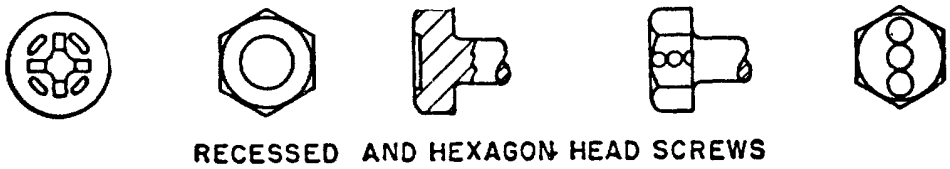
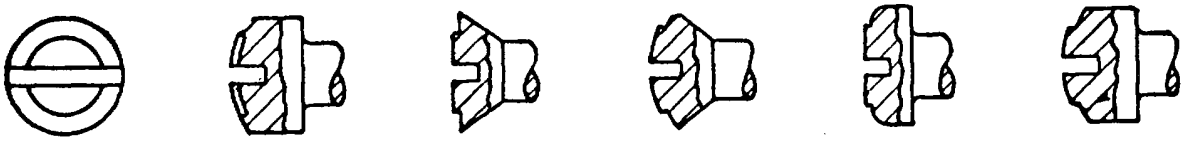


RECESSED AND HEXAGON HEAD SCREWS

PRECISION TYPE PRESSED TYPE

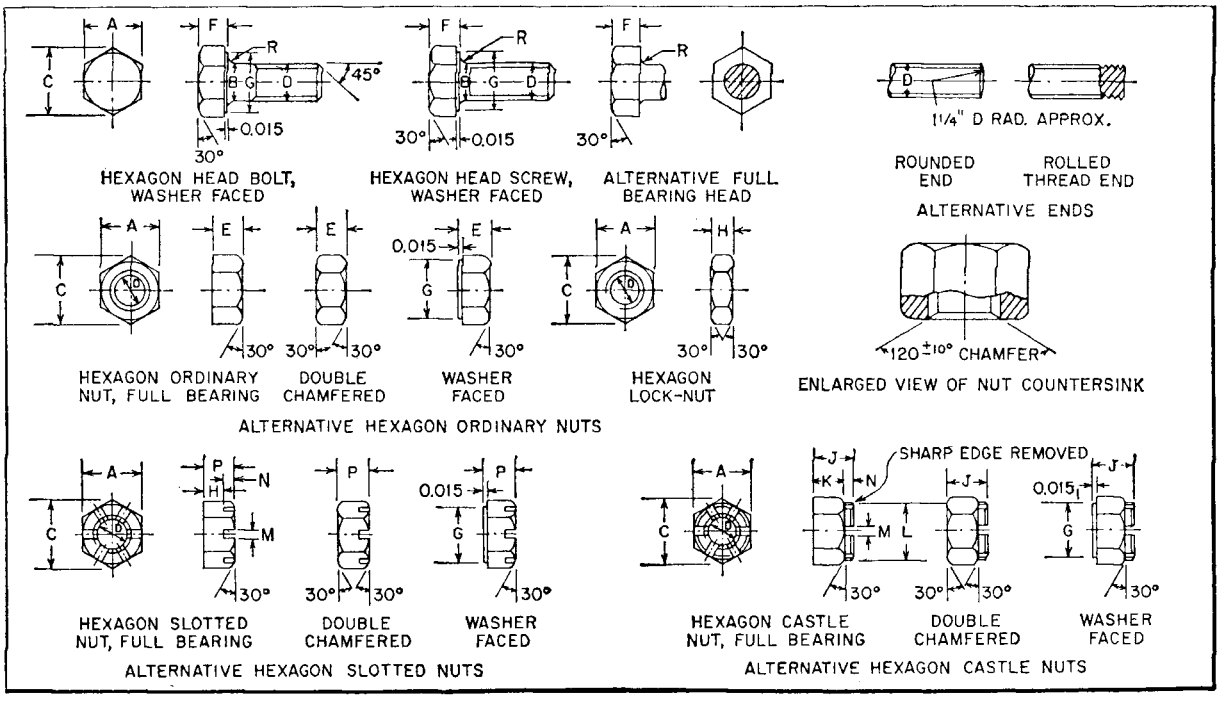
HEXAGON MACHINE SCREW NUTS



SLOTTED HEAD SCREWS

Identification Markings for British Standard Unified Machine Screws

British Standard Whitworth (B.S.W.) and Fine (B.S.F.) Precision Hexagon Bolts, Screws, and Nuts



For dimensions see Tables 1 and 2.

