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**Ceylon Standard Specification for  
Dimensions of Parallel Coarse Screw  
Thread of Whitworth Form**

ලංකා ප්‍රමිති කාර්යාංශය  
BUREAU OF CEYLON STANDARDS



**CEYLON STANDARD SPECIFICATION FOR DIMENSIONS  
OF PARALLEL COARSE SCREW THREAD OF  
WHITWORTH FORM**

C. S. 96: 1970

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BUREAU OF CEYLON STANDARDS  
53, Dharmapala Mawatha,  
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**BUREAU OF CEYLON STANDARDS**  
**53, Dharmapala Mawatha,**  
**Colombo 3.**

Telephone: 26051, 26054, 26055

Telegrams: "PRAMIKA"

**CEYLON STANDARD SPECIFICATION FOR  
DIMENSIONS OF PARALLEL COARSE SCREW THREAD  
OF WHITWORTH FORM**

**FOREWORD**

This Ceylon Standard specification for parallel coarse screw thread of the Whitworth form has been prepared by the Drafting Committee on nuts and bolts. It was approved by the Mechanical Engineering Divisional Committee of the Bureau of Ceylon Standards and was authorised for adoption and publication by the Council of the Bureau on 14th August, 1970.

This standard includes details of basic sizes, limits and tolerances for British Standard Whitworth screw thread. These correspond to the medium class and free class bolts and normal class nuts of British Standard Specifications.

The British Standard on parallel screw thread of Whitworth form and the Indian Standard on screw threads were consulted in the preparation of this standard and the assistance gained therefrom is acknowledged.

**1. SCOPE**

This Ceylon Standard relates to parallel coarse screw threads of Whitworth form used for general engineering purposes. It provides for screw thread diameters from  $\frac{1}{8}$  in to 6 in.

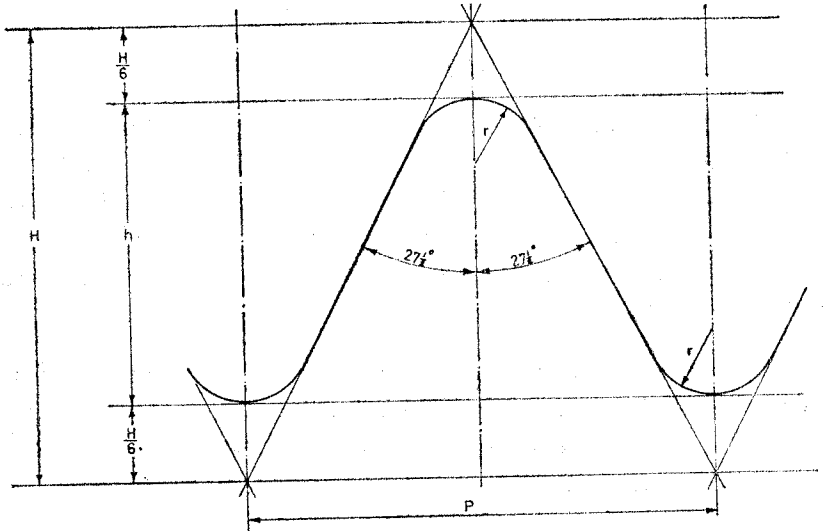
This standard is not intended to apply to threaded pipe joints, screw threads associated with interference fits such as those on the metal ends of studs and in the corresponding tapped holes, or to screw threads which are subject to high temperature.

**2. DEFINITIONS**

The definitions of terms relating to parallel threads are given in Appendix A.

### 3. THREAD FORM

The Whitworth basic thread form is shown in Fig. 1 below.



$$H = 0.960491p$$

$$h = \frac{2}{3}H = 0.640327p$$

$$H/6 = 0.160062p$$

$$r = 0.137329p$$

$$p = \text{pitch}$$

**Fig. 1 Basic form of whitworth thread.**

It is symmetrical V thread in which the angle between the flanks measured in an axial plane is  $55^\circ$ . One sixth of the sharp V is truncated at top and bottom, the thread being rounded equally at crests and roots by circular arcs blending tangentially with the flanks, the theoretical depth of thread being thus 0.640327 times the nominal pitch.

This basic thread depths calculated from the above definition are rounded off to the nearest 0.0001 inch.

### 4. CLASSES OF FIT

4.1 The classes of fit or classes of tolerance specified herein shall be medium class and free class for bolts and normal class for nuts.

The relative magnitudes and dispositions of the effective diameter tolerance zones for the class of tolerance mentioned above is shown in Fig. 2. It will be noted that the lower limit of the nut is always the basic size. An allowance amounting to 0.3x medium class bolt effective diameter tolerance is provided for mediums and free class bolts at nominal diameter  $\frac{3}{4}$  in and below, between the lower limit for the nut (basic size) and the upper limit for the bolt.

- 4.1.1 **Medium class bolts and nuts.** The medium class applies to the better class of ordinary interchangeable screw threads.
- 4.1.2 **Free class bolts.** The free class applies to the majority of bolts of ordinary commercial quality.
- 4.1.3 **Normal class nuts.** The normal class applies to ordinary commercial quality nuts; this class is intended for use with medium or free class bolts.

