

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 529

SHORT MACHINE TAPS AND HAND TAPS

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BRIEF HISTORY

The ISO Recommendation R 529, *Short Machine Taps and Hand Taps*, was drawn up by Technical Committee ISO/TC 29, *Small Tools*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question by the Technical Committee began in 1950 and led, in 1962, to the adoption of a Draft ISO Recommendation.

In April 1964, this Draft ISO Recommendation (No. 666) was circulated to all the ISO Member Bodies for enquiry. It was approved by the following Member Bodies:

Argentina	Denmark	Portugal
Austria	France	Spain
Belgium	Germany	Switzerland
Brazil	Hungary	Turkey
Canada	Italy	United Kingdom
Chile	Netherlands	Yugoslavia
Colombia	New Zealand	
Czechoslovakia	Poland	

Three Member Bodies opposed the approval of the Draft:

Sweden
U.S.A.
U.S.S.R.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council which decided, in November 1966, to accept it as an ISO RECOMMENDATION.

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SHORT MACHINE TAPS AND HAND TAPS

1. SCOPE

This ISO Recommendation, dealing with short machine taps and hand taps, gives the general dimensions of these tools as a function of the thread diameter and pitch:

- length of thread
- overall length
- shank diameter and dimensions of driving square
- dimensions of the connecting portion between the shank and threaded part.

It comprises six groups of tables (Tables 3.1 to 8.1 for dimensions in millimetres and Tables 3.2 to 8.2 for dimensions in inches) corresponding respectively to the following threads:

Metric threads:

- coarse pitch
- fine pitch

Inch threads:

- Unified Coarse threads (UNC)
- Unified Fine threads (UNF)
- British Standard Whitworth (BSW) and British Standard Fine threads (BSF)
- British Association threads (BA).

Taps are standardized only for threads, in millimetres or in inches, having a pitch greater than that of the Unified Extra Fine thread (UNEF).

However, in the Annex A, Tables A.7.1 and A.7.2 give the values of overall lengths and shank diameters which may be used for the manufacture of taps outside the standard.

Also in the Annex A are Tables A.6.1 and A.6.2 which give the minimum permissible values of l_0 length of threads, as determined by tests carried out in different countries.

The standardized lengths of thread l , always at least equal to l_0 , have been chosen in such a way as to permit the use of the same blank for several consecutive pitches.

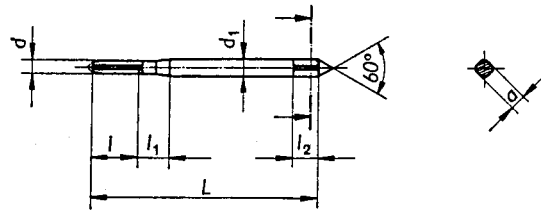
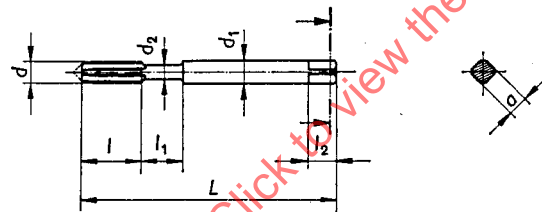
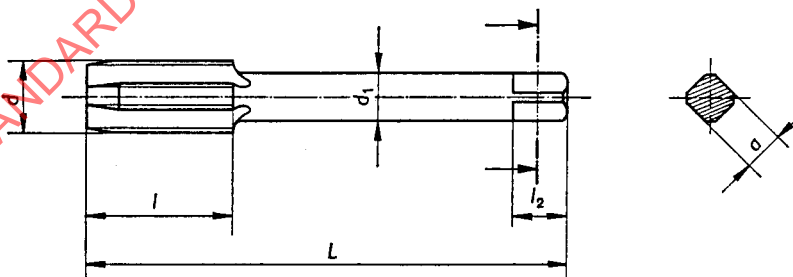
Tables in sections 3 to 8 are followed by a note giving details of tolerances and marking applying to all the standard taps covered by these tables.

2. INTERCHANGEABILITY

Tables 3.1 to 8.1, as well as Tables A.6.1 and A.7.1 in the Annex A, relate to dimensions in millimetres; Tables 3.2 to 8.2, as well as Tables A.6.2 and A.7.2 in the Annex A, relate to dimensions in inches.

The values given in each of these two groups of tables have been determined in such a way as to ensure interchangeability between taps made to one of the systems of measurement and taps made to the other system, for whichever system of thread, metric or inch, the tap is required.