Table 1. British Standard Whitworth (B.S.W.) and Fine (B.S.F.) Precision Hexagon Bolts Screws, and Nuts
(B.S. 1083:1965)

Nominal Size *D*	Number of Threads per Inch		Bolts, Screws, and Nuts					Bolts and Screws						Nuts			
			Width			Diameter of Washer Face *G*		Radius Under Head *R*		Diameter of Unthreaded Portion of Shank *B*		Thickness		Thickness			
			Across Flats *A*		Across Corners *C*							Head *F*		Ordinary *E*		Lock *H*	
	B.S.W.	B.S.F.	Max.	Min.†	Max.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
¼	20	26	0.445	0.438	0.51	0.428	0.418	0.025	0.015	0.2500	0.2465	0.176	0.166	0.200	0.190	0.185	0.180
5/16	18	22	0.525	0.518	0.61	0.508	0.498	0.025	0.015	0.3125	0.3090	0.218	0.208	0.250	0.240	0.210	0.200
⅜	16	20	0.600	0.592	0.69	0.582	0.572	0.025	0.015	0.3750	0.3715	0.260	0.250	0.312	0.302	0.260	0.250
7/16	14	18	0.710	0.702	0.82	0.690	0.680	0.025	0.015	0.4375	0.4335	0.302	0.292	0.375	0.365	0.275	0.265
½	12	16	0.820	0.812	0.95	0.800	0.790	0.025	0.015	0.5000	0.4960	0.343	0.333	0.437	0.427	0.300	0.290
9/16	12	16	0.920	0.912	1.06	0.900	0.890	0.045	0.020	0.5625	0.5585	0.375	0.365	0.500	0.490	0.333	0.323
⅝	11	14	1.010	1.000	1.17	0.985	0.975	0.045	0.020	0.6250	0.6190	0.417	0.407	0.562	0.552	0.375	0.365
¾	10	12	1.200	1.190	1.39	1.175	1.165	0.045	0.020	0.7500	0.7440	0.500	0.480	0.687	0.677	0.458	0.448
⅞	9	11	1.300	1.288	1.50	1.273	1.263	0.065	0.040	0.8750	0.8670	0.583	0.563	0.750	0.740	0.500	0.490
1	8	10	1.480	1.468	1.71	1.453	1.443	0.095	0.060	1.0000	0.9920	0.666	0.636	0.875	0.865	0.583	0.573
1⅛	7	9	1.670	1.640	1.93	1.620	1.610	0.095	0.060	1.1250	1.1170	0.750	0.710	1.000	0.990	0.666	0.656
1¼	7	9	1.860	1.815	2.15	1.795	1.785	0.095	0.060	1.2500	1.2420	0.830	0.790	1.125	1.105	0.750	0.730
1⅜*	...	8	2.050	2.005	2.37	1.985	1.975	0.095	0.060	1.3750	1.3650	0.920	0.880	1.250	1.230	0.833	0.813
1½	6	8	2.220	2.175	2.56	2.155	2.145	0.095	0.060	1.5000	1.4900	1.000	0.960	1.375	1.355	0.916	0.896
1¾	5	7	2.580	2.520	2.98	2.495	2.485	0.095	0.060	1.7500	1.7400	1.170	1.110	1.625	1.605	1.083	1.063
2	4.5	7	2.760	2.700	3.19	2.675	2.665	0.095	0.060	2.0000	1.9900	1.330	1.270	1.750	1.730	1.166	1.146

