MACHINE SCREWS

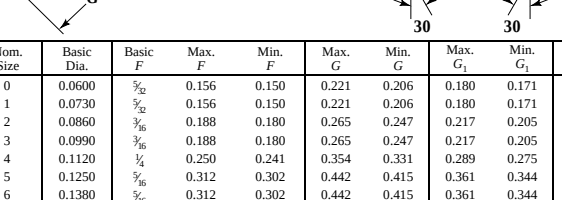
American National Standard Machine Screws and Machine Screw Nuts.—This Standard ANSI B18.6.3 covers both slotted and recessed head machine screws. Dimensions of various types of slotted machine screws, machine screw nuts, and header points are given in Tables 1 through 12. The Standard also covers flat trim head, oval trim head and drilled fillister head machine screws and gives cross recess dimensions and gaging dimensions for all types of machine screw heads. Information on metric machine screws B18.6.7M is given beginning on page 1577.

Threads: Except for sizes 0000, 000, and 00, machine screw threads may be either Unified Coarse (UNC) and Fine thread (UNF) Class 2A (see *American Standard for Unified Screw Threads* starting on page 1712) or UNRC and UNRF Series, at option of manufacturer. Thread dimensions for sizes 0000, 000, and 00 are given in Table 7 on page 1573.

Threads for hexagon machine screw nuts may be either UNC or UNF, Class 2B, and for square machine screw nuts are UNC Class 2B.

Length of thread: Machine screws of sizes No. 5 and smaller with nominal lengths equal to 3 diameters and shorter have full form threads extending to within 1 pitch (thread) of the bearing surface of the head, or closer, if practicable. Nominal lengths greater than 3 diameters, up to and including $1\frac{1}{8}$ inch, have full form threads extending to within two pitches (threads) of the bearing surface of the head, or closer, if practicable. Unless otherwise specified, screws of longer nominal length have a minimum length of full form thread of 1.00 inch.Machine screws of sizes No. 6 and larger with nominal length equal to 3 diameters and shorter have full form threads extending to within 1 pitch (thread) of the bearing surface of the head, or closer, if practicable. Nominal lengths greater than 3 diameters, up to and including 2 inches, have full form threads extending to within 2 pitches (threads) of the bearing surface of the head, or closer, if practicable. Screws of longer nominal length, unless otherwise specified, have a minimum length of full form thread of 1.50 inches.

Table 1. Square and Hexagon Machine Screw Nuts *ANSI B18.6.3-1972 (R1991)*



Nom. Size	Basic Dia.	Basic F	Max. F	Min. F	Max. G	Min. G	Max. G_1	Min. G_1	Max. H	Min. H
0	0.0600	5/32	0.156	0.150	0.221	0.206	0.180	0.171	0.050	0.043
1	0.0730	5/32	0.156	0.150	0.221	0.206	0.180	0.171	0.050	0.043
2	0.0860	3/16	0.188	0.180	0.265	0.247	0.217	0.205	0.066	0.057
3	0.0990	3/16	0.188	0.180	0.265	0.247	0.217	0.205	0.066	0.057
4	0.1120	1/4	0.250	0.241	0.354	0.331	0.289	0.275	0.098	0.087
5	0.1250	5/16	0.312	0.302	0.442	0.415	0.361	0.344	0.114	0.102
6	0.1380	5/16	0.312	0.302	0.442	0.415	0.361	0.344	0.114	0.102
8	0.1640	11/32	0.344	0.332	0.486	0.456	0.397	0.378	0.130	0.117
10	0.1900	3/8	0.375	0.362	0.530	0.497	0.433	0.413	0.130	0.117
12	0.2160	7/16	0.438	0.423	0.619	0.581	0.505	0.482	0.161	0.148
1/4	0.2500	7/16	0.438	0.423	0.619	0.581	0.505	0.482	0.193	0.178
5/16	0.3125	9/16	0.562	0.545	0.795	0.748	0.650	0.621	0.225	0.208
3/8	0.3750	5/8	0.625	0.607	0.884	0.833	0.722	0.692	0.257	0.239

All dimensions in inches. Hexagon machine screw nuts have tops flat and chamfered. Diameter of top circle should be the maximum width across flats within a tolerance of minus 15 per cent. Bottoms are flat but may be chamfered if so specified. Square machine screw nuts have tops and bottoms flat without chamfer.

Diameter of body: The diameter of machine screw bodies is not less than Class 2A thread minimum pitch diameter nor greater than the basic major diameter of the thread. Cross-recessed trim head machine screws not threaded to the head have an 0.062 in. minimum length shoulder under the head with diameter limits as specified in the dimensional tables in the standard.

Designation: Machine screws are designated by the following data in the sequence shown: Nominal size (number, fraction, or decimal equivalent); threads per inch; nominal length (fraction or decimal equivalent); product name, including head type and driving provision; header point, if desired; material; and protective finish, if required. For example:

$\frac{1}{4}$ – 20 × 1$\frac{1}{4}$ Slotted Pan Head Machine Screw, Steel, Zinc Plated

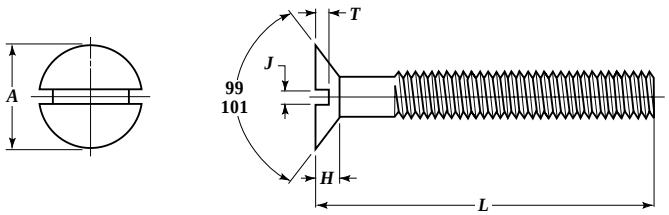
6 – 32 × $\frac{3}{4}$ Type IA Cross Recessed Fillister Head Machine Screw, Brass

Machine screw nuts are designated by the following data in the sequence shown: Nominal size (number, fraction, or decimal equivalent); threads per inch; product name; material; and protective finish, if required. For example:

10 – 24 Hexagon Machine Screw Nut, Steel, Zinc Plated

0.138 – 32 Square Machine Screw Nut, Brass

Table 2. American National Standard Slotted 100-Degree Flat Countersunk Head Machine Screws *ANSI B18.6.3-1972 (R1977)*



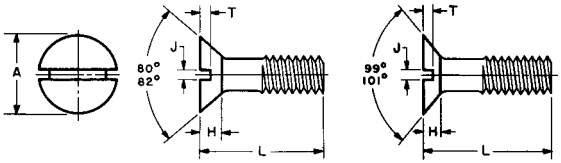
Nominal Size[a] or Basic Screw Dia.		Head Dia., *A*		Head Height, *H*	Slot Width, *J*		Slot Depth, *T*	
		Max., Edge Sharp	Min., Edge Rounded or Flat	Ref.	Max.	Min.	Max.	Min.
0000	0.0210	0.043	0.037	0.009	0.008	0.005	0.008	0.004
000	0.0340	0.064	0.058	0.014	0.012	0.008	0.011	0.007
00	0.0470	0.093	0.085	0.020	0.017	0.010	0.013	0.008
0	0.0600	0.119	0.096	0.026	0.023	0.016	0.013	0.008
1	0.0730	0.146	0.120	0.031	0.026	0.019	0.016	0.010
2	0.0860	0.172	0.143	0.037	0.031	0.023	0.019	0.012
3	0.0990	0.199	0.167	0.043	0.035	0.027	0.022	0.014
4	0.1120	0.225	0.191	0.049	0.039	0.031	0.024	0.017
6	0.1380	0.279	0.238	0.060	0.048	0.039	0.030	0.022
8	0.1640	0.332	0.285	0.072	0.054	0.045	0.036	0.027
10	0.1900	0.385	0.333	0.083	0.060	0.050	0.042	0.031
$\frac{1}{4}$	0.2500	0.507	0.442	0.110	0.075	0.064	0.055	0.042
$\frac{5}{16}$	0.3125	0.635	0.556	0.138	0.084	0.072	0.069	0.053
$\frac{3}{8}$	0.3750	0.762	0.670	0.165	0.094	0.081	0.083	0.065

[a] When specifying nominal size in decimals, zeros preceding the decimal point and in the fourth decimal place are omitted.

All dimensions are in inches.

Table 3. American National Standard Slotted Flat Countersunk Head and Close Tolerance 100-Degree Flat Countersunk Head Machine Screws

ANSI B18.6.3-1972 (R1991)



SLOTTED FLAT COUNTERSUNK HEAD TYPE

Nominal Size[a] or Basic Screw Dia.		Max., L^b	Head Dia., A		Head Height, H	Slot Width, J		Slot Depth, T	
			Max., Edge Sharp	Min., Edge[c]	Ref.	Max.	Min.	Max.	Min.
0000	0.0210	....	0.043	0.037	0.011	0.008	0.004	0.007	0.003
000	0.0340	....	0.064	0.058	0.016	0.011	0.007	0.009	0.005
00	0.0470	....	0.093	0.085	0.028	0.017	0.010	0.014	0.009
0	0.0600	1/8	0.119	0.099	0.035	0.023	0.016	0.015	0.010
1	0.0730	1/8	0.146	0.123	0.043	0.026	0.019	0.019	0.012
2	0.0860	1/8	0.172	0.147	0.051	0.031	0.023	0.023	0.015
3	0.0990	1/8	0.199	0.171	0.059	0.035	0.027	0.027	0.017
4	0.1120	3/16	0.225	0.195	0.067	0.039	0.031	0.030	0.020
5	0.1250	3/16	0.252	0.220	0.075	0.043	0.035	0.034	0.022
6	0.1380	3/16	0.279	0.244	0.083	0.048	0.039	0.038	0.024
8	0.1640	1/4	0.332	0.292	0.100	0.054	0.045	0.045	.029
10	0.1900	5/16	0.385	0.340	0.116	0.060	0.050	0.053	0.034
12	0.2160	3/8	0.438	0.389	0.132	0.067	0.056	0.060	0.039
1/4	0.2500	7/16	0.507	0.452	0.153	0.075	0.064	0.070	0.046
5/16	0.3125	1/2	0.635	0.568	0.191	0.084	0.072	0.088	0.058
3/8	0.3750	9/16	0.762	0.685	0.230	0.094	0.081	0.106	0.070
7/16	0.4375	5/8	0.812	0.723	0.223	0.094	0.081	0.103	.066
1/2	0.5000	3/4	0.875	0.775	0.223	0.106	0.091	0.103	0.065
9/16	0.5625	…	1.000	0.889	0.260	0.118	0.102	0.120	0.077
5/8	0.6250	…	1.125	1.002	0.298	0.133	0.116	0.137	0.088
3/4	0.7500	…	1.375	1.230	0.372	0.149	0.131	0.171	0.111

[a] When specifying nominal size in decimals, zeros preceding the decimal point and in the fourth decimal place are omitted.

[b] These lengths or shorter are undercut.

[c] May be rounded or flat.

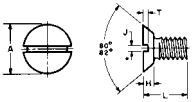
CLOSE TOLERANCE 100-DEGREE FLAT COUNTERSUNK HEAD TYPE

Nominal Size[a] or Basic Screw Dia.		Head Diameter, A		Head Height, H	Slot Width, J		Slot Depth, T	
		Max., Edge Sharp	Min., Edge[c]	Ref.	Max.	Min.	Max.	Min.
4	0.1120	0.225	0.191	0.049	0.039	0.031	0.024	0.017
6	0.1380	0.279	0.238	0.060	0.048	0.039	0.030	0.022
8	0.1640	0.332	0.285	0.072	0.054	0.045	0.036	0.027
10	0.1900	0.385	0.333	0.083	0.060	0.050	0.042	0.031
1/4	0.2500	0.507	0.442	0.110	0.075	0.064	0.055	0.042
5/16	0.3125	0.635	0.556	0.138	0.084	0.072	0.069	0.053
3/8	0.3750	0.762	0.670	0.165	0.094	0.081	0.083	0.065
7/16	0.4375	0.890	0.783	0.193	0.094	0.081	0.097	0.076
1/2	0.5000	1.017	0.897	0.221	0.106	0.091	0.111	0.088
9/16	0.5625	1.145	1.011	0.249	0.118	0.102	0.125	0.099
5/8	0.6250	1.272	1.124	0.276	0.133	0.116	0.139	0.111

All dimensions are in inches.

Table 4. American National Standard Slotted Undercut Flat Countersunk Head and Plain and Slotted Hex Washer Head Machine Screws *ANSI B18.6.3-1972 (R1991)*

SLOTTED UNDERCUT FLAT COUNTERSUNK HEAD TYPE

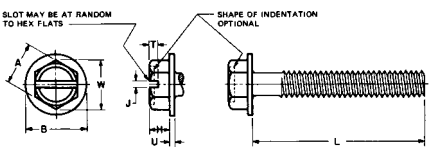


Nominal Size[a] or Basic Screw Dia.		Max., *L*[b]	Head Dia., *A*		Head Height, *H*		Slot Width, *J*		Slot Depth, *T*	
			Max., Edge Sharp	Min., Edge Rnded. or Flat	Max.	Min.	Max.	Min.	Max.	Min.
0	0.0600	1/8	0.119	0.099	0.025	0.018	0.023	0.016	0.011	0.007
1	0.0730	1/8	0.146	0.123	0.031	0.023	0.026	0.019	0.014	0.009
2	0.0860	1/8	0.172	0.147	0.036	0.028	0.031	0.023	0.016	0.011
3	0.0990	1/8	0.199	0.171	0.042	0.033	0.035	0.027	0.019	0.012
4	0.1120	3/16	0.225	0.195	0.047	0.038	0.039	0.031	0.022	0.014
5	0.1250	3/16	0.252	0.220	0.053	0.043	0.043	0.035	0.024	0.016
6	0.1380	3/16	0.279	0.244	0.059	0.048	0.048	0.039	0.027	0.017
8	0.1640	1/4	0.332	0.292	0.070	0.058	0.054	0.045	0.032	0.021
10	0.1900	5/16	0.385	0.340	0.081	0.068	0.060	0.050	0.037	0.024
12	0.2160	3/8	0.438	0.389	0.092	0.078	0.067	0.056	0.043	0.028
1/4	0.2500	7/16	0.507	0.452	0.107	0.092	0.075	0.064	0.050	0.032
5/16	0.3125	1/2	0.635	0.568	0.134	0.116	0.084	0.072	0.062	0.041
3/8	0.3750	9/16	0.762	0.685	0.161	0.140	0.094	0.081	0.075	0.049
7/16	0.4375	5/8	0.812	0.723	0.156	0.133	0.094	0.081	0.072	0.045
1/2	0.5000	3/4	0.875	0.775	0.156	0.130	0.106	0.091	0.072	0.046

[a] When specifying nominal size in decimals, zeros preceding the decimal point and in the fourth decimal place are omitted.