3. COARSE PITCH METRIC THREADS

 $d = 1 \text{ to } 2.5 \text{ mm}$  $d = 3 \text{ to } 10 \text{ mm}$  $d > 10 \text{ mm}$ 

3.2 Dimensions in inches

Designation	d nominal	Pitch	d ₁ h9	l	L	d ₂ min.	l ₁	Square		
								a h11	l ₂	
M 1.0	0.0394	0.00984	0.0984	7/32	1 17/32		3/16	0.079	5/32	
M 1.1	0.0433									
M 1.2	0.0472									
M 1.4	0.0551	0.01181		9/32	1 19/32		7/32	0.088	3/16	
M 1.6	0.0630	0.01378								
M 1.8	0.0709									
M 2.0	0.0787	0.01575		5/16	1 5/8		1/4	0.098	1/4	
M 2.2	0.0866	0.01772	0.1102							
M 2.5	0.0984									
M 3.0	0.1181	0.01969	0.1240	7/16	1 7/8	0.083	9/32	0.098	1/4	
M 3.5	0.1378	0.02362	0.1398	1/2	1 15/16	0.098	5/16	0.110		
M 4.0	0.1575	0.02756	0.1575	1/2	2 1/16	0.110		0.124		0.124
M 4.5	0.1772	0.02953	0.1772			5/8	2 1/4	0.140	11/32	0.157
M 5.0	0.1969	0.03150	0.1969	3/4	2 5/8	0.177	7/16	0.197	5/16	
M 6.0	0.2362	0.03937	0.2480			0.209		0.220		
M 7.0	0.2756		0.2795	7/8	2 7/8	0.236	1/2	0.248	11/32	
M 8.0	0.3150	0.04921	0.3150			9/16	0.280	9/16	0.280	13/32
M 9.0	0.3543		0.3543	0.3937	15/16		3 1/8	0.295	19/32	0.315
M 10.0	0.3937	0.05906	0.3937	1	3 3/8			0.248	11/32	
M 11.0	0.4331	0.05906	0.3150		3 1/2			0.295	13/32	
M 12.0	0.4724	0.06890	0.3740		1 1/8			3 1/2	0.354	15/32
M 14.0	0.5512	0.07874	0.4409		1 3/16			3 3/4	0.394	1/2
M 16.0	0.6299		0.4921		1 1/4			4	0.441	9/16
M 18.0	0.7087	0.09842	0.5512		1 7/16			4 7/16	0.492	5/8
M 20.0	0.7874		0.6299		1 1/2			4 5/8	0.551	23/32
M 22.0	0.8661	0.11811	0.7087		1 3/4			5 1/8	0.630	25/32
M 24.0	0.9449		0.7874		1 3/4			5 5/16	0.709	7/8
M 27.0	1.0630		0.7874		1 7/8			5 7/16	0.787	15/16
M 30.0	1.1811	0.13780	0.8819		2			5 15/16	0.882	1 1/32
M 33.0	1.2992	0.15748	0.9842		2 1/4			6 3/8	0.984	1 3/32
M 36.0	1.4173		1.1024		2 3/8			6 11/16	1.102	1 7/32
M 39.0	1.5354	0.17717	1.2402		2 5/8			7 3/8	1.240	1 11/32
M 42.0	1.6535		1.3976		2 3/4			7 7/8	1.398	1 1/2
M 45.0	1.7717	0.19685	1.5748		3			8 11/16		
M 48.0	1.8898		1.7717		3 1/8			9 3/16		
M 52.0	2.0472	0.21654								
M 56.0	2.2047									
M 60.0	2.3622	0.23622								
M 64.0	2.5197									
M 68.0	2.6772									

NOTES

1. *Tolerances*

(a) THREAD AND OVERALL LENGTH

Negative deviations in inches, according to the following indications:

Nominal diameter of tap		Maximum deviation on <i>l</i> and <i>L</i>
over	including	
—	$\frac{7}{32}$	— $\frac{3}{32}$
$\frac{7}{32}$	$\frac{1}{2}$	— $\frac{1}{8}$
$\frac{1}{2}$	$1\frac{1}{2}$	— $\frac{3}{16}$
$1\frac{1}{2}$	—	— $\frac{1}{4}$

(b) SHANK DIAMETERS AND DRIVING SQUARES

Tolerances in accordance with ISO Recommendation R 237, *Diameters of Shanks and Sizes of Driving Squares for Rotating Tools with Parallel Shanks*,

— on diameter d_1 :

h9* for precision shanks,

h11* for non-precision shanks;

— on the across flats dimension a :

h11, *

h12* (including errors of form of the square and of its position in relation to the shank).

2. *Marking*

The tap should be marked, on the shank, by any means not impairing the metal surface.

Marking should consist of the following:

Thread

In accordance with the standard designation (see tables in sections 3 to 8, first column) completed by

- an indication of the class of tap thread;
- a clear mark (the letter L for example) for left-hand threads.