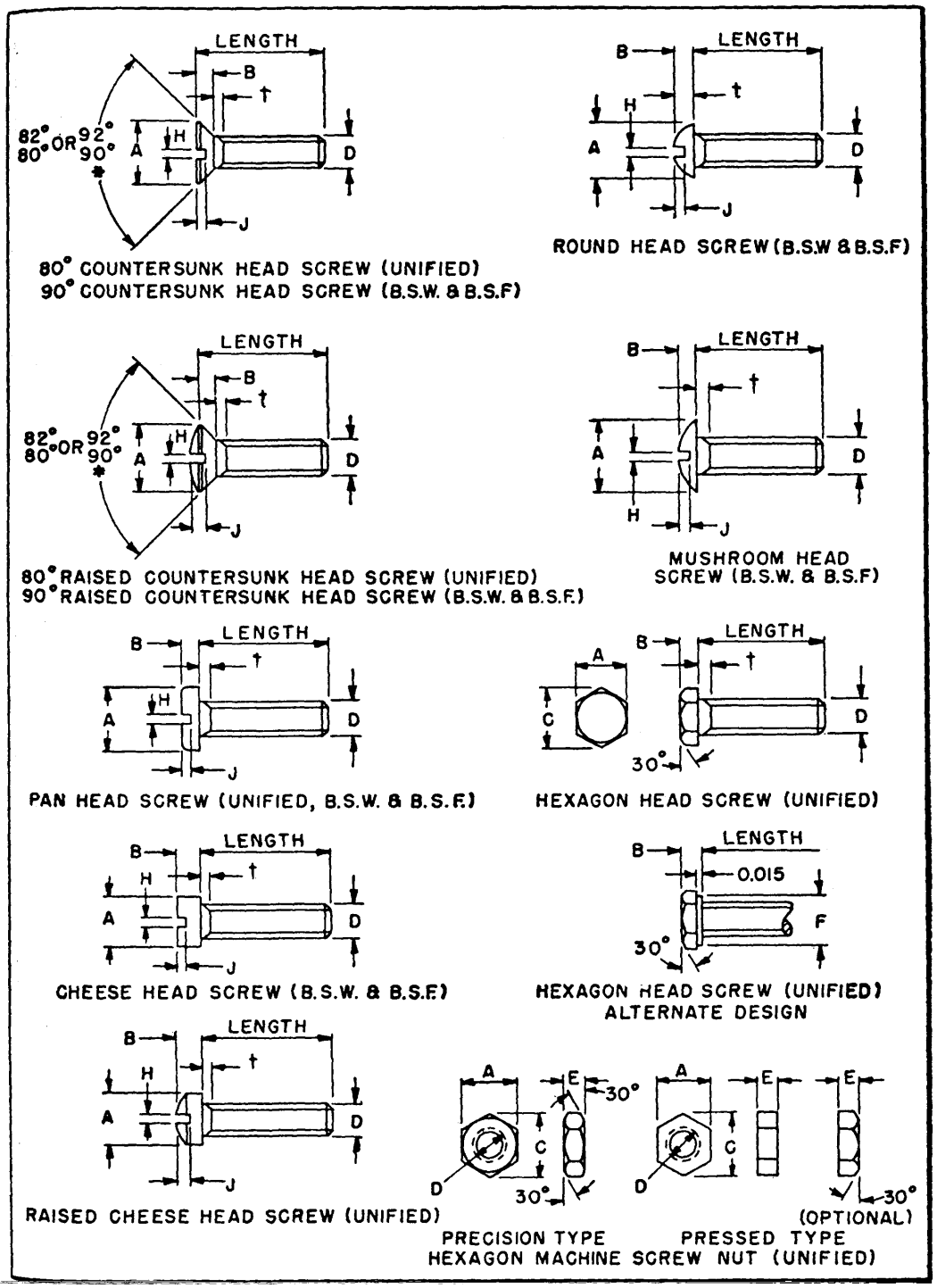
All dimensions in inches except where otherwise noted. * Not standard with B.S.W. thread. † When bolts from ¼ to 1 inch are hot forged, the tolerance on the width across flats shall be two and a half times the tolerance shown in the table and shall be unilaterally minus from maximum size. For dimensional notation, see diagram on page 1153.

Table 2. British Standard Whitworth (B.S.W.) and Fine (B.S.F.) Precision Hexagon Slotted and Castle Nuts
(B.S. 1083:1965)

Nominal Size *D*	Number of Threads per Inch		Slotted Nuts				Castle Nuts					Slotted and Castle Nuts		
			Thickness *P*		Lower Face to Bottom of Slot *H*		Total Thickness *J*		Lower Face to Bottom of Slot *K*		Castellated Portion	Slots		
											Diameter *L*	Width *M*		Depth *N*
	B.S.W.	B.S.F.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max. Min.	Max.	Min.	Approx.
¼	20	26	0.200	0.190	0.170	0.160	0.290	0.280	0.200	0.190	0.430 0.425	0.100	0.090	0.090
5/16	18	22	0.250	0.240	0.190	0.180	0.340	0.330	0.250	0.240	0.510 0.500	0.100	0.090	0.090
⅜	16	20	0.312	0.302	0.222	0.212	0.402	0.392	0.312	0.302	0.585 0.575	0.100	0.090	0.090
7/16	14	18	0.375	0.365	0.235	0.225	0.515	0.505	0.375	0.365	0.695 0.685	0.135	0.125	0.140
½	12	16	0.437	0.427	0.297	0.287	0.577	0.567	0.437	0.427	0.805 0.795	0.135	0.125	0.140
9/16	12	16	0.500	0.490	0.313	0.303	0.687	0.677	0.500	0.490	0.905 0.895	0.175	0.165	0.187
⅝	11	14	0.562	0.552	0.375	0.365	0.749	0.739	0.562	0.552	0.995 0.985	0.175	0.165	0.187
¾	10	12	0.687	0.677	0.453	0.443	0.921	0.911	0.687	0.677	1.185 1.165	0.218	0.208	0.234
⅞	9	11	0.750	0.740	0.516	0.506	0.984	0.974	0.750	0.740	1.285 1.265	0.218	0.208	0.234
1	8	10	0.875	0.865	0.595	0.585	1.155	1.145	0.875	0.865	1.465 1.445	0.260	0.250	0.280
1⅛	7	9	1.000	0.990	0.720	0.710	1.280	1.270	1.000	0.990	1.655 1.635	0.260	0.250	0.280
1¼	7	9	1.125	1.105	0.797	0.777	1.453	1.433	1.125	1.105	1.845 1.825	0.300	0.290	0.328
1⅜*	...	8	1.250	1.230	0.922	0.902	1.578	1.558	1.250	1.230	2.035 2.015	0.300	0.290	0.328
1½	6	8	1.375	1.355	1.047	1.027	1.703	1.683	1.375	1.355	2.200 2.180	0.300	0.290	0.328
1¾	5	7	1.625	1.605	1.250	1.230	2.000	1.980	1.625	1.605	2.555 2.535	0.343	0.333	0.375
2	4.5	7	1.750	1.730	1.282	1.262	2.218	2.198	1.750	1.730	2.735 2.715	0.426	0.416	0.468

All dimensions in inches except where otherwise noted. * Not standard with B.S.W. thread. For widths across flats, widths across corners, and diameter of washer face see Table 1. For dimensional notation, see diagram on page 1153.