[b] These lengths or shorter are undercut.

PLAIN AND SLOTTED HEX WASHER HEAD TYPES



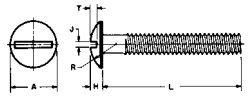
Nominal Size[a] or Basic Screw Dia.		Width Across Flats, *A*		Width Across-Corn., *W*	Head Height, *H*		Washer Dia., *B*		Washer Thick., *U*		Slot[a] Width, *J*		Slot[a] Depth, *T*	
		Max.	Min.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
2	0.0860	0.125	0.120	0.134	0.050	0.040	0.166	0.154	0.016	0.010	....	....	....	....
3	0.0990	0.125	0.120	0.134	0.055	0.044	0.177	0.163	0.016	0.010	....	....	....	....
4	0.1120	0.188	0.181	0.202	0.060	0.049	0.243	0.225	0.019	0.011	0.039	0.031	0.042	0.025
5	0.1250	0.188	0.181	0.202	0.070	0.058	0.260	0.240	0.025	0.015	0.043	0.035	0.049	0.030
6	0.1380	0.250	0.244	0.272	0.093	0.080	0.328	0.302	0.025	0.015	0.048	0.039	0.053	0.033
8	0.1640	0.250	0.244	0.272	0.110	0.096	0.348	0.322	0.031	0.019	0.054	0.045	0.074	0.052
10	0.1900	0.312	0.305	0.340	0.120	0.105	0.414	0.384	0.031	0.019	0.060	0.050	0.080	0.057
12	0.2160	0.312	0.305	0.340	0.155	0.139	0.432	0.398	0.039	0.022	0.067	0.056	0.103	0.077
1/4	0.2500	0.375	0.367	0.409	0.190	0.172	0.520	0.480	0.050	0.030	0.075	0.064	0.111	0.083
5/16	0.3125	0.500	0.489	0.545	0.230	0.208	0.676	0.624	0.055	0.035	0.084	0.072	0.134	0.100
3/8	0.3750	0.562	0.551	0.614	0.295	0.270	0.780	0.720	0.063	0.037	0.094	0.081	0.168	0.131

[a] Unless otherwise specified, hexagon washer head machine screws are not slotted.

All dimensions are in inches.

Table 5. American National Standard Slotted Truss Head and Plain and Slotted Hexagon Head Machine Screws *ANSI B18.6.3-1972 (R1991)*

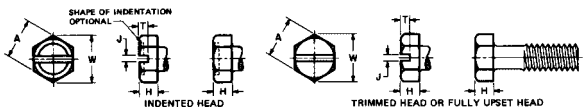
SLOTTED TRUSS HEAD TYPE



Nominal Size[a] or Basic Screw Dia.		Head Dia., *A*		Head Height, *H*		Head Radius, *R*	Slot Width, *J*		Slot Depth, *T*	
		Max.	Min.	Max.	Min.	Max.	Max.	Min.	Max.	Min.
0000	0.0210	0.049	0.043	0.014	0.010	0.032	0.009	0.005	0.009	0.005
000	0.0340	0.077	0.071	0.022	0.018	0.051	0.013	0.009	0.013	0.009
00	0.0470	0.106	0.098	0.030	0.024	0.070	0.017	0.010	0.018	0.012
0	0.0600	0.131	0.119	0.037	0.029	0.087	0.023	0.016	0.022	0.014
1	0.0730	0.164	0.149	0.045	0.037	0.107	0.026	0.019	0.027	0.018
2	0.0860	0.194	0.180	0.053	0.044	0.129	0.031	0.023	0.031	0.022
3	0.0990	0.226	0.211	0.061	0.051	0.151	0.035	0.027	0.036	0.026
4	0.1120	0.257	0.241	0.069	0.059	0.169	0.039	0.031	0.040	0.030
5	0.1250	0.289	0.272	0.078	0.066	0.191	0.043	0.035	0.045	0.034
6	0.1380	0.321	0.303	0.086	0.074	0.211	0.048	0.039	0.050	0.037
8	0.1640	0.384	0.364	0.102	0.088	0.254	0.054	0.045	0.058	0.045
10	0.1900	0.448	0.425	0.118	0.103	0.283	0.060	0.050	0.068	0.053
12	0.2160	0.511	0.487	0.134	0.118	0.336	0.067	0.056	0.077	0.061
1/4	0.2500	0.573	0.546	0.150	0.133	0.375	0.075	0.064	0.087	0.070
5/16	0.3125	0.698	0.666	0.183	0.162	0.457	0.084	0.072	0.106	0.085
3/8	0.3750	0.823	0.787	0.215	0.191	0.538	0.094	0.081	0.124	0.100
7/16	0.4375	0.948	0.907	0.248	0.221	0.619	0.094	0.081	0.142	0.116
1/2	0.5000	1.073	1.028	0.280	0.250	0.701	0.106	0.091	0.161	0.131
9/16	0.5625	1.198	1.149	0.312	0.279	0.783	0.118	0.102	0.179	0.146
5/8	0.6250	1.323	1.269	0.345	0.309	0.863	0.133	0.116	0.196	0.162
3/4	0.7500	1.573	1.511	0.410	0.368	1.024	0.149	0.131	0.234	0.182

[a] Where specifying nominal size in decimals, zeros preceding decimal points and in the fourth decimal place are omitted.

PLAIN AND SLOTTED HEXAGON HEAD TYPES

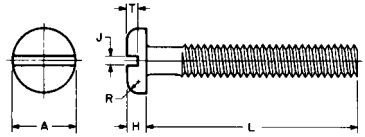


Nominal Size[a] or Basic Screw Dia.		Regular Head			Large Head			Head Height, *H*		Slot[a] Width, *J*		Slot[a] Depth, *T*	
		Width Across Flats, *A*		Across Corn., *W*	Width Across Flats, *A*		Across Corn., *W*						
		Max.	Min.	Min.	Max.	Min.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	.0730	.125	.120	.134	....	....	....	.044	.036	....	....	....	…
2	0.0860	.125	.120	.134	....	....	....	.050	.040	....	....	....	…
3	0.0990	.188	.181	.202	....	....	....	.055	.044	....	....	....	…
4	0.1120	.188	.181	.202	.219	.213	.238	.060	.049	.039	.031	.036	.02
5	0.1250	.188	.181	.202	.250	.244	.272	.070	.058	.043	.035	.042	.03
6	0.1380	.250	.244	.272	....	....	....	.093	.080	.048	.039	.046	.03
8	0.1640	.250	.244	.272	.312	.305	.340	.110	.096	.054	.045	.066	.05
10	0.1900	.312	.305	.340	....	....	....	.120	.105	.060	.050	.072	.057
12	0.2160	.312	.305	.340	.375	.367	.409	.155	.139	.067	.056	.093	.07
1/4	0.2500	.375	.367	.409	.438	.428	.477	.190	.172	.075	.064	.101	.08
5/16	0.3125	.500	.489	.545	....	....	....	.230	.208	.084	.072	.122	.10
3/8	0.3750	.562	.551	.614	....	....	....	.295	.270	.094	.081	.156	.13

[a] Unless otherwise specified, hexagon head machine screws are not slotted.

All dimensions are in inches.

Table 6. American National Standard Slotted Pan Head Machine Screws
ANSI B18.6.3-1972 (R1991)



Nominal Size[a] or Basic Screw Dia.		Head Dia., *A*		Head Height, *H*		Head Radius, *R*	Slot Width, *J*		Slot Depth, *T*	
		Max.	Min.	Max.	Min.	Max.	Max.	Min.	Max.	Min.
0000	0.0210	.042	.036	.016	.010	.007	.008	.004	.008	.004
000	0.0340	.066	.060	.023	.017	.010	.012	.008	.012	.008
00	0.0470	.090	.082	.032	.025	.015	.017	.010	.016	.010
0	0.0600	.116	.104	.039	.031	.020	.023	.016	.022	.014
1	0.0730	.142	.130	.046	.038	.025	.026	.019	.027	.018
2	0.0860	.167	.155	.053	.045	.035	.031	.023	.031	.022
3	0.0990	.193	.180	.060	.051	.037	.035	.027	.036	.026
4	0.1120	.219	.205	.068	.058	.042	.039	.031	.040	.030
5	0.1250	.245	.231	.075	.065	.044	.043	.035	.045	.034
6	0.1380	.270	.256	.082	.072	.046	.048	.039	.050	.037
8	0.1640	.322	.306	.096	.085	.052	.054	.045	.058	.045
10	0.1900	.373	.357	.110	.099	.061	.060	.050	.068	.053
12	0.2160	.425	.407	.125	.112	.078	.067	.056	.077	.061
1/4	0.2500	.492	.473	.144	.130	.087	.075	.064	.087	.070
5/16	0.3125	.615	.594	.178	.162	.099	.084	.072	.106	.085
3/8	0.3750	.740	.716	.212	.195	.143	.094	.081	.124	.100
7/16	0.4375	.863	.837	.247	.228	.153	.094	.081	.142	.116
1/2	0.5000	.987	.958	.281	.260	.175	.106	.091	.161	.131
9/16	0.5625	1.041	1.000	.315	.293	.197	.118	.102	.179	.146
5/8	0.6250	1.172	1.125	.350	.325	.219	.133	.116	.197	.162
3/4	0.7500	1.435	1.375	.419	.390	.263	.149	.131	.234	.192

[a] Where specifying nominal size in decimals, zeros preceding decimal and in the fourth decimal place are omitted.

All dimensions are in inches.

Table 7. Nos. 0000, 000 and 00 Threads *ANSI B18.6.3-1972 (R1991) Appendix*

Nominal Size[a] and Threads Per Inch	Series Designat.	External[b]						Internal[c]				
		Class	Major Diameter		Pitch Diameter			Minor Dia.	Class	Pitch Diameter			Major Dia.
			Max.	Min.	Max.	Min.	Tol.			Min.	Max.	Tol.	Min.
0000-160 or 0.0210-160	NS	2	.0210	.0195	.0169	.0158	.0011	.0128	2	.0169	.0181	.0012	.0210
000-120 or 0.0340-120	NS	2	.0340	.0325	.0286	0.272	.0014	.0232	2	.0286	.0300	.0014	.034
00-90 or 0.0470-90	NS	2	.0470	.0450	.0398	.0382	.0016	.0326	2	.0398	.0414	.0016	.047
00-96 or 0.0470-96	NS	2	.0470	.0450	.0402	.0386	.0016	.0334	2	.0402	.0418	.0016	.047

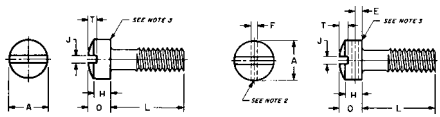
[a] Where specifying nominal size in decimals, zeros preceding decimal and in the fourth decimal place are omitted.

[b] There is no allowance provided on the external threads.

[c] The minor diameter limits for internal threads are not specified, they being determined by the amount of thread engagement necessary to satisfy the strength requirements and tapping performance in the intended application.

All dimensions are in inches.

Table 8. American National Standard Slotted Fillister and Slotted Drilled Fillister Head Machine Screws *ANSI B18.6.3-1972 (R1991)*



SLOTTED FILLISTER HEAD TYPE

Nominal Size[1] or Basic Screw Dia.		Head Dia., *A*		Head Side Height, *H*		Total Head Height, *O*		Slot Width, *J*		Slot Depth, *T*	
		Max.	Min.	Max.	Min.	Max.	Min.	Max	Min.	Max.	Min.
0000	0.0210	.038	.032	.019	.011	.025	.15	.008	.004	.012	.006
000	0.0340	.059	.053	.029	.021	.035	.027	.012	.006	.017	.011
00	0.0470	.082	.072	.037	.028	.047	.039	.017	.010	.022	.015
0	0.0600	.096	.083	.043	.038	.055	.047	.023	.016	.025	.015
1	0.0730	.118	.104	.053	.045	.066	.058	.026	.019	.031	.020
2	0.0860	.140	.124	.062	.053	.083	.066	.031	.023	.037	.025
3	0.0990	.161	.145	.070	.061	.095	.077	.035	.027	.043	.030
4	0.1120	.183	.166	.079	.069	.107	.088	.039	.031	.048	.035
5	0.1250	.205	.187	.088	.078	.120	.100	.043	.035	.054	.040
6	0.1380	.226	.208	.096	.086	.132	.111	.048	.039	.060	.045
8	0.1640	.270	.250	.113	.102	.156	.133	.054	.045	.071	.054
10	0.1900	.313	.292	.130	.118	.180	.156	.060	.050	.083	.064
12	0.2160	.357	.334	.148	.134	.205	.178	.067	.056	.094	.074
1/4	0.2500	.414	.389	.170	.155	.237	.207	.075	.064	.109	.087
5/16	0.3125	.518	.490	.211	.194	.295	.262	.084	.072	.137	.110
3/8	0.3750	.622	.590	.253	.233	.355	.315	.094	.081	.164	.133
7/16	0.4375	.625	.589	.265	.242	.368	.321	.094	.081	.170	.135
1/2	0.5000	.750	.710	.297	.273	.412	.362	.106	.091	.190	.151
9/16	0.5625	.812	.768	.336	.308	.466	.410	.118	.102	.214	.172
5/8	0.6250	.875	.827	.375	.345	.521	.461	.133	.116	.240	.193
3/4	0.7500	1.000	.945	.441	.406	.612	.542	.149	.131	.281	.226

SLOTTED DRILLED FILLISTER HEAD TYPE

Nominal Size[1] or Basic Screw Dia.		Head Dia., *A*		Head Side Height, *H*		Total Head Height, *O*		Slot Width, *J*		Slot Depth, *T*		Drilled Hole Locat., *E*	Drilled Hole. Dia., *F*
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Basic	Basic
2	0.0860	.140	.124	.062	.055	.083	.070	.031	.023	.030	.022	.026	.031
3	0.0990	.161	.145	.070	.064	.095	.082	.035	.027	.034	.026	.030	.037
4	0.1120	.183	.166	.079	.072	.107	.094	.039	.031	.038	.030	.035	.037
5	0.1250	.205	.187	.088	.081	.120	.106	.043	.035	.042	.033	.038	.046
6	0.1380	.226	.208	.096	.089	.132	.118	.048	.039	.045	.035	.043	.046
8	0.1640	.270	.250	.113	.106	.156	.141	.054	.045	.065	.054	.043	.046
10	0.1900	.313	.292	.130	.123	.180	.165	.060	.050	.075	.064	.043	.046
12	0.2160	.357	.334	.148	.139	.205	.188	.067	.056	.087	.074	.053	.046
1/4	0.2500	.414	.389	.170	.161	.237	.219	.075	.064	.102	.087	.062	.062
5/16	0.3125	.518	.490	.211	.201	.295	.276	.084	.072	.130	.110	.078	.070
3/8	0.3750	.622	.590	.253	.242	.355	.333	.094	.081	.154	.134	.094	.070

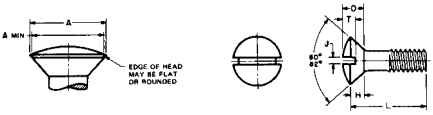
All dimensions are in inches.

