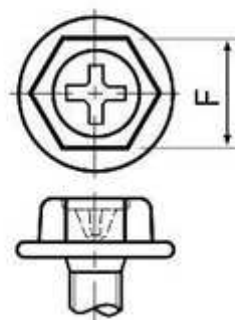
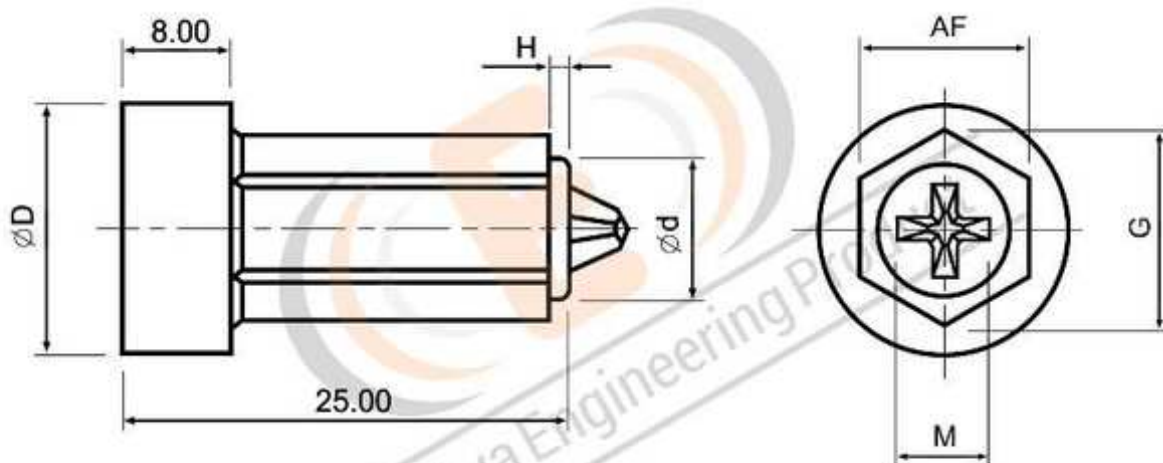


IND-0

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PHILLIPS JIS INDENTED HEX. WASHER HEAD

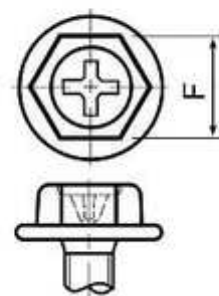
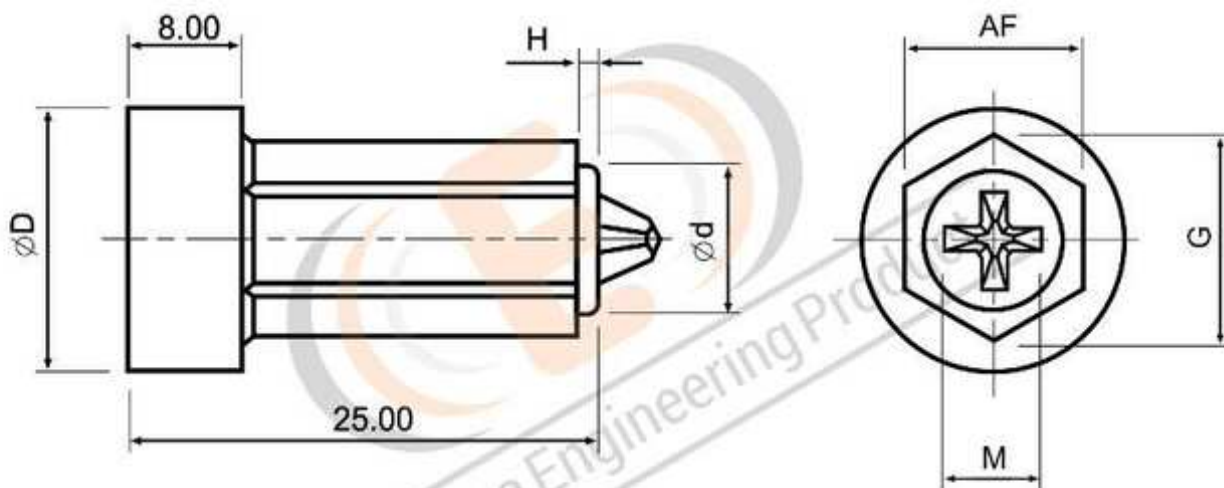
d	PHILIPS D ± 0.05	AF $+0 -0.02$	d $+0 -0.10$	H ± 0.05	M $+0 -0.10$	G	PUNCH		F max.	F min.
M30	7.00	4.80	4.00	0.30	2.40	5.35	PH#1	5.00	5.00	4.80
M35	7.00	5.30	4.50	0.45	3.40	5.82	PH#2	5.50	5.50	5.30
M40	9.00	6.80	5.60	0.50	3.90	7.55		7.00	7.00	6.80
M45	9.00	6.80	5.60	0.55	4.10	7.55		7.00	7.00	6.80
M50	10.00	7.80	6.40	0.60	4.30	8.70		8.00	8.00	7.80
M60	12.00	9.80	8.40	0.70	6.10	10.90	PH#3	10.00	10.00	9.80
M80	14.00	11.78	10.00	1.00	7.10	13.10		12.00	12.00	11.75



IND-0

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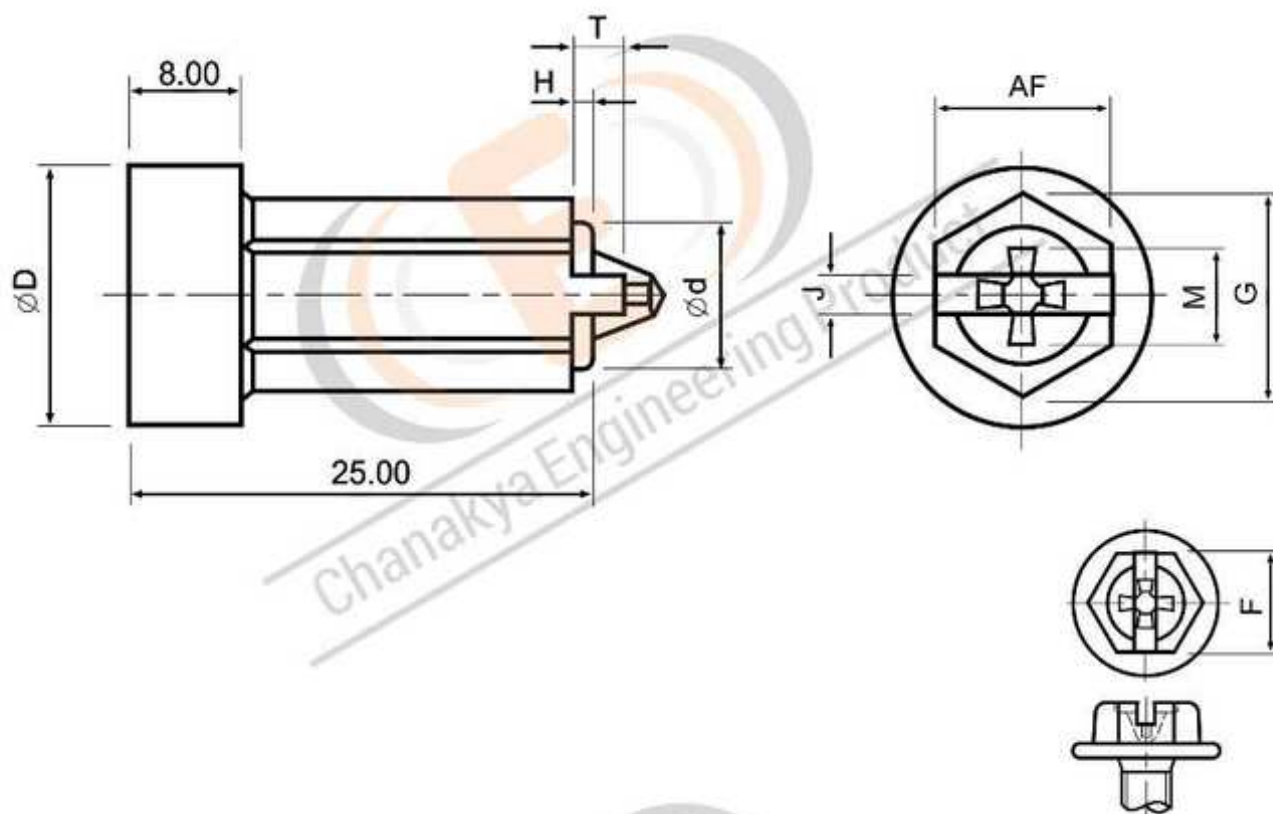
PHILLIPS ANSI INDENTED HEX. WASHER HEAD

d	PHILIPS D ± 0.05	AF $^{+0}_{-0.02}$	d $^{+0}_{-0.10}$	H ± 0.05	M $^{+0}_{-0.10}$	G	PUNCH		F max.	F min.
#4	7.00	4.60	3.80	0.40	2.20	5.10	PH#1	3/16"	4.75	4.60
#5	7.00	4.60	3.80	0.50	2.40	5.10		3/16"	4.75	4.60
#6	8.00	6.20	5.10	0.50	3.40	6.86		1/4"	6.35	6.20
#8	8.00	6.20	5.10	0.60	3.70	6.86	PH#2	1/4"	6.35	6.20
#10	10.00	7.78	6.40	0.60	4.30	8.68		5/16"	7.92	7.75
#12	10.00	7.78	6.40	0.70	4.55	8.68		5/16"	7.92	7.75
1/4	12.00	9.35	8.00	0.80	5.80	10.50	PH#3	3/8"	9.52	9.32