British Standard Machine Screws and Nuts (B.S. 450:1958 and B.S. 1981:1953)



* Countersinks to suit the screws should have a maximum angle of 80° (Unified) or 90° (B.S.F. and B.S.W.) 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, B.S.W. and B.S.F. machine screws 2 inches long and under have an unthreaded shank equal to twice the pitch. All Unified, B.S.W. and B.S.F. machine screws longer than 2 inches have a minimum thread length of 1¾ inches.

British Standard Whitworth (B.S.W.) and Fine (B.S.F.) Machine Screws (B.S. 450:1958)[1]

Nom. Size of Screw	Basic Diam. *D*	Threads per Inch		Diam. of Head *A*		Depth of Head *B*		Width of Slot *H*		Depth of Slot *J*
		B.S.W.	B.S.F.	Max.	Min.	Max.	Min.	Max.	Min.	
90° COUNTERSUNK HEAD SCREWS[2,3]										
1/8	.1250	40	..	.219	.201	.056	....	.039	.032	.027
3/16	.1875	24	32*	.328	.307	.084	....	.050	.042	.041
7/32	.2188	..	28*	.383	.360	.098	....	.055	.046	.048
1/4	.2500	20	26	.438	.412	.113	....	.061	.051	.055
5/16	.3125	18	22	.547	.518	.141	....	.071	.061	.069
3/8	.3750	16	20	.656	.624	.169	....	.082	.072	.083
7/16	.4375	14	18	.766	.729	.197	....	.093	.082	.097
1/2	.5000	12	16	.875	.835	.225	....	.104	.092	.111
9/16	.5625	12*	16*	.984	.941	.253	....	.115	.103	.125
5/8	.6250	11	14	1.094	1.046	.281	....	.126	.113	.138
3/4	.7500	10	12	1.312	1.257	.338	....	.148	.134	.166
ROUND HEAD SCREWS[3]										
1/8	.1250	40	..	.219	.206	.087	.082	.039	.032	.048
3/16	.1875	24	32*	.328	.312†	.131	.124	.050	.042	.072
7/32	.2188	..	28*	.383	.365	.153	.145	.055	.046	.084
1/4	.2500	20	26	.438	.417	.175	.165	.061	.051	.096
5/16	.3125	18	22	.547	.524	.219	.207	.071	.061	.120
3/8	.3750	16	20	.656	.629	.262	.249	.082	.072	.144
7/16	.4375	14	18	.766	.735	.306	.291	.093	.082	.168
1/2	.5000	12	16	.875	.840	.350	.333	.104	.092	.192
9/16	.5625	12*	16*	.984	.946	.394	.375	.115	.103	.217
5/8	.6250	11	14	1.094	1.051	.437	.417	.126	.113	.240
3/4	.7500	10	12	1.312	1.262	.525	.500	.148	.134	.288
PAN HEAD SCREWS[3]										
1/8	.1250	40	..	.245	.231	.075	.005	.039	.032	.040
3/16	.1875	24	32*	.373	.375	.110	.099	.050	.042	.061
7/32	.2188	..	28*	.425	.407	.125	.112	.055	.046	.069
1/4	.2500	20	26	.492	.473§	.144	.130	.061	.051	.078
5/16	.3125	18	22	.615	.594	.178	.162	.071	.061	.095
3/8	.3750	16	20	.740	.716	.212	.195	.082	.072	.112
7/16	.4375	14	18	.863	.838	.247	.227	.093	.082	.129
1/2	.5000	12	16	.987	.958	.281	.260	.104	.092	.145
9/16	.5625	12*	16*	1.031	.999	.315	.293	.115	.103	.162
5/8	.6250	11	14	1.125	1.090	.350	.325	.126	.113	.179
3/4	.7500	10	12	1.250	1.209	.419	.390	.148	.134	.213
CHEESE HEAD SCREWS[3]										
1/8	.1250	40	..	.188	.180	.087	.082	.039	.032	.039
3/16	.1875	24	32*	.281	.270	.131	.124	.050	.042	.059
7/32	.2188	..	28*	.328	.315	.153	.145	.055	.046	.069
1/4	.2500	20	26	.375	.360	.175	.165	.061	.051	.079
5/16	.3125	18	22	.469	.450	.219	.207	.071	.061	.098
3/8	.3750	16	20	.562	.540	.262	.249	.082	.072	.118
7/16	.4375	14	18	.656	.630	.306	.291	.093	.082	.138
1/2	.5000	12	16	.750	.720	.350	.333	.104	.092	.157
9/16	.5625	12*	16*	.844	.810	.394	.375	.115	.103	.177
5/8	.6250	11	14	.938	.900	.437	.417	.126	.113	.197
3/4	.7500	10	12	1.125	1.080	.525	.500	.148	.134	.236
MUSHROOM HEAD SCREWS[3]										
1/8	.1250	40	..	.289	.272	.078	.066	.043	.035	.040
3/16	.1875	24	32*	.448	.425	.118	.103	.060	.050	.061
1/4	.2500	20	26	.573	.546	.150	.133	.075	.064	.079
5/16	.3125	18	22	.698	.666	.183	.162	.084	.072	.096
3/8	.3750	16	20	.823	.787	.215	.191	.094	.081	.112

