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An **AMERICAN** Source For Premier
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FLAT HEAD MACHINE SCREWS – STEEL AND STAINLESS STEEL

The following Specification Sheet applies to all **Steel and Stainless Steel, Flat Head Machine Screws** in our **FM and FMP** series of screws.

Schematic	Head Style	Description	Applications/ Advantages
	Flat 82°	A countersunk head with a flat top surface and a cone-shaped bearing surface with a head angle of approximately 82°.	Used in applications where protrusion of the fastener above the mating surface is unacceptable. Use a protrusion gage when measuring head height.

DRIVE TYPES FOR MACHINE SCREWS		
Schematic	Drive Type	Uses
	Phillips	Most recommended drive type. Provides good control in driving. Always use a driver bit in good condition.
	Slotted	Accepts standard blade screwdrivers. Requires less downward pressure to drive slotted parts than it does those with cross-recessed openings. Use proper fitting blade to minimize slippage.

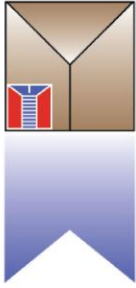
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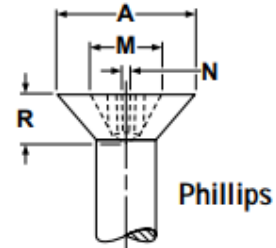
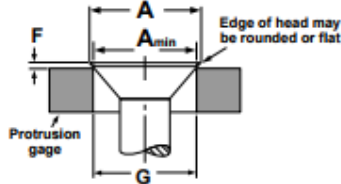
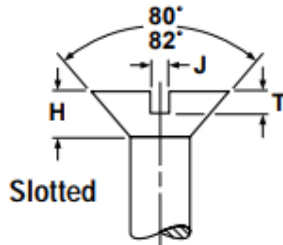
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FLAT HEADS FOR MACHINE SCREWS

ASME B18.6.3-1998

Nominal Size	A		H		J		T		M	R	N	F		G	Phillips Driver Size
	Head Dimensions				Slot Dimensions				Recess Dimensions			Protrusion Above Gaging Diameter		Gaging Diameter	
	Diameter		Height		Width		Depth		Diam.	Depth	Width	Max	Min		
	Max	Min	Max	Min	Max	Min	Max	Min	Ref	Ref	Ref				
0	.112	.096	.035	.026	.023	.016	.015	.010	.062	.035	.014	.026	.016	.078	0
1	.137	.120	.043	.033	.026	.019	.019	.012	.070	.043	.015	.028	.016	.101	0
2	.162	.144	.051	.040	.031	.023	.023	.015	.096	.055	.017	.029	.017	.124	1
3	.187	.167	.059	.047	.035	.027	.027	.017	.100	.060	.018	.031	.018	.148	1
4	.212	.191	.067	.055	.039	.031	.030	.020	.122	.081	.018	.032	.019	.172	1
5	.237	.215	.075	.062	.043	.035	.034	.022	.148	.074	.027	.034	.020	.196	2
6	.262	.238	.083	.069	.048	.039	.038	.024	.168	.094	.029	.036	.021	.220	2
8	.312	.285	.100	.084	.054	.045	.045	.029	.182	.110	.030	.039	.023	.267	2
10	.362	.333	.116	.098	.060	.050	.053	.034	.198	.124	.032	.042	.025	.313	2
12	.412	.380	.132	.112	.067	.056	.060	.039	.262	.144	.035	.045	.027	.362	3
1/4	.477	.442	.153	.131	.075	.064	.070	.046	.276	.160	.036	.050	.029	.424	3
5/16	.597	.556	.191	.165	.084	.072	.088	.058	.358	.205	.061	.057	.034	.539	4
3/8	.717	.670	.230	.200	.094	.081	.106	.070	.386	.234	.065	.065	.039	.653	4
1/2	.815	.765	.223	.186	.106	.091	.103	.065	.418	.265	.069	.081	.049	.739	4

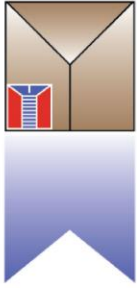
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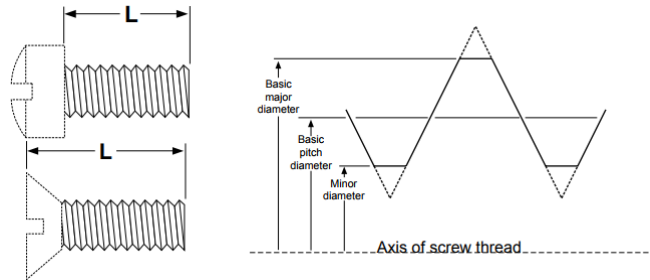
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THREAD DIMENSIONS



