 (p.B316)																NPT
	NPTF														T7546 (p.B317)		T8546 (p.B317)										NPTF
	NPS/NPSF																		T7L36/T7536 (p.B318/p.B319)		T6L36/T6536 (p.B318/p.B319)						NPS/NPSF
SURFACE TREATMENT / COATING							Bright		Steam Oxide		TiCN				Bright		TiN		Bright		Steam Oxide						
MODEL																											
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc																					
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	15-40	○	15-40	○	15-40	○	15-40	○	15-40	○	15-40	○	15-40	○	15-40					1
	2		About 0.45% C	Annealed	190	13	○	15-40	○	15-40	○	15-40	○	15-40	○	15-40	○	15-40	○	15-40	○	15-40					2
	3		About 0.45% C	Quenched &Tempered	250	25	○	10-25	○	10-25	○	10-25	○	10-25	○	10-25	○	10-25	○	10-25	○	10-25					3
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	16		Pearlitic (Martensitic)		260	26	○	15-50	○	15-50	○	15-50	○	15-50	○	15-50	○	15-50	○	15-50	○	15-50					16
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	22		Curable	Hardened	100						○	15-40	○	15-40	○	15-40	○	15-40	○	15-40							22
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75						○	20-35	○	20-35	○	20-35	○	20-35	○	20-35							23
	24		≤ 12% Si, Curable	Hardened	90																						24
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	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110																						26
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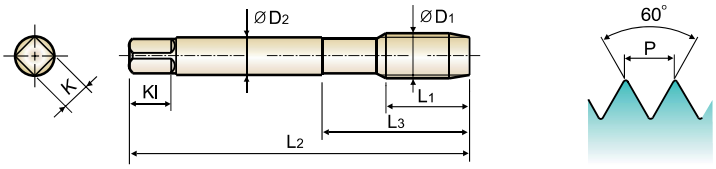
CARBIDE
HSS
THREAD MILL
SYNCHRO TAP
PRIME TAP
COMBO TAP
YG TAP BLUE RING
YG TAP STEEL
YG TAP INOX
YG TAP CAST IRON
YG TAP ALU
YG TAP TI NI
YG TAP HARDENED STEEL
YG TAP GENERAL
YG TAP FORMING
STI TAP
PIPE TAP
TECHNICAL DATA

PIPE TAP

S1 / S2 SERIES

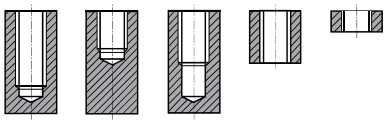
Taper Pipe Tap : Straight Flute Interrupted Thread Standard Projection for Cast Iron & Steels

ANSI



Material groups **GG** | HSS-E | NPTF | USCTI 311 | 2P~3P | Bright | TiCN

Thread Depth / Hole Type
2.0XD



p.B310

Unit : Inch

Size D1	T.P.I	EDP No. Bright	EDP No. TiCN	Overall Length L2	Thread Length L1	Neck Length L3	Shank Diameter D2	Square Size K	Square Length Kl	No. of Flute
NPTF1/16 -	27	**S1020**	**S2020**	2.130	.689	-	.312	.234	.380	5
NPTF1/8 -	27	**S1200**	**S2200**	2.130	.736	.906	.437	.328	.380	5
NPTF1/8 -	27	**S1210**	**S2210**	2.130	.748	-	.312	.234	.380	5
NPTF1/4 -	18	**S1400**	**S2400**	2.440	1.063	1.220	.562	.421	.440	5
NPTF3/8 -	18	**S1480**	**S2480**	2.560	1.063	1.220	.700	.531	.500	5
NPTF1/2 -	14	**S1560**	**S2560**	3.130	1.378	-	.687	.515	.630	5
NPTF3/4 -	14	**S1700**	**S2700**	3.250	1.378	-	.906	.679	.690	5
NPTF1 -	11-1/2	**S1780**	**S2780**	3.750	1.752	-	1.125	.843	.810	5

▶ These Taps meet both NPT and NPTF Standards.