All dimensions in inches. [1] See diagram on page 1197 for a pictorial representation of screws and letter dimensions. [2] 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. [3] These screws are also available with recessed heads; dimensions of recess are not given here but may be found in the Standard. * Non-preferred size; avoid use whenever possible. † By arrangement this may also be .309. § By arrangement this may also be .468.

WHITWORTH THREADS

British Standard Whitworth (B.S.W.) and British Standard Fine (B.S.F.)

Screw Thread Series — Basic Dimensions (B.S. 84:1956)

Nominal Size, Inches	Threads per Inch	Pitch, Inches	Depth of Thread, Inches	Major Diameter, Inches	Effective Diameter, Inches	Minor Diameter, Inches	Area at Bottom of Thread, Sq. in.	Tap Drill Diam.
COARSE THREAD SERIES (B.S.W.)								
1/8*	40	0.02500	0.0160	0.1250	0.1090	0.0930	0.0068	2.55 mm
3/16	24	0.04167	0.0267	0.1875	0.1608	0.1341	0.0141	3.70 mm
1/4	20	0.05000	0.0320	0.2500	0.2180	0.1860	0.0272	5.10 mm
5/16	18	0.05556	0.0356	0.3125	0.2769	0.2413	0.0457	6.50 mm
3/8	16	0.06250	0.0400	0.3750	0.3350	0.2950	0.0683	5/16 in.
7/16	14	0.07143	0.0457	0.4375	0.3918	0.3461	9.0941	9.25 mm
1/2	12	0.08333	0.0534	0.5000	0.4466	0.3932	0.1214	10.50 mm
9/16*	12	0.08333	0.0534	0.5625	0.5091	0.4557	0.1631	12.10 mm
5/8	11	0.09091	0.0582	0.6250	0.5668	0.5086	0.2032	13.50 mm
11/16*	11	0.09091	0.0582	0.6875	0.6293	0.5711	0.2562	....
3/4	10	0.10000	0.0640	0.7500	0.6860	0.6220	0.3039	41/64 in.
7/8	9	0.11111	0.0711	0.8750	0.8039	0.7328	0.4218	19.25 mm
1	8	0.12500	0.0800	1.0000	0.9200	0.8400	0.5542	22.00 mm
1 1/8	7	0.14286	0.0915	1.1250	1.0335	0.9420	0.6969	24.75 mm
1 1/4	7	0.14286	0.0915	1.2500	1.1585	1.0670	0.8942	1 3/32 in.
1 1/2	6	0.16667	0.1067	1.5000	1.3933	1.2866	1.3000	33.50 mm
1 3/4	5	0.20000	0.1281	1.7500	1.6219	1.4938	1.7530	39.00 mm
2	4.5	0.22222	0.1423	2.0000	1.8577	1.7154	2.3110	44.50 mm
2 1/4	4	0.25000	0.1601	2.2500	2.0899	1.9298	2.9250	Tap drill diameters shown in this column are recommended sizes listed in B.S. 1157:1953 and provide from 77 to 87% of full thread.
2 1/2	4	0.25000	0.1601	2.5000	2.3399	2.1798	3.7320	
2 3/4	3.5	0.28571	0.1830	2.7500	2.5670	2.3840	4.4640	
3	3.5	0.28571	0.1830	3.0000	2.8170	2.6340	5.4490	
3 1/4*	3.25	0.30769	0.1970	3.2500	3.0530	2.8560	6.4060	
3 1/2	3.25	0.30769	0.1970	3.5000	3.3030	3.1060	7.5770	
3 3/4*	3	0.33333	0.2134	3.7500	3.5366	3.3232	8.6740	
4	3	0.33333	0.2134	4.0000	3.7866	3.5732	10.0300	
4 1/2	2.875	0.34783	0.2227	4.5000	4.2773	4.0546	12.9100	
5	2.75	0.36364	0.2328	5.0000	4.7672	4.5344	16.1500	
5 1/2	2.625	0.38095	0.2439	5.5000	5.2561	5.0122	19.7300	
6	2.5	0.40000	0.2561	6.0000	5.7439	5.4878	23.6500	
FINE THREAD SERIES (B.S.F.)								
3/16*†	32	0.03125	0.0200	0.1875	0.1675	0.1475	0.0171	5/32 in.
7/32*	28	0.03571	0.0229	0.2188	0.1959	0.1730	0.0235	4.65 mm
1/4	26	0.03846	0.0246	0.2500	0.2254	0.2008	0.0317	5.30 mm
9/32*	26	0.03846	0.0246	0.2812	0.2566	0.2320	0.0423	....
5/16	22	0.04545	0.0291	0.3125	0.2834	0.2543	0.0508	6.75 mm
3/8	20	0.05000	0.0320	0.3750	0.3430	0.3110	0.0760	8.25 mm
7/16	18	0.05556	0.0356	0.4375	0.4019	0.3663	0.1054	9.70 mm
1/2	16	0.06250	0.0400	0.5000	0.4600	0.4200	0.1385	7/16 in.
9/16	16	0.06250	0.0400	0.5625	0.5225	0.4825	0.1828	1/2 in.
5/8	14	0.07143	0.0457	0.6250	0.5793	0.5336	0.2236	14.00 mm
11/16*	14	0.07143	0.0457	0.6875	0.6418	0.5961	0.2791	....
3/4	12	0.08333	0.0534	0.7500	0.6966	0.6432	0.3249	16.75 mm
7/8	11	0.09091	0.0582	0.8750	0.8168	0.7586	0.4520	25/32 in.
1	10	0.10000	0.0640	1.0000	0.9360	0.8720	0.5972	22.75 mm
1 1/8	9	0.11111	0.0711	1.1250	1.0539	0.9828	0.7586	25.50 mm
1 1/4	9	0.11111	0.0711	1.2500	1.1789	1.1078	0.9639	28.75 mm
1 3/8*	8	0.12500	0.0800	1.3750	1.2950	1.2150	1.1590	31.50 mm
1 1/2	8	0.12500	0.0800	1.5000	1.4200	1.3400	1.4100	1 23/64 in.
1 5/8*	8	0.12500	0.0800	1.6250	1.5450	1.4650	1.6860	
1 3/4	7	0.14286	0.0915	1.7500	1.6585	1.5670	1.9280	
2	7	0.14286	0.0915	2.0000	1.9085	1.8170	2.5930	
2 1/4	6	0.16667	0.1067	2.2500	2.1433	2.0366	3.2580	
2 1/2	6	0.16667	0.1067	2.5000	2.3933	2.2866	4.1060	
2 3/4	6	0.16667	0.1067	2.7500	2.6433	2.5366	5.0540	
3	5	0.20000	0.1281	3.0000	2.8719	2.7438	5.9130	
3 1/4	5	0.20000	0.1281	3.2500	3.1219	2.9938	7.0390	
3 1/2	4.5	0.22222	0.1423	3.5000	3.3577	3.2154	8.1200	
3 3/4	4.5	0.22222	0.1423	3.7500	3.6077	3.4654	9.4320	
4	4.5	0.22222	0.1423	4.0000	3.8577	3.7154	10.8400	
4 1/4	4	0.25000	0.1601	4.2500	4.0899	3.9298	12.1300	Tap drill sizes listed in this column are recommended sizes shown in B.S. 1157:1953 and provide from 78 to 88% of full thread.