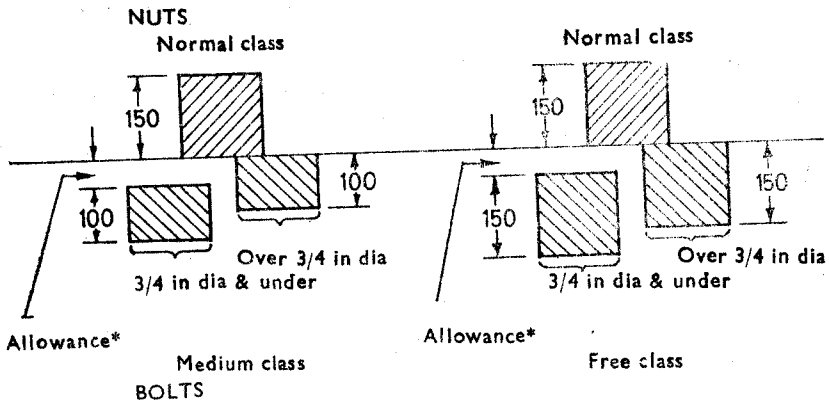


Fig. 2 Effective diameter tolerance zones of recommended combinations of classes of bolts & nuts.

Note:-

The medium class bolt effective diameter tolerance is shown as 100 units and the other values as expressed as a percentage of this tolerance.

## 5. DIMENSIONS AND TOLERANCES

- 5.1 A pictorial representation of the assembled condition of the nut and bolt threads, their tolerances and the allowance between them for the recommended combinations of clauses is shown in Fig. 3 and 4.

\* See Clause 4

5.2 The basic sizes of the coarse thread series is given in Table 1 below: -

**TABLE 1**  
**BASIC SIZES OF THE COARSE THREAD SERIES**

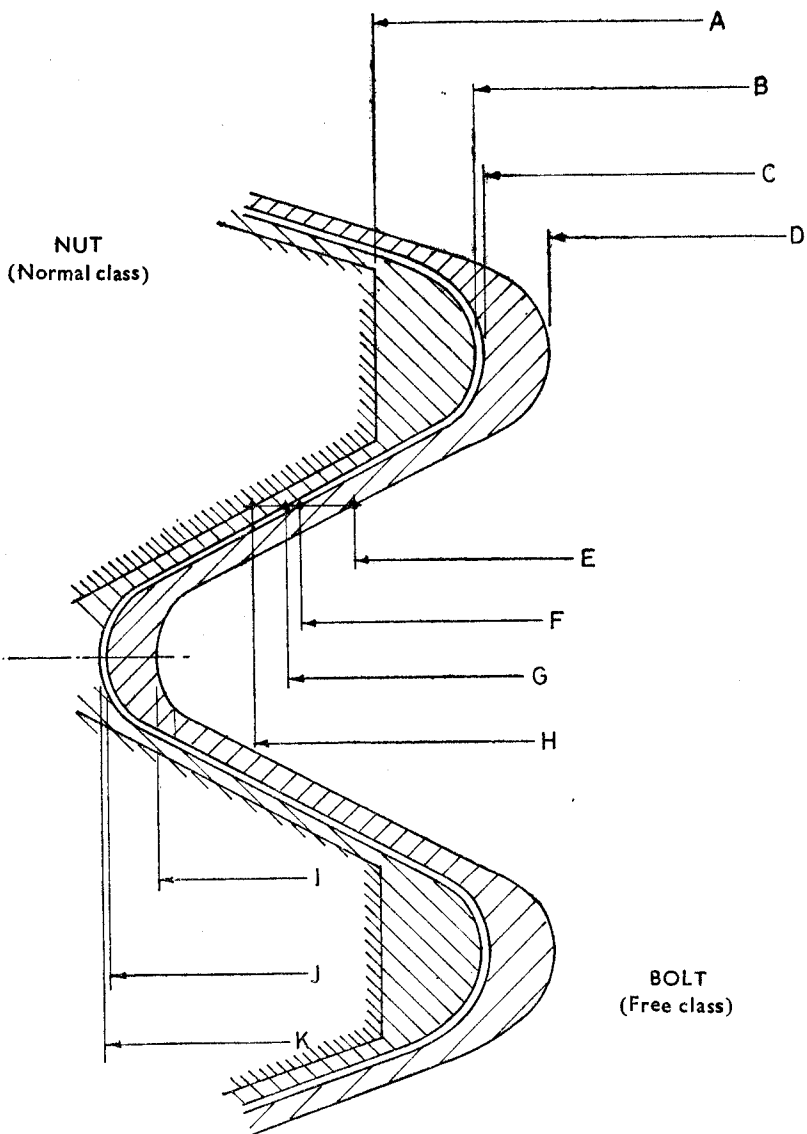
1	2	3	4	5	6	7	8
Nominal size	Number of threads per inch	Pitch	Depth of thread	Major diameter	Effective diameter	Minor diameter	Cross Sectional area at bottom of thread
in	in	in	in	in	in	in	sq. in
1/8*	40	0.02500	0.0160	0.1250	0.1090	0.0930	0.0068
3/16	24	0.04167	0.0267	0.1875	0.1608	0.1341	0.0141
1/4	20	0.05000	0.0320	0.2500	0.2180	0.1860	0.0272
5/16	18	0.05556	0.0356	0.3125	0.2769	0.2413	0.0457
3/8	16	0.06250	0.0400	0.3750	0.3350	0.2950	0.0683
7/16	14	0.07143	0.0457	0.4375	0.3918	0.3461	0.0941
1/2	12	0.08333	0.0534	0.5000	0.4466	0.3932	0.1214
9/16*	12	0.08333	0.0534	0.5625	0.5091	0.4557	0.1631
5/8	11	0.09091	0.0582	0.6250	0.5668	0.5086	0.2032
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
7/8	9	0.11111	0.0711	0.8750	0.8039	0.7328	0.4218
1	8	0.12500	0.0800	1.0000	0.9200	0.8400	0.5542
1 1/8	7	0.14286	0.0915	1.1250	1.0335	0.9420	0.6969
1 1/4	7	0.14286	0.0915	1.2500	1.1585	1.0670	0.8942
1 1/2	6	0.16667	0.1067	1.5000	1.3933	1.2866	1.3000
1 3/4	5	0.20000	0.1281	1.7500	1.6219	1.4938	1.7530
2	4.5	0.22222	0.1423	2.0000	1.8577	1.7154	2.3110
2 1/4	4	0.25000	0.1601	2.2500	2.0899	1.9298	2.9250
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

\* To be dispensed with wherever possible.