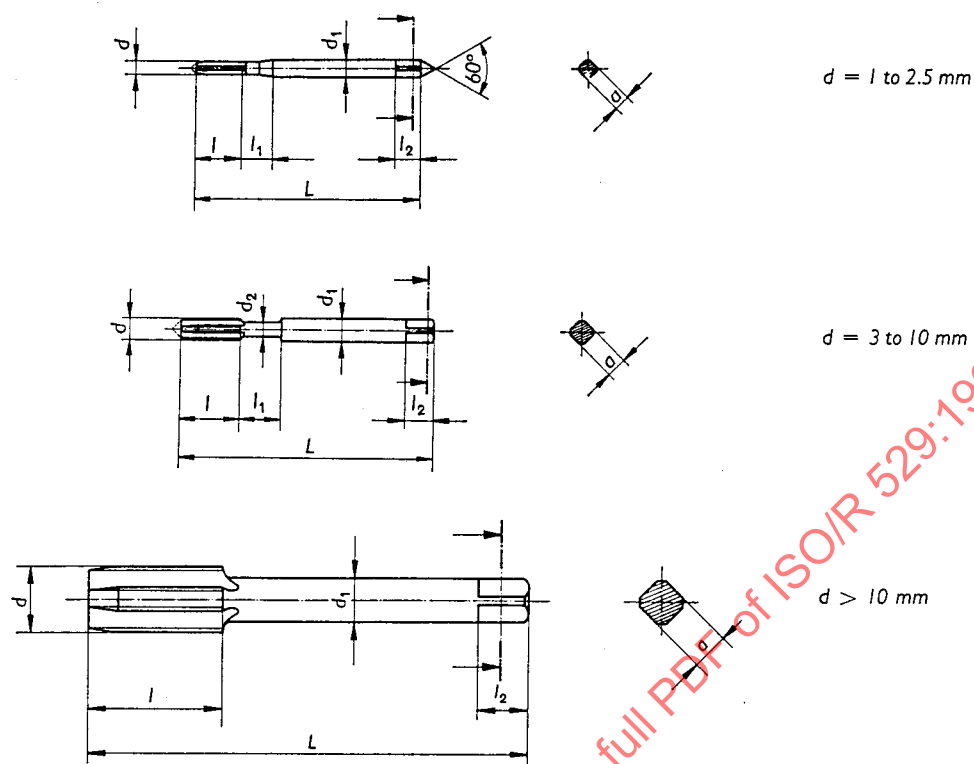
Serial taps

A mark indicating the order in which the taps should be used, except for the finishing tap.

Material.

* See ISO Recommendation R 286, *ISO System of Limits and Fits – Part 1: General, Tolerances and Deviations*. For inch size taps, direct conversion into inches from the metric values of h9, h11 and h12.

4. FINE PITCH METRIC THREADS



4.1 Dimensions in millimetres

Designation	d nominal	Pitch	d_1 h9	l	L	d_2 min.	l_1	Square	
								a h11	l_2
M 1.0 × 0.20	1.0	0.20	2.50	5.5	38.5		4.5	2.00	4
M 1.1 × 0.20	1.1								
M 1.2 × 0.20	1.2			7.0	40.0				
M 1.4 × 0.20	1.4			8.0	41.0		5.0		
M 1.6 × 0.20	1.6								
M 1.8 × 0.20	1.8	0.25	2.80	9.5	44.5		5.5	2.24	5
M 2.0 × 0.25	2.0								
M 2.2 × 0.25	2.2	0.35	3.15	11.0	48.0	2.12	6.0	2.50	6
M 2.5 × 0.35	2.5			13.0	50.0	2.50	7.0	2.80	
M 3.0 × 0.35	3.0								
M 3.5 × 0.35	3.5	0.50	4.00	13.0	53.0	2.80	8.0	3.15	7
M 4.0 × 0.50	4.0			16.0	58.0	3.15	9.0	3.55	
M 4.5 × 0.50	4.5			17.0	62.0	3.55		4.00	
M 5.0 × 0.50	5.0					4.00		4.50	
M 5.5 × 0.50	5.5	0.75	6.30	19.0	66.0	4.50	11.0	5.00	8
M 6.0 × 0.75	6.0					5.30		5.60	
M 7.0 × 0.75	7.0	1.00	8.00	19.0	69.0	6.00	13.0	6.30	9
M 8.0 × 1.00	8.0					7.10	14.0	7.10	10
M 9.0 × 1.00	9.0								
M 10.0 × 1.00	10.0	1.25	10.00	20.0	76.0	7.50	15.0	8.00	11
M 10.0 × 1.25									