* To be dispensed with wherever possible. † The use of 2 B.A. threads is recommended.

British Standard Pipe Threads (Non-pressure-tight Joints) — Metric and Inch Basic Sizes* (BS 2779:1973)

Nominal Size	Threads per Inch†	Depth of Thread	Major Diameter	Pitch Diameter	Minor Diameter	Nominal Size	Threads per Inch†	Depth of Thread	Major Diameter	Pitch Diameter	Minor Diameter
1/16	28	0.581	7.723	7.142	6.561	1¾	11	1.479	53.746	52.267	50.788
		0.0229	*0.3041*	*0.2812*	*0.2583*			*0.0582*	*2.1160*	*2.0578*	*1.9996*
⅛	28	0.581	9.728	9.147	8.566	2	11	1.479	59.614	58.135	56.656
		0.0229	*0.3830*	*0.3601*	*0.3372*			*0.0582*	*2.3470*	*2.2888*	*2.2306*
¼	19	0.856	13.157	12.301	11.445	2¼	11	1.479	65.710	64.231	62.752
		0.0337	*0.5180*	*0.4843*	*0.4506*			*0.0582*	*2.5870*	*2.5288*	*2.4706*
⅜	19	0.856	16.662	15.806	14.950	2½	11	1.479	75.184	73.705	72.226
		0.0337	*0.6560*	*0.6223*	*0.5886*			*0.0582*	*2.9600*	*2.9018*	*2.8436*
½	14	1.162	20.955	19.793	18.631	2¾	11	1.479	81.534	80.055	78.576
		0.0457	*0.8250*	*0.7793*	*0.7336*			*0.0582*	*3.2100*	*3.1518*	*3.0936*
⅝	14	1.162	22.911	21.749	20.587	3	11	1.479	87.884	84.405	84.926
		0.0457	*0.9020*	*0.8563*	*0.8106*			*0.0582*	*3.4600*	*3.4018*	*3.3436*
¾	14	1.162	26.441	25.279	24.117	3½	11	1.479	100.330	98.851	97.372
		0.0457	*1.0410*	*0.9953*	*0.9496*			*0.0582*	*3.9500*	*3.8918*	*3.8336*
⅞	14	1.162	30.201	29.039	27.877	4	11	1.479	113.030	111.551	110.072
		0.0457	*1.1890*	*1.1433*	*1.0976*			*0.0582*	*4.4500*	*4.3918*	*4.3336*
1	11	1.479	33.249	31.770	30.291	4½	11	1.479	125.730	124.251	122.772
		0.0582	*1.3090*	*1.2508*	*1.1926*			....	....	....	....
1⅛	11	1.479	37.897	36.418	34.939	5	11	1.479	138.430	136.951	135.472
		....	....	....	....			*0.0582*	*5.4500*	*5.3918*	*5.3336*
1¼	11	1.479	41.910	40.431	38.952	5½	11	1.479	151.130	149.651	148.172
		0.0582	*1.6500*	*1.5918*	*1.5336*			....	....	....	....
1½	11	1.479	47.803	46.324	44.845	6	11	1.479	163.830	162.351	160.372
		0.0582	*1.8820*	*1.8238*	*1.7656*			*0.0582*	*6.4500*	*6.3918*	*6.3336*

* Each basic metric dimension is given in roman figures (nominal sizes excepted) and each basic inch dimension is shown in italics directly beneath it.

† The thread pitches in millimeters are as follows: 0.907 for 28 threads per inch, 1.337 for 19 threads per inch, 1.814 for 14 threads per inch, and 2.309 for 11 threads per inch.