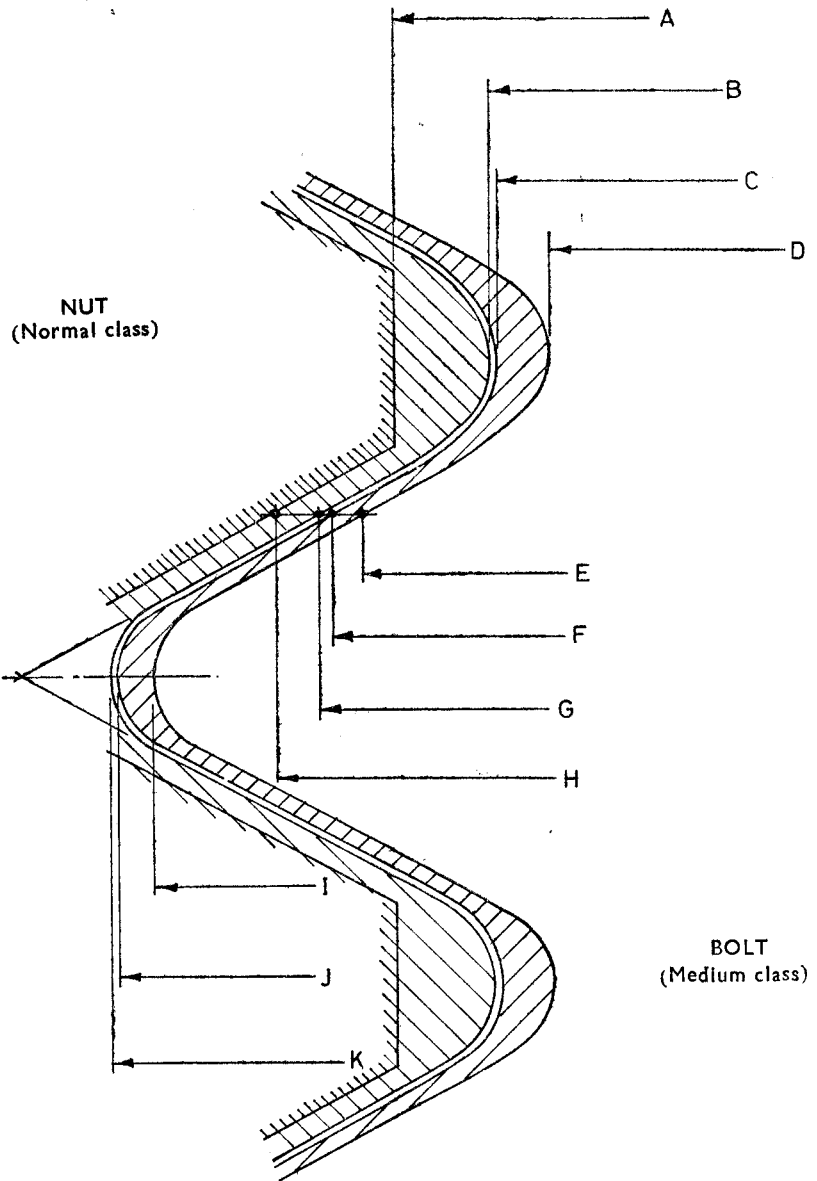
† Dimensionally, the 1/4 in. x 40 t.p.i. thread belongs more appropriately to the B.S.F. series, but it has for so long been associated with the B.S.W. series that it is now included herein.



- A — Max. minor dia. of nut
- B — Basic minor dia.  
Min. minor dia. of nut
- C — Max. minor dia. of bolt
- D — Min. minor dia. of bolt
- E — Min. eff. dia. of bolt
- F — Max. eff. dia. of bolt
- G — Basic eff. dia.  
Min. eff. dia. of nut
- H — Max. eff. dia. of nut
- I — Minor major dia. of bolt
- J — Max. major dia. of bolt
- K — Basic major dia.  
Min. major dia. of nut



**Fig. 3 Tolerance zones for medium class bolts with allowance and normal class nut  $\frac{1}{2}$  in. B.S.W. (20 t.p.i.) illustrated**  
 Note:- The maximum bolt dimensions refer to unplated bolts only.



**Fig. 4** Tolerance zones for free class bolt with allowance and normal class nut  $\frac{1}{4}$  in. B.S.W. (20 t.p.i.) illustrated.  
Note:- The maximum dimensions apply to unplated bolts only.