IND-2

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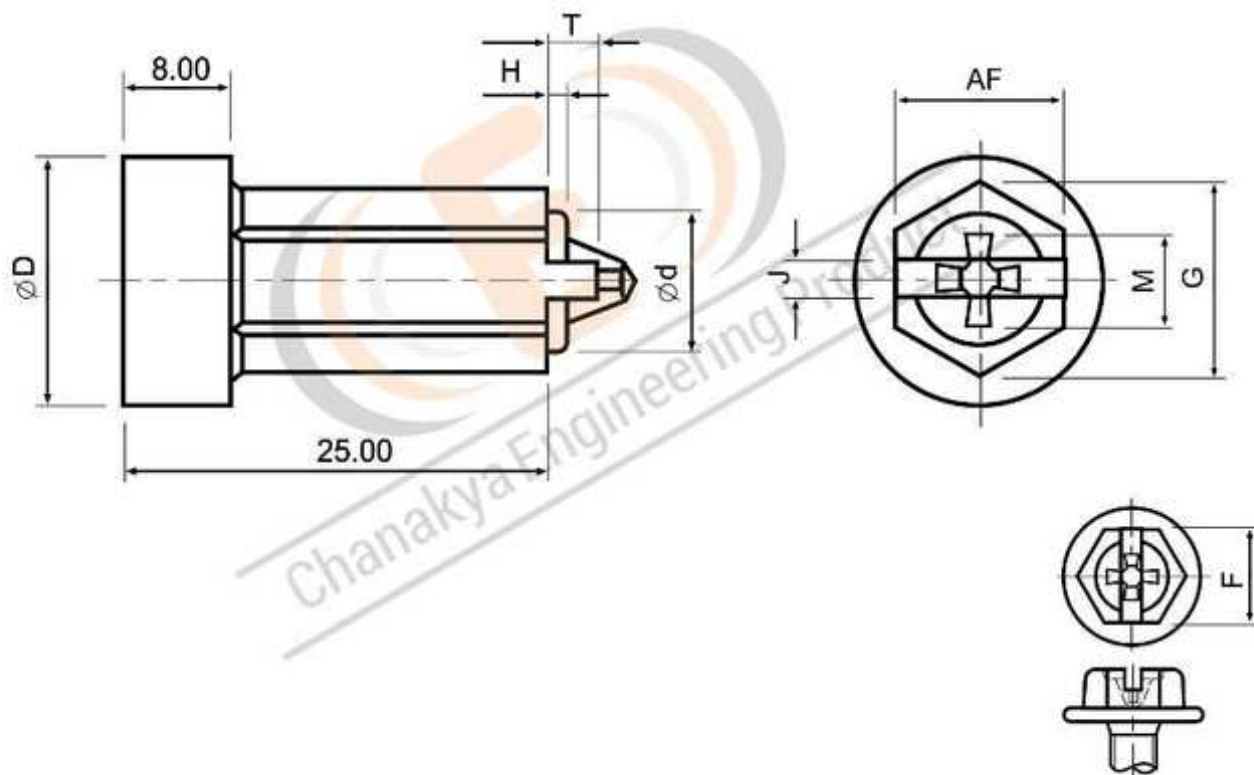
PHILLIPS / SLOTTED JIS INDENTED HEX. WASHER HEAD

d	D ± 0.05	AF $^{+0}_{-0.02}$	d $^{+0}_{-0.10}$	H ± 0.05	M $^{+0}_{-0.10}$	G	J $^{+0.05}_{-0}$	T ± 0.05	PUNCH		F max.	F min.
M30	7.00	4.80	4.00	0.30	2.40	5.35	0.85	0.80	PH#1	5.00	5.00	4.80
M35	7.00	5.30	4.50	0.45	3.40	5.82	1.10	1.10	PH#2	5.50	5.50	5.30
M40	9.00	6.80	5.60	0.50	3.90	7.55	1.20	1.40		7.00	7.00	6.80
M45	9.00	6.80	5.60	0.55	4.30	7.55	1.20	1.50		7.00	7.00	6.80
M50	10.00	7.80	6.40	0.60	4.70	8.70	1.30	1.60		8.00	8.00	7.80
M60	12.00	9.80	8.40	0.70	6.10	10.90	1.50	2.10	PH#3	10.00	10.00	9.80
M80	14.00	11.78	10.00	1.00	7.10	13.10	1.70	2.50		12.00	12.00	11.75

IND-2

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PHILLIPS / SLOTTED JIS INDENTED HEX. WASHER HEAD

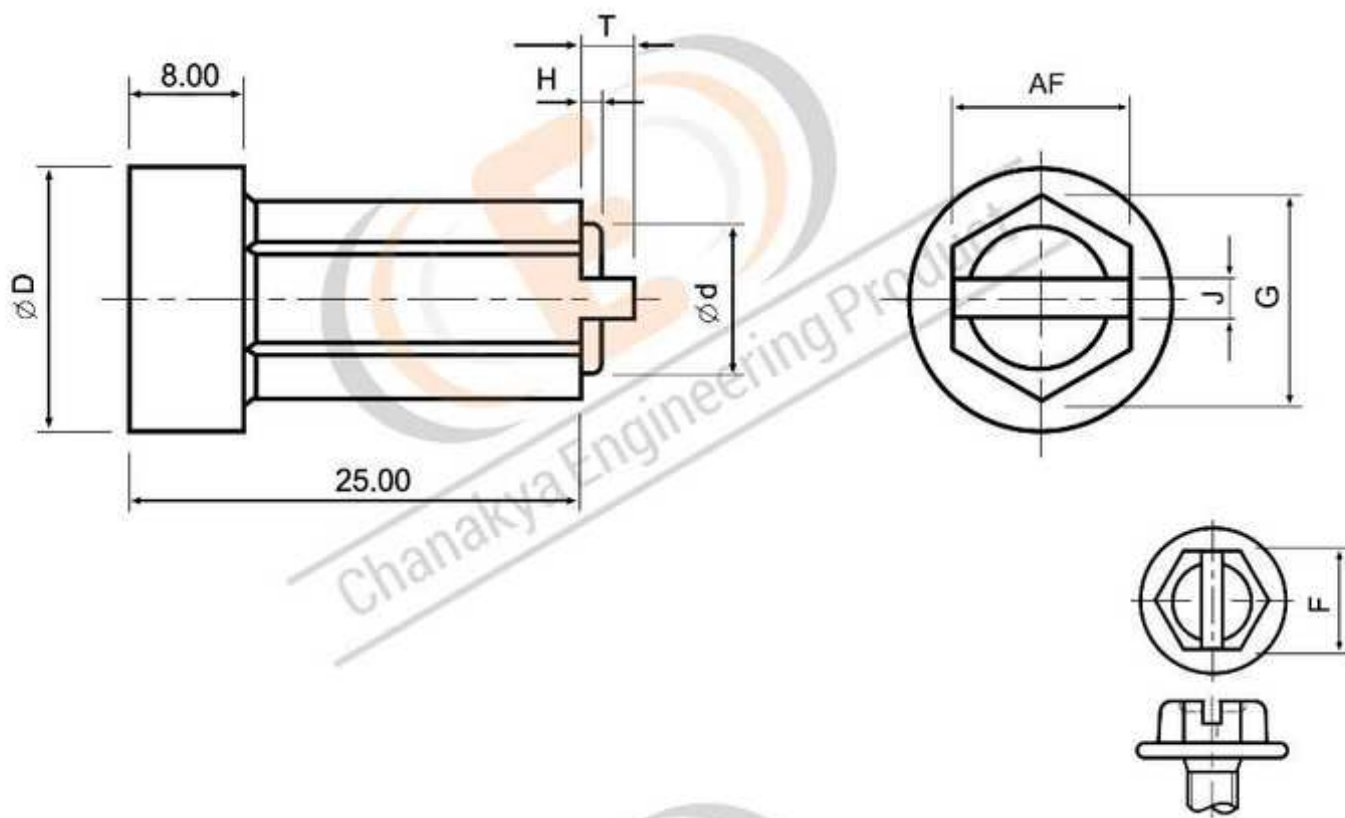
	D ± 0.05	AF $^{+0}_{-0.02}$	d $^{+0}_{-0.10}$	H ± 0.05	M $^{+0}_{-0.10}$	G	J $^{+0.05}_{-0}$	T ± 0.05	PUNCH		F max.	F min.
#4	7.00	4.60	3.80	0.40	2.50	5.10	0.85	0.80	PH#1	3/16"	4.75	4.60
#6	8.00	6.20	5.20	0.50	4.00	6.86	1.10	1.10	PH#2	1/4"	6.35	6.20
#7	8.00	6.20	5.20	0.50	4.20	6.86	1.10	1.30		1/4"	6.35	6.20
#8	8.00	6.20	5.20	0.60	4.40	6.86	1.25	1.60		1/4"	6.35	6.20
#10	10.00	7.78	6.40	0.70	4.70	8.68	1.40	1.75		5/16"	7.92	7.75
#12	10.00	7.78	6.40	0.90	5.00	8.68	1.60	2.30		5/16"	7.92	7.75
#14	12.00	9.35	8.00	1.00	5.80	10.50	1.75	2.45	PH#3	3/8"	9.52	9.32
1/4	12.00	9.35	8.00	1.00	5.80	10.50	1.75	2.45		3/8"	9.52	9.32



IND-4

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IND 



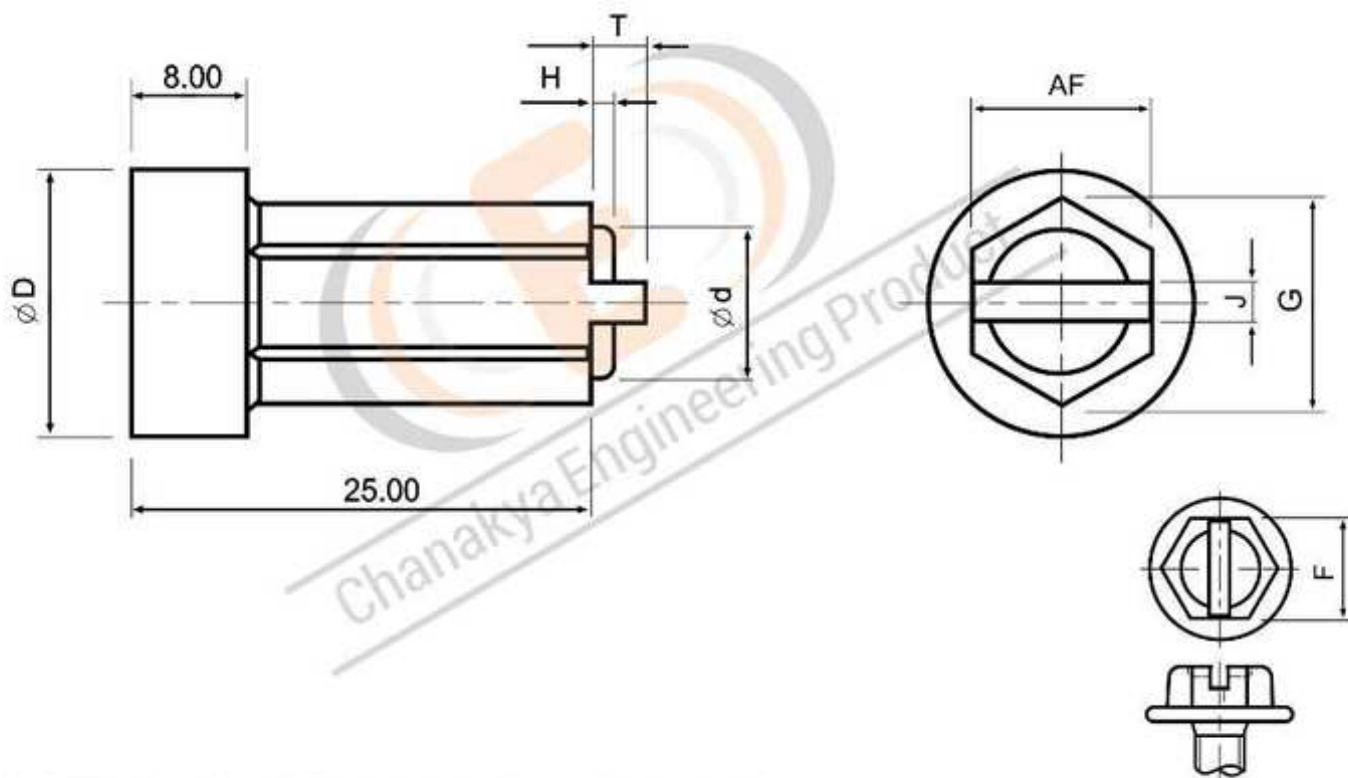
SLOTTED JIS INDENTED HEX. WASHER HEAD

	D ± 0.05	AF $\begin{smallmatrix} +0 \\ -0.02 \end{smallmatrix}$	d $\begin{smallmatrix} +0 \\ -0.10 \end{smallmatrix}$	H ± 0.05	G	J $\begin{smallmatrix} +0.05 \\ -0 \end{smallmatrix}$	T ± 0.05		F max.	F min.
M30	7.00	4.80	4.00	0.40	5.35	0.85	0.80	5.00	5.00	4.80
M35	7.00	5.30	4.50	0.50	5.82	1.00	1.10	5.50	5.50	5.30
M40	9.00	6.80	5.80	0.60	7.55	1.20	1.40	7.00	7.00	6.80
M45	9.00	6.80	5.80	0.60	7.55	1.30	1.50	7.00	7.00	6.80
M50	10.00	7.80	6.70	0.80	8.70	1.40	1.70	8.00	8.00	7.80
M60	12.00	9.80	8.50	1.00	10.90	1.60	2.30	10.00	10.00	9.80
M80	14.00	11.78	10.00	1.20	13.10	1.70	2.50	12.00	12.00	11.75