Specifications for threads where pressure-tight joints are not made on the threads, a Whitworth form parallel fastening thread used for fastening purposes such as the mechanical assembly of component parts of fittings, cocks and valves.

British Standard External and Internal Pipe Threads (Pressure-tight Joints) — Metric and Inch Dimensions and Limits of Size* (BS 21:1973)

Nominal Size	No. of Threads per Inch†	Basic Diameters at Gage Plane			Gage Length		Number of Useful Threads on Pipe for Basic Gage Length‡	Tol., + and −, Gage Plane to Face of Int. Taper Thread	Tol., + and −, on Diameter of Parallel Int. Threads
		Major	Pitch	Minor	Basic	Tolerance (+ and −)			
1/16	28	7.723	7.142	6.561	(4 3/8)	(1)	(7 1/8)	(1 1/4)	0.071
		0.304	*0.2812*	*0.2583*	4.0	0.9	6.5	1.1	*0.0028*
1/8	28	9.728	9.147	8.566	(4 3/8)	(1)	(7 1/8)	(1 1/4)	0.071
		0.383	*0.3601*	*0.3372*	4.0	0.9	6.5	1.1	*0.0028*
1/4	19	13.157	12.301	11.445	(4 1/2)	(1)	(7 1/4)	(1 1/4)	0.104
		0.518	*0.4843*	*0.4506*	6.0	1.3	9.7	1.7	*0.0041*
3/8	19	16.662	15.806	14.950	(4 3/4)	(1)	(7 1/2)	(1 1/4)	0.104
		0.656	*0.6223*	*0.5886*	6.4	1.3	10.1	1.7	*0.0041*
1/2	14	20.955	19.793	18.631	(4 1/2)	(1)	(7 1/4)	(1 1/4)	0.142
		0.825	*0.7793*	*0.7336*	8.2	1.8	13.2	2.3	*0.0056*
3/4	14	26.441	25.279	24.117	(5 1/4)	(1)	(8)	(1 1/4)	0.142
		1.041	*0.9953*	*0.9496*	9.5	1.8	14.5	2.3	*0.0056*
1	11	33.249	31.770	30.291	(4 1/2)	(1)	(7 1/4)	(1 1/4)	0.180
		1.309	*1.2508*	*1.1926*	10.4	2.3	16.8	2.9	*0.0071*
1 1/4	11	41.910	40.431	38.952	(5 1/2)	(1)	(8 1/4)	(1 1/4)	0.180
		1.650	*1.5918*	*1.5336*	12.7	2.3	19.1	2.9	*0.0071*
1 1/2	11	47.803	46.324	44.845	(5 1/2)	(1)	(8 1/4)	(1 1/4)	0.180
		1.882	*1.8238*	*1.7656*	12.7	2.3	19.1	2.9	*0.0071*
2	11	59.614	58.135	56.656	(6 7/8)	(1)	(10 1/8)	(1 1/4)	0.180
		2.347	*2.2888*	*2.2306*	15.9	2.3	23.4	2.9	*0.0071*
2 1/2	11	75.184	73.705	72.226	(7 9/16)	(1 1/2)	(11 9/16)	(1 1/2)	0.216
		2.960	*2.9018*	*2.8436*	17.5	3.5	26.7	3.5	*0.0085*
3	11	87.884	86.405	84.926	(8 15/16)	(1 1/2)	(12 15/16)	(1 1/2)	0.216
		3.460	*3.4018*	*3.3436*	20.6	3.5	29.8	3.5	*0.0085*
4	11	113.030	111.551	110.072	(11)	(1 1/2)	(15 1/2)	(1 1/2)	0.216
		4.450	*4.3918*	*4.3336*	25.4	3.5	35.8	3.5	*0.0085*
5	11	138.430	136.951	135.472	(12 3/8)	(1 1/2)	(17 3/8)	(1 1/2)	0.216
		5.450	*5.3918*	*5.3336*	28.6	3.5	40.1	3.5	*0.0085*
6	11	163.830	162.351	160.872	(12 3/8)	(1 1/2)	(17 3/8)	(1 1/2)	0.216
		6.450	*6.3918*	*6.3336*	28.6	3.5	40.1	3.5	*0.0085*