- A — Max. minor dia. of nut
- B — Basic minor dia.  
Min. minor dia of nut
- C — Max. minor dia. of bolt
- D — Min. minor dia of bolt
- E — Min. eff. dia. of bolt
- F — Max. eff. dia. of bolt
- G — Basic eff. dia.  
Min. eff. dia. of nut
- H — Max. eff. dia. of nut
- I — Min. major dia. of bolt
- J — Max. major dia. of bolt
- K — Basic major dia.  
Min. major dia. of nut

5.3 The dimensions and tolerances of normal class coarse pitch threads for nuts are shown in Table 2 below:-

**TABLE 2**  
**NUTS - NORMAL CLASS LIMITS AND TOLERANCES**

1 Nominal size	2 Number of threads per inch	3 Major diameter			4   5   6 Effective diameter			7   8   9 Minor diameter		
		Min.	Max.	Tol.	Min.	Max.	Tol.	Min.		
									in	in
1/8*	40	0.1250	0.1133	0.0043	0.1090	0.1020	0.0090	0.0930		
3/16	24	0.1875	0.1660	0.0052	0.1608	0.1474	0.0133	0.1341		
1/4	20	0.2500	0.2238	0.0058	0.2180	0.2030	0.0170	0.1860		
5/16	18	0.3125	0.2832	0.0063	0.2769	0.2594	0.0181	0.2413		
3/8	16	0.3750	0.3418	0.0068	0.3350	0.3145	0.0195	0.2950		
7/16	14	0.4375	0.3991	0.0073	0.3918	0.3674	0.0213	0.3461		
1/2	12	0.5000	0.4543	0.0077	0.4466	0.4169	0.0237	0.3932		
9/16*	12	0.5625	0.5171	0.0080	0.5091	0.4794	0.0237	0.4557		
5/8	11	0.6250	0.5752	0.0084	0.5668	0.5338	0.0252	0.5086		
11/16*	11	0.6875	0.6379	0.0086	0.6293	0.5963	0.0252	0.5711		
3/4	10	0.7500	0.6950	0.0090	0.6860	0.6490	0.0270	0.6220		
7/8	9	0.8750	0.8135	0.0096	0.8039	0.7620	0.0290	0.7328		
1	8	1.0000	0.9302	0.0102	0.9200	0.8720	0.0320	0.8400		
1 1/8	7	1.1250	1.0442	0.0107	1.0355	0.9776	0.0356	0.9420		
1 1/4	7	1.2500	1.1696	0.0111	1.1585	1.1026	0.0356	1.0670		
1 1/2	6	1.5000	1.4053	0.0120	1.3933	1.3269	0.0403	1.2866		
1 3/4	5	1.7500	1.6348	0.0129	1.6219	1.5408	0.0470	1.4938		
2	4.5	2.0000	1.8714	0.0137	1.8577	1.7668	0.0514	1.7154		
2 1/4	4	2.2500	2.1043	0.0144	2.0899	1.9868	0.0570	1.9298		
2 1/2	4	2.5000	2.3548	0.0149	2.3399	2.2368	0.0570	2.1798		
2 3/4	3.5	2.7500	2.5827	0.0157	2.5670	2.4481	0.0641	2.3840		
3	3.5	3.0000	2.8331	0.0161	2.8170	2.6981	0.0641	2.6340		
3 1/4*	3.25	3.2500	3.0697	0.0167	3.0530	2.9245	0.0685	2.8560		
3 1/2	3.25	3.5000	3.3201	0.0171	3.3030	3.1745	0.0685	3.1060		
3 3/8	3	3.7500	3.5543	0.0177	3.5366	3.3969	0.0737	3.3232		
4	3	4.0000	3.8047	0.0181	3.7866	3.6469	0.0737	3.5732		
4 1/4	2.875	4.5000	4.2962	0.0189	4.2773	4.1312	0.0766	4.0546		
5	2.75	5.0000	4.7869	0.0197	4.7672	4.6141	0.0797	4.5344		
5 1/2	2.625	5.5000	5.2766	0.0205	5.2561	5.0954	0.0832	5.0122		
6	2.5	6.0000	5.7651	0.0212	5.7439	5.5748	0.0870	5.4878		

\* To be dispensed with wherever possible.

5.4 The dimensions and tolerances of medium class coarse pitch threads for bolts and screws are shown in Table 3.

**TABLE 3**  
**BOLTS - MEDIUM CLASS - LIMITS AND TOLERANCES**

(a) Nominal sizes up to and including  $\frac{3}{4}$  in.