IND-4

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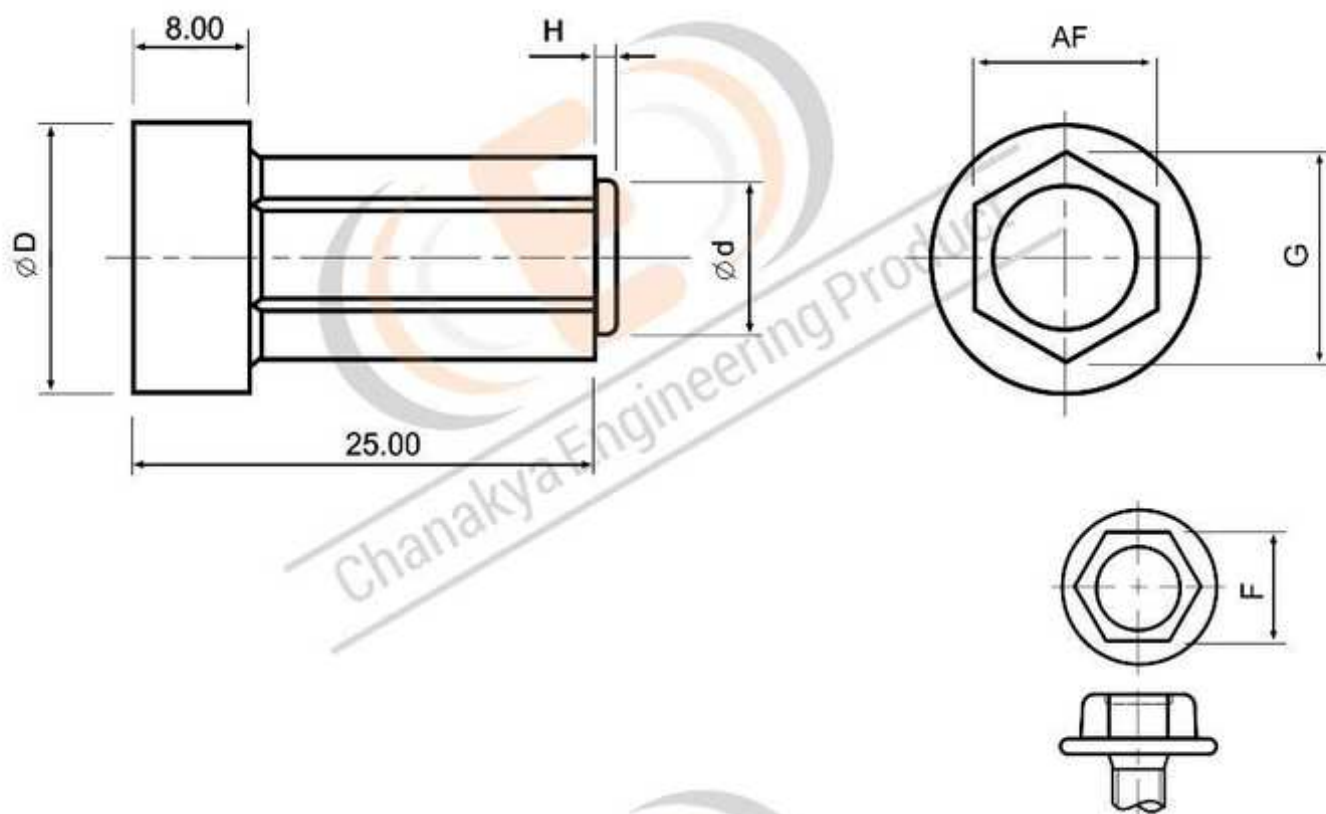
IND



SLOTTED ANSI INDENTED HEX. WASHER HEAD

	D ± 0.05	AF $^{+0}_{-0.02}$	d $^{+0}_{-0.10}$	H ± 0.05	G	J $^{+0.05}_{-0}$	T ± 0.05		F max.	F min.
#4	7.00	4.60	4.00	0.50	5.10	0.85	0.80	3/16"	4.75	4.60
#6	8.00	6.20	5.50	0.60	6.86	1.10	1.10	1/4"	6.35	6.20
#7	8.00	6.20	5.50	0.60	6.86	1.10	1.30	1/4"	6.35	6.20
#8	8.00	6.20	5.50	0.65	6.86	1.25	1.60	1/4"	6.35	6.20
#10	10.00	7.78	6.80	0.90	8.68	1.40	1.75	5/16"	7.92	7.75
#12	10.00	7.78	6.80	1.00	8.68	1.60	2.30	5/16"	7.92	7.75
#14	12.00	9.35	8.30	1.00	10.50	1.75	2.45	3/8"	9.52	9.32
1/4	12.00	9.35	8.30	1.00	10.50	1.75	2.45	3/8"	9.52	9.32
5/16	16.00	12.45	8.30	1.40	13.98	1.95	3.00	1/2"	12.70	12.42

IND-6 I IND



JIS INDENTED HEX. WASHER HEAD

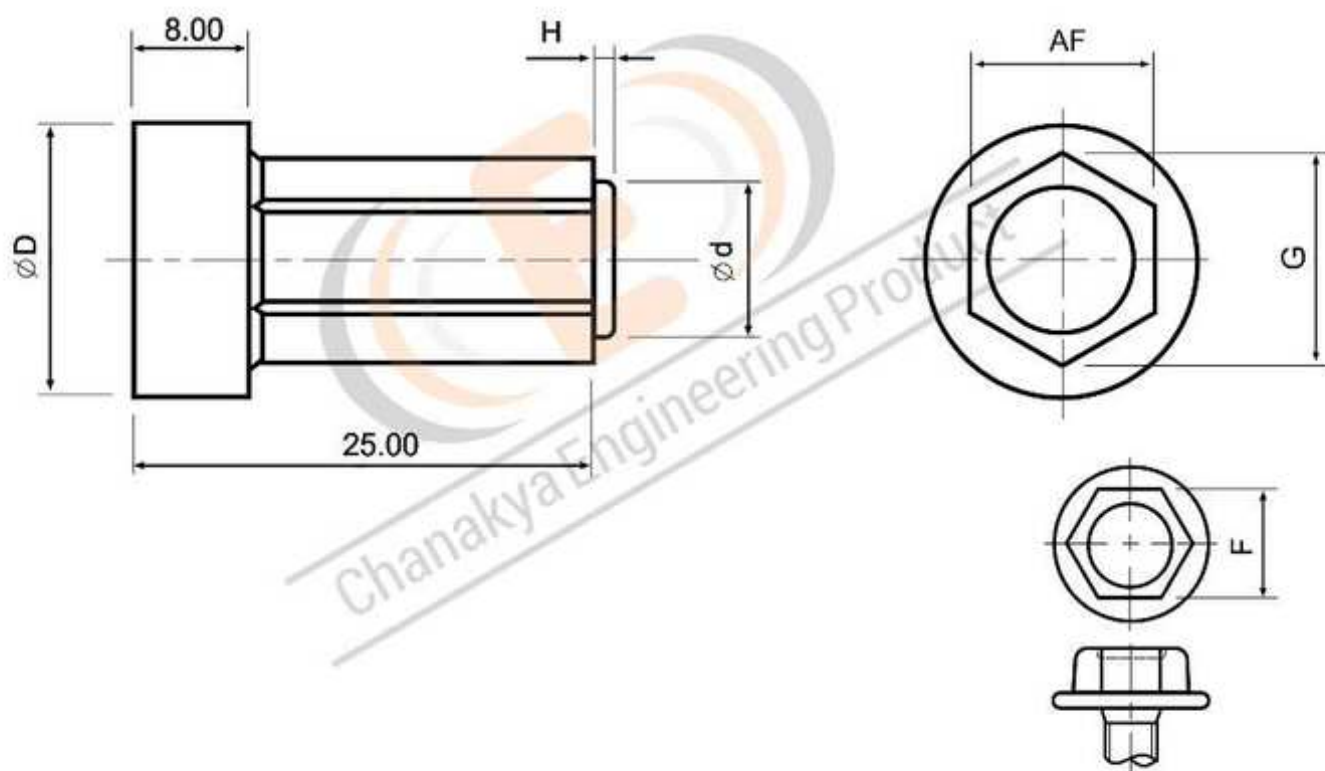
	$D \pm 0.05$	$AF \begin{smallmatrix} +0 \\ -0.02 \end{smallmatrix}$	$d \begin{smallmatrix} +0 \\ -0.10 \end{smallmatrix}$	$H \pm 0.05$	G		$F \text{ max.}$	$F \text{ min.}$
M30	7.00	4.80	4.00	0.40	5.35	5.00	5.00	4.80
M35	7.00	5.30	4.50	0.50	5.82	5.50	5.50	5.30
M40	9.00	6.80	5.80	0.60	7.55	7.00	7.00	6.80
M45	9.00	6.80	5.80	0.60	7.55	7.00	7.00	6.80
M50	10.00	7.80	6.70	0.80	8.70	8.00	8.00	7.80
M60	12.00	9.80	8.50	1.00	10.90	10.00	10.00	9.80
M80	14.00	11.78	10.00	1.20	13.10	12.00	12.00	11.75



IND-6

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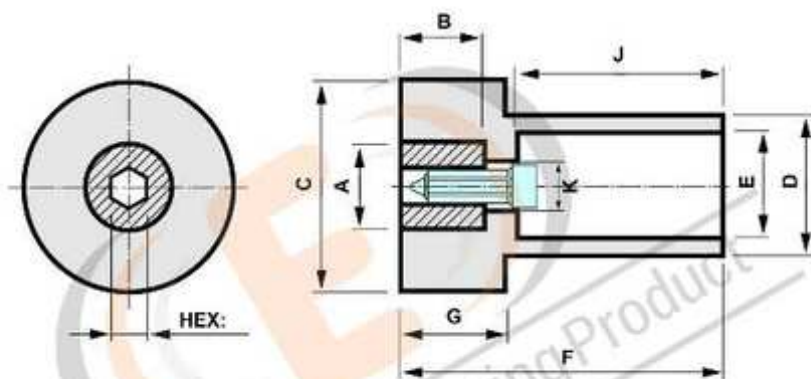
IND