[1]Where specifying nominal size in decimals, zeros preceding decimal points and in the fourth decimal place are omitted.

[2]Drilled hole shall be approximately perpendicular to the axis of slot and may be permitted to break through bottom of the slot. Edges of the hole shall be free from burrs.

[3]A slight rounding of the edges at periphery of head is permissible provided the diameter of the bearing circle is equal to no less than 90 per cent of the specified minimum head diameter.

Table 9. American National Standard Slotted Oval Countersunk Head Machine Screws *ANSI B18.6.3-1972 (R1991)*



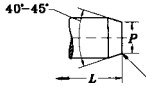
Nominal Size[a] or Basic Screw Dia.		Max L[b]	Head Dia., A		Head Side Height, H,	Total Head Height, O		Slot Width, J		Slot Depth, T	
			Max., Edge Sharp	Min., Edge Rnded. or Flat	Ref.	Max.	Min.	Max.	Min.	Max.	Min.
00	0.0470	…	.093	.085	.028	.042	.034	.017	.010	.023	.016
0	0.0600	1/8	.119	.099	.035	.056	.041	.023	.016	.030	.025
1	0.0730	1/8	.146	.123	.043	.068	.052	.026	.019	.038	.031
2	0.0860	1/8	.172	.147	.051	.080	.063	.031	.023	.045	.037
3	0.0990	1/8	.199	.171	.059	.092	.073	.035	.027	.052	.043
4	0.1120	3/16	.225	.195	.067	.104	.084	.039	.031	.059	.049
5	0.1250	3/16	.252	.220	.075	.116	.095	.043	.035	.067	.055
6	0.1380	3/16	.279	.244	.083	.128	.105	.048	.039	.074	.060
8	0.1640	1/4	.332	.292	.100	.152	.126	.054	.045	.088	.072
10	0.1900	5/16	.385	.340	.116	.176	.148	.060	.050	.103	.084
12	0.2160	3/8	.438	.389	.132	.200	.169	.067	.056	.117	.096
1/4	0.2500	7/16	.507	.452	.153	.232	.197	.075	.064	.136	.112
5/16	0.3125	1/2	.635	.568	.191	.290	.249	.084	.072	.171	.141
3/8	0.3750	9/16	.762	.685	.230	.347	.300	.094	.081	.206	.170
7/16	0.4375	5/8	.812	.723	.223	.345	.295	.094	.081	.210	.174
1/2	0.5000	3/4	.875	.775	.223	.354	.299	.106	.091	.216	.176
9/16	0.5625	…	1.000	.889	.260	.410	.350	.118	.102	.250	.207
5/8	0.6250	…	1.125	1.002	.298	.467	.399	.133	.116	.285	.235
3/4	0.7500	…	1.375	1.230	.372	.578	.497	.149	.131	.353	.293

[a] When specifying nominal size in decimals, zeros preceding decimal points and in the fourth decimal place are omitted.

[b] These lengths or shorter are undercut.

All dimensions are in inches.

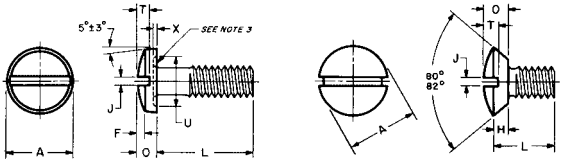
Table 10. American National Standard Header Points for Machine Screws before Threading *ANSI B18.6.3-1972 (R1991)*



Nom. Size.	Threads per Inch	Max. P	Min. P	Max. L
2	56	0.057	0.050	1/2
	64	0.060	0.053	1/2
4	40	0.074	0.065	1/2
	48	0.079	0.070	1/2
5	40	0.086	0.076	1/2
	44	0.088	0.079	1/2
6	32	0.090	0.080	3/4
	40	0.098	0.087	3/4
8	32	0.114	0.102	1
	36	0.118	0.106	1
10	24	0.125	0.112	1 1/4
	32	0.138	0.124	1 1/4
12	24	0.149	0.134	1 3/8
	28	0.156	0.141	1 3/8
1/4	20	0.170	0.153	1 1/2
	28	0.187	0.169	1 1/2
5/16	18	0.221	0.200	1 1/2
	24	0.237	0.215	1 1/2
3/8	16	0.270	0.244	1 1/2
	24	0.295	0.267	1 1/2
7/16	14	0.316	0.287	1 1/2
	20	0.342	0.310	1 1/2
1/2	13	0.367	0.333	1 1/2
	20	0.399	0.362	1 1/2

All dimensions in inches. Edges of point may be rounded and end of point need not be flat nor perpendicular to shank. Machine screws normally have plain sheared ends but when specified may have header points, as shown above.

Table 11. American National Standard Slotted Binding Head and Slotted Undercut Oval Countersunk Head Machine Screws *ANSI B18.6.3-1972 (R1991)*



SLOTTED BINDING HEAD TYPE

Nominal Size[a] or Basic Screw Dia.		Head Dia., *A*		Total Head Height, *O*		Head Oval Height, *F*		Slot Width, *J*		Slot Depth, *T*		Undercut[b] Dia., *U*		Undercut[b] Depth, *X*	
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
0000	0.0210	.046	.040	.014	.009	.006	.003	.008	.004	.009	.005	…	…	…	…
000	0.0340	.073	.067	.021	.015	.008	.005	.012	.006	.013	.009	…	…	…	…
00	0.0470	.098	.090	.028	.023	.011	.007	.017	.010	.018	.012	…	…	…	…
0	0.0600	.126	.119	.032	.026	.012	.008	.023	.016	.018	.009	.098	.086	.007	.002
1	0.0730	.153	.145	.041	.035	.015	.011	.026	.019	.024	.014	.120	.105	.008	.003
2	0.0860	.181	.171	.050	.043	.018	.013	.031	.023	.030	.020	.141	.124	.010	.005
3	0.0990	.208	.197	.059	.052	.022	.016	.035	.027	.036	.025	.162	.143	.011	.006
4	0.1120	.235	.223	.068	.061	.025	.018	.039	.031	.042	.030	.184	.161	.012	.007
5	0.1250	.263	.249	.078	.069	.029	.021	.043	.035	.048	.035	.205	.180	.014	.009
6	0.1380	.290	.275	.087	.078	.032	.024	.048	.039	.053	.040	.226	.199	.015	.010
8	0.1640	.344	.326	.105	.095	.039	.029	.054	.045	.065	.050	.269	.236	.017	.012
10	0.1900	.399	.378	.123	.112	.045	.034	.060	.050	.077	.060	.312	.274	.020	.015
12	0.2160	.454	.430	.141	.130	.052	.039	.067	.056	.089	.070	.354	.311	.023	.018
1/4	0.2500	.525	.498	.165	.152	.061	.046	.075	.064	.105	.084	.410	.360	.026	.021
5/16	0.3125	.656	.622	.209	.194	.077	.059	.084	.072	.134	.108	.513	.450	.032	.027
3/8	0.3750	.788	.746	.253	.235	.094	.071	.094	.081	.163	.132	.615	.540	.039	.034

[a] Where specifying nominal size in decimals, zeros preceding decimal points and in the fourth decimal place are omitted.

[b] Unless otherwise specified, slotted binding head machine screws are not undercut.

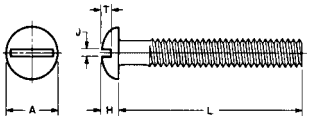
SLOTTED UNDERCUT OVAL COUNTERSUNK HEAD TYPES

Nominal Size[a] or Basic Screw Dia.		Max. *L*[a]	Head Dia., *A*		Head Side Height, *H*	Total Head Height, *O*		Slot Width, *J*		Slot Depth, *T*	
			Max., Edge Sharp	Min., Edge Rnded. or Flat	Ref.	Max.	Min.	Max.	Min.	Max.	Min.
0	0.0600	1/8	.119	.099	.025	.046	.033	.023	.016	.028	.022
1	0.0730	1/8	.146	.123	.031	.056	.042	.026	.019	.034	.027
2	0.0860	1/8	.172	.147	.036	.065	.050	.031	.023	.040	.033
3	0.0990	1/8	.199	.171	.042	.075	.059	.035	.027	.047	.038
4	0.1120	3/16	.225	.195	.047	.084	.067	.039	.031	.053	.043
5	0.1250	3/16	.252	.220	.053	.094	.076	.043	.035	.059	.048
6	0.1380	3/16	.279	.244	.059	.104	.084	.048	.039	.065	.053
8	0.1640	1/4	.332	.292	.070	.123	.101	.054	.045	.078	.064
10	0.1900	5/16	.385	.340	.081	.142	.118	.060	.050	.090	.074
12	0.2160	3/8	.438	.389	.092	.161	.135	.067	.056	.103	.085
1/4	0.2500	7/16	.507	.452	.107	.186	.158	.075	.064	.119	.098
5/16	0.3125	1/2	.635	.568	.134	.232	.198	.084	.072	.149	.124
3/8	0.3750	9/16	.762	.685	.161	.278	.239	.094	.081	.179	.149
7/16	0.4375	5/8	.812	.723	.156	.279	.239	.094	.081	.184	.154
1/2	0.5000	3/4	.875	.775	.156	.288	.244	.106	.091	.204	.169

[a] These lengths or shorter are undercut.

All dimensions are in inches.

Table 12. Slotted Round Head Machine Screws
ANSI B18.6.3-1972 (R1991) Appendix



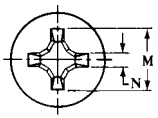
Nominal Size[a] or Basic Screw Dia.		Head Diameter, *A*		Head Height, *H*		Slot Width, *J*		Slot Depth, *T*	
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
0000	0.0210	.041	.035	.022	.016	.008	.004	.017	.013
000	0.0340	.062	.056	.031	.025	.012	.008	.018	.012
00	0.0470	.089	.080	.045	.036	.017	.010	.026	.018
0	0.0600	.113	.099	.053	.043	.023	.016	.039	.029
1	0.0730	.138	.122	.061	.051	.026	.019	.044	.033
2	0.0860	.162	.146	.069	.059	.031	.023	.048	.037
3	0.0990	.187	.169	.078	.067	.035	.027	.053	.040
4	0.1120	.211	.193	.086	.075	.039	.031	.058	.044
5	0.1250	.236	.217	.095	.083	.043	.035	.063	.047
6	0.1380	.260	.240	.103	.091	.048	.039	.068	.051
8	0.1640	.309	.287	.120	.107	.054	.045	.077	.058
10	0.1900	.359	.334	.137	.123	.060	.050	.087	.065
12	0.2160	.408	.382	.153	.139	.067	.056	.096	.073
1/4	0.2500	.472	.443	.175	.160	.075	.064	.109	.082
5/16	0.3125	.590	.557	.216	.198	.084	.072	.132	.099
3/8	0.3750	.708	.670	.256	.237	.094	.081	.155	.117
7/16	0.4375	.750	.707	.328	.307	.094	.081	.196	.148
1/2	0.5000	.813	.766	.355	.332	.106	.091	.211	.159
9/16	0.5625	.938	.887	.410	.385	.118	.102	.242	.183
5/8	0.6250	1.000	.944	.438	.411	.133	.116	.258	.195
3/4	0.7500	1.250	1.185	.547	.516	.149	.131	.320	.242

[a] When specifying nominal size in decimals, zeros preceding decimal point and in the fourth decimal place are omitted.

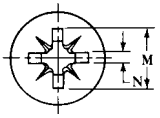
All dimensions are in inches.

Not recommended, use Pan Head machine screws.