1	2	3			4			5			6			7			8			9			10			11			12			13			14		
		Major diameter			Major diameter			Major diameter			Major diameter			Major diameter			Major diameter			Major diameter			Major diameter			Major diameter			Major diameter			Major diameter			Major diameter		
Nominal size	Number of threads per inch	Unplated or before plating		After plating		Unplated or before plating		After plating		Unplated or before plating		After plating		Unplated or before plating		After plating		Unplated or before plating		After plating		Unplated or before plating		After plating		Unplated or before plating		After plating		Unplated or before plating		After plating					
		Max.	in	Min.	in	Max.	in	Max.	in	Max.	in	Max.	in	Max.	in	Max.	in	Max.	in	Max.	in	Max.	in	Max.	in	Max.	in	Max.	in	Max.	in						
in																																					
1/8*	40	0.1238	0.0045	0.1193	0.1250	0.1078	0.0029	0.1049	0.1090	0.1090	0.1078	0.0029	0.1049	0.1090	0.1078	0.0029	0.1049	0.1090	0.1078	0.0029	0.1049	0.1090	0.1078	0.0029	0.1049	0.1090	0.1078	0.0029	0.1049	0.1090	0.1078	0.0029	0.1049	0.1090			
3/16	24	0.1863	0.0055	0.1808	0.1875	0.1596	0.0035	0.1561	0.1608	0.1608	0.1596	0.0035	0.1561	0.1608	0.1596	0.0035	0.1561	0.1608	0.1596	0.0035	0.1561	0.1608	0.1596	0.0035	0.1561	0.1608	0.1596	0.0035	0.1561	0.1608	0.1596	0.0035	0.1561	0.1608			
1/4	20	0.2488	0.0061	0.2427	0.2500	0.2168	0.0039	0.2129	0.2180	0.2180	0.2168	0.0039	0.2129	0.2180	0.2168	0.0039	0.2129	0.2180	0.2168	0.0039	0.2129	0.2180	0.2168	0.0039	0.2129	0.2180	0.2168	0.0039	0.2129	0.2180	0.2168	0.0039	0.2129	0.2180			
5/16	18	0.3112	0.0066	0.3046	0.3125	0.2756	0.0042	0.2714	0.2769	0.2769	0.2756	0.0042	0.2714	0.2769	0.2756	0.0042	0.2714	0.2769	0.2756	0.0042	0.2714	0.2769	0.2756	0.0042	0.2714	0.2769	0.2756	0.0042	0.2714	0.2769	0.2756	0.0042	0.2714	0.2769			
3/8	16	0.3736	0.0070	0.3666	0.3750	0.3336	0.0045	0.3291	0.3350	0.3350	0.3336	0.0045	0.3291	0.3350	0.3336	0.0045	0.3291	0.3350	0.3336	0.0045	0.3291	0.3350	0.3336	0.0045	0.3291	0.3350	0.3336	0.0045	0.3291	0.3350	0.3336	0.0045	0.3291	0.3350			
7/16	14	0.4360	0.0075	0.4285	0.4375	0.3903	0.0048	0.3855	0.3918	0.3918	0.3903	0.0048	0.3855	0.3918	0.3903	0.0048	0.3855	0.3918	0.3903	0.0048	0.3855	0.3918	0.3903	0.0048	0.3855	0.3918	0.3903	0.0048	0.3855	0.3918	0.3903	0.0048	0.3855	0.3918			
1/2	12	0.4985	0.0081	0.4904	0.5000	0.4451	0.0052	0.4399	0.4466	0.4466	0.4451	0.0052	0.4399	0.4466	0.4451	0.0052	0.4399	0.4466	0.4451	0.0052	0.4399	0.4466	0.4451	0.0052	0.4399	0.4466	0.4451	0.0052	0.4399	0.4466	0.4451	0.0052	0.4399	0.4466			
9/16*	12	0.5609	0.0082	0.5527	0.5625	0.5075	0.0053	0.5022	0.5091	0.5091	0.5075	0.0053	0.5022	0.5091	0.5075	0.0053	0.5022	0.5091	0.5075	0.0053	0.5022	0.5091	0.5075	0.0053	0.5022	0.5091	0.5075	0.0053	0.5022	0.5091	0.5075	0.0053	0.5022	0.5091			
5/8	11	0.6233	0.0085	0.6147	0.6250	0.5651	0.0056	0.5595	0.5668	0.5668	0.5651	0.0056	0.5595	0.5668	0.5651	0.0056	0.5595	0.5668	0.5651	0.0056	0.5595	0.5668	0.5651	0.0056	0.5595	0.5668	0.5651	0.0056	0.5595	0.5668	0.5651	0.0056	0.5595	0.5668			
11/16*	11	0.6858	0.0088	0.6770	0.6875	0.6276	0.0058	0.6218	0.6293	0.6293	0.6276	0.0058	0.6218	0.6293	0.6276	0.0058	0.6218	0.6293	0.6276	0.0058	0.6218	0.6293	0.6276	0.0058	0.6218	0.6293	0.6276	0.0058	0.6218	0.6293	0.6276	0.0058	0.6218	0.6293			
3/4	10	0.7482	0.0092	0.7390	0.7500	0.6842	0.0060	0.6782	0.6860	0.6860	0.6842	0.0060	0.6782	0.6860	0.6842	0.0060	0.6782	0.6860	0.6842	0.0060	0.6782	0.6860	0.6842	0.0060	0.6782	0.6860	0.6842	0.0060	0.6782	0.6860	0.6842	0.0060	0.6782	0.6860			

\* To be dispensed with wherever possible.

**TABLE 4**  
**BOLTS - FREE CLASS - LIMITS AND TOLERANCES**

(a) Nominal sizes up to and including  $\frac{1}{2}$  in.