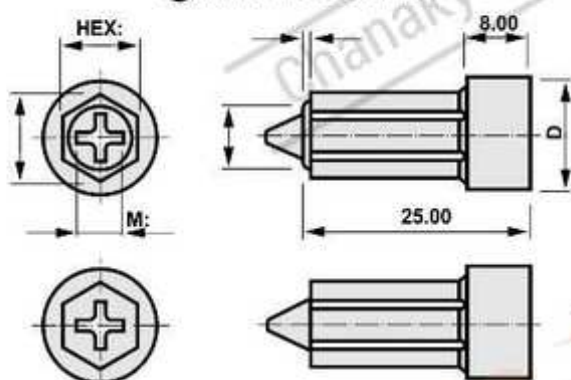
ANSI INDENTED HEX. WASHER HEAD

	$D \pm 0.05$	$AF^{+0}_{-0.02}$	$d^{+0}_{-0.10}$	$H \pm 0.05$	G		F max.	F min.
#4	7.00	4.60	4.00	0.50	5.10	3/16"	4.75	4.60
#6	8.00	6.20	5.50	0.60	6.86	1/4"	6.35	6.20
#7	8.00	6.20	5.50	0.60	6.86	1/4"	6.35	6.20
#8	8.00	6.20	5.50	0.65	6.86	1/4"	6.35	6.20
#10	10.00	7.78	6.80	0.90	8.68	5/16"	7.92	7.75
#12	10.00	7.78	6.80	1.00	8.68	5/16"	7.92	7.75
#14	12.00	9.35	8.30	1.00	10.50	3/8"	9.52	9.32
1/4	12.00	9.35	8.30	1.00	10.50	3/8"	9.52	9.32

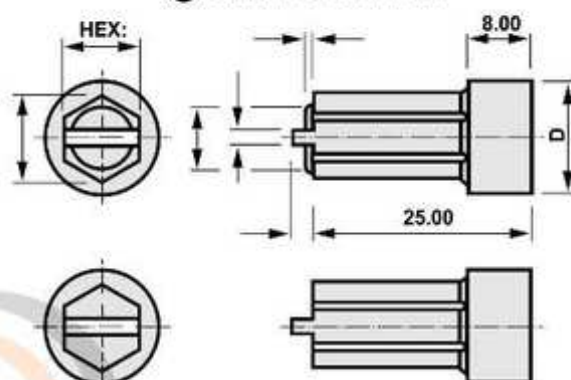
HEX. HEADED PUNCH HOLDER



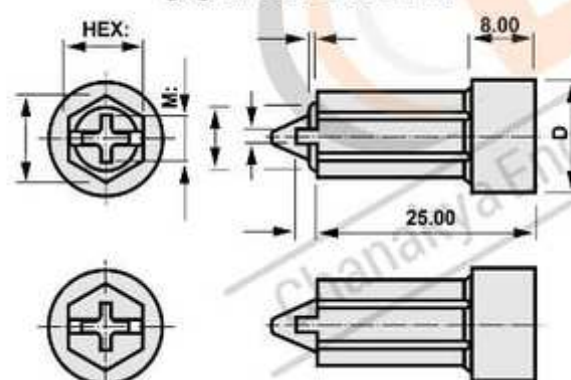
⊕ HEX. PUNCH PIN



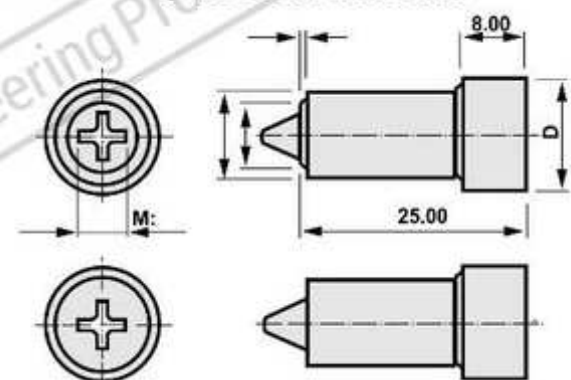
⊖ HEX. PUNCH PIN



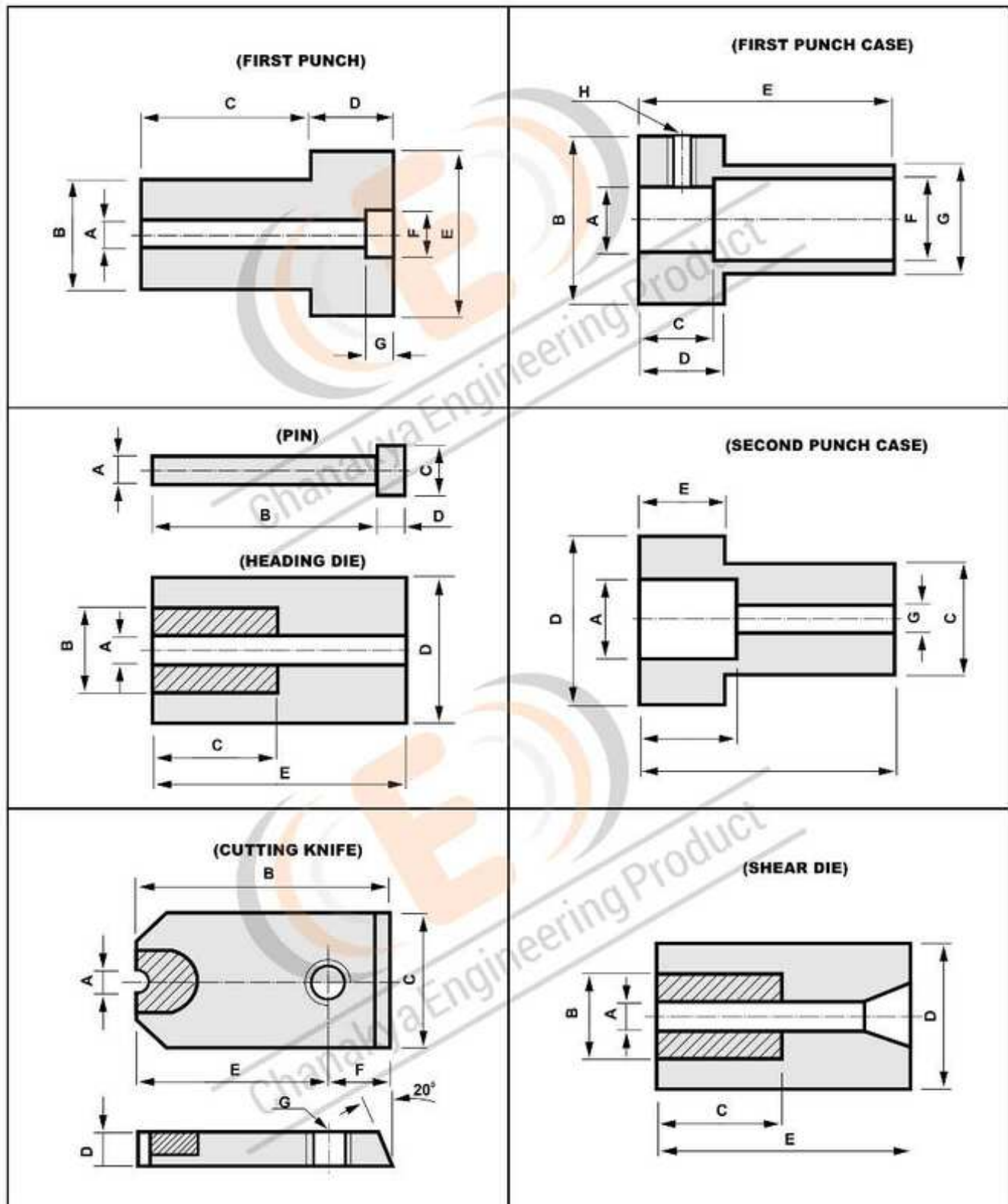
⊕ ⊖ HEX. PUNCH PIN



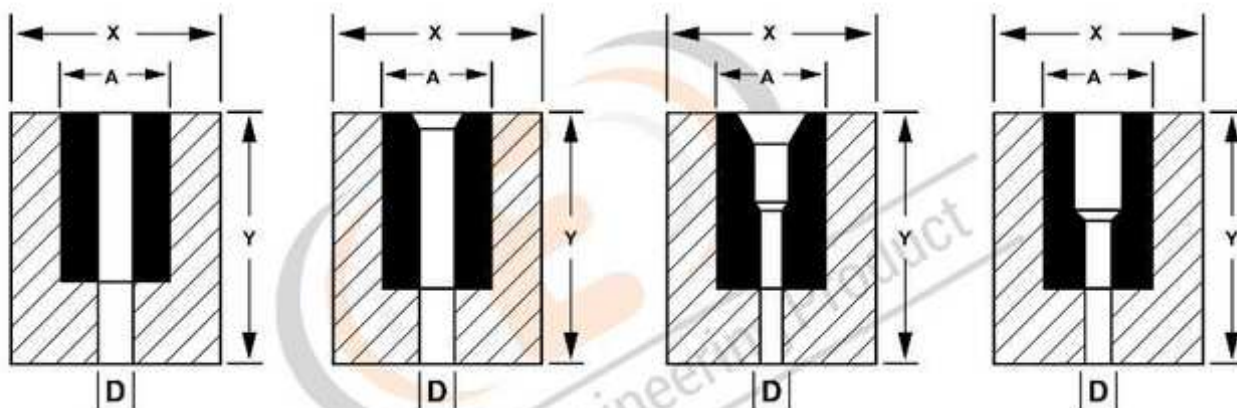
⊕ ROUND. PUNCH PIN



(TOOLING DRWING)