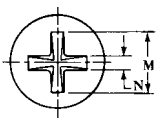
ANSI Cross References for Machine Screws and Metric Machine Screw



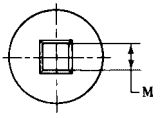
Type I Cross Recess



Type IA Cross Recess



Type II Cross Recess

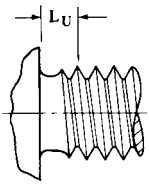


Type III Square Center

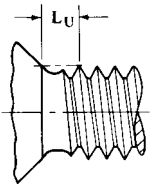
Machine Screw Cross Recesses.—Four cross recesses, Types I, IA, II, and III, may be used in lieu of slots in machine screw heads. Dimensions for recess diameter *M*, width *N*, and depth *T* (not shown above) together with recess penetration gaging depths are given in American National Standard ANSI B18.6.3-1972 (R1991) for machine screws, and in ANSI/ASME B18.6.7M-1985 for metric machine screws.

American National Standard Metric Machine Screws.—This Standard B18.6.7M covers metric flat and oval countersunk and slotted and recessed pan head machine screws and metric hex head and hex flange head machine screws. Dimensions are given in Tables 1 through 4 and 6.

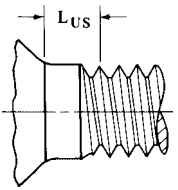
Table 1. American National Standard Thread Lengths for Metric Machine Screws
ANSI/ASME B18.6.7M-1985



Pan, Hex, and Hex Flange Head Screws



Flat and Oval Countersunk Head Screws



Heat-Treated Recessed Flat Countersunk Head Screws

Nominal Screw Size and Thread Pitch	L	L_{US}	L_U	L		L_{US}	L_UL	L	B
	Nominal Screw Length Equal to or Shorter than[a]	Unthreaded Length[b]		Nominal Screw Length[a]		Unthreaded Length[b]		Nominal Screw Length Longer than[a]	Full Form Thread Length[c]
		Max[d]	Max[e]	Over	To and Including	Max[d]	Max[e]		Min
M2 × 0.4	6	1.0	0.4	6	30	1.0	0.8	30	25.0
M2.5 × 0.45	8	1.1	0.5	8	30	1.1	0.9	30	25.0
M3 × 0.5	9	1.2	0.5	9	30	1.2	1.0	30	25.0
M3.5 × 0.6	10	1.5	0.6	10	50	1.5	1.2	50	38.0
M4 × 0.7	12	1.8	0.7	12	50	1.8	1.4	50	38.0
M5 × 0.8	15	2.0	0.8	15	50	2.0	1.6	50	38.0
M6 × 1	18	2.5	1.0	18	50	2.5	2.0	50	38.0
M8 × 1.25	24	3.1	1.2	24	50	3.1	2.5	50	38.0
M10 × 1.5	30	3.8	1.5	30	50	3.8	3.0	50	38.0
M12 × 1.75	36	4.4	1.8	36	50	4.4	3.5	50	38.0

[a] The length tolerances for metric machine screws are: up to 3 mm, incl., ± 0.2 mm; over 3 to 10 mm, incl., ± 0.3 mm; over 10 to 16 mm, incl., ± 0.4 mm; over 16 to 50 mm, incl., ± 0.5 mm; over 50 mm, ± 1.0 mm.

[b] Unthreaded lengths L_U and L_{US} represent the distance, measured parallel to the axis of screw, from the underside of the head to the face of a nonchamfered or noncounterbored standard GO thread ring gage assembled by hand as far as the thread will permit.

[c] Refer to the illustrations for respective screw head styles.

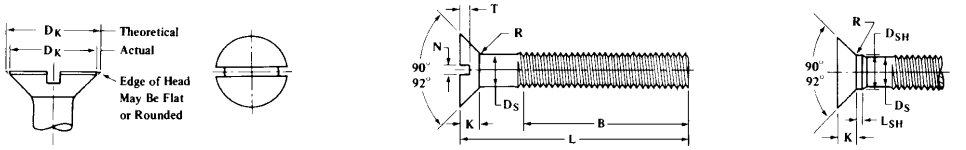
[d] The L_{US} values apply only to heat treated recessed flat countersunk head screws.

[e] The L_U values apply to all screws except heat treated recessed flat countersunk head screws.

All dimensions in millimeters.

Table 2. American National Standard Slotted, Cross and Square Recessed Flat Countersunk Head Metric Machine Screws

ANSI/ASME B18.6.7M-1985



Nominal Screw Size and Thread Pitch	Slotted and Style A		Style B															
	D_S		D_{SH}[a]		D_S	L_{SH}[a]		D_K			K	R		N		T	
	Body Diameter		Body and Shoulder Diameter	Shoulder Diameter	Body Diameter	Shoulder Length		Head Diameter			Head Height	Underhead Fillet Radius		Slot Width		Slot Depth	
								Theoretical Sharp		Actual							
	Max	Min	Max	Min	Min	Max	Min	Max	Min	Min	Max Ref	Max	Min	Max	Min	Max	Min
M2 × 0.4[b]	2.00	1.65	2.00	1.86	1.65	0.50	0.30	4.4	4.1	3.5	1.2	0.8	0.4	0.7	0.5	0.6	0.4
M2.5 × 0.45	2.50	2.12	2.50	2.36	2.12	0.55	0.35	5.5	5.1	4.4	1.5	1.0	0.5	0.8	0.6	0.7	0.5
M3 × 0.5	3.00	2.58	3.00	2.86	2.58	0.60	0.40	6.3	5.9	5.2	1.7	1.2	0.6	1.0	0.8	0.9	0.6
M3.5 × 0.6	3.50	3.00	3.50	3.32	3.00	0.70	0.50	8.2	7.7	6.9	2.3	1.4	0.7	1.2	1.0	1.2	0.9
M4 × 0.7	4.00	3.43	4.00	3.82	3.43	0.80	0.60	9.4	8.9	8.0	2.7	1.6	0.8	1.5	1.2	1.3	1.0
M5 × 0.8	5.00	4.36	5.00	4.82	4.36	0.90	0.70	10.4	9.8	8.9	2.7	2.0	1.0	1.5	1.2	1.4	1.1
M6 × 1	6.00	5.21	6.00	5.82	5.21	1.10	0.90	12.6	11.9	10.9	3.3	2.4	1.2	1.9	1.6	1.6	1.2
M8 × 1.25	8.00	7.04	8.00	7.78	7.04	1.40	1.10	17.3	16.5	15.4	4.6	3.2	1.6	2.3	2.0	2.3	1.8
M10 × 1.5	10.00	8.86	10.00	9.78	8.86	1.70	1.30	20.0	19.2	17.8	5.0	4.0	2.0	2.8	2.5	2.6	2.0

[a] All recessed head heat-treated steel screws of property class 9.8 or higher strength have the Style B head form. Recessed head screws other than those specifically designated to be Style B have the Style A head form. The underhead shoulder on the Style B head form is mandatory and all other head dimensions are common to both the Style A and Style B head forms.

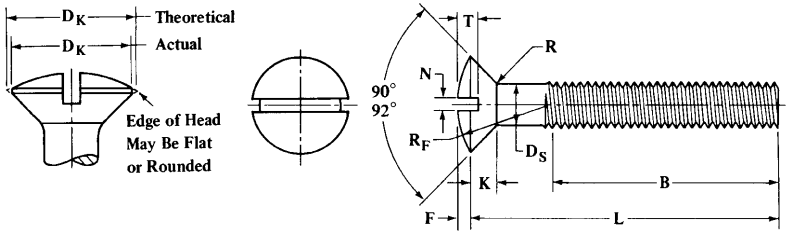
[b] This size is not specified for Type III square recessed flat countersunk heads; Type II cross recess is not specified for any size.

All dimensions in millimeters.

For dimension *B*, see Table 1.

For dimension *L*, see Table 8.

Table 3. American National Standard Slotted, Cross and Square Recessed Oval Countersunk Head Metric Machine Screws
ANSI/ASME B18.6.7M-1985



Nominal Screw Size and Thread Pitch	D_S		D_K			K	F	R_F	R		N		T	
	Body Diameter		Head Diameter			Head Side Height	Raised Head Height	Head Top Radius	Underhead Fillet Radius		Slot Width		Slot Depth	
			Theoretical Sharp		Actual									
	Max	Min	Max	Min	Min	Max Ref	Max	Approx	Max	Min	Max	Min	Max	Min
M2 × 0.4[a]	2.00	1.65	4.4	4.1	3.5	1.2	0.5	5.0	0.8	0.4	0.7	0.5	1.0	0.8
M2.5 × 0.45	2.50	2.12	5.5	5.1	4.4	1.5	0.6	6.6	1.0	0.5	0.8	0.6	1.2	1.0
M3 × 0.5	3.00	2.58	6.3	5.9	5.2	1.7	0.7	7.4	1.2	0.6	1.0	0.8	1.5	1.2
M3.5 × 0.6	3.50	3.00	8.2	7.7	6.9	2.3	0.8	10.9	1.4	0.7	1.2	1.0	1.7	1.4
M4 × 0.7	4.00	3.43	9.4	8.9	8.0	2.7	1.0	11.6	1.6	0.8	1.5	1.2	1.9	1.6
M5 × 0.8	5.00	4.36	10.4	9.8	8.9	2.7	1.2	11.9	2.0	1.0	1.5	1.2	2.4	2.0
M6 × 1	6.00	5.21	12.6	11.9	10.9	3.3	1.4	14.9	2.4	1.2	1.9	1.6	2.8	2.4
M8 × 1.25	8.00	7.04	17.3	16.5	15.4	4.6	2.0	19.7	3.2	1.6	2.3	2.0	3.7	3.2
M10 × 1.5	10.00	8.86	20.0	19.2	17.8	5.0	2.3	22.9	4.0	2.0	2.8	2.5	4.4	3.8

[a] This size is not specified for Type III square recessed oval countersunk heads; Type II cross recess is not specified for any size.

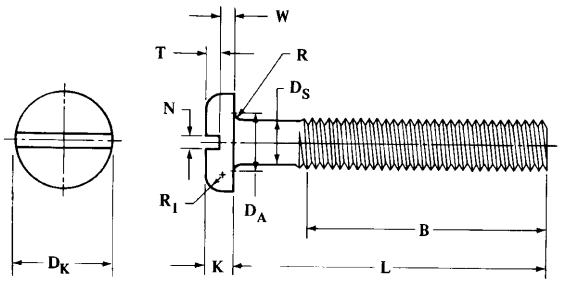
All dimensions in millimeters.

For dimension *B*, see Table 1.

For dimension *L*, see Table 8.

Table 4. American National Standard Slotted and Cross and Square Recessed Pan Head Metric Machine Screws

ANSI/ASME B18.6.7M-1985



Nominal Screw Size and Thread Pitch	D_s		D_K		Slotted			Cross and Square Recess			D_A	R	N		T	W
					K		R_1	K		R_1	Underhead Fillet					
	Body Diameter		Head Diameter		Head Height		Head Radius	Head Height		Head Radius	Transition Dia	Radius	Slot Width		Slot Depth	Unslotted Head Thickness
	Max	Min	Max	Min	Max	Min	Max	Max	Min	Ref	Max	Min	Max	Min	Min	Min
M2 × 0.4[a]	2.00	1.65	4.0	3.7	1.3	1.1	0.8	1.6	1.4	3.2	2.6	0.1	0.7	0.5	0.5	0.4
M2.5 × 0.45	2.50	2.12	5.0	4.7	1.5	1.3	1.0	2.1	1.9	4.0	3.1	0.1	0.8	0.6	0.6	0.5
M3 × 0.5	3.00	2.58	5.6	5.3	1.8	1.6	1.2	2.4	2.2	5.0	3.6	0.1	1.0	0.8	0.7	0.7
M3.5 × 0.6	3.50	3.00	7.0	6.6	2.1	1.9	1.4	2.6	2.3	6.0	4.1	0.1	1.2	1.0	0.8	0.8
M4 × 0.7	4.00	3.43	8.0	7.6	2.4	2.2	1.6	3.1	2.8	6.5	4.7	0.2	1.5	1.2	1.0	0.9
M5 × 0.8	5.00	4.36	9.5	9.1	3.0	2.7	2.0	3.7	3.4	8.0	5.7	0.2	1.5	1.2	1.2	1.2
M6 × 1	6.00	5.21	12.0	11.5	3.6	3.3	2.5	4.6	4.3	10.0	6.8	0.3	1.9	1.6	1.4	1.4
M8 × 1.25	8.00	7.04	16.0	15.5	4.8	4.5	3.2	6.0	5.6	13.0	9.2	0.4	2.3	2.0	1.9	1.9
M10 × 1.5	10.00	8.86	20.0	19.4	6.0	5.7	4.0	7.5	7.1	16.0	11.2	0.4	2.8	2.5	2.4	2.4

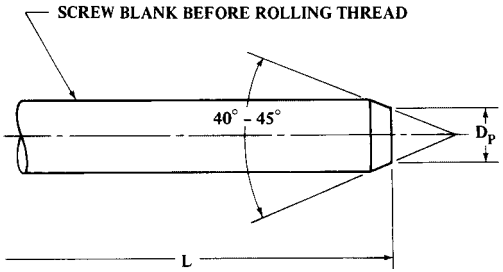
[a] This size not specified for Type III square recessed pan heads; Type II cross recess is not specified for any size.

All dimensions in millimeters.

For dimension *B*, see Table 1.

For dimension *L*, see Table 8.

Table 5. American National Standard Header Points for Metric Machine Screws Before Threading *ANSI/ASME B18.6.7M-1985*



Nominal Screw Size and Thread Pitch	D_P Point Diameter		L^a Nominal Screw Length
	Max	Min	Max
M2 × 0.4	1.33	1.21	13
M2.5 × 0.45	1.73	1.57	13
M3 × 0.5	2.12	1.93	16
M3.5 × 0.6	2.46	2.24	20
M4 × 0.7	2.80	2.55	25
M5 × 0.8	3.60	3.28	30
M6 × 1	4.25	3.85	40
M8 × 1.25	5.82	5.30	40
M10 × 1.5	7.36	6.71	40
M12 × 1.75	8.90	8.11	45

[a] Header points apply to these nominal lengths or shorter. The pointing of longer lengths may require machining to the dimensions specified.