1	2	3	4	5	6	7			8			9			10			11			12		13		14	
						Major diameter			Effective diameter			Effective diameter			Effective diameter			Effective diameter			Effective diameter			Minor diameter		Minor diameter
Nominal size	Number of threads per inch	Unplated or before plating			After plating			Unplated or before plating			After plating			Unplated or before plating			After plating			Unplated or before plating		After plating				
		Max.	in	Tol.	Min.	Max.	in	Max.	in	Min.	Max.	in	Max.	in	Min.	Max.	in	Min.	Max.	in	Tol.	in	Min.	in	Max.	in
in																										
1/8*	40	0.1238	in	0.0059	0.1179	0.1250	in	0.1078	0.0043	0.1035	0.1090	in	0.1090	0.0075	0.0918	0.0075	0.0843	0.0930	0.0075	0.0843	0.0075	0.0843	0.0075	0.0843	0.0930	in
3/16	24	0.1863	0.0072	0.1791	0.1875	0.1996	0.0052	0.1544	0.1608	0.1329	0.1341	0.1608	0.0093	0.1341	0.1329	0.0093	0.1236	0.1341	0.0093	0.1236	0.0093	0.1236	0.0093	0.1236	0.1341	in
1/4	20	0.2488	0.0080	0.2408	0.2500	0.2168	0.0058	0.2110	0.2180	0.1848	0.1848	0.2180	0.0103	0.1745	0.1848	0.0103	0.1745	0.1848	0.0103	0.1745	0.0103	0.1745	0.0103	0.1745	0.1848	in
5/16	18	0.3112	0.0087	0.3025	0.3125	0.2756	0.0063	0.2693	0.2769	0.2400	0.2400	0.2769	0.0110	0.2290	0.2400	0.0110	0.2290	0.2400	0.0110	0.2290	0.0110	0.2290	0.0110	0.2290	0.2400	in
3/8	16	0.3736	0.0093	0.3643	0.3750	0.3336	0.0068	0.3268	0.3350	0.2936	0.2936	0.3350	0.0118	0.2818	0.2936	0.0118	0.2818	0.2936	0.0118	0.2818	0.0118	0.2818	0.0118	0.2818	0.2936	in
7/16	14	0.4360	0.0100	0.4260	0.4375	0.3903	0.0073	0.3830	0.3918	0.3446	0.3446	0.3918	0.0126	0.3320	0.3446	0.0126	0.3320	0.3446	0.0126	0.3320	0.0126	0.3320	0.0126	0.3320	0.3446	in
1/2	12	0.4985	0.0106	0.4879	0.5000	0.4451	0.0077	0.4374	0.4466	0.3917	0.3917	0.4466	0.0135	0.3782	0.3917	0.0135	0.3782	0.3917	0.0135	0.3782	0.0135	0.3782	0.0135	0.3782	0.3917	in
9/16*	12	0.5609	0.0109	0.5500	0.5625	0.5075	0.0080	0.4995	0.5091	0.4541	0.4541	0.5091	0.0138	0.4403	0.4541	0.0138	0.4403	0.4541	0.0138	0.4403	0.0138	0.4403	0.0138	0.4403	0.4541	in
5/8	11	0.6233	0.0114	0.6119	0.6250	0.5651	0.0084	0.5567	0.5668	0.5069	0.5069	0.5668	0.0144	0.4975	0.5069	0.0144	0.4975	0.5069	0.0144	0.4975	0.0144	0.4975	0.0144	0.4975	0.5069	in
11/16*	11	0.6858	0.0116	0.6742	0.6875	0.6276	0.0086	0.6190	0.6293	0.5694	0.5694	0.6293	0.0146	0.5548	0.5694	0.0146	0.5548	0.5694	0.0146	0.5548	0.0146	0.5548	0.0146	0.5548	0.5694	in
3/4	10	0.7482	0.0122	0.7360	0.7500	0.6842	0.0090	0.6752	0.6860	0.6202	0.6202	0.6860	0.0153	0.6049	0.6202	0.0153	0.6049	0.6202	0.0153	0.6049	0.0153	0.6049	0.0153	0.6049	0.6202	in

\* To be dispensed with wherever possible.