4.1 Dimensions in millimetres (continued)

Designation	d nominal	Pitch	d ₁ h9	l	L	d ₂ min.	l ₁	Square	
								a h11	l ₂
M 12.0 × 1.25	12.0	1.25	9.5	24.0	84.0			7.5	10
M 12.0 × 1.50		1.50		29.0	89.0				
M 14.0 × 1.25	14.0	1.25	11.2	25.0	90.0			9.0	12
M 14.0 × 1.50		1.50		30.0	95.0				
M 15.0 × 1.50	15.0	1.50		30.0	95.0				
M 16.0 × 1.50	16.0	1.50	12.5	32.0	102.0			10.0	13
M 17.0 × 1.50	17.0	1.50		32.0	102.0				
M 18.0 × 1.50	18.0	1.50	14.0	33.0*	108.0*			11.2	14
M 18.0 × 2.00		2.00							
M 20.0 × 1.50	20.0	1.50		33.0*	108.0*			12.5	16
M 20.0 × 2.00		2.00							
M 22.0 × 1.50	22.0	1.50	16.0	35.0*	115.0*			14.0	18
M 22.0 × 2.00		2.00							
M 24.0 × 1.50	24.0	1.50	18.0	35.0	120.0			16.0	20
M 24.0 × 2.00		2.00							
M 25.0 × 1.50	25.0	1.50		35.0	120.0			18.0	22
M 25.0 × 2.00		2.00							
M 27.0 × 1.50	27.0	1.50	20.0	37.0	127.0			20.0	24
M 27.0 × 2.00		2.00							
M 28.0 × 1.50	28.0	1.50		37.0	127.0			22.4	26
M 28.0 × 2.00		2.00							
M 30.0 × 1.50	30.0	1.50		37.0	127.0			24.0	28
M 30.0 × 2.00		2.00							
M 30.0 × 3.00		3.00		48.0	138.0				
M 32.0 × 1.50	32.0	1.50	22.4	37.0	137.0			26.0	30
M 32.0 × 2.00		2.00							
M 33.0 × 1.50	33.0	1.50		37.0	137.0			28.0	32
M 33.0 × 2.00		2.00							
M 33.0 × 3.00		3.00		51.0	151.0				
M 35.0 × 1.50	35.0	1.50		39.0	144.0				
M 36.0 × 1.50	36.0	1.50	25.0	39.0	144.0			30.0	34
M 36.0 × 2.00		2.00							
M 36.0 × 3.00		3.00		57.0	162.0				
M 39.0 × 1.50	39.0	1.50	28.0	39.0	149.0			32.0	36
M 39.0 × 2.00		2.00							
M 39.0 × 3.00		3.00		60.0	170.0				
M 40.0 × 1.50	40.0	1.50		39.0	149.0			34.0	38
M 40.0 × 2.00		2.00							
M 40.0 × 3.00		3.00		60.0	170.0				

* As a departure from general Tables A.7.1 and A.7.2, the lengths *l* and *L* which are marked with an asterisk in the present table, have been unified to a common value for M 18 and M 20 threads and also for the M 22 thread.

4.1 Dimensions in millimetres (concluded)

Designation	d nominal	Pitch	d ₁ h9	l	L	d ₂ min.	l ₁	Square			
								a h11	l ₂		
M 42.0 × 1.50	42.0	1.50	28.0	39.0	149.0			22.4	26		
M 42.0 × 2.00		2.00								60.0	170.0
M 42.0 × 3.00		3.00									
M 42.0 × 4.00		4.00									
M 45.0 × 1.50	45.0	1.50	31.5	45.0	165.0					25.0	28
M 45.0 × 2.00		2.00									
M 45.0 × 3.00		3.00									
M 45.0 × 4.00		4.00									
M 48.0 × 1.50	48.0	1.50	31.5	45.0	165.0					25.0	28
M 48.0 × 2.00		2.00									
M 48.0 × 3.00		3.00									
M 48.0 × 4.00		4.00									
M 50.0 × 1.50	50.0	1.50	31.5	45.0	165.0					25.0	28
M 50.0 × 2.00		2.00									
M 50.0 × 3.00		3.00									
M 52.0 × 1.50	52.0	1.50		31.5	45.0						
M 52.0 × 2.00		2.00	70.0					200.0			
M 52.0 × 3.00		3.00									
M 52.0 × 4.00		4.00									
M 55.0 × 1.50	55.0	1.50	31.5	45.0	175.0					25.0	28
M 55.0 × 2.00		2.00				70.0	200.0				
M 55.0 × 3.00		3.00									
M 55.0 × 4.00		4.00									
M 56.0 × 1.50	56.0	1.50	31.5	45.0	175.0			25.0	28		
M 56.0 × 2.00		2.00								70.0	200.0
M 56.0 × 3.00		3.00									
M 56.0 × 4.00		4.00									
M 70.0 × 6.00	70.0	6.00	45.0	79.0	234.0			35.5	38		
M 72.0 × 6.00	72.0									50.0	83.0
M 75.0 × 6.00	75.0		86.0	261.0							
M 76.0 × 6.00	76.0										
M 80.0 × 6.00	80.0		56.0	89.0	279.0			45.0	46		
M 85.0 × 6.00	85.0										
M 90.0 × 6.00	90.0										
M 95.0 × 6.00	95.0										
M 100.0 × 6.00	100.0										

NOTE. — Tolerances and marking, see Notes after Table 3.1.