All dimensions in millimeters.

The edge of the point may be rounded and the end of point need not be flat nor perpendicular to the axis of screw shank.

Threads: Threads for metric machine screws are coarse M profile threads, as given in ANSI B1.13M (see page 1755), unless otherwise specified.

Length of Thread: The lengths of threads on metric machine screws are given in Table 1 for the applicable screw type, size, and length.

Diameter of Body: The body diameters of metric machine screws are within the limits specified in the dimensional tables (Tables 3 through 4 and 6).

Designation: Metric machine screws are designated by the following data in the sequence shown: Nominal size and thread pitch; nominal length; product name, including head type and driving provision; header point if desired; material (including property class, if steel); and protective finish, if required. For example:

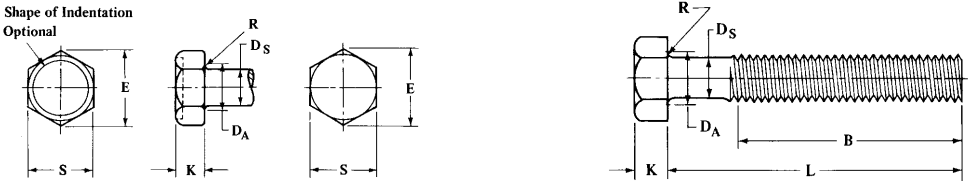
M8 × 1.25 × 30 Slotted Pan Head Machine Screw, Class 4.8 Steel, Zinc Plated

M3.5 × 0.6 × 20 Type IA Cross Recessed Oval Countersunk Head Machine Screw, Header Point, Brass

It is common ISO practice to omit the thread pitch from the product size designation when screw threads are the metric coarse thread series, e.g., M10 stands for M10 × 1.5.

Table 6. American National Standard Hex and Hex Flange Head Metric Machine Screws *ANSI/ASME B18.6.7M-1985*

Hex Head



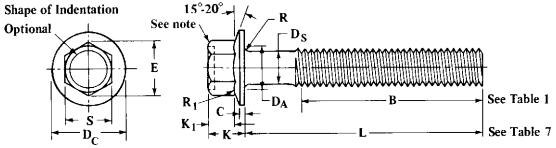
Nominal Screw Size and Thread Pitch	D_S Body Diameter		S^a Hex Width Across Flats		E^a Hex Width Across Corners	K Head Height		D_A Underhead Fillet Transition Dia	R Underhead Fillet Radius
	Max	Min	Max	Min	Min	Max	Min	Max	Min
M2 × 0.4	2.00	1.65	3.20	3.02	3.38	1.6	1.3	2.6	0.1
M2.5 × 0.45	2.50	2.12	4.00	3.82	4.28	2.1	1.8	3.1	0.1
M3 × 0.5	3.00	2.58	5.00	4.82	5.40	2.3	2.0	3.6	0.1
M3.5 × 0.6	3.50	3.00	5.50	5.32	5.96	2.6	2.3	4.1	0.1
M4 × 0.7	4.00	3.43	7.00	6.78	7.59	3.0	2.6	4.7	0.2
M5 × 0.8	5.00	4.36	8.00	7.78	8.71	3.8	3.3	5.7	0.2
M6 × 1	6.00	5.21	10.00	9.78	10.95	4.7	4.1	6.8	0.3
M8 × 1.25	8.00	7.04	13.00	12.73	14.26	6.0	5.2	9.2	0.4
M10 × 1.5	10.00	8.86	16.00	15.73	17.62	7.5	6.5	11.2	0.4
M12 × 1.75	12.00	10.68	18.00	17.73	19.86	9.0	7.8	13.2	0.4
M10 × 1.5[b]	10.00	8.86	15.00	14.73	16.50	7.5	6.5	11.2	0.4

[a] Dimensions across flats and across corners of the head are measured at the point of maximum metal. Taper of sides of head (angle between one side and the axis) shall not exceed 2° or 0.10 mm, whichever is greater, the specified width across flats being the large dimension.

[b] The contour of the edge at periphery of flange is optional provided the minimum flange thickness is maintained at the minimum flange diameter. The top surface of flange may be straight or slightly rounded (convex) upward.

Table 7. American National Standard Hex and Hex Flange Head Metric Machine Screws *ANSI/ASME B18.6.7M-1985*

Hex Flange Head



Nominal Screw Size and Thread Pitch	D_S Body Diameter Max	D_S Body Diameter Min	S^a Hex Width Across Flats Max	S^a Hex Width Across Flats Min	E^a Hex Width Across Corners Min	D_C Flange Diameter Max	D_C Flange Diameter Min	K Overall Head Height	K_1 Hex Height Min	C^b Flange Edge Thickness Min	R_1 Flange Top Fillet Radius Max	D_A Underhead Fillet Max Transition Dia	R Underhead Fillet Min Radius
M2 × 0.4	2.00	1.65	3.00	2.84	3.16	4.5	4.1	2.2	1.3	0.3	0.1	2.6	0.1
M2.5 × 0.45	2.50	2.12	3.20	3.04	3.39	5.4	5.0	2.7	1.6	0.3	0.2	3.1	0.1
M3 × 0.5	3.00	2.58	4.00	3.84	4.27	6.4	5.9	3.2	1.9	0.4	0.2	3.6	0.1
M3.5 × 0.6	3.50	3.00	5.00	4.82	5.36	7.5	6.9	3.8	2.4	0.5	0.2	4.1	0.1
M4 × 0.7	4.00	3.43	5.50	5.32	5.92	8.5	7.8	4.3	2.8	0.6	0.2	4.7	0.2
M5 × 0.8	5.00	4.36	7.00	6.78	7.55	10.6	9.8	5.4	3.5	0.7	0.3	5.7	0.2
M6 × 1	6.00	5.21	8.00	7.78	8.66	12.8	11.8	6.7	4.2	1.0	0.4	6.8	0.3
M8 × 1.25	8.00	7.04	10.00	9.78	10.89	16.8	15.5	8.6	5.6	1.2	0.5	9.2	0.4
M10 × 1.5	10.00	8.86	13.00	12.72	14.16	21.0	19.3	10.7	7.0	1.4	0.6	11.2	0.4
M12 × 1.75	12.00	10.68	15.00	14.72	16.38	24.8	23.3	13.7	8.4	1.8	0.7	13.2	0.4

[a] Dimensions across flats and across corners of the head are measured at the point of maximum metal. Taper of sides of head (angle between one side and the axis) shall not exceed 2° or 0.10 mm, whichever is greater, the specified width across flats being the large dimension.

[b] The contour of the edge at periphery of flange is optional provided the minimum flange thickness is maintained at the minimum flange diameter. The top surface of flange may be straight or slightly rounded (convex) upward.

All dimensions in millimeters.

A slight rounding of all edges of the hexagon surfaces of indented hex heads is permissible provided the diameter of the bearing circle is not less than the equivalent of 90 per cent of the specified minimum width across flats dimension.

Heads may be indented, trimmed, or fully upset at the option of the manufacturer.

The M10 size screws having heads with 15 mm width across flats are not ISO Standard. Unless M10 size screws with 15 mm width across flats are specifically ordered, M10 size screws with 16 mm width across flats shall be furnished.

For dimension *B*, see Table 1.

For dimension *L*, see Table 8.

Table 8. Recommended Nominal Screw Lengths for Metric Machine Screws

Nominal Screw Length	Nominal Screw Size									
	M2	M2.5	M3	M3.5	M4	M5	M6	M8	M10	M12
2.5	PH									
3	A	PH								
4	A	A	PH							
5	A	A	A	PH	PH					
6	A	A	A	A	A	PH				
8	A	A	A	A	A	A	A			
10	A	A	A	A	A	A	A	A		
13	A	A	A	A	A	A	A	A	A	
16	A	A	A	A	A	A	A	A	A	H
20	A	A	A	A	A	A	A	A	A	H
25		A	A	A	A	A	A	A	A	H
30			A	A	A	A	A	A	A	H
35				A	A	A	A	A	A	H
40					A	A	A	A	A	H
45						A	A	A	A	H
50						A	A	A	A	H
55							A	A	A	H
60							A	A	A	H
65								A	A	H
70								A	A	H
80								A	A	H
90									A	H

All dimensions in millimeters.

[1]The nominal screw lengths included between the heavy lines are recommended for the respective screw sizes and screw head styles as designated by the symbols.

A — Signifies screws of all head styles covered in this standard.

P — Signifies pan head screws.

H — Signifies hex and hex flange head screws.

Table 9. Clearance Holes for Metric Machine Screws
ANSI/ASME B18.6.7M-1985 **Appendix**

Nominal Screw Size	Basic Clearance Hole Diameter[a]		
	Close Clearance[b]	Normal Clearance (Preferred)[b]	Loose Clearance[b]
M2	2.20	2.40	2.60
M2.5	2.70	2.90	3.10
M3	3.20	3.40	3.60
M3.5	3.70	3.90	4.20
M4	4.30	4.50	4.80
M5	5.30	5.50	5.80
M6	6.40	6.60	7.00
M8	8.40	9.00	10.00
M10	10.50	11.00	12.00
M12	13.00	13.50	14.50

[a] The values given in this table are minimum limits. The recommended plus tolerances are as follows: for clearance hole diameters over 1.70 to and including 5.80 mm, plus 0.12, 0.20, and 0.30 mm for close, normal, and loose clearances, respectively; for clearance hole diameters over 5.80 to 14.50 mm, plus 0.18, 0.30, and 0.45 mm for close, normal, and loose clearances, respectively.

[b] Normal clearance hole sizes are preferred. Close clearance hole sizes are for situations such as critical alignment of assembled components, wall thickness, or other limitations which necessitate the use of a minimal hole. Countersinking or counterboring at the fastener entry side may be necessary for the proper seating of the head. Loose clearance hole sizes are for applications where maximum adjustment capability between the components being assembled is necessary.

All dimensions in millimeters.

British Machine Screws.—Many of these classifications of fasteners are covered in British Standards B.S. 57:1951, "B.A. Screws, Bolts and Nuts"; BS 450:1958 (obsolescent), "Machine Screws and Machine Screw Nuts (BSW and BSF Threads)"; B.S. 1981:1953, "Unified Machine Screws and Machine Screw Nuts"; BS 2827:1957 (obsolescent):1957, "Machine Screw Nuts, Pressed Type (B.A. and Whitworth Form Threads)"; B.S. 3155:1960, "American Machine Screws and Nuts in Sizes Below ¼ inch Diameter"; and BS 4183:1967 (obsolescent), "Machine Screws and Machine Screw Nuts, Metric Series." At a conference organized by the British Standards Institution in 1965 at which the major sectors of British industry were represented, a policy statement was approved that urged British firms to regard the traditional screw thread systems—Whitworth, B.A. and BSF—as obsolescent, and to make the internationally-agreed ISO metric thread their first choice (with ISO Unified thread as second choice) for all future designs. It is recognized that some sections of British industry already using ISO inch (Unified) screw threads may find it necessary, for various reasons, to continue with their use for some time: Whitworth and B.A. threads should, however, be superseded by ISO metric threads in preference to an intermediate change to ISO inch threads. Fasteners covered by B.S. 57, B.S. 450 and BS 2827:1957 (obsolescent) eventually would be superseded and replaced by fasteners specified by B.S. 4183.

British Standard Whitworth (BSW) and Fine (BSF) Machine Screws.—British Standard BS 450:1958 (obsolescent) covers machine screws and nuts with British Standard Whit-worth and British Standard Fine threads. All the various heads in common use in both slotted and recessed forms are covered. Head shapes are shown on page 1595 and dimensions on page 1598. It is intended that this standard will eventually be superseded by B.S. 4183, "Machine Screws and Machine Screw Nuts, Metric Series."

British Standard Machine Screws and Machine Screw Nuts, Metric Series.—British Standard BS 4183:1967 (obsolescent) gives dimensions and tolerances for: countersunk head, raised countersunk head, and cheese head slotted head screws in a diameter range from M1 (1 mm) to M20 (20 mm); pan head slotted head screws in a diameter range from M2.5 (2.5 mm) to M10 (10 mm); countersunk head and raised countersunk head recessed head screws in a diameter range from M2.5 (2.5 mm) to M12 (12 mm); pan head recessed head screws in a diameter range from M2.5 (2.5 mm) to M10 (10 mm); and square and hexagon machine screw nuts in a diameter range from M1.6 (1.6 mm) to M10 (10 mm). Mechanical properties are also specified for steel, brass and aluminum alloy machine screws and machine screw nuts in this standard.

Material: The materials from which the screws and nuts are manufactured have a tensile strength not less than the following: steel, 40 kgf/mm^2 (392 N/mm^2); brass, 32 kgf/mm^2 (314 N/mm^2); and aluminum alloy, 32 kgf/mm^2 (314 N/mm^2). The unit, kgf/mm^2 is in accordance with ISO DR 911 and the unit in parentheses has the relationship, 1 kgf = 9.80665 Newtons. These minimum strengths are applicable to the finished products. Steel machine screws conform to the requirements for strength grade designation 4.8. The strength grade designation system for machine screws consists of two figures, the first is $\frac{1}{10}$ of the minimum tensile strength in kgf/mm^2, the second is $\frac{1}{10}$ of the ratio between the yield stress and the minimum tensile strength expressed as a percentage: $\frac{1}{10}$ minimum tensile strength of 40 kgf/mm^2 gives the symbol "4"; $\frac{1}{10}$ ratio $\frac{\text{yield stress}}{\text{minimum tensile strength}}\% = \frac{1}{10} \times \frac{32}{40} \times 100/1 =$ "8"; giving the strength grade designation "4.8." Multiplication of these two figures gives the minimum yield stress in kgf/mm^2.