Table 4 - Continuation

TABLE 4  
BOLTS - FREE CLASS - LIMITS AND TOLERANCES

1		2		3		4		5		6		7		8		9		10		11	
Nominal size		Number of threads per inch		Major diameter		Major diameter		Major diameter		Effective diameter		Effective diameter		Effective diameter		Minor diameter		Minor diameter		Minor diameter	
in		Max.	Tol.	Min.	in	Max.	Tol.	Min.	in	Max.	Tol.	Min.	in	Max.	Tol.	Min.	in	Max.	Tol.	Min.	in
7/8	9	0.8750	0.0129	0.8621	0.8621	0.8039	0.0096	0.7943	0.7328	0.7943	0.0096	0.7943	0.7328	0.7165	0.0163	0.7165	0.7328	0.0163	0.7165	0.7328	0.0163
1	8	1.0000	0.0137	0.9863	0.9863	0.9200	0.0102	0.9098	0.8400	0.9098	0.0102	0.9098	0.8400	0.8227	0.0173	0.8227	0.8400	0.0173	0.8227	0.8400	0.0173
1 1/8	7	1.1250	0.0145	1.1105	1.1105	1.0335	0.0107	1.0228	0.9420	1.0228	0.0107	1.0228	0.9420	0.9237	0.0183	0.9237	0.9420	0.0183	0.9237	0.9420	0.0183
1 1/4	7	1.2500	0.0149	1.2351	1.2351	1.1585	0.0111	1.1474	1.0670	1.1474	0.0111	1.1474	1.0670	1.0483	0.0187	1.0483	1.0670	0.0187	1.0483	1.0670	0.0187
1 1/2	6	1.5000	0.0161	1.4839	1.4839	1.3933	0.0120	1.3813	1.2866	1.3813	0.0120	1.3813	1.2866	1.2664	0.0202	1.2664	1.2866	0.0202	1.2664	1.2866	0.0202
1 3/4	5	1.7500	0.0174	1.7326	1.7326	1.6219	0.0129	1.6090	1.4938	1.6090	0.0129	1.6090	1.4938	1.4720	0.0218	1.4720	1.4938	0.0218	1.4720	1.4938	0.0218
2	4.5	2.0000	0.0184	1.9816	1.9816	1.8577	0.0137	1.8440	1.7154	1.8440	0.0137	1.8440	1.7154	1.6923	0.0231	1.6923	1.7154	0.0231	1.6923	1.7154	0.0231
2 1/4	4	2.2500	0.0194	2.2306	2.2306	2.0899	0.0144	2.0755	1.9298	2.0755	0.0144	2.0755	1.9298	1.9054	0.0244	1.9054	1.9298	0.0244	1.9054	1.9298	0.0244
2 1/2	4	2.5000	0.0199	2.4801	2.4801	2.3399	0.0149	2.3250	2.1798	2.3250	0.0149	2.3250	2.1798	2.1549	0.0249	2.1549	2.1798	0.0249	2.1549	2.1798	0.0249
2 3/4	3.5	2.7500	0.0210	2.7290	2.7290	2.5670	0.0157	2.5513	2.3840	2.5513	0.0157	2.5513	2.3840	2.3576	0.0264	2.3576	2.3840	0.0264	2.3576	2.3840	0.0264
3	3.5	3.0000	0.0214	2.9786	2.9786	2.8170	0.0161	2.8009	2.6340	2.8009	0.0161	2.8009	2.6340	2.6072	0.0268	2.6072	2.6340	0.0268	2.6072	2.6340	0.0268
3 1/4*	3.25	3.2500	0.0223	3.2277	3.2277	3.0530	0.0167	3.0363	2.8560	3.0363	0.0167	3.0363	2.8560	2.8282	0.0278	2.8282	2.8560	0.0278	2.8282	2.8560	0.0278
3 1/2	3.25	3.5000	0.0227	3.4773	3.4773	3.3030	0.0171	3.2859	3.1060	3.2859	0.0171	3.2859	3.1060	3.0778	0.0282	3.0778	3.1060	0.0282	3.0778	3.1060	0.0282
3 3/4*	3	3.7500	0.0235	3.7265	3.7265	3.5366	0.0177	3.5189	3.3232	3.5189	0.0177	3.5189	3.3232	3.2939	0.0293	3.2939	3.3232	0.0293	3.2939	3.3232	0.0293
4	3	4.0000	0.0239	3.9761	3.9761	3.7866	0.0181	3.7685	3.5732	3.7685	0.0181	3.7685	3.5732	3.5436	0.0296	3.5436	3.5732	0.0296	3.5436	3.5732	0.0296
4 1/2	2.875	4.5000	0.0248	4.4752	4.4752	4.2773	0.0189	4.2584	4.0546	4.2584	0.0189	4.2584	4.0546	4.0239	0.0307	4.0239	4.0546	0.0307	4.0239	4.0546	0.0307
5	2.75	5.0000	0.0257	4.9743	4.9743	4.7672	0.0197	4.7475	4.5344	4.7475	0.0197	4.7475	4.5344	4.5026	0.0318	4.5026	4.5344	0.0318	4.5026	4.5344	0.0318
5 1/2	2.625	5.5000	0.0267	5.4733	5.4733	5.2561	0.0205	5.2356	5.0122	5.2356	0.0205	5.2356	5.0122	4.9794	0.0328	4.9794	5.0122	0.0328	4.9794	5.0122	0.0328
6	2.5	6.0000	0.0275	5.9725	5.9725	5.7439	0.0212	5.7227	5.4878	5.7227	0.0212	5.7227	5.4878	5.4539	0.0339	5.4539	5.4878	0.0339	5.4539	5.4878	0.0339

\* To be dispensed with wherever possible.



## 6. DESIGNATION

In drawings and related documents the screw thread covered in this Standard shall be designated by the following:-

- (a) Name of series BSW
- (b) Basic major diameter of thread
- (c) Number of threads per inch
- (d) Class of fit

If the thread is left-hand the symbol LH should follow the designation.

e. g.

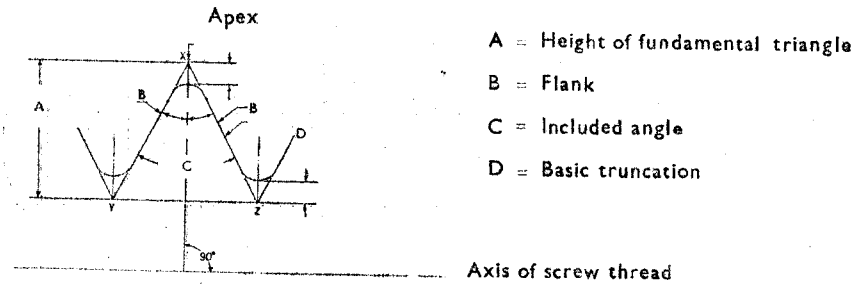
- $\frac{1}{4}$  in - 20 B.S.W. free class
- or  $\frac{1}{2}$  in - 12 B.S.W. LH medium class