4.2 Dimensions in inches

Designation	d nominal	Pitch	d ₁ h9	l	L	d ₂ min.	l ₁	Square	
								a h11	l ₂
M 1.0 × 0.20	0.0394	0.00787	0.0984	$\frac{7}{32}$	$1\frac{17}{32}$		$\frac{3}{16}$	0.079	$\frac{5}{32}$
M 1.1 × 0.20	0.0433								
M 1.2 × 0.20	0.0472								
M 1.4 × 0.20	0.0551			$\frac{9}{32}$	$1\frac{19}{32}$				
M 1.6 × 0.20	0.0630			$\frac{5}{16}$	$1\frac{5}{8}$				
M 1.8 × 0.20	0.0709	0.00984	0.1102				$\frac{7}{32}$	0.088	$\frac{3}{16}$
M 2.0 × 0.25	0.0787						$\frac{1}{4}$		
M 2.2 × 0.25	0.0866			$\frac{3}{8}$	$1\frac{3}{4}$				
M 2.5 × 0.35	0.0984	0.01378	0.1240	$\frac{7}{16}$	$1\frac{7}{8}$	0.083		0.098	
M 3.0 × 0.35	0.1181		0.1398	$\frac{1}{2}$	$1\frac{15}{16}$	0.098	$\frac{9}{32}$	0.110	
M 3.5 × 0.35	0.1378	0.01969	0.1575	$\frac{1}{2}$	$2\frac{1}{16}$	0.110	$\frac{5}{16}$	0.124	$\frac{1}{4}$
M 4.0 × 0.50	0.1575		0.1772			0.124		0.140	
M 4.5 × 0.50	0.1772		0.1969	$\frac{5}{8}$	$2\frac{1}{4}$	0.140	$\frac{11}{32}$	0.157	$\frac{9}{32}$
M 5.0 × 0.50	0.1969		0.2205	$\frac{11}{16}$	$2\frac{7}{16}$	0.157		0.177	
M 5.5 × 0.50	0.2165		0.2480	$\frac{3}{4}$	$2\frac{5}{8}$	0.177	$\frac{7}{16}$	0.197	$\frac{5}{16}$
M 6.0 × 0.75	0.2362	0.02953	0.2795			0.209		0.220	
M 7.0 × 0.75	0.2756		0.3150	$\frac{3}{4}$	$2\frac{3}{4}$	0.236	$\frac{1}{2}$	0.248	$\frac{11}{32}$
M 8.0 × 1.00	0.3150	0.03937	0.3543			0.280	$\frac{9}{16}$	0.280	$\frac{13}{32}$
M 9.0 × 1.00	0.3543		0.3937	$\frac{13}{16}$	3	0.295	$\frac{19}{32}$	0.315	$\frac{7}{16}$
M 10.0 × 1.00	0.3937	0.04921						0.295	$\frac{13}{32}$
M 10.0 × 1.25									
M 12.0 × 1.25	0.4724	0.04921	0.3740	$\frac{15}{16}$	$3\frac{5}{16}$				
M 12.0 × 1.50		0.05906		$1\frac{1}{8}$	$3\frac{1}{2}$				
M 14.0 × 1.25		0.04921		1	$3\frac{9}{16}$				
M 14.0 × 1.50	0.5512	0.05906	0.4409	$1\frac{3}{16}$	$3\frac{3}{4}$			0.354	$\frac{15}{32}$
M 15.0 × 1.50	0.5906	0.05906		$1\frac{3}{16}$	$3\frac{3}{4}$				
M 16.0 × 1.50	0.6299	0.05906		$1\frac{1}{4}$	4				
M 17.0 × 1.50	0.6693	0.05906	0.4921	$1\frac{1}{4}$	4				
M 18.0 × 1.50		0.05906		$1\frac{5}{16}$ *	$4\frac{5}{16}$ *				
M 18.0 × 2.00	0.7087	0.07874	0.5512					0.441	$\frac{9}{16}$
M 20.0 × 1.50		0.05906		$1\frac{5}{16}$ *	$4\frac{5}{16}$ *				
M 20.0 × 2.00	0.7874	0.07874							
M 22.0 × 1.50		0.05906	0.6299	$1\frac{3}{8}$ *	$4\frac{1}{2}$ *			0.492	$\frac{5}{8}$
M 22.0 × 2.00	0.8661	0.07874							
M 24.0 × 1.50		0.05906	0.7087	$1\frac{3}{8}$	$4\frac{3}{4}$			0.551	$\frac{23}{32}$
M 24.0 × 2.00	0.9449	0.07874							
M 25.0 × 1.50		0.05906		$1\frac{3}{8}$	$4\frac{3}{4}$				
M 25.0 × 2.00	0.9843	0.07874							

* As a departure from general Tables A.7.1 and A.7.2, the lengths *l* and *L* which are marked with an asterisk in the present Table, have been unified to a common value for M 18 and M 20 threads and also for the M 22 thread.