Coating of Screws and Nuts: It is recommended that the coating comply with the appropriate part of BS 3382. "Electroplated Coatings on Threaded Components."

Screw Threads: Screw threads are ISO metric coarse pitch series threads in accordance with B.S. 3643. "ISO Metric Screw Threads," Part 1, "Thread Data and Standard Thread Series." The external threads used for screws conform to tolerance Class 6g limits (medium fit) as given in B.S. 3643, "ISO Metric Screw Threads," Part 2, "Limits and Tolerances for Coarse Pitch Series Threads." The internal threads used for nuts conform to tolerance Class 6H limits (medium fit) as given in B.S. 3643: Part 2.

Nominal Lengths of Screws: For countersunk head screws the nominal length is the distance from the upper surface of the head to the extreme end of the shank, including any chamfer, radius, or cone point. For raised countersunk head screws the nominal length is the distance from the upper surface of the head (excluding the raised portion) to the extreme end of the shank, including any chamfer, radius, or cone point. For pan and cheese head screws the nominal length is the distance from the underside of the head to the extreme end of the shank, including any chamfer, radius, or cone point. Standard nominal lengths and tolerances are given in Table 5.

Lengths of Thread on Screws: The length of thread is the distance from the end of the screw (including any chamfer, radius, or cone point) to the leading face of a nut without countersink which has been screwed as far as possible onto the screw by hand. The minimum thread length is shown in the following table:

Nominal Thread Dia., *d*[a]	M1	M1.2	(M1.4)	M1.6	M2	(M2.2)	M2.5	M3	(M3.5)	M4
Thread Length *b* (Min.)	[b]	[b]	[b]	15	16	17	18	19	20	22
Nominal Thread Dia., *d*[a]	(M4.5)	M5	M6	M8	M10	M12	(M14)	M16	(M18)	M20
Thread Length *b* (Min.)	24	25	28	34	40	46	52	58	64	70

[a] Items shown in parentheses are non-preferred.

[b] Threaded up to the head.

All dimensions are in millimeters.

Screws of nominal thread diameter M1, M1.2 and M1.4 and screws of larger diameters that are too short for the above thread lengths are threaded as far as possible up to the head.

In these screws the length of unthreaded shank under the head does not exceed 1½ pitches for lengths up to twice the diameter and 2 pitches for longer lengths, and is defined as the distance from the leading face of a nut that has been screwed as far as possible onto the screw by hand to: 1) the junction of the basic major diameter and the countersunk portion of the head on countersunk and raised countersunk heads; and 2) the underside of the head on other types of heads.

Diameter of Unthreaded Shank on Screws: The diameter of the unthreaded portion of the shank on screws is not greater than the basic major diameter of the screw thread and not less than the minimum effective diameter of the screw thread. The diameter of the unthreaded portion of shank is closely associated with the method of manufacture; it will generally be nearer the major diameter of the thread for turned screws and nearer the effective diameter for those produced by cold heading.

Radius Under the Head of Screws: The radius under the head of pan and cheese head screws runs smoothly into the face of the head and shank without any step or discontinuity. A true radius is not essential providing that the curve is smooth and lies wholly within the maximum radius. Any radius under the head of countersunk head screws runs smoothly into the conical bearing surface of the head and the shank without any step or discontinuity. The radius values given in Tables 1 and 2 are regarded as the maximum where the shank diameter is equal to the major diameter of the thread and minimum where the shank diameter is approximately equal to the effective diameter of the thread.

Table 1. British Standard Slotted Countersunk Head Machine Screws—Metric Series *BS 4183:1967 (obsolescent)*

Nominal Size d[a]	Head Diameter D		Head Height k		Radius r[b]	Thread Length b	Thread Run-out a	Flushness Tolerance[c]	Slot Width n		Slot Depth t	
	Max. (Theor. Sharp) $2d$	Min. $1.75d$	Max. $0.5d$	Min. $0.45d$		Min.	Max. $2p$[d]	Max.	Max.	Min.	Max. $0.3d$	Min. $0.2d$
M1	2.00	1.75	0.50	0.45	0.1	[e]	0.50	....	0.45	0.31	0.30	0.20
M1.2	2.40	2.10	0.60	0.54	0.1	[e]	0.50	....	0.50	0.36	0.36	0.24
(M1.4)	2.80	2.45	0.70	0.63	0.1	[e]	0.60	....	0.50	0.36	0.42	0.28
M1.6	3.20	2.80	0.80	0.72	0.1	15.0	0.70	....	0.60	0.46	0.48	0.32
M2.0	4.00	3.50	1.00	0.90	0.1	16.0	0.80	....	0.70	0.56	0.60	0.40
(M2.2)	4.40	3.85	1.10	0.99	0.1	17.0	0.90	....	0.80	0.66	0.66	0.44
M2.5	5.00	4.38	1.25	1.12	0.1	18.0	0.90	0.10	0.80	0.66	0.75	0.50
M3	6.00	5.25	1.50	1.35	0.1	19.0	1.00	0.12	1.00	0.86	0.90	0.60
(M3.5)	7.00	6.10	1.75	1.57	0.2	20.0	1.20	0.13	1.00	0.86	1.05	0.70
M4	8.00	7.00	2.00	1.80	0.2	22.0	1.40	0.15	1.20	1.06	1.20	0.80
(M4.5)	9.00	7.85	2.25	2.03	0.2	24.0	1.50	0.17	1.20	1.06	1.35	0.90
M5	10.00	8.75	2.50	2.25	0.2	25.0	1.60	0.19	1.51	1.26	1.50	1.00
M6	12.00	10.50	3.00	2.70	0.25	28.0	2.00	0.23	1.91	1.66	1.80	1.20
M8	16.00	14.00	4.00	3.60	0.4	34.0	2.50	0.29	2.31	2.06	2.40	1.60
M10	20.00	17.50	5.00	4.50	0.4	40.0	3.00	0.37	2.81	2.56	3.00	2.00
M12	24.00	21.00	6.00	5.40	0.6	46.0	3.50	0.44	3.31	3.06	3.60	2.40
(M14)	28.00	24.50	7.00	6.30	0.6	52.0	4.00	0.52	3.31	3.06	4.20	2.80
M16	32.00	28.00	8.00	7.20	0.6	58.0	4.00	0.60	4.37	4.07	4.80	3.20
(M18)	36.00	31.50	9.00	8.10	0.6	64.0	5.00	0.67	4.37	4.07	5.40	3.60
M20	40.00	35.00	10.00	9.00	0.8	70.0	5.00	0.75	5.37	5.07	6.00	4.00

[a] Nominal sizes shown in parentheses are non-preferred.

[b] See *Radius Under the Head of Screws* description in text.

[c] See *Dimensions of 90-Degree Countersunk Head Screws* description in text.

[d] See text following table in *Lengths of Thread on Screws* description in text.

[e] Threaded up to head.

All dimensions are given in millimeters. For dimensional notation, see diagram on page 1590. Recessed head screws are also standard and are available. For dimensions see British Standard.

Table 2. British Standard Slotted Raised Countersunk Head Machine Screws—Metric Series *BS 4183:1967 (obsolescent)*

Nominal Size *d*[a]	Head Diameter *D*		Head Height *k*		Radius Under Head *r*[b]	Thread Length *b*	Thread Run-out *a*	Height of Raised Portion *f*	Head Radius *R*	Slot Width *n*		Slot Depth *t*	
	Max. (Theor. Sharp) 2*d*	Min. 1.75*d*	Max. 0.5*d*	Min. 0.45*d*		Min.	Max. 2*p*[c]	Nom. 0.25*d*	Nom.	Max.	Min.	Max. 0.5*d*	Min. 0.4*d*
M1	2.00	1.75	0.50	0.45	0.1	[d]	0.50	0.25	2.0	0.45	0.31	0.50	0.40
M1.2	2.40	2.10	0.60	0.54	0.1	[d]	0.50	0.30	2.5	0.50	0.36	0.60	0.48
(M1.4)	2.80	2.45	0.70	0.63	0.1	[d]	0.60	0.35	2.5	0.50	0.36	0.70	0.56
M1.6	3.20	2.80	0.80	0.72	0.1	15.0	0.70	0.40	3.0	0.60	0.46	0.80	0.64
M2.0	4.00	3.50	1.00	0.90	0.1	16.0	0.80	0.50	4.0	0.70	0.56	1.00	0.80
(M2.2)	4.40	3.85	1.10	0.99	0.1	17.0	0.90	0.55	4.0	0.80	0.66	1.10	0.88
M2.5	5.00	4.38	1.25	1.12	0.1	18.0	0.90	0.60	5.0	0.80	0.66	1.25	1.00
M3	6.00	5.25	1.50	1.35	0.1	19.0	1.00	0.75	6.0	1.00	0.86	1.50	1.20
(M3.5)	7.00	6.10	1.75	1.57	0.2	20.0	1.20	0.90	6.0	1.00	0.86	1.75	1.40
M4	8.00	7.00	2.00	1.80	0.2	22.0	1.40	1.00	8.0	1.20	1.06	2.00	1.60
(M4.5)	9.00	7.85	2.25	2.03	0.2	24.0	1.50	1.10	8.0	1.20	1.06	2.25	1.80
M5	10.00	8.75	2.50	2.25	0.2	25.0	1.60	1.25	10.0	1.51	1.26	2.50	2.00
M6	12.00	10.50	3.00	2.70	0.25	28.0	2.00	1.50	12.0	1.91	1.66	3.00	2.40
M8	16.00	14.00	4.00	3.60	0.4	34.0	2.50	2.00	16.0	2.31	2.06	4.00	3.20
M10	20.00	17.50	5.00	4.50	0.4	40.0	3.00	2.50	20.0	2.81	2.56	5.00	4.00
M12	24.00	21.00	6.00	5.40	0.6	46.0	3.50	3.00	25.0	3.31	3.06	6.00	4.80
(M14)	28.00	24.50	7.00	6.30	0.6	52.0	4.00	3.50	25.0	3.31	3.06	7.00	5.60
M16	32.00	28.00	8.00	7.20	0.6	58.0	4.00	4.00	32.0	4.37	4.07	8.00	6.40
(M18)	36.00	31.50	9.00	8.10	0.6	64.0	5.00	4.50	32.0	4.37	4.07	9.00	7.20
M20	40.00	35.00	10.00	9.00	0.8	70.0	5.00	5.00	40.0	5.37	5.07	10.00	8.00

[a] Nominal sizes shown in parentheses are non-preferred.

[b] See *Radius Under the Head of Screws* description in text.

[c] See text following table in *Lengths of Thread on Screws* description in text.

[d] Threaded up to head.

All dimensions are given in millimeters. For dimensional notation see diagram on page 1590. Recessed head screws are also standard and available. For dimensions see British Standard.

Ends of Screws: When screws are made with rolled threads, the "lead" formed by the thread rolling operation is normally regarded as providing the necessary chamfer and no other machining is necessary. The ends of screws with cut threads are normally finished with a chamfer conforming to the dimension in Fig. 1a through Fig. 1d. At the option of the manufacturer, the ends of screws smaller than M6 (6-mm diameter) may be finished with a radius approximately equal to 1¼ times the nominal diameter of the shank. When cone point ends are required, they should have the dimensions given in Fig. 1a through Fig. 1d.

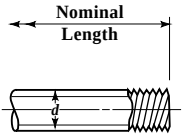
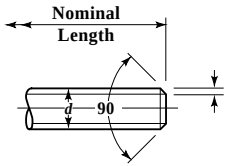


Fig. 1a. Rolled Thread End (Approximate Form as Rolled)



Cut Thread Chamfered End

Fig. 1b. Chamfer to Extend to Slightly Below the Minor Dia.

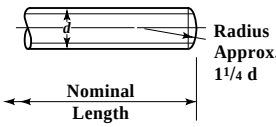


Fig. 1c. Cut Thread Radiused End (Permissible on Sizes Below M6 Dia.)

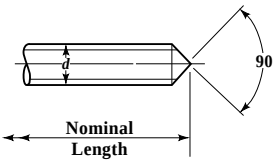
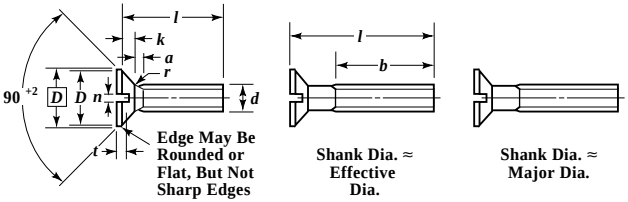


Fig. 1d. Cone Pointed End (Permissible on Cut or Rolled Thread Screws, but Regarded as "Special")

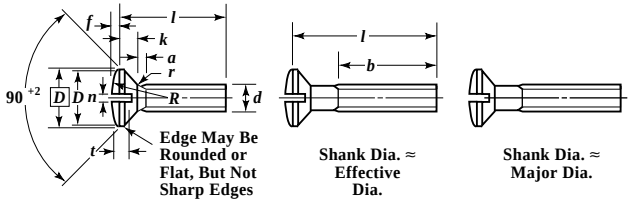
Dimensions of 90-Degree Countersunk Head Screws: One of the appendices to this British Standard states that countersunk head screws should fit into the countersunk hole with as great a degree of flushness as possible. To achieve this condition, it is necessary for the dimensions of both the head of the screw and the countersunk hole to be controlled within prescribed limits. The maximum or design size of the head is controlled by a theoretical diameter to a sharp corner and the minimum head angle of 90 degrees. The minimum head size is controlled by a minimum head diameter, the maximum head angle of 92 degrees and a flushness tolerance (see Fig. 2, page 1591). The edge of the head may be flat or rounded, as shown in Fig. 3 on page 1591.