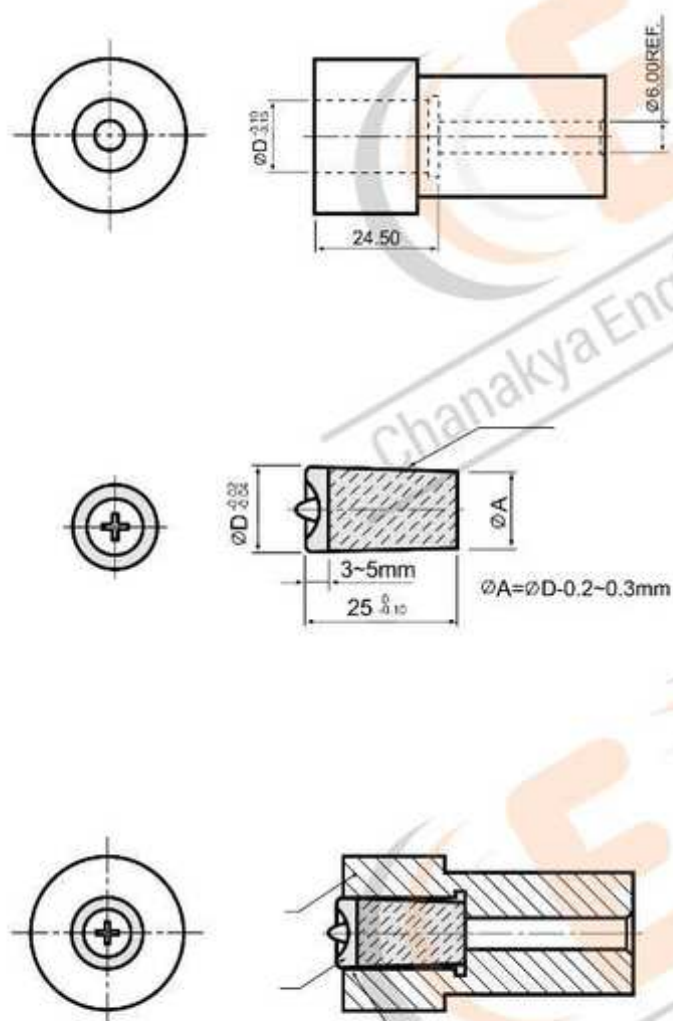


HEADING DIE

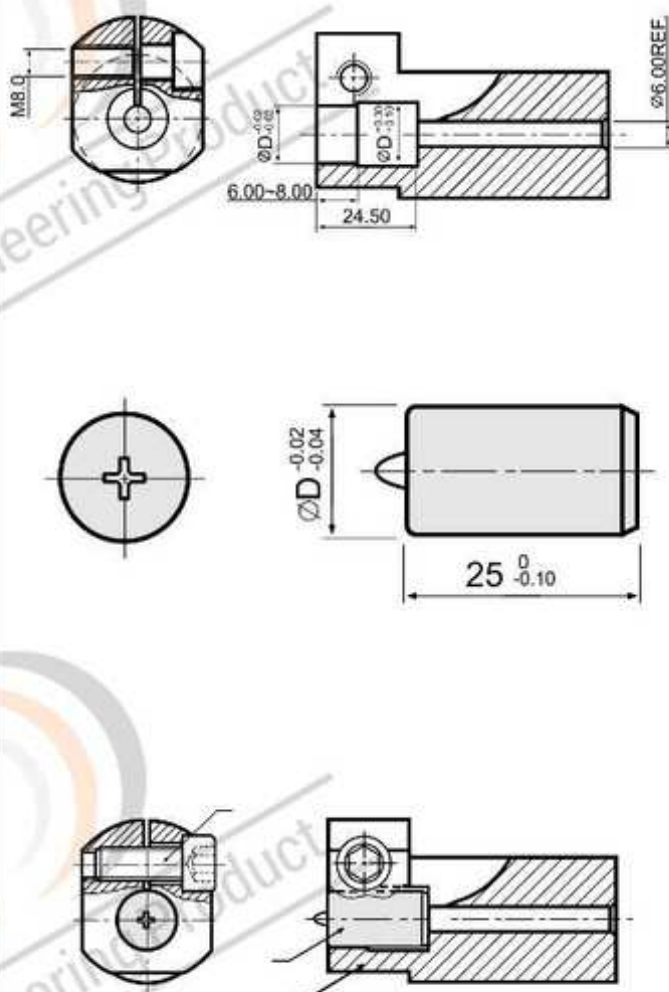


A Carbide Size	D Rod Size	B Dia Hight
10	0.8 - 2.0	15 20 25 30 - 60
12	1.0 - 2.5	15 20 25 30 40 - 80
15	2.5 - 4.5	20 30 40 50 60 70 80 - 160
18	4.0 - 6.0	20 30 40 50 60 70 80 - 160
20	4.5 - 7.0	20 30 40 50 60 70 80 - 160
25	7.0 - 9.5	30 40 50 60 70 80 90 100 - 200
30	9.0 - 11.5	30 40 50 60 70 80 90 100 110 120 140 150 - 300
35	11 - 14.4	30 40 50 60 70 80 90 100 110 120 140 150 - 300
40	14 - 17	30 40 50 60 70 80 90 100 110 120 140 150 - 300
45	16 - 20	40 50 60 70 80 90 100 110 120 140 150 160 180 - 360
50	20 - 25	40 50 60 70 80 90 100 110 120 140 150 160 200 - 400

PRESS FITTING OF HEADER PUNCH

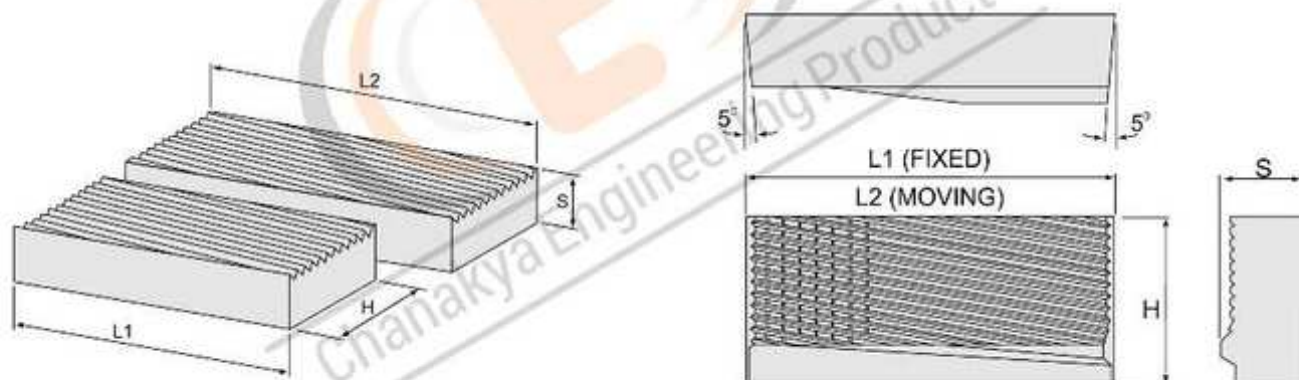


CLAMP FITTING OF HEADER PUNCH



THREAD ROLLING DIE

MACHINE TYPE	S	H	L1(FIXED)	L1(MOVING)
0	19	25	51	64
3/16	25	25, 28, 55	75	90
1/4	25	25, 40, 55, 65, 80	100	115
5/16	25	25, 40, 55, 65, 80, 105	127	140
3/8	25	25, 40, 55, 65, 80, 105	150	165
1/2	35	55, 80, 105, 125, 150	190	215
3/4	38	55, 80, 105, 125, 150	230	265
003	15	20	45	55
004	20	25	65	80
4R	20	25	60	70
5R	20	25	65	75
6R	25	25, 30, 40, 55	90	105
8R	25	25, 30, 40, 55, 65	108	127
DR125	20.8	25, 40	73.3	86.2 (5°)
DR200	20.8	25, 40, 53	92.3	105.2 (5°)
DR250	23.8	25, 40, 54	112	131.2 (5°)



MACHINE SCREW SIZE

BSW MACHINE SCREW 2A Q (55°)						
SIZE	P(T)	(D)		(d)		(B)
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	
1/16	60	1.560	1.470	1.29	1.27	0.235
3/32	48	2.361	2.155	2.01	1.99	0.258
1/8	40	3.155	3.045	2.72	2.70	0.390
5/32	32	3.945	3.795	3.40	3.38	0.480
3/16	24	4.742	4.592	4.03	4.00	0.652
1/4	20	6.330	6.160	5.48	5.45	0.780
5/16	18	7.910	7.720	6.97	6.94	0.860
3/8	16	9.500	9.310	8.44	8.40	0.985
7/16	14	11.082	10.892	9.88	9.84	1.127
1/2	12	12.670	12.460	11.27	11.22	1.319
9/16	12	14.258	14.047	12.86	12.81	1.319
5/8	11	15.848	15.605	14.33	14.27	1.426
3/4	10	19.020	18.780	17.34	17.28	1.590
7/8	9	22.195	21.935	20.32	20.28	1.765
1"	8	25.370	25.110	23.27	23.23	1.990

M/M MACHINE SCREW 2A Q (60°)						
SIZE	P	(D)		(d)		(B)
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	
M1.2	0.25	1.180	1.140	1.04	1.01	0.156
1.4	0.30	1.380	1.340	1.20	1.06	0.188
1.7	0.35	1.680	1.610	1.46	1.42	0.219
2	0.4	1.980	1.890	1.70	1.67	0.250
2.3	0.4	2.280	2.190	2.00	1.97	0.250
2.6	0.45	2.580	2.480	2.26	2.23	0.281
3	0.5	2.980	2.870	2.63	2.60	0.313
3.5	0.6	3.470	3.360	3.06	3.03	0.375
4	0.7	3.978	3.838	3.49	3.45	0.438
4.5	0.75	4.470	4.340	3.96	3.92	0.468
5	0.8	4.976	4.826	4.43	4.38	0.500
6	1.0	5.970	5.820	5.30	5.25	0.625
7	1.0	6.970	6.820	6.30	6.25	0.625
8	1.25	7.960	7.790	7.12	7.07	0.782
9	1.25	8.960	8.790	8.12	8.07	0.782
10	1.5	9.960	9.770	8.97	8.91	0.940
11	1.5	10.968	10.732	9.97	9.91	0.940
12	1.75	11.950	11.760	10.79	10.73	1.094
14	2.0	13.950	13.740	12.63	12.56	1.264
16	2.0	15.950	15.740	14.63	14.56	1.264
18	2.5	17.950	17.710	16.31	16.23	1.580
20	2.5	19.950	19.710	18.31	18.23	1.580
22	2.5	21.950	21.710	20.31	20.23	1.580
24	3.0	23.940	23.680	21.98	21.90	1.870
27	3.0	26.940	26.680	24.98	24.89	1.870
30	3.5	29.940	29.660	27.66	27.56	2.190
33	3.5	32.940	32.660	30.65	30.56	2.190
36	4.0	35.930	35.630	33.33	33.23	2.500

M/M MACHINE SCREW 2A Q (60°)						
SIZE	P	(D)		(d)		(B)
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	
M4	0.5	3.980	3.874	3.61	3.57	0.313
4.5	0.5	4.480	4.374	4.11	4.07	0.313
5	0.5	4.980	4.874	4.61	4.57	0.313
6	0.75	5.978	5.838	5.45	5.41	0.468
7	0.75	6.978	6.838	6.45	6.41	0.468
8	1.0	7.974	7.794	7.29	7.24	0.625
9	1.0	8.974	8.794	8.29	8.24	0.625
10	1.25	9.972	9.760	9.12	9.07	0.782
10	1.0	9.974	9.794	9.28	9.23	0.625
12	1.25	11.972	11.760	11.12	11.07	0.782
12	1.5	11.968	11.732	10.95	10.89	0.940
14	1.5	13.968	13.732	12.95	12.89	0.940
16	1.5	15.968	15.732	14.95	14.89	0.940
18	2.0	17.962	17.662	16.62	16.54	1.264
18	1.5	17.968	17.732	16.93	16.86	0.940
20	2.0	19.962	19.662	18.62	18.54	1.264
20	1.5	19.968	19.732	18.92	18.85	0.940
22	1.5	21.968	21.732	20.92	20.85	0.940
24	1.5	23.968	23.732	22.92	22.85	0.940
26	1.5	25.968	25.732	24.93	24.85	0.940
27	1.5	26.968	26.732	25.93	25.85	0.940
28	1.5	27.968	27.732	26.93	26.85	0.940
30	1.5	29.968	29.732	28.93	28.85	0.940
32	1.5	31.968	31.732	30.93	30.85	0.940
33	1.5	32.968	32.732	31.93	31.85	0.940



BA MACHINE SCREW 2A Q (47.5°)						
SIZE	P	(D)		(d)		(B)
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	
OBA	1.0	5.970	5.820	5.320	5.220	0.625
1BA	0.9	5.270	5.120	4.685	4.580	0.562
2BA	0.81	4.676	4.526	4.150	4.016	0.518
3BA	0.73	4.078	3.938	3.604	3.479	0.466
4BA	0.66	3.570	3.460	3.141	3.145	0.422
5BA	0.59	3.180	3.050	2.797	2.779	0.477
6BA	0.53	2.780	2.660	2.436	2.327	0.438
8BA	0.43	1.810	1.720	1.531	1.450	0.275