4.2 Dimensions in inches (continued)

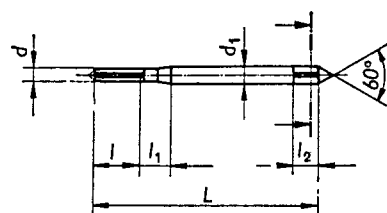
Designation	d nominal	Pitch	d ₁ h9	l	L	d ₂ min.	l ₁	Square	
								a h11	l ₂
M 27.0 × 1.50	1.0630	0.05906	0.7874	1 ⁷ / ₁₆	5			0.630	25/32
M 27.0 × 2.00		0.07874							
M 28.0 × 1.50	1.1024	0.05906		1 ⁷ / ₁₆	5				
M 28.0 × 2.00		0.07874							
M 30.0 × 1.50	1.1811	0.05906		1 ⁷ / ₁₆	5				
M 30.0 × 2.00		0.07874							
M 30.0 × 3.00		0.11811		1 ⁷ / ₈	5 ⁷ / ₁₆				
M 32.0 × 1.50	1.2598	0.05906	0.8819	1 ⁷ / ₁₆	5 ³ / ₈			0.709	7/8
M 32.0 × 2.00		0.07874							
M 33.0 × 1.50	1.2992	0.05906		1 ⁷ / ₁₆	5 ³ / ₈				
M 33.0 × 2.00		0.07874							
M 33.0 × 3.00		0.11811		2	5 ¹⁵ / ₁₆				
M 35.0 × 1.50	1.3780	0.05906	0.9842	1 ⁹ / ₁₆	5 ¹¹ / ₁₆			0.787	15/16
M 36.0 × 1.50	1.4173	0.05906		1 ⁹ / ₁₆	5 ¹¹ / ₁₆				
M 36.0 × 2.00		0.07874							
M 36.0 × 3.00		0.11811		2 ¹ / ₄	6 ³ / ₈				
M 39.0 × 1.50	1.5354	0.05906	1.1024	1 ⁹ / ₁₆	5 ⁷ / ₈			0.882	1 ¹ / ₃₂
M 39.0 × 2.00		0.07874							
M 39.0 × 3.00		0.11811		2 ³ / ₈	6 ¹¹ / ₁₆				
M 40.0 × 1.50	1.5748	0.05906		1 ⁹ / ₁₆	5 ⁷ / ₈				
M 40.0 × 2.00		0.07874							
M 40.0 × 3.00		0.11811		2 ³ / ₈	6 ¹¹ / ₁₆				
M 42.0 × 1.50	1.6535	0.05906	1.1024	1 ⁹ / ₁₆	5 ⁷ / ₈			0.882	1 ¹ / ₃₂
M 42.0 × 2.00		0.07874							
M 42.0 × 3.00		0.11811	1.1024	2 ³ / ₈	6 ¹¹ / ₁₆			0.882	1 ¹ / ₃₂
M 42.0 × 4.00		0.15748							
M 45.0 × 1.50	1.7717	0.05906	1.2402	1 ³ / ₄	6 ¹ / ₂			0.984	1 ³ / ₃₂
M 45.0 × 2.00		0.07874							
M 45.0 × 3.00		0.11811		2 ⁵ / ₈	7 ³ / ₈				
M 45.0 × 4.00		0.15748							
M 48.0 × 1.50	1.8898	0.05906		1 ³ / ₄	6 ¹ / ₂				
M 48.0 × 2.00		0.07874							
M 48.0 × 3.00		0.11811		2 ⁵ / ₈	7 ³ / ₈				
M 48.0 × 4.00		0.15748							
M 50.0 × 1.50	1.9685	0.05906	1.3976	1 ³ / ₄	6 ¹ / ₂			1.102	1 ⁷ / ₃₂
M 50.0 × 2.00		0.07874							
M 50.0 × 3.00		0.11811		2 ⁵ / ₈	7 ³ / ₈				
M 52.0 × 1.50	2.0472	0.05906		1 ³ / ₄	6 ⁷ / ₈				
M 52.0 × 2.00		0.07874							
M 52.0 × 3.00		0.11811							
M 52.0 × 4.00		0.15748		2 ³ / ₄	7 ⁷ / ₈				

4.2 Dimensions in inches (concluded)

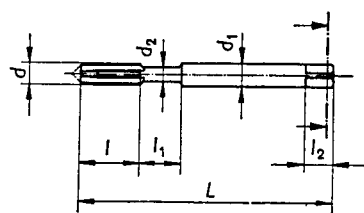
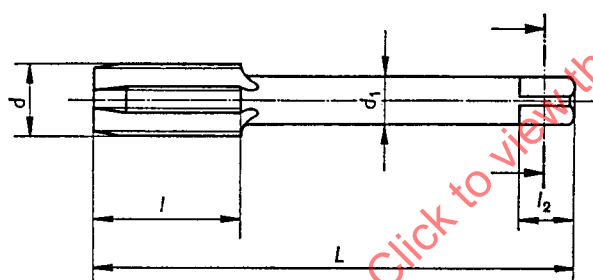
Designation	d nominal	Pitch	d ₁ h9	l	L	d ₂ min.	l ₁	Square	
								a h11	l ₂
M 55.0 × 1.50	2.1654	0.05906	1.3976	1 ³ / ₄	6 ⁷ / ₈			1.102	1 ⁷ / ₃₂
M 55.0 × 2.00		0.07874							
M 55.0 × 3.00		0.11811		2 ³ / ₄	7 ⁷ / ₈				
M 55.0 × 4.00		0.15748							
M 56.0 × 1.50	2.2047	0.05906	1.3976	1 ³ / ₄	6 ⁷ / ₈			1.398	1 ¹ / ₂
M 56.0 × 2.00		0.07874							
M 56.0 × 3.00		0.11811		2 ³ / ₄	7 ⁷ / ₈				
M 56.0 × 4.00		0.15748							
M 70.0 × 6.00	2.7559	0.23622	1.7717	3 ¹ / ₈	9 ³ / ₁₆			1.575	1 ²¹ / ₃₂
M 72.0 × 6.00	2.8346								
M 75.0 × 6.00	2.9528		1.9685	3 ¹ / ₄	10 ¹ / ₈			1.772	1 ¹³ / ₁₆
M 76.0 × 6.00	2.9921			3 ³ / ₈	10 ¹ / ₄				
M 80.0 × 6.00	3.1496								
M 85.0 × 6.00	3.3465		2.2047						
M 90.0 × 6.00	3.5433								
M 95.0 × 6.00	3.7402								
M 100.0 × 6.00	3.9370								

NOTE. — Tolerances and marking, see Notes after Table 3.2.