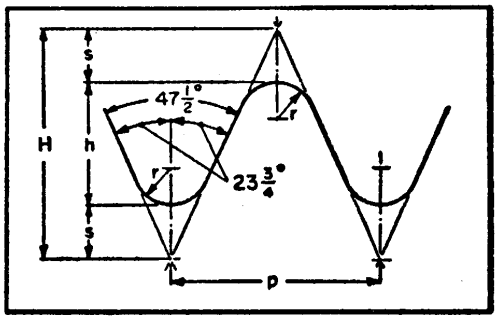
* Each basic metric dimension is given in roman figures (nominal sizes excepted) and each basic inch dimension is shown in italics directly beneath it. Figures in ( ) are numbers of turns of thread with metric linear equivalents given beneath. For basic thread form of parallel threads see page 1349. Taper of taper thread is 1 in 16 on diameter.

† In the Standard (BS 21:1973) the thread pitches in millimeters are as follows: 0.907 for 28 threads per inch, 1.337 for 19 threads per inch, 1.814 for 14 threads per inch, and 2.309 for 11 threads per inch.

‡ This is the minimum number of useful threads on the pipe for the basic gage length; for the maximum and minimum gage lengths, the minimum numbers of useful threads are, respectively, greater and less by the amount of tolerance in the column to the left. The design of internally threaded parts shall make allowance for receiving pipe ends of up to the minimum number of useful threads corresponding to the maximum gage length; the minimum number of useful *internal* threads shall be no less than 80 per cent of the minimum number of useful external threads for the minimum gage length.

Specifications for pipe threads where pressure-tight joints are made on the threads, including tapered external threads for assembly with either taper or parallel internal threads.

BRITISH ASSOCIATION THREADS



p = pitch of thread H = depth of V-thread
h = depth of B.A. thread
r = radius at root and crest of thread
s = root and crest truncation
$H = 1.13634 \times p$ $r = 0.18083 \times p$
$h = 0.60000 \times p$ $s = 0.26817 \times p$

British Association Standard Thread (B.A.), Basic Dimensions (B.S. 93:1951)

Designation Number	Pitch, mm	Depth of Thread, mm	Bolt and Nut			Radius, mm	Threads per Inch (approx.)
			Major Diameter, mm	Effective Diameter, mm	Minor Diameter, mm		
0	1.0000	0.600	6.00	5.400	4.80	0.1808	25.4
1	0.9000	0.540	5.30	4.760	4.22	0.1627	28.2
2	0.8100	0.485	4.70	4.215	3.73	0.1465	31.4
3	0.7300	0.440	4.10	3.660	3.22	0.1320	34.8
4	0.6600	0.395	3.60	3.205	2.81	0.1193	38.5
5	0.5900	0.355	3.20	2.845	2.49	0.1067	43.0
6	0.5300	0.320	2.80	2.480	2.16	0.0958	47.9
7	0.4800	0.290	2.50	2.210	1.92	0.0868	52.9
8	0.4300	0.260	2.20	1.940	1.68	0.0778	59.1
9	0.3900	0.235	1.90	1.665	1.43	0.0705	65.1
10	0.3500	0.210	1.70	1.490	1.28	0.0633	72.6
11	0.3100	0.185	1.50	1.315	1.13	0.0561	82.0
12	0.2800	0.170	1.30	1.130	0.96	0.0506	90.7
13	0.2500	0.150	1.20	1.050	0.90	0.0452	102
14	0.2300	0.140	1.00	0.860	0.72	0.0416	110
15	0.2100	0.125	0.90	0.775	0.65	0.0380	121
16	0.1900	0.115	0.79	0.675	0.56	0.0344	134