SM MACHINE SCREW 2A Q (60°)						
SIZE	P(T)	(D)		(d)		(B)
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	
5/64	64	1.964	1.867	1.69	1.68	0.230
3/32	56	2.361	2.267	2.06	2.04	0.264
1/8	48	3.155	3.041	2.80	2.78	0.308
1/8	44	3.155	3.041	2.77	2.75	0.334
1/8	40	3.155	3.041	2.73	2.71	0.370
9/64	40	3.542	3.432	3.13	3.10	0.370
11/64	40	4.336	4.226	3.92	3.89	0.370
11/64	32	4.336	4.226	3.81	3.79	0.470
3/16	40	4.732	4.602	4.31	4.28	0.470
3/16	32	4.732	4.602	4.22	4.19	0.470
3/16	28	4.732	4.602	4.14	4.11	0.542
3/16	24	4.732	4.602	4.04	4.01	0.640
13/64	32	5.126	4.976	4.60	4.57	0.470
7/32	32	5.526	5.376	5.01	4.98	0.470
15/64	28	5.923	5.773	5.32	5.29	0.542
1/4	40	6.330	6.160	5.90	5.87	0.370
1/4	28	6.330	6.160	5.72	5.69	0.542
1/4	24	6.330	6.160	5.62	5.59	0.640
9/32	28	7.114	6.964	6.51	6.48	0.540
9/32	20	7.114	6.964	6.28	6.25	0.774
5/16	24	7.910	7.727	7.21	7.18	0.640
5/16	18	7.910	7.727	6.97	6.94	0.863

UNC MACHINE SCREW 2A Q (60°)						
SIZE	P(T)	(D)		(d)		(B)
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	
No : 1	64	1.838	1.743	1.57	1.54	0.235
No : 2	56	2.169	2.066	1.86	1.84	0.268
No : 3	48	2.496	2.383	2.14	2.11	0.310
No : 4	40	2.824	2.695	2.40	2.36	0.380
No : 5	40	3.154	3.026	2.72	2.69	0.380
No : 6	32	3.484	3.333	2.95	2.91	0.478
No : 8	32	4.142	3.991	3.60	3.57	0.478
No : 10	24	4.800	4.618	4.09	4.05	0.640
No : 12	24	5.461	5.279	4.75	4.70	0.640
1/4	20	6.322	6.117	5.50	5.45	0.760
5/16	18	7.907	7.687	6.98	6.93	0.849
3/8	16	9.491	9.254	8.45	8.40	0.947
7/16	14	11.076	10.816	9.89	9.83	1.086
1/2	13	12.661	12.386	11.39	11.32	1.168
9/16	12	14.246	13.958	12.87	12.80	1.290
5/8	11	15.834	15.528	14.33	14.26	1.386
3/4	10	19.004	18.677	17.34	17.27	1.535
7/8	9	22.176	21.824	20.34	20.26	1.650
1	8	25.349	24.969	23.28	23.20	1.919
1 1/8	7	28.519	28.103	26.16	26.07	2.196
1 1/4	7	31.694	31.278	29.33	29.24	2.210
1 3/8	7	34.864	34.002	32.12	32.02	2.563

UNC MACHINE SCREW 2A Q (60°)						
SIZE	P(T)	(D)		(d)		(B)
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	
No : 2	64	2.169	2.073	1.90	1.87	0.235
No : 3	56	2.496	2.393	2.19	2.16	0.268
No : 4	48	2.827	2.713	2.48	2.43	0.310
No : 5	44	3.157	3.036	2.76	2.73	0.351
No : 6	40	3.484	3.356	3.05	3.02	0.380
No : 8	36	4.145	4.006	3.66	3.63	0.430
No : 10	32	4.803	4.651	4.26	4.22	0.478
No : 12	28	5.461	5.296	4.84	4.80	0.550
1/4	28	6.324	6.160	5.72	5.68	0.550
5/16	24	7.909	7.727	7.20	7.16	0.640
3/8	24	9.497	9.315	8.76	8.74	0.640
7/16	20	11.079	10.874	10.23	10.18	0.760
1/2	20	12.666	12.462	11.82	11.76	0.760
9/16	18	14.251	14.031	13.31	13.25	0.849
5/8	18	15.839	15.619	14.89	14.83	0.849
3/4	16	19.011	18.774	17.95	17.89	0.947
7/8	14	22.184	21.923	20.98	20.91	1.086
1	12	25.254	25.065	23.95	23.87	1.290
1 1/8	12	28.529	28.240	27.12	27.05	1.290
1 1/4	12	31.704	31.415	30.29	30.21	1.290
1 3/8	12	34.876	34.588	33.46	33.38	1.290
1 1/2	12	38.051	37.763	36.63	36.55	1.290



WOOD SCREW SIZE

WOOD SCREW M/M TYPE					
SIZE	P(T)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
1.6	0.8	1.65	1.55	1.20	1.15
1.8	0.9	1.85	1.75	1.40	1.35
2.1	1.0	2.17	2.03	1.60	1.55
2.4	1.1	2.47	2.33	1.90	1.82
2.7	1.2	2.77	2.63	2.10	2.05
3.1	1.3	3.17	3.03	2.45	2.40
3.5	1.4	3.60	3.40	2.85	2.75
3.8	1.6	3.90	3.70	3.05	3.00
4.1	1.8	4.20	4.00	3.25	3.20
4.5	2.0	4.60	4.40	3.50	4.45
4.8	2.1	4.92	4.68	3.75	3.70
5.1	2.2	5.22	4.98	4.00	3.90
5.5	2.4	5.62	5.38	4.35	4.30
5.8	2.6	5.92	5.68	4.50	4.45
6.2	2.7	6.32	6.08	4.85	4.75
6.8	3.1	6.95	6.65	5.30	5.20
7.5	3.3	7.65	7.35	5.80	5.70
8.0	3.3	8.15	7.85	6.30	6.20
9.5	3.8	9.65	9.35	7.60	7.50

DIN WOOD SCREW DIN TYPE					
SIZE	P(T)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
1.4	0.6	1.4	1.30	1.10	1.05
1.6	0.7	1.6	1.50	1.20	1.15
1.7	0.8	1.7	1.60	1.30	1.25
2.0	0.9	2.0	1.90	1.55	1.50
2.4	1.0	2.4	2.30	1.90	1.85
2.7	1.2	2.7	2.60	2.15	2.10
3.0	1.35	3.0	2.85	2.25	2.20
3.5	1.6	3.5	3.35	2.65	2.60
4.0	1.8	4.0	3.85	3.05	3.00
4.5	2.0	4.5	4.35	3.40	3.35
5.0	2.2	5.0	4.85	3.80	3.75
5.5	2.4	5.5	5.35	4.20	4.15
6.0	2.6	6.0	5.85	4.70	4.65
7.0	3.2	7.0	6.85	5.30	5.25
8.0	3.5	8.0	7.85	6.20	6.15
9.0	4.0	9.0	8.85	6.80	6.75
10.0	4.5	10.0	9.85	7.60	7.55
12.0	5.0	12.0	11.65	9.30	9.25
16.0	6.0	16.0	15.65	13.00	12.95

THREAD ACCORDING TO DIN7998

WOOD SCREW ASA TYPE					
SIZE	P(T)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
NO : 0	32	1.62	1.34	1.20	1.15
NO : 1	28	1.95	1.67	1.50	1.45
NO : 2	26	2.28	2.00	1.70	1.65
NO : 3	24	2.61	2.33	2.00	1.95
NO : 4	22	2.94	2.66	2.25	2.20
NO : 5	20	3.27	2.99	2.55	2.50
NO : 6	18	3.60	3.22	2.80	2.75
NO : 7	16	3.93	3.65	3.10	3.05
NO : 8	15	4.26	3.98	3.35	3.30
NO : 9	14	4.59	4.31	3.45	3.40
NO : 10	13	4.92	4.64	3.85	3.80
NO : 12	11	5.58	5.30	4.35	4.30
NO : 14	10	6.24	5.97	4.85	4.80
NO : 16	9	6.90	6.63	5.20	5.15
NO : 18	8	7.57	7.29	5.75	5.70
NO : 20	8	8.22	7.59	6.40	6.35
NO : 24	7	9.55	9.27	7.50	7.40

SQUARE AND HEX LAG SCREWS					
SIZE	P(T)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
NO : 10	11	5.05	4.52	3.75	3.70
1/4	10	6.60	6.02	5.05	4.95
5/16	9	8.23	7.57	6.35	6.25
3/8	7	9.85	9.15	7.60	7.50
7/16	7	11.48	10.70	9.20	9.10
1/2	6	13.08	12.25	10.40	10.30
5/8	5	16.30	15.37	13.20	13.10
3/4	4 1/2	19.50	18.51	16.10	16.00



TAPPING SCREW SIZE

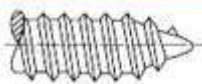
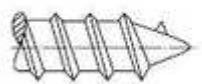
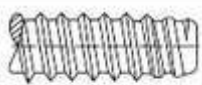
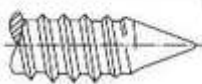
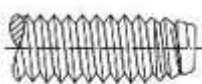
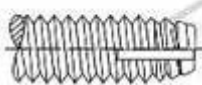
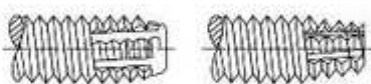
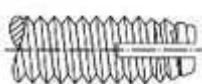
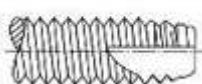
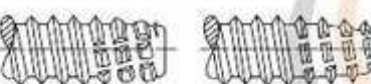
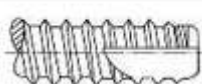
TAPPING SCREW ASA TYPE A					
SIZE	P(T)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
NO : 0	40	1.52	1.44	1.20	1.15
NO : 1	32	1.90	1.82	1.50	1.45
NO : 2	32	2.23	2.13	1.80	1.75
NO : 3	28	2.56	2.46	2.10	2.05
NO : 4	24	2.89	2.79	2.30	2.25
NO : 5	20	3.30	3.20	2.65	2.60
NO : 6	18	3.58	3.45	2.80	2.75
NO : 7	16	4.01	3.86	3.15	3.10
NO : 8	15	4.26	4.11	3.35	3.30
NO : 9	14	4.55	4.40	3.50	3.45
NO : 10	12	4.92	4.77	3.75	3.70
NO : 12	11	5.60	5.46	4.40	4.35
NO : 14	10	6.45	6.29	5.10	5.05
NO : 16	10	7.11	6.96	5.70	5.65
NO : 18	9	7.77	7.62	6.10	6.05

TAPPING SCREW ASA TYPE AB (B)					
SIZE	P(T)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
NO : 0	48	1.52	1.37	1.25	1.20
NO : 1	42	1.90	1.75	1.60	1.55
NO : 2	32	2.23	2.08	1.80	1.75
NO : 3	28	2.56	2.41	2.05	2.00
NO : 4	24	2.89	2.74	2.30	2.25
NO : 5	20	3.30	3.12	2.60	2.55
NO : 6	20	3.53	3.35	2.85	2.80
NO : 7	19	3.91	3.73	3.15	3.10
NO : 8	18	4.21	4.03	3.40	3.35
NO : 10	16	4.80	4.62	3.90	3.85
NO : 12	14	5.46	5.28	4.40	4.35
1/4	14	6.25	6.02	5.20	5.15
5/16	12	8.00	7.77	6.75	6.70