5. UNIFIED COARSE (UNC) THREADS



Nos. 1 to 3

Nos. 4 to 12 and
1/4 to 3/8 in $\geq 7/16$

5.1 Dimensions in millimetres

Designation	d nominal	Pitch	d_1 h9	l	L	d_2 min.	l_1	Square	
								a h11	l_2
No. 1 – 64–UNC	1.854	0.397	2.50	8.0	41.0		5.5	2.00	4
No. 2 – 56–UNC	2.184	0.454	2.80	9.5	44.5		6.0	2.24	5
No. 3 – 48–UNC	2.515	0.529							
No. 4 – 40–UNC	2.845	0.635	3.15	11.0	48.0	2.12	7.0	2.50	
No. 5 – 40–UNC	3.175					2.36		2.80	
No. 6 – 32–UNC	3.505	0.794	3.55	13.0	50.0	2.50	8.0	3.55	7
No. 8 – 32–UNC	4.166		4.50	13.0	53.0	3.15		4.00	
No. 10 – 24–UNC	4.826	1.058	5.00	16.0	58.0	3.55	9.0	4.50	8
No. 12 – 24–UNC	5.486		5.60	17.0	62.0	4.25		5.00	
$\frac{1}{4}$ – 20–UNC	6.350	1.270	6.30	19.0	66.0	4.50	11.0	6.30	9
$\frac{5}{16}$ – 18–UNC	7.938	1.411	8.00	22.0	72.0	6.00	13.0	8.00	11
$\frac{3}{8}$ – 16–UNC	9.525	1.588	10.00	24.0	80.0	7.50	15.0		

5.1 Dimensions in millimetres (concluded)

Designation	d nominal	Pitch	d_1 h9	l	L	d_2 min.	l_1	Square	
								a h11	l_2
$7/16 - 14\text{-UNC}$	11.112	1.814	8.0	25.0	85.0			6.3	9
$1/2 - 13\text{-UNC}$	12.700	1.954	9.5	29.0	89.0			7.5	10
$9/16 - 12\text{-UNC}$	14.288	2.117	11.2	30.0	95.0			9.0	12
$5/8 - 11\text{-UNC}$	15.875	2.309	12.5	32.0	102.0			10.0	13
$3/4 - 10\text{-UNC}$	19.050	2.540	14.0	37.0	112.0			11.2	14
$7/8 - 9\text{-UNC}$	22.225	2.822	16.0	38.0	118.0			12.5	16
$1 - 8\text{-UNC}$	25.400	3.175	18.0	45.0	130.0			14.0	18
$1\frac{1}{8} - 7\text{-UNC}$	28.575	3.629	20.0	48.0	138.0			16.0	20
$1\frac{1}{4} - 7\text{-UNC}$	31.750		22.4	51.0	151.0			18.0	22
$1\frac{3}{8} - 6\text{-UNC}$	34.925	4.233	25.0	57.0	162.0			20.0	24
$1\frac{1}{2} - 6\text{-UNC}$	38.100		28.0	60.0	170.0			22.4	26
$1\frac{3}{4} - 5\text{-UNC}$	44.450	5.080	31.5	67.0	187.0			25.0	28
$2 - 4\frac{1}{2}\text{-UNC}$	50.800	5.644	35.5	70.0	200.0			28.0	31
$2\frac{1}{4} - 4\frac{1}{2}\text{-UNC}$	57.150		40.0	76.0	221.0			31.5	34
$2\frac{1}{2} - 4\text{-UNC}$	63.500	79.0		224.0					
$2\frac{3}{4} - 4\text{-UNC}$	69.850	6.350	45.0	79.0	234.0			35.5	38
$3 - 4\text{-UNC}$	76.200		50.0	83.0	258.0			40.0	42
$3\frac{1}{4} - 4\text{-UNC}$	82.550			86.0	261.0				
$3\frac{1}{2} - 4\text{-UNC}$	88.900	56.0	89.0	279.0			45.0	46	
$3\frac{3}{4} - 4\text{-UNC}$	95.250								
$4 - 4\text{-UNC}$	101.600								