EXTERNAL THREADS FOR MACHINE SCREWS AND SEMS								ASME B 1.1	
Nominal Size & Threads per Inch	Series Designation	Allowance	Major Diameter		Pitch Diameter			Stress Area, in ²	Tensile Strength,* lb., min.
			Max	Min	Max	Min	Tolerance		
0-80 0.060	UNF	.0005	.0595	.0563	.0514	.0496	.0018	-	-
1-64 0.073	UNC	.0006	.0724	.0686	.0623	.0603	.0020	-	-
2-56 0.086	UNC	.0006	.0854	.0813	.0738	.0717	.0021	-	-
3-48 0.099	UNC	.0007	.0983	.0938	.0848	.0825	.0023	-	-
4-40 0.112	UNC	.0008	.1112	.1061	.0950	.0925	.0025	0.00604	360
5-40 0.125	UNC	.0008	.1242	.1191	.1080	.1054	.0026	0.00796	470
6-32 0.138	UNC	.0008	.1372	.1312	.1169	.1141	.0028	0.00909	550
8-32 0.164	UNC	.0009	.1631	.1571	.1428	.1399	.0029	0.0140	850
10-24 0.190	UNC	.0010	.1890	.1818	.1619	.1586	.0033	0.0175	1050
10-32 0.190	UNF	.0009	.1891	.1831	.1688	.1658	.0030	0.0200	1200
12-24 0.216	UNC	.0010	.2150	.2078	.1879	.1845	.0034	0.0242	1450
1/4-20 0.250	UNC	.0011	.2489	.2408	.2164	.2127	.0037	0.0318	1900
1/4-28 0.250	UNF	.0010	.2490	.2425	.2258	.2225	.0033	0.0364	2200
5/16-18 0.312	UNC	.0012	.3113	.3026	.2752	.2712	.0040	0.0524	3150
3/8-16 0.375	UNC	.0013	.3737	.3643	.3331	.3287	.0044	0.0775	4650
1/2-13 0.500	UNC	.0015	.4985	.4876	.4485	.4435	.0050	0.1419	8500

Tolerance on Length L	Nominal Screw Size	Nominal Screw Length			
		Up to 1/2 in., incl.	Over 1/2 to 1 in., incl.	Over 1 to 2 in., incl.	Over 2 in.
	0 thru 12		-0.02	-0.03	-0.06
1/4 thru 3/4		-0.03	-0.03	-0.06	-0.09

*Tensile strength values are based on 60,000 psi. and apply to carbon steel screws and SEMS only. Hex and Hex Washer head machine screws of sufficient length may be wedge tensile tested. Other head styles may be axial tensile tested.

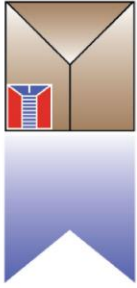
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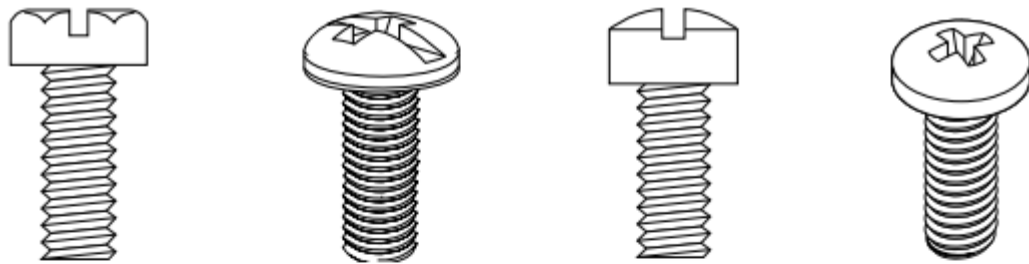
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STEEL & STAINLESS MECHANICAL & PERFORMANCE REQUIREMENTS MACHINE SCREWS



Description	A straight shank fastener with external threads designed to go through a hole or nut that is pre-tapped to form a mating thread for the screw.
Applications/ Advantages	Machine screws form a fastening superior in strength to spaced thread screws. <i>Zinc yellow screws are popular in electronics applications.</i> <i>Stainless steel machine screws are used in applications which require general atmospheric corrosion resistance, in food processing machinery and refrigeration equipment. Stainless is also superior to steel in withstanding some elevation in application operating temperature while maintaining its strength.</i>
Material	<i>Steel: AISI 1006 - 1022 or equivalent steel.</i> <i>Stainless: SAE 18-8 stainless steel, passivated.</i>
Hardness	<i>Steel: Rockwell B70 - B100.</i> <i>Stainless: Rockwell B85 - B95 (approximate)*</i>
Tensile Strength	<i>Steel: 60,000 psi. minimum.</i> <i>Stainless: 80,000 psi. minimum (100,000 psi after cold working)*</i> Machine screws which have a nominal diameter smaller than #4 are not subject to tensile testing. No. 4 and No. 5 machine screws which are shorter than 1/2" are not subject to tensile testing. Machine screws of diameters No. 6 to 1/2" inclusive, which are shorter than either 1/2" or 3D (where D is the nominal screw size in inches) are not subject to tensile testing. Such machine screws of a size to be tested shall meet the tensile load requirements given on page 54.
Plating	See Appendix-A for information on the plating of steel machine screws
*Hardness and tensile strength standards are offered as guides only for stainless machine screws. There is currently no national standard for these performance requirements for stainless machine screws.	

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