British Standard Machine Screws and Machine Screw Nuts—Metric Series

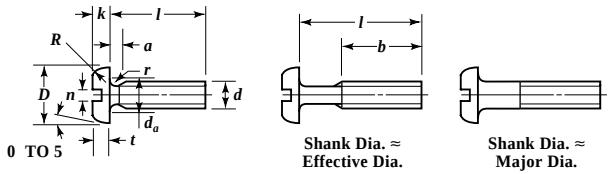


Slotted Countersunk Head Machine Screws

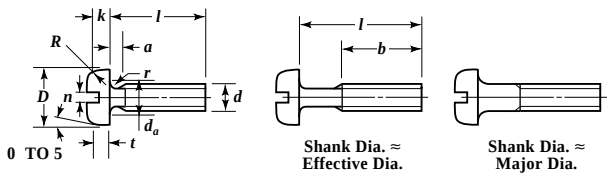
British Standard Machine Screws and Machine Screw Nuts—Metric Series



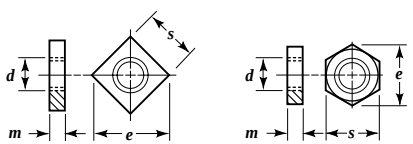
Slotted Raised Countersunk Head Machine Screws



Slotted Pan Head Machine Screws



Slotted Cheese Head Machine Screws



Machine Screw Nuts, Pressed Type, Square and Hexagon

For dimensions, see Tables 1 through 5.

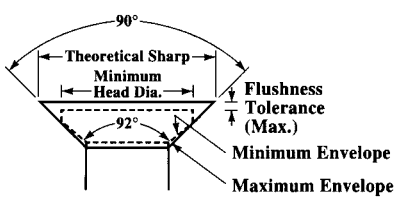


Fig. 2. Head Configuration

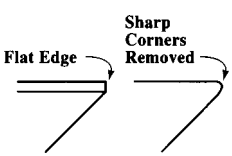


Fig. 3. Edge Configuration

Table 3. British Standard Slotted Pan Head Machine Screws—Metric Series *BS 4183:1967 (obsolescent)*

Nominal Size d[a]	Head Diameter D		Head Height k		Head Radius R	Radius Under Head r	Transition Diameter d_a
	Max. $2d$	Min.	Max. $0.6d$	Min.	Max $0.4d$	Min.	Max.
M2.5	5.00	4.70	1.50	1.36	1.00	0.10	3.10
M3	6.00	5.70	1.80	1.66	1.20	0.10	3.60
(M3.5)	7.00	6.64	2.10	1.96	1.40	0.20	4.30
M4	8.00	7.64	2.40	2.26	1.60	0.20	4.70
(M4.5)	9.00	8.64	2.70	2.56	1.80	0.20	5.20
M5	10.00	9.64	3.00	2.86	2.00	0.20	5.70
M6	12.00	11.57	3.60	3.42	2.50	0.25	6.80
M8	16.00	15.57	4.80	4.62	3.20	0.40	9.20
M10	20.00	19.48	6.00	5.82	4.00	0.40	11.20

[a] Nominal sizes shown in parentheses are non-preferred.

Nominal Size d[a]	Thread Length b	Thread Run-out a	Slot Width n		Slot Depth t	
	Min.	Max. $2p$[b]	Max.	Min.	Max. $0.6k$	Min. $0.4k$
M2.5	18.00	0.90	0.80	0.66	0.90	0.60
M3	19.00	1.00	1.00	0.86	1.08	0.72
(M3.5)	20.00	1.20	1.00	0.86	1.26	0.84
M4	22.00	1.40	1.20	1.06	1.44	0.96
(M4.5)	24.00	1.50	1.20	1.06	1.62	1.08
M5	25.00	1.60	1.51	1.26	1.80	1.20
M6	28.00	2.00	1.91	1.66	2.16	1.44
M8	34.00	2.50	2.31	2.06	2.88	1.92
M10	40.00	3.00	2.81	2.56	3.60	2.40

[a] Nominal sizes shown in parentheses are non-preferred.

[b] See *Lengths of Thread on Screws* on page 1587.

All dimensions are in millimeters. For dimensional notation, see diagram on page 1590. Recessed head screws are also standard and available. For dimensions, see British Standard.

Table 4. British Standard Slotted Cheese Head Machine Screws—Metric Series *BS 4183:1967 (obsolescent)*

Nominal Size d[a]	Head Diameter D		Head Height k		Radius r[b]	Transition Diameter d_a	Thread Length b	Thread Run-out a	Slot Width n		Slot Depth t	
	Max.	Min.	Max.	Min.	Min.	Max.	Min.	Max. [c]	Max.	Min.	Max.	Min.
M1	2.00	1.75	0.70	0.56	0.10	1.30	[b]	0.50	0.45	0.31	0.44	0.30
M1.2	2.30	2.05	0.80	0.66	0.10	1.50	[b]	0.50	0.50	0.36	0.49	0.35
(M1.4)	2.60	2.35	0.90	0.76	0.10	1.70	[b]	0.60	0.50	0.36	0.60	0.40
M1.6	3.00	2.75	1.00	0.86	0.10	2.00	15.00	0.70	0.60	0.46	0.65	0.45
M2	3.80	3.50	1.30	1.16	0.10	2.60	16.00	0.80	0.70	0.56	0.85	0.60
(M2.2)	4.00	3.70	1.50	1.36	0.10	2.80	17.00	0.90	0.80	0.66	1.00	0.70
M2.5	4.50	4.20	1.60	1.46	0.10	3.10	18.00	0.90	0.80	0.66	1.00	0.70
M3	5.50	5.20	2.00	1.86	0.10	3.60	19.00	1.00	1.00	0.86	1.30	0.90
(M3.5)	6.00	5.70	2.40	2.26	0.10	4.10	20.00	1.20	1.00	0.86	1.40	1.00
M4	7.00	6.64	2.60	2.46	0.20	4.70	22.00	1.40	1.20	1.06	1.60	1.20
(M4.5)	8.00	7.64	3.10	2.92	0.20	5.20	24.00	1.50	1.20	1.06	1.80	1.40
M5	8.50	8.14	3.30	3.12	0.20	5.70	25.00	1.60	1.51	1.26	2.00	1.50
M6	10.00	9.64	3.90	3.72	0.25	6.80	28.00	2.00	1.91	1.66	2.30	1.80
M8	13.00	12.57	5.00	4.82	0.40	9.20	34.00	2.50	2.31	2.06	2.80	2.30
M10	16.00	15.57	6.00	5.82	0.40	11.20	40.00	3.00	2.81	2.56	3.20	2.70
M12	18.00	17.57	7.00	6.78	0.60	14.20	46.00	3.50	3.31	3.06	3.80	3.20
(M14)	21.00	20.48	8.00	7.78	0.60	16.20	52.00	4.00	3.31	3.06	4.20	3.60
M16	24.00	23.48	9.00	8.78	0.60	18.20	58.00	4.00	4.37	4.07	4.60	4.00
(M18)	27.00	26.48	10.00	9.78	0.60	20.20	64.00	5.00	4.37	4.07	5.10	4.50
M20	30.00	29.48	11.00	10.73	0.80	22.40	70.00	5.00	5.27	5.07	5.60	5.00

[a] Nominal sizes shown in parentheses are non-preferred.

[b] Threaded up to head.

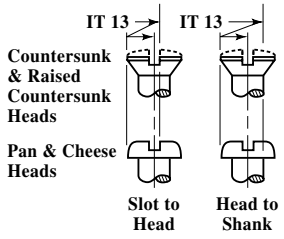
[c] See text following table in *Lengths of Thread on Screws* description in text.

All dimensions are given in millimeters. For dimensional notation, see diagram on page 1590.

General Dimensions: The general dimensions and tolerances for screws and nuts are given in the accompanying tables. Although slotted screw dimensions are given, recessed head screws are also standard and available. Dimensions of recessed head screws are given in BS 4183:1967 (obsolescent).

Table 5. British Standard Machine Screws and Nuts — Metric Series *BS 4183:1967 (obsolescent)*

Concentricity Tolerances



Nominal Size d^a	Head to Shank and Slot to Head (IT 13)	
	Countersunk, Raised Csk., and Pan Heads	Cheese Heads
M1, M1.2, (M1.4)	0.14	0.14
M1.6	0.18	0.14
M2, (M2.2), M2.5, M3	0.18	0.18
(M3.5)	0.22	0.18
M4, (M4.5), M5	0.22	0.22
M6	0.27	0.22
M8	0.27	0.27
M10, M12	0.33	0.27
(M14)	0.33	0.33
M16, (M18), M20	0.39	0.33

Nominal Lengths and Tolerances on Length for Machine Screws

Nominal Length[a]	Tolerance	Nominal Length[a]	Tolerance
1.5	±0.12	45	±0.50
2	±0.12	50	±0.060
2.5	±0.20	55	±0.60
3	±0.20	60	±0.60
4	±0.24	65	±0.60
5	±0.24	70	±0.60
6	±0.24	75	±0.60
(7)	±0.29	80	±0.60
8	±0.29	85	±0.70
(9)	±0.29	90	±0.70
10	±0.29	(95)	±0.70
(11)	±0.35	100	±0.70
12	±0.35	(105)	±0.70
14	±0.35	110	±0.70
16	±0.35	(115)	±0.70
(18)	±0.35	120	±0.70
20	±0.42	(125)	±0.70
(22)	±0.42	130	±0.80
25	±0.42	140	±0.80
(28)	±0.42	150	±0.80
30	±0.42	160	±0.80
(38)	±0.50	190	±0.925
40	±0.50	200	±0.925

Dimensions of Machine Screw Nuts, Pressed Type, Square and Hexagon

Nominal Size d^a	Width Across		
	Flats s		Corners e
	Max.	Min.	Square
M1.6	3.2	3.02	4.5
M2	4.0	3.82	5.7
(M2.2)	4.5	4.32	6.4
(M2.5)	5.0	4.82	7.1
M3	5.5	5.32	7.8
(M3.5)	6.0	5.82	8.5
M4	7.0	6.78	9.9
M5	8.0	7.78	11.3
M6	10.0	9.78	14.1
M8	13.0	12.73	18.4
M10	17.0	16.73	24.0

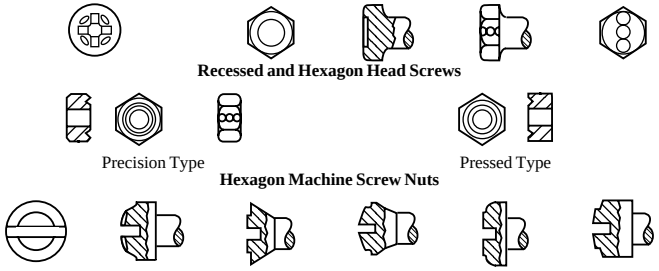
Nominal Size d^a	Width Across Corners e	Thickness m	
	Hexagon	Max.	Min
M1.6	3.7	1.0	0.75
M2	4.6	1.2	0.95
(M2.2)	5.2	1.2	0.95
M2.5	5.8	1.6	1.35
M3	6.4	1.6	1.35
(M3.5)	6.9	2.0	1.75
M4	8.1	2.0	1.75
M5	9.2	2.5	2.25
M6	11.5	3.0	2.75
M8	15.0	4.0	3.70
M10	19.6	5.0	4.70
M8	13.0	12.73	18.4
M10	17.0	16.73	24.0

[a] Nominal sizes and lengths shown in parentheses are non-preferred.

All dimensions are given in millimeters. For dimensional notation, see diagram on page 1590.

British Unified Machine Screws and Nuts.—British Standard B.S. 1981:1953 covers certain types of machine screws and machine screw nuts for which agreement has been reached with the United States and Canada as to general dimensions for interchangeability. These types are: countersunk, raised-countersunk, pan, and raised-cheese head screws with slotted or recessed heads; small hexagon head screws; and precision and pressed nuts. All have Unified threads. Head shapes are shown on page 1595 and dimensions are given on page 1597.

Identification: As revised by Amendment No. 1 in February 1955, this standard now requires that the above-mentioned screws and nuts that conform to this standard should have a distinguishing feature applied to identify them as Unified. All *recessed head screws* are to be identified as Unified by a groove in the form of four arcs of a circle in the upper surface of the head. All *hexagon head screws* are to be identified as Unified by: 1) a circular recess in the upper surface of the head; 2) a continuous line of circles indented on one or more of the flats of the hexagon and parallel to the screw axis; and 3) at least two contiguous circles indented on the upper surface of the head. All *machine screw* nuts of the pressed type shall be identified as Unified by means of the application of a groove indented in one face of the nut approximately midway between the major diameter of the thread and flats of the square or hexagon. *Slotted head screws* shall be identified as Unified either by a circular recess or by a circular platform or raised portion on the upper surface of the head. *Machine screw nuts* of the *precision type* shall be identified as Unified by either a groove indented on one face of the front approximately midway between the major diameter of the thread and the flats of the hexagon or a continuous line of circles indented on one or more of the flats of the hexagon and parallel to the nut axis.