TAPPING SCREW ASA M/M TYPE A					
SIZE	P(T)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
M1.0	60	1.05	1.00	0.87	0.82
M1.2	56	1.25	1.20	1.05	1.00
M1.4	48	1.50	1.40	1.20	1.15
M1.7	40	1.80	1.70	1.45	1.40
M2	32	2.10	2.00	1.75	1.70
M2.3	32	2.40	2.30	2.00	1.95
M2.6	28	2.70	2.60	2.20	2.15
M3	24	3.10	3.00	2.45	2.40
M3.5	18	3.65	3.50	2.85	2.80
M4	16	4.15	4.00	3.30	3.25
M4.5	14	4.65	4.50	3.60	3.55
M5	12	5.20	5.00	3.95	3.90
M6	10	6.20	6.00	4.80	4.75
M8	9	8.20	8.00	6.45	6.40

TAPPING SCREW ASA M/M TYPE AB (B)					
SIZE	P(T)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
M1.0	64	1.00	0.95	0.88	0.83
M1.2	64	1.20	1.15	1.05	1.00
M1.4	56	1.40	1.35	1.20	1.15
M1.7	48	1.70	1.62	1.45	1.40
M2	40	2.0	1.90	1.70	1.65
M2.3	32	2.3	2.20	1.90	1.85
M2.6	28	2.6	2.50	2.15	2.10
M3	24	3.0	2.90	2.45	2.40
M3.5	20	3.5	3.40	2.85	2.80
M4	18	4.0	3.85	3.30	3.25
M4.5	16	4.5	4.35	3.60	3.55
M5	16	5.0	4.85	4.10	4.05
M6	14	6.0	5.85	5.05	5.00
M8	12	8.0	7.85	6.80	6.75



TYPE	ANSI	Description & Application / Advantages	
	AB	Description	A thread forming tapping screw with spaced threads and a gimlet point.
		Applications/Advantages	For self starting in thin metal or resin-filled plywood. Recommended over a Type-A, particularly in brittle materials
	A	Description	A thread forming tapping screw with wider spaced threads than a Type-AB and a gimlet point.
		Applications/Advantages	For self starting in thin (0.015-0.001 inch) metal or resin filled plywood. 18-8 Stainless steel tapping screws may be used in applications which require general atmospheric corrosion resistance. Fastening stainless steel parts to aluminum or steel can cause a type of corrosion known as galvanic couple in some environments.
	B	Description	A thread forming tapping screw with spaced threads and a blunt point with incomplete entering threads.
		Applications/Advantages	For molded or through holes in thin metal, non-ferrous castings, plastics or resin-filled plywood.
	BP	Description	A precision forming to provide any required angle
		Applications/Advantages	Offers a smooth surface accurate length, and a sharp point which can be produced to any desired contour to fit your particular requirements.
	C	Description	A thread forming screw with either coarse or fine pitch machine screw thread and blunt tapered point.
		Applications/Advantages	Eliminates chips and permits replacement with standard screw in the field. Higher driving torque required. Usable in heavy sheet metal and die castings.
	D	Description	A thread cutting screw with single flute for general use.
		Applications/Advantages	Produces a fine standard machine screw thread for field replacement.
	F	Description	A thread cutting screw with machine screw thread pitch, blunt point, tapered entering threads and multiple cutting edges.
		Applications/Advantages	For use in heavy gauge sheet metal, aluminum, zinc and lead die castings, cast iron, brass and plastic.
	G	Description	Slot produced a thread cutting feature.
		Applications/Advantages	Often used a point remover in a tapped hole
	T	Description	A thread cutting screw with spaced threads, a blunt point, tapered entering threads, a single wide cutting edge, and a chip cavity.
		Applications/Advantages	For molded or through holes in plastics and other soft materials. Provides excellent chip clearing capability.
	BF	Description	Type Bf with flutes extending for the length of the thread.
		Applications/Advantages	Use in casting, brittle moldings and where thread cutting is required in softer plastics.
	BT	Description	A thread cutting screw with machine screw thread pitch, a blunt point, tapered entering threads, a single wide cutting edge, and a chip cavity.
		Applications/Advantages	For cast iron and zinc, aluminum die castings, and plastics. Provides excellent chip clearing with minimum tightening torques.
	U	Description	A thread forming screw with high Helix thread for driving or hammering into sheet metal, castings, fiber or plastics for permanent quick assemblies.
		Applications/Advantages	
	TAPTITE	Description	Taptite screw roll forms a mating thread in an unthreaded pilot hole.
		Applications/Advantages	Taptite screw shank reduced friction during driving to assure low driving torque, generates a prevailing torque that exceeds the level of a locking screw.



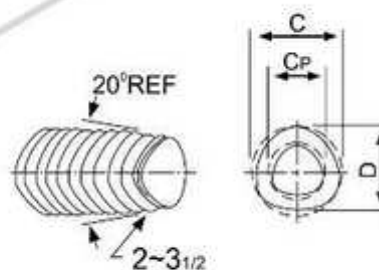
TAPPING SCREW W. T. TYPE A					
SIZE	T(P)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
3/32"	32	2.48	2.38	1.85	1.8
1/8"	24	3.27	3.17	2.60	2.55
5/32"	16	4.07	3.97	3.20	3.15
3/16"	12	4.86	4.76	3.75	3.7
1/4"	10	6.45	6.35	5.2	5.15
5/16"	9	8.0	7.9	6.35	6.3
3/8"	7	9.63	9.53	7.65	7.6
1/2"	6	12.8	12.7	10.45	10.4

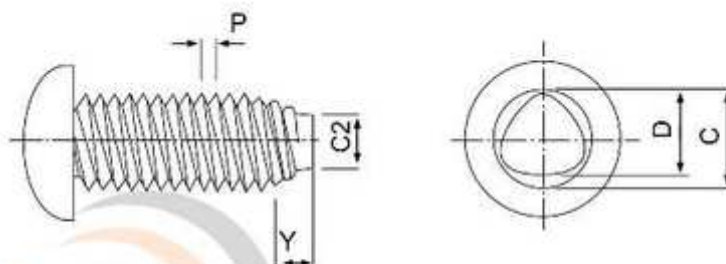
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SIZE	T(P)	(D)		(d)	
		(MAX.)	(MIN.)	(MAX.)	(MIN.)
2.2	0.79	2.24	2.13	1.80	1.75
2.9	1.06	2.90	2.79	2.30	2.25
3.5	1.27	3.53	3.43	2.80	2.75
3.9	1.34	3.91	3.78	3.15	3.10
4.2	1.41	4.22	4.08	3.40	3.35
4.8	1.59	4.80	4.65	3.85	3.80
5.5	1.81	5.46	5.31	4.40	4.35
6.3	1.81	6.25	6.10	5.15	5.10
8.0	2.12	8.00	7.82	6.75	6.70

(S TYPE)

TAPTITE SCREW SIZE (ANSI)

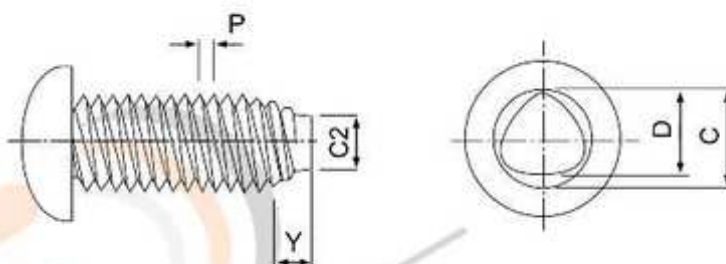
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		MAX.	MIN.	MAX.	MIN.	MAX.	
#2	56	2.22	2.12	2.13	2.03	1.77	1.84
#3	48	2.56	2.46	2.46	2.36	2.05	2.12
#4	40	2.90	2.80	2.78	2.68	2.28	2.37
#5	40	3.23	3.13	3.11	3.00	2.61	2.70
#6	32	3.58	3.43	3.43	3.27	2.82	2.92
#8	32	4.24	4.09	4.09	3.93	3.47	3.58
#10	24	4.92	4.77	4.70	4.54	3.88	4.02
1/4	20	6.47	6.32	6.24	6.09	5.23	5.45





(S TYPE) TAPTITE SCREW

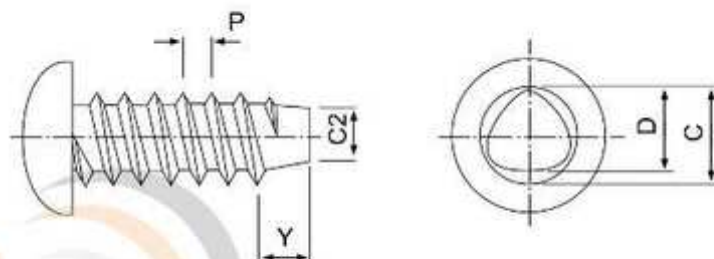
SIZE	PITCH	SCREW DIA						Y mm			
		C mm		D mm							
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	(MAX.)	(MIN.)	(MAX.)	(MIN.)	C1	D1
2	0.4	2.04	1.96	1.96	1.88	1.58	1.44	1.8	1.4	1.75	1.67
2.3	0.4	2.34	2.26	2.26	2.18	1.82	1.68	1.8	1.4	2.04	1.96
2.5	0.45	2.55	2.47	2.46	2.38	1.96	1.79	2.1	1.5	2.22	2.13
2.6	0.45	2.65	2.57	2.56	2.48	2.05	1.88	2.1	1.5	2.32	2.24
3	0.5	3.05	2.97	2.95	2.87	2.44	2.24	2.3	1.7	2.69	2.59
3.5	0.6	3.56	3.48	3.44	3.36	2.83	2.63	2.7	2.1	3.13	3.01
4	0.7	4.07	3.99	3.93	3.85	3.24	3.07	3.2	2.4	3.56	3.42
5	0.8	5.08	5.00	4.92	4.84	4.17	3.87	3.6	2.8	4.52	4.36



(C TYPE) TAPTITE SCREW

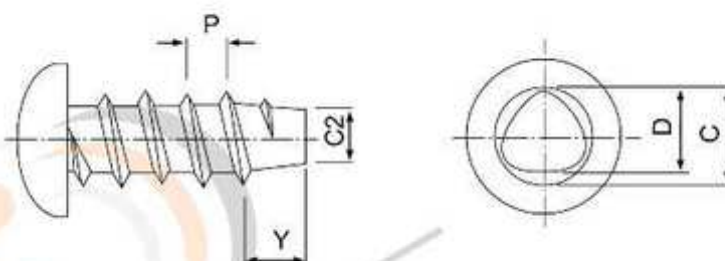
SIZE	PITCH	SCREW DIA				C2 mm		Y mm			
		C mm		D mm							
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	(MAX.)	(MIN.)	(MAX.)	(MIN.)		
2	0.4	1.98	1.89	1.90	1.81	1.52	1.38	1.8	1.4	1.68	1.60
2.3	0.4	2.28	2.19	2.20	2.11	1.76	1.62	1.8	1.4	1.98	1.90
2.5	0.45	2.48	2.38	2.39	2.29	1.88	1.71	2.1	1.5	2.14	2.05
2.6	0.45	2.58	2.48	2.49	2.39	1.98	1.81	2.1	1.5	2.24	2.15
3	0.5	2.98	2.87	2.88	2.77	2.37	2.17	2.3	1.7	2.61	2.51
3.5	0.6	3.47	3.36	3.35	3.24	2.76	2.56	2.7	2.1	3.03	2.91
4	0.7	3.97	3.84	3.83	3.70	3.17	2.91	3.2	2.4	3.46	3.32
5	0.8	4.97	4.84	4.81	4.68	4.06	3.76	3.6	2.8	4.38	4.22