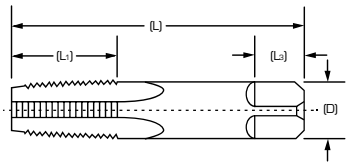
◎ : Excellent ○ : Good

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

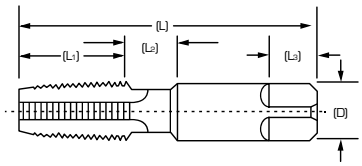
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28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

TECHNICAL DATA

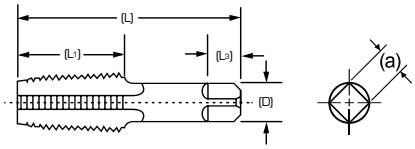
STANDARD PIPE TAP DIMENSION (STRAIGHT AND TAPER, GROUND THREAD)



Blank Design (1)



Blank Design (2)



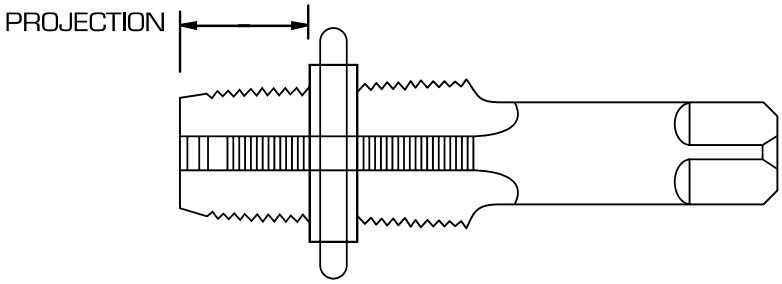
Blank Design (3)

Nominal Size	Overall Length	Thread Length	Shank Diameter	Square Length	Square Size	Optional Neck Length
	(L)	(L_1)	(D)	(L_3)	(a)	(L_2)
1/16	2.13	.69	.3125	.38	.234	.375
1/8	2.13	.75	.3125	.38	.234	...
1/8	2.13	.75	.4375	.38	.328	.375
1/4	2.44	1.06	.5625	.44	.421	.375
3/8	2.56	1.06	.7000	.50	.531	.375
1/2	3.13	1.38	.6875	.63	.515	...
3/4	3.25	1.38	.9063	.69	.679	...
1	3.75	1.75	1.1250	.81	.843	...
1-1/4	4.00	1.75	1.3125	.94	.984	...
1-1/2	4.25	1.75	1.5000	1.00	1.125	...
2	4.25	1.75	1.8750	1.13	1.406	...
2-1/2	5.50	2.56	2.2500	1.25	1.687	...
3	6.00	2.63	2.6250	1.38	1.968	...
3-1/2	6.50	2.69	2.8125	1.50	2.108	...
4	6.75	2.75	3.0000	1.56	2.250	...

TECHNICAL DATA

Pipe Tap (Limit)

Tap Thread Limits						Reference Dimensions	
Nominal Size Inches	Threads per Inch	Projection* Inches	Projection Tolerance + or -	Taper per Foot Limits		Length	Tap Drill Size** NPT, ANPT, NPTF
				Min.	Max.	(L_1)	
1/16	27	.312	.063	.719	.781	.160	C
1/8	27	.312	.063	.719	.781	.1615	Q
1/8	18	.459	.063	.719	.781	.2278	7/16
3/8	18	.454	.063	.719	.781	.240	9/16
1/2	14	.579	.063	.719	.781	.320	45/64
3/4	14	.565	.063	.719	.781	.339	29/32
1	11-1/2	.678	.094	.719	.781	.400	1-9/64
1-1/4	11-1/2	.686	.094	.719	.781	.420	1-31/64
1-1/2	11-1/2	.699	.094	.719	.781	.420	1-23/32
2	11-1/2	.667	.094	.719	.781	.436	2-3/16
2-1/2	8	.925	.094	.734	.781	.682	2-39/64
3	8	.925	.094	.734	.781	.766	3-15/64
3-1/2	8	.938	.125	.734	.781	.821	...
4	8	.950	.125	.734	.781	.844	...

*** Distance small end of tap projects through L1 Taper Thread Ring Gage.**

**** Recommended size given permit direct tapping without reaming the hole, but only give a full thread for approx. the L1 length.**