Recessed and Hexagon Head Screws

Precision Type

Pressed Type

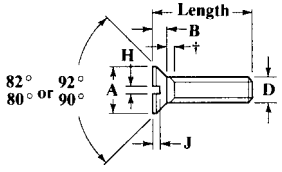
Hexagon Machine Screw Nuts

Slotted Head Screws

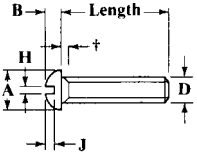
Identification Markings for British Standard Unified Machine Screws

British Standard Machine Screws and Nuts

BS 450:1958 (obsolescent) and B.S. 1981:1953



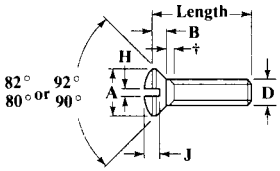
80° Countersunk head screw (Unified)
90° Countersink head screw (BSW & BSF)



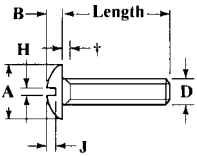
Round head screw (BSW & BSF)

British Standard Machine Screws and Nuts

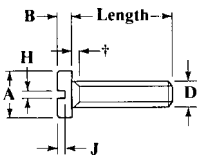
BS 450:1958 (obsolescent) and B.S. 1981:1953



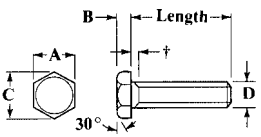
80° Raised countersunk head screw (Unified)
90° Raised countersunk head screw (BSW & BSF)



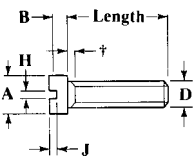
Mushroom head screw (BSW & BSF)



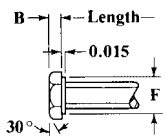
Pan head screw (Unified, BSW & BSF)



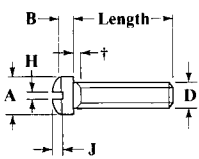
Hexagon head screw (Unified)



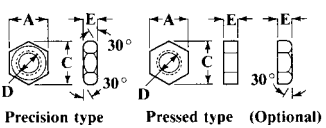
Cheese head screw (BSW & BSF)



Hexagon head screw (Unified) alternate design



Raised cheese head screw (Unified)



Hexagon machine screw nut (Unified)

*Countersinks to suit the screws should have a maximum angle of 80° (Unified) or 90° (BSF and BSW) with a negative tolerance.

†Unified countersunk and raised countersunk head screws 2 inches long and under are threaded right up to the head. Other Unified, BSW and BSF machine screws 2 inches long and under have an unthread shank equal to twice the pitch. All Unified, BSW and BSF machine screws longer than 2 inches have a minimum thread length of 1¾ inches.

British Standard Unified Machine Screws and Nuts *B.S. 1981:1953*

Nom.Size of Screw	Basic Dia. *D*	Threads per Inch UNC	Threads per Inch UNF	Dia. of Head *A* Max.	Dia. of Head *A* Min.	Depth of Head *B* Max.	Depth of Head *B* Min.	Width of Slot *H* Max.	Width of Slot *H* Min.	Depth of Slot *J*
80° Countersunk Head Screws[a,b]										
4	0.112	40	…	0.211	0.194	0.067	…	0.039	0.031	0.025
6	0.138	32	…	0.260	0.242	0.083	…	0.048	0.039	0.031
8	0.164	32	…	0.310	0.291	0.100	…	0.054	0.045	0.037
10	0.190	24[c]	32	0.359	0.339	0.116	…	0.060	0.050	0.044
1/4	0.250	20	28	0.473	0.450	0.153	…	0.075	0.064	0.058
5/16	0.3125	18	24	0.593	0.565	0.191	…	0.084	0.072	0.073
3/8	0.375	16	24	0.712	0.681	0.230	…	0.094	0.081	0.086
7/16	0.4375	14	20	0.753	0.719	0.223	…	0.094	0.081	0.086
1/2	0.500	13	20	0.808	0.770	0.223	…	0.106	0.091	0.086
5/8	0.625	11	18	1.041	0.996	0.298	…	0.133	0.116	0.113
3/4	0.750	10	16	1.275	1.223	0.372	…	0.149	0.131	0.141
Pan Head Screws[b]										
4	0.112	40	…	0.219	0.205	0.068	0.058	0.039	0.031	0.036
6	0.138	32	…	0.270	0.256	0.082	0.072	0.048	0.039	0.044
8	0.164	32	…	0.322	0.306	0.096	0.085	0.054	0.045	0.051
10	0.190	24[c]	32	0.373	0.357	0.110	0.099	0.060	0.050	0.059
1/4	0.250	20	28	0.492	0.473[d]	0.144	0.130	0.075	0.064	0.079
5/16	0.3125	18	24	0.615	0.594	0.178	0.162	0.084	0.072	0.101
3/8	0.375	16	24	0.740	0.716	0.212	0.195	0.094	0.081	0.122
7/16	0.4375	14	20	0.863	0.838	0.247	0.227	0.094	0.081	0.133
1/2	0.500	13	20	0.987	0.958	0.281	0.260	0.106	0.091	0.152
5/8	0.625	11	18	1.125	1.090	0.350	0.325	0.133	0.116	0.189
3/4	0.750	10	16	1.250	1.209	0.419	0.390	0.149	0.131	0.226
Raised Cheese-Head Screws[b]										
4	0.112	40	…	0.183	0.166	0.107	0.088	0.039	0.031	0.042
6	0.138	32	…	0.226	0.208	0.132	0.111	0.048	0.039	0.053
8	0.164	32	…	0.270	0.250	0.156	0.133	0.054	0.045	0.063
10	0.190	24[c]	32	0.313	0.292	0.180	0.156	0.060	0.050	0.074
1/4	0.250	20	28	0.414	0.389	0.237	0.207	0.075	0.064	0.098
5/16	0.3125	18	24	0.518	0.490	0.295	0.262	0.084	0.072	0.124
3/8	0.375	16	24	0.622	0.590	0.355	0.315	0.094	0.081	0.149
7/16	0.4375	14	20	0.625	0.589	0.368	0.321	0.094	0.081	0.153
1/2	0.500	13	20	0.750	0.710	0.412	0.362	0.106	0.091	0.171
5/8	0.625	11	18	0.875	0.827	0.521	0.461	0.133	0.116	0.217
3/4	0.750	10	16	1.000	0.945	0.612	0.542	0.149	0.131	0.254

[a] All dimensions, except *J*, given for the No. 4 to 3/8-inch sizes, incl., also apply to all the 80° Raised Countersunk Head Screws given in the Standard.

[b] Also available with recessed heads.

[c] Non-preferred.

[d] By arrangement may also be 0.468.

Nom. Size	Basic Dia. *D*	Threads per Inch UNC	Threads per Inch UNF	Width Across Flats *A* Max.	Width Across Flats *A* Min.	Width Across Corners *C* Max.	H'd Depth *B* Nut Thick. *E* Max.	H'd Depth *B* Nut Thick. *E* Min.	Wash. Face Dia. *F* Max.	Wash. Face Dia. *F* Min.
Hexagon Head Screws										
4	0.112	40	…	0.1875	0.1835	0.216	0.060	0.055	0.183	0.173
6	0.138	32	…	0.2500	0.2450	0.289	0.080	0.074	0.245	0.235
8	0.164	32	…	0.2500	0.2450	0.289	0.110	0.104	0.245	0.235
10	0.190	24[c]	32	0.3125	0.3075	0.361	0.120	0.113	0.307	0.297
Hexagon Machine Screw Nuts—Precision Type										
4	0.112	40	…	0.1875	0.1835	0.216	0.098	0.087	…	…
6	0.138	32	…	0.2500	0.2450	0.269	0.114	0.102	…	…
8	0.164	32	…	0.3125	0.3075	0.361	0.130	0.117	…	…
10	0.190	24[c]	…	0.3125	0.3075	0.361	0.130	0.117	…	…
Hexagon Machine Screw Nuts—Pressed Type										
4	0.112	40	…	0.2500	0.2410	0.289	0.087	0.077	…	…
6	0.138	32	…	0.3125	0.3020	0.361	0.114	0.102	…	…
8	0.164	32	…	0.3438	0.3320	0.397	0.130	0.117	…	…
10	0.190	24[c]	32	0.3750	0.3620	0.433	0.130	0.117	…	…
1/4	0.250	20	28	0.4375	0.4230	0.505	0.193	0.178	…	…
5/16	0.3125	18	24	0.5625	0.5450	0.649	0.225	0.208	…	…
3/8	0.375	16	24	0.6250	0.6070	0.722	0.257	0.239	…	…

All dimensions in inches. See page 1595 for a pictorial representation and letter dimensions.

British Standard Whitworth (BSW) and Fine (BSF) Machine Screws

BS 450:1958 (obsolescent)

	Nom. Size of Screw	Basic Dia. *D*	Threads per Inch		Dia. of Head *A*		Depth of Head *B*		Width of Slot *H*		Depth of Slot *J*
			BSW	BSF	Max.	Min.	Max.	Min.	Max.	Min.	
90° Countersunk Head Screws[a,b]	1/8	0.1250	40	…	0.219	0.201	0.056	…	0.039	0.032	0.027
	3/16	0.1875	24	32[c]	0.328	0.307	0.084	…	0.050	0.042	0.041
	7/32	0.2188	…	28[c]	0.383	0.360	0.098	…	0.055	0.046	0.048
	1/4	0.2500	20	26	0.438	0.412	0.113	…	0.061	0.051	0.055
	5/16	0.3125	18	22	0.547	0.518	0.141	…	0.071	0.061	0.069
	3/8	0.3750	16	20	0.656	0.624	0.169	…	0.082	0.072	0.083
	7/16	0.4375	14	18	0.766	0.729	0.197	…	0.093	0.082	0.097
	1/2	0.5000	12	16	0.875	0.835	0.225	…	0.104	0.092	0.111
	9/16	0.5625	12[c]	16[c]	0.984	0.941	0.253	…	0.115	0.103	0.125
	5/8	0.6250	11	14	1.094	1.046	0.281	…	0.126	0.113	0.138
	3/4	0.7500	10	12	1.312	1.257	0.338	…	0.148	0.134	0.166
Round Head Screws[b]	1/8	0.1250	40	…	0.219	0.206	0.087	0.082	0.039	0.032	0.048
	3/16	0.1875	24	32[c]	0.328	0.312[d]	0.131	0.124	0.050	0.042	0.072
	7/32	0.2188	…	28[c]	0.383	0.365	0.153	0.145	0.055	0.046	0.084
	1/4	0.2500	20	26	0.438	0.417	0.175	0.165	0.061	0.051	0.096
	5/16	0.3125	18	22	0.547	0.524	0.219	0.207	0.071	0.061	0.120
	3/8	0.3750	16	20	0.656	0.629	0.262	0.249	0.082	0.072	0.144
	7/16	0.4375	14	18	0.766	0.735	0.306	0.291	0.093	0.082	0.168
	1/2	0.5000	12	16	0.875	0.840	0.350	0.333	0.104	0.092	0.192
	9/16	0.5625	12[c]	16[c]	0.984	0.946	0.394	0.375	0.115	0.103	0.217
	5/8	0.6250	11	14	1.094	1.051	0.437	0.417	0.126	0.113	0.240
	3/4	0.7500	10	12	1.312	1.262	0.525	0.500	0.148	0.134	0.288
Pan Head Screws[b]	1/8	0.1250	40	…	0.245	0.231	0.075	0.065	0.039	0.032	0.040
	3/16	0.1875	24	32[c]	0.373	0.375	0.110	0.099	0.050	0.042	0.061
	7/32	0.2188	…	28[c]	0.425	0.407	0.125	0.112	0.055	0.046	0.069
	1/4	0.2500	20	26	0.492	0.473[e]	0.144	0.130	0.061	0.051	0.078
	5/16	0.3125	18	22	0.615	0.594	0.178	0.162	0.071	0.061	0.095
	3/8	0.3750	16	20	0.740	0.716	0.212	0.195	0.082	0.072	0.112
	7/16	0.4375	14	18	0.863	0.838	0.247	0.227	0.093	0.082	0.129
	1/2	0.5000	12	16	0.987	0.958	0.281	0.260	0.104	0.092	0.145
	9/16	0.5625	12[c]	16[c]	1.031	0.999	0.315	0.293	0.115	0.103	0.162
	5/8	0.6250	11	14	1.125	1.090	0.350	0.325	0.126	0.113	0.179
	3/4	0.7500	10	12	1.250	1.209	0.419	0.390	0.148	0.134	0.213
Cheese Head Screws[b]	1/8	0.1250	40	…	0.188	0.180	0.087	0.082	0.039	0.032	0.039
	3/16	0.1875	24	32[c]	0.281	0.270	0.131	0.124	0.050	0.042	0.059
	7/32	0.2188	…	28[c]	0.328	0.315	0.153	0.145	0.055	0.046	0.069
	1/4	0.2500	20	26	0.375	0.360	0.175	0.165	0.061	0.051	0.079
	5/16	0.3125	18	22	0.469	0.450	0.219	0.207	0.071	0.061	0.098
	3/8	0.3750	16	20	0.562	0.540	0.262	0.249	0.082	0.072	0.118
	7/16	0.4375	14	18	0.656	0.630	0.306	0.291	0.093	0.082	0.138
	1/2	0.5000	12	16	0.750	0.720	0.350	0.333	0.104	0.092	0.157
	9/16	0.5625	12[c]	16[c]	0.844	0.810	0.394	0.375	0.115	0.103	0.177
	5/8	0.6250	11	14	0.938	0.900	0.437	0.417	0.126	0.113	0.197
	3/4	0.7500	10	12	1.125	1.080	0.525	0.500	0.148	0.134	0.236
Mushroom Head Screws[b]	1/8	0.1250	40	…	0.289	0.272	0.078	0.066	0.043	0.035	0.040
	3/16	0.1875	24	32[c]	0.448	0.425	0.118	0.103	0.060	0.050	0.061
	1/4	0.2500	20	26	0.573	0.546	0.150	0.133	0.075	0.064	0.079
	5/16	0.3125	18	22	0.698	0.666	0.183	0.162	0.084	0.072	0.096
	3/8	0.3750	16	20	0.823	0.787	0.215	0.191	0.094	0.081	0.112

[a] All dimensions, except *J*, given for the 1/8-through 3/8-inch sizes also apply to all the 90° Raised Countersunk Head Screw dimensions given in the Standard.

[b] These screws are also available with recessed heads; dimensions of recess are not given here but may be found in the Standard.

[c] Non-preferred size; avoid use whenever possible.

[d] By arrangement may also be 0.309.

[e] By arrangement may also be 0.468.

All dimensions in inches.

See diagram on page 1595 for a pictorial representation of screws and letter dimensions.