(B TYPE) TAPTITE SCREW

SIZE	PITCH	SCREW DIA						Y mm			
		C mm		D mm		C2 mm		(MAX.)	(MIN.)	C1	D1
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	(MAX.)	(MIN.)				
2	40	2.04	1.96	1.96	1.88	1.46	1.26	1.6	1.2	1.67	1.59
2.3	32	2.34	2.26	2.26	2.18	1.76	1.56	2.0	1.5	1.89	1.81
2.6	28	2.64	2.56	2.55	2.47	1.94	1.74	2.3	1.8	2.16	2.07
3	24	3.05	2.95	2.95	2.85	2.25	2.05	2.7	2.1	2.47	2.37
3.5	20	3.55	3.45	3.46	3.34	2.65	2.45	3.2	2.5	2.90	2.78
4	18	4.05	3.95	3.91	3.81	3.00	2.80	3.6	2.8	3.28	3.14
5	16	5.06	4.94	4.90	4.78	3.74	3.44	4.0	3.1	4.16	4.00



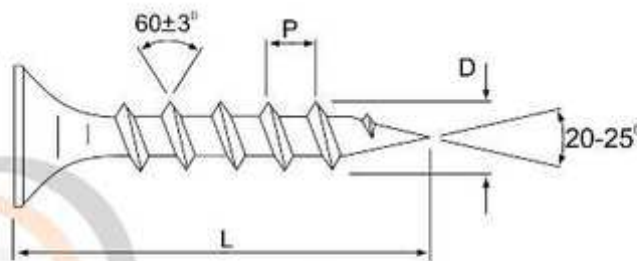
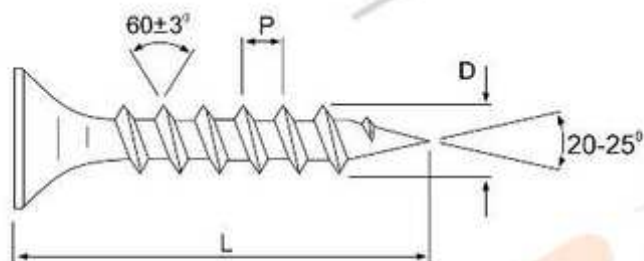
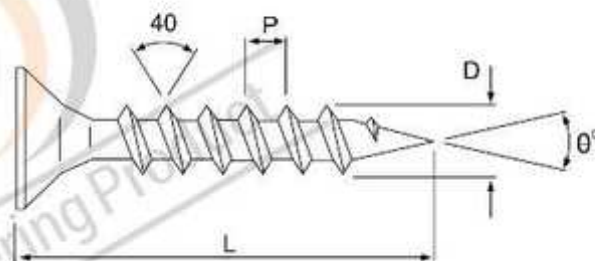
(P TYPE) TAPTITE SCREW

SIZE	PITCH	SCREW DIA						Y mm			
		C mm		D mm		C2 mm		(MAX.)	(MIN.)	C1	D1
		(MAX.)	(MIN.)	(MAX.)	(MIN.)	(MAX.)	(MIN.)				
2.0	32	2.12	2.02	2.04	1.94	1.54	1.34	2.0	1.6	1.60	1.52
2.3	28	2.43	2.33	2.35	2.25	1.84	1.64	2.3	1.8	1.87	1.79
2.5	24	2.63	2.53	3.54	2.44	1.94	1.74	2.5	2.0	1.99	1.90
2.6	24	2.63	2.63	3.64	2.54	2.04	1.84	2.5	2.0	2.12	2.04
3.0	20	3.15	3.03	3.05	2.93	2.35	2.15	3.3	2.6	2.43	2.33
3.5	18	3.66	3.54	3.57	3.45	2.70	2.50	3.5	2.8	2.87	2.75
4.0	16	4.16	4.04	4.02	3.90	3.10	2.90	4.0	3.2	3.23	3.10
5.0	14	5.19	5.05	5.03	4.89	3.76	3.46	4.5	3.6	4.03	3.87



CHIPBOARD & DRYWALL SCREW SIZE

CHIPBOARD SCREWS 40°				
SIZE	P	(D)		
		(MAX.)	(MIN.)	
3	1.35	3.00	2.80	2.15
3.5	1.60	3.50	3.30	2.47
4	1.80	4.00	3.75	2.80
4.5	2.00	4.50	4.25	3.13
5	2.20	5.00	4.70	3.47
6	2.60	6.00	5.70	4.20

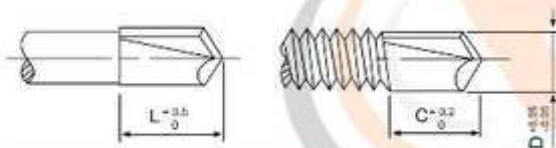
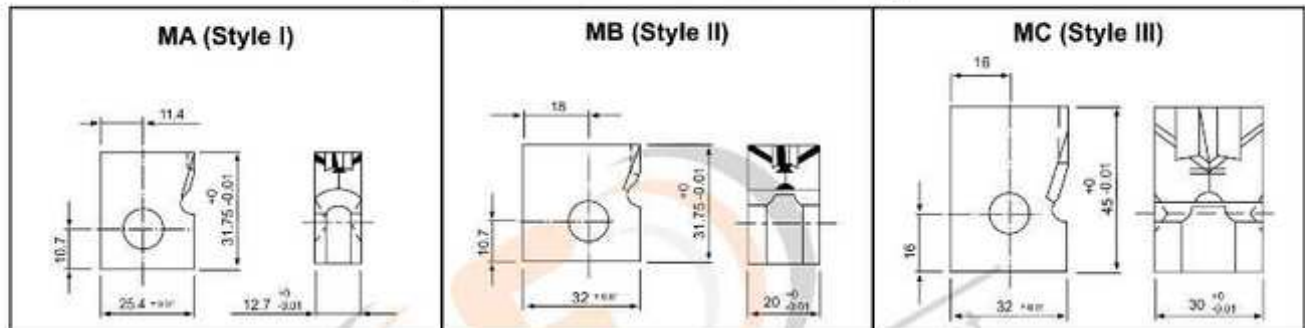


DRY WALL SCREWS				
SIZE	P	(D)		
		(MAX.)	(MIN.)	
# 6	17	3.60	3.40	2.70
# 7	16	4.00	3.75	3.00
# 8	15	4.30	4.05	3.20
# 10	12	4.95	4.70	3.70

DRY WALL SCREWS				
SIZE	P	(D)		
		(MAX.)	(MIN.)	
# 6	9	3.90	3.65	2.65
# 7	9	4.20	3.90	2.90
# 8	9	4.60	4.30	3.20
# 10	8	5.30	4.90	3.70



(DRILL POINT SCREW DIES)



NO 1 DRILL POINT DIES					
DP DIE CODE	DRILL DIA (DØ)	FLUTE LENGTH (L)	DRILL LENGTH (C)	MAX. MATERIAL THICKNESS	DP DIE STYLE
L1-22	2.2	2.7	1.7	1.0	STYLE I STYLE II
-23	2.3				
L1-27	2.7				
-28	2.8				
-29	2.9	3.4	2.4	1.5	
-30	3.0				
-31	3.1				
L1-32	3.2				
-33	3.3	4.2	3.2	2.1	
-34	3.4				
-35	3.5				
-36	3.6				
L1-37	3.7	5.0	4.0	2.8	
-38	3.8				
-39	3.9				
-40	4.0				
-41	4.1	6.0	5.0	3.6	
L1-43	4.3				
-45	4.5				
-47	4.7				
L1-49	4.9	7.2	6.2	4.5	
-51	5.1				
-53	5.3				
-55	5.5				
-57	5.7				

NO 2 DRILL POINT DIES					
DP DIE CODE	DRILL DIA (D0)	FLUTE LENGTH (L)	DRILL LENGTH (C)	MAX. MATERIAL THICKNESS	DP DIE STYLE
L2-22	2.2	3.2	2.2	1.5	STYLE I STYLE II
-23	2.3				
L2-27	2.7				
-28	2.8				
-29	2.9	4.0	3.0	2.1	
-30	3.0				
-31	3.1				
L2-32	3.2				
-33	3.3	4.9	3.9	2.8	
-34	3.4				
-35	3.5				
-36	3.6				
L2-37	3.7	5.8	4.8	3.6	
-38	3.8				
-39	3.9				
-40	4.0				
-41	4.1	6.9	5.9	4.5	
L2-43	4.3				
-45	4.5				
-47	4.7				
L2-49	4.9	8.0	7.0	5.3	
-51	5.1				
-53	5.3				
-55	5.5				
-57	5.7	8.0	7.0	5.3	

NO 3 DRILL POINT DIES					
DP DIE CODE	DRILL DIA. (D0)	FLUTE LENGTH (L)	DRILL LENGTH (C)	MAX MATERIAL THICKNESS	DP DIE STYLE
L3-27	2.7	4.7	3.7	2.8	STYLE I STYLE II
-28	2.8				
-29	2.9				
-30	3.0				
-31	3.1				
L3-32	3.2				
-33	3.3				
-34	3.4				
-35	3.5	5.7	4.7	3.6	
-36	3.6				
L3-37	3.7				
-38	3.8				
-39	3.9	6.7	5.7	4.5	
-40	4.0				
-41	4.1				
L3-43	4.3				
-45	4.5	7.7	6.7	5.3	
-47	4.7				
L3-49	4.9				
-51	5.1				
-53	5.3	9.0	8.0	6.3	
-55	5.5				
-57	5.7				

NO 4 DRILL POINT DIES					
DP DIE CODE	DRILL DIA (D0)	FLUTE LENGTH (L)	DRILL LENGTH (C)	MAX. MATERIAL THICKNESS	DP DIE STYLE
L4-43	4.3	8.7	7.7	6.3	STYLE II
-45	4.5				
-47	4.7				
L4-49	4.9				
-51	5.1	11.7	10.7	9.0	STYLE III
-53	5.3				
-55	5.5				
-57	5.7				

NO 5 DRILL POINT DIES					
DP DIE CODE	DRILL DIA (D0)	FLUTE LENGTH (L)	DRILL LENGTH (C)	MAX. MATERIAL THICKNESS	DP DIE STYLE
L5-49	4.9	14.7	13.7	12.0	STYLE III
-51	5.1				
-53	5.3				
-55	5.5				
-57	5.7				

NO 6 DRILL POINT DIES					
DP DIE CODE	DRILL DIA (D0)	FLUTE LENGTH (L)	DRILL LENGTH (C)	MAX. MATERIAL THICKNESS	DP DIE STYLE
L6-49	4.9	17.7	16.7	15.0	STYLE III
-51	5.1				
-53	5.3				
-55	5.5				
-57	5.7				