## APPENDIX A

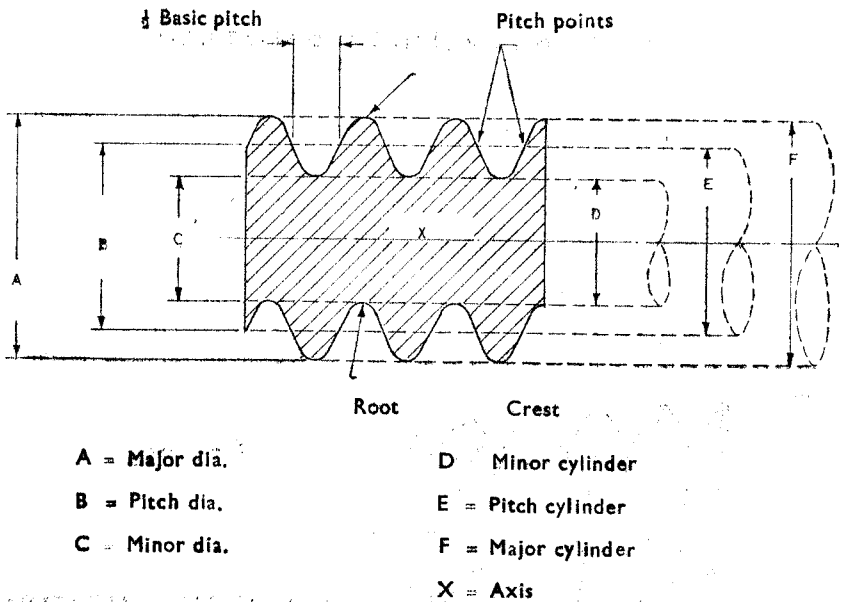
A-1 Definitions relating to parallel screw threads.

- A-1.1 **Screw thread** - The ridge produced by forming, on the surface of a cylinder or cone, a continuous helical or spiral groove of uniform section, such that, the distance measured parallel to the axis between two corresponding points on its contour is proportional to their relative angular displacement about the axis.
- A-1.2 **Parallel screw thread** - A thread formed on the surface of a cylinder (see fig. 5).
- A-1.3 **Form** - The shape of one complete profile of the thread between corresponding points, at the bottom of adjacent grooves, as shown in an axial plane section.
- A-1.4 **Basic Form** - The theoretical form on which the design forms for both the external and internal threads are based (see Fig. 1).

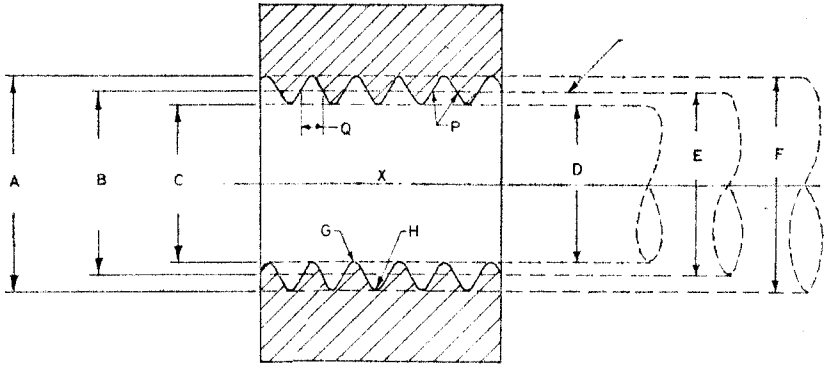
- A-1.5 **Design Form** - The form of the external and internal thread in relation to which the limits of tolerances are assigned.
- A-1.6 **Flanks** - Those parts of the surface on either side of the thread, the intersection of which with an axial plane are theoretically straight lines (see Fig. 5).
- A-1.7 **Crest** - That part of the surface of a thread which connects adjacent flanks at the top of the ridge (see Fig. 6 and 7).
- A-1.8 **Included angle of thread** - The angle between the flanks of the thread measured in an axial plane section (see Fig. 5).
- A-1.9 **Axis** - The axis of the pitch cylinder of a screw thread (see Fig. 6 & 7).
- A-1.10 **Pitch** - The distance, measured parallel to the axis, between corresponding points on adjacent thread forms in the same axial plane section and on the same side of the axis (see Fig. 8).
- A-1.11 **Major diameter** - The diameter of the major cylinder of a parallel thread in a specified plane normal to the axis (see Fig. 6 & 7).
- A-1.12 **Minor diameter** - The diameter of the minor cylinder of a parallel thread in a specified plane normal to the axis (see Fig. 6 & 7).
- A-1.13 **Pitch diameter** - The diameter of the pitch cylinder of a parallel thread in a specified plane normal to the axis (see Fig. 6 & 7).
- A-1.14 **Fit** - The relationship existing between two mating parts with respect to the amount of clearance which is present.
- A-1.15 **Class of fit** - Indicates the general character of the fit that may occur between pairs of mating parts made within prescribed limits.
- A-1.16 **Depth of thread** - The radial distance between its major and minor cylinders.



**FIG. 5. Fundamental Triangle and Basic Truncation of a Parallel Screw Thread.**

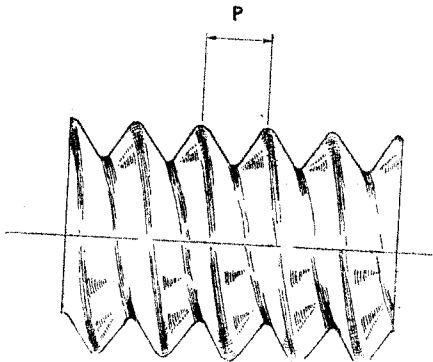


**FIG. 6. External Parallel Screw Thread.**



- |                    |                               |
|--------------------|-------------------------------|
| A = Major dia.     | F = Major cylinder            |
| B = Pitch dia.     | G = Crest                     |
| C = Minor dia.     | H = Root                      |
| D = Minor cylinder | P = Pitch point               |
| E = Pitch cylinder | O = $\frac{1}{2}$ Basic pitch |

FIG. 7. INTERNAL PARALLEL SCREW THREAD.



P = Pitch

FIG. 8. SINGLE-START SCREW THREAD (RIGHT HAND)



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