

SELECTION GUIDE



HSS-PM, HSS-E & HSS YG TAP FORMING

- For Forming Ductile Materials

Please visit globalyg1.com/mat for material search

© : Excellent ○ : Good

Table with columns: ISO, VDI 3323, Material Description, Composition / Structure / Heat Treatment, HB, HRC, and material compatibility symbols for HSS-PM, HSS-E, and HSS.

Table with columns: HOLE TYPE, TOOL MATERIAL, CHAMFER LEAD, FLUTE TYPE, SPIRAL FLUTE ANGLE, SERIES (M, M/MF, UNC, UNC/UNF, UNC/UNF/UNS, UNC/UN8, NPT, NPTF, NPS/NPSF), SURFACE TREATMENT / COATING (TICN, Bright), and MODEL.

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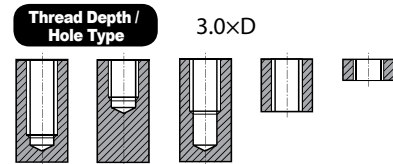
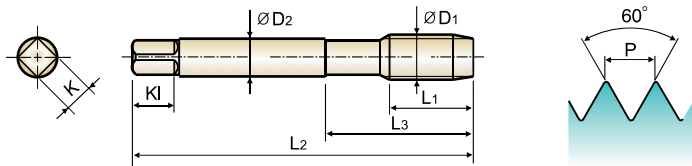
YG TAP FORMING

ZF SERIES

Miniature Forming Tap Modified Bottoming Style



ANSI



Material groups: **GV** HSS-E UNC UNF USCTI 302A 2P~3P Bright p.B278

Unit : Inch

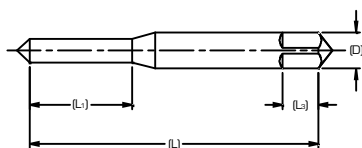
Size	T.P.I	EDP No.	Limit	Overall Length	Thread Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Lobe
D1		Bright		L2	L1	L3	D2	K	KI	
#0 - 90UNC		ZFM52	H2	1.634	.250	-	.141	.110	.190	4
#0 - 90UNC		ZFM53	H3	1.634	.250	-	.141	.110	.190	4
#0 - 96UNF		ZFM82	H2	1.634	.250	-	.141	.110	.190	4
#0 - 96UNF		ZFM83	H3	1.634	.250	-	.141	.110	.190	4
#0 - 80UNF		ZF022	H2	1.634	.315	-	.141	.110	.190	4
#0 - 80UNF		ZF023	H3	1.634	.315	-	.141	.110	.190	4
#0 - 80UNF		ZF024	H4	1.634	.315	-	.141	.110	.190	4
#1 - 64UNC		ZF042	H2	1.693	.374	-	.141	.110	.190	4
#1 - 64UNC		ZF043	H3	1.693	.374	-	.141	.110	.190	4
#1 - 64UNC		ZF044	H4	1.693	.374	-	.141	.110	.190	4
#1 - 72UNF		ZF062	H2	1.693	.374	-	.141	.110	.190	4
#1 - 72UNF		ZF063	H3	1.693	.374	-	.141	.110	.190	4
#1 - 72UNF		ZF064	H4	1.693	.374	-	.141	.110	.190	4
#2 - 56UNC		ZF082	H2	1.752	.433	-	.141	.110	.190	4
#2 - 56UNC		ZF083	H3	1.752	.433	-	.141	.110	.190	4
#2 - 56UNC		ZF084	H4	1.752	.433	-	.141	.110	.190	4
#2 - 64UNF		ZF102	H2	1.752	.433	-	.141	.110	.190	4
#2 - 64UNF		ZF103	H3	1.752	.433	-	.141	.110	.190	4
#2 - 64UNF		ZF104	H4	1.752	.433	-	.141	.110	.190	4
#3 - 48UNC		ZF122	H2	1.811	.492	-	.141	.110	.190	4
#3 - 48UNC		ZF123	H3	1.811	.492	-	.141	.110	.190	4
#3 - 48UNC		ZF124	H4	1.811	.492	-	.141	.110	.190	4
#3 - 48UNC		ZF125	H5	1.811	.492	-	.141	.110	.190	4
#3 - 56UNF		ZF142	H2	1.811	.492	-	.141	.110	.190	4
#3 - 56UNF		ZF143	H3	1.811	.492	-	.141	.110	.190	4
#3 - 56UNF		ZF144	H4	1.811	.492	-	.141	.110	.190	4
#3 - 56UNF		ZF145	H5	1.811	.492	-	.141	.110	.190	4

◎ : Excellent ○ : Good

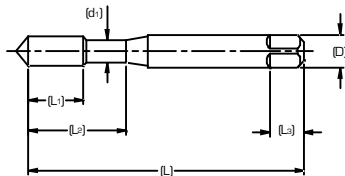
ISO	P										M				K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel		Stainless steel				Grey cast iron		Nodular cast iron		Malleable cast iron
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
HRc	13	25	28	32	35	10	29	32	38	15	35	15	23	10	10	26	3	25	21		
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			
	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	◎	◎	○	○																	

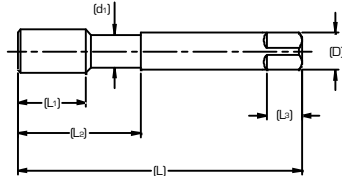
8 STANDARD FORMING TAP DIMENSION



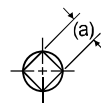
Blank Design (1)



Blank Design (2)



Blank Design (3)



Forming Tap Blank (Inch)

Nominal Size	Overall Length (L)	Thread Length (L ₁)	Neck Length (L ₂)	Shank Diameter (D)	Square Length (L ₃)	Square Size (a)	Blank Design No.
#0	1.63	.31	—	.141	.19	.110	1
#1	1.69	.38	—	.141	.19	.110	1
#2	1.75	.44	—	.141	.19	.110	1
#3	1.81	.50	—	.141	.19	.110	1
#4	1.88	.56	—	.141	.19	.110	1
#5	1.94	.63	—	.141	.19	.110	1
#6	2.00	.48	.69	.141	.19	.110	1
#8	2.13	.50	.75	.168	.25	.131	1
#10	2.38	.63	.88	.194	.25	.152	1
#12	2.38	.63	.94	.220	.28	.165	1
1/4	2.50	.86	1.00	.255	.31	.191	2
5/16	2.72	.93	1.13	.318	.38	.238	2
3/8	2.94	.98	1.25	.381	.44	.286	2
7/16	3.16	.95	1.44	.323	.41	.242	3
1/2	3.38	1.00	1.60	.367	.44	.275	3
9/16	3.59	1.00	1.66	.429	.50	.322	3
5/8	3.81	1.00	1.81	.480	.56	.360	3
3/4	4.25	1.00	2.0	.590	.69	.442	3

Forming Tap Blank (Metric)

Nominal Size	Overall Length (L)	Thread Length (L ₁)	Neck Length (L ₂)	Shank Diameter (D)	Square Length (L ₃)	Square Size (a)	Blank Design No.
M2	1.75	.40	—	.141	.19	.110	1
M3	1.94	.63	—	.141	.19	.110	1
M4	2.13	.50	.75	.168	.25	.131	1
M5	2.38	.63	.88	.194	.25	.152	1
M6	2.50	.86	1.0	.255	.31	.191	2
M8	2.72	.93	1.13	.318	.38	.238	2
M10	2.94	.98	1.25	.381	.44	.286	2
M12	3.38	1.00	1.60	.367	.44	.275	3



TAP DRILL SIZES - UNIFIED THREAD / FORMING TAPS

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

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