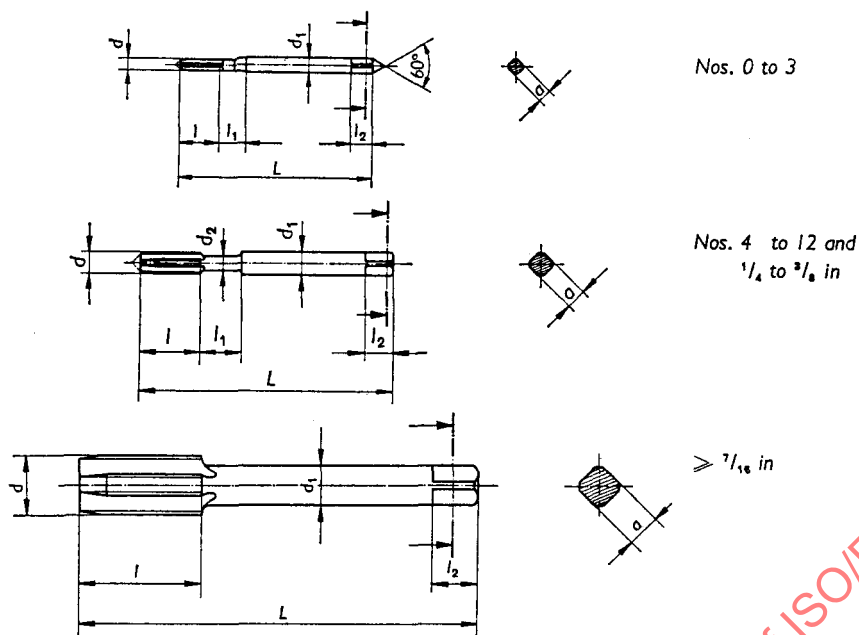
NOTE. — Tolerances and marking, see Notes after Table 3.1.

5.2 Dimensions in inches

Designation	d nominal	Number of threads per inch	d ₁ h9	l	L	d ₂ min.	l ₁	Square	
								a h11	l ₂
No. 1 – 64-UNC	0.073	64	0.0984	$\frac{5}{16}$	1 $\frac{5}{8}$		$\frac{7}{32}$	0.079	$\frac{5}{32}$
No. 2 – 56-UNC	0.086	56	0.1102	$\frac{3}{8}$	1 $\frac{3}{4}$		$\frac{1}{4}$	0.088	$\frac{3}{16}$
No. 3 – 48-UNC	0.099	48							
No. 4 – 40-UNC	0.112	40	0.1240	$\frac{7}{16}$	1 $\frac{7}{8}$	0.083	0.098		
No. 5 – 40-UNC	0.125					0.093			
No. 6 – 32-UNC	0.138	32	0.1398	$\frac{1}{2}$	1 ¹⁵ / ₁₆	0.098	0.110	$\frac{1}{4}$	
No. 8 – 32-UNC	0.164		0.1772	$\frac{1}{2}$	2 $\frac{1}{16}$	0.124	$\frac{5}{16}$		
No. 10 – 24-UNC	0.190	24	0.1969	$\frac{5}{8}$	2 $\frac{1}{4}$	0.140	0.157	$\frac{9}{32}$	
No. 12 – 24-UNC	0.216		0.2205	$\frac{11}{16}$	2 $\frac{7}{16}$	0.167	$\frac{11}{32}$		
$\frac{1}{4}$ – 20-UNC	0.250	20	0.2480	$\frac{3}{4}$	2 $\frac{5}{8}$	0.177	$\frac{7}{16}$	0.197	$\frac{5}{16}$
$\frac{5}{16}$ – 18-UNC	0.312	18	0.3150	$\frac{7}{8}$	2 $\frac{7}{8}$	0.236	$\frac{1}{2}$	0.248	$\frac{11}{32}$
$\frac{3}{8}$ – 16-UNC	0.375	16	0.3937	$\frac{15}{16}$	3 $\frac{1}{8}$	0.295	$\frac{19}{32}$	0.315	$\frac{7}{16}$
$\frac{7}{16}$ – 14-UNC	0.438	14	0.3150	1	3 $\frac{3}{8}$			0.248	$\frac{11}{32}$
$\frac{1}{2}$ – 13-UNC	0.500	13	0.3740	$1\frac{1}{8}$	3 $\frac{1}{2}$			0.295	$\frac{13}{32}$
$\frac{9}{16}$ – 12-UNC	0.562	12	0.4409	$1\frac{3}{16}$	3 $\frac{3}{4}$			0.354	$\frac{15}{32}$
$\frac{5}{8}$ – 11-UNC	0.625	11	0.4921	$1\frac{1}{4}$	4			0.394	$\frac{1}{2}$
$\frac{3}{4}$ – 10-UNC	0.750	10	0.5512	$1\frac{7}{16}$	4 $\frac{7}{16}$			0.441	$\frac{9}{16}$
$\frac{7}{8}$ – 9-UNC	0.875	9	0.6299	$1\frac{1}{2}$	4 $\frac{5}{8}$			0.492	$\frac{5}{8}$
1 – 8-UNC	1.000	8	0.7087	$1\frac{3}{4}$	5 $\frac{1}{8}$			0.551	$\frac{23}{32}$
$1\frac{1}{8}$ – 7-UNC	1.125	7	0.7874	$1\frac{7}{8}$	5 $\frac{7}{16}$			0.630	$\frac{25}{32}$
$1\frac{1}{4}$ – 7-UNC	1.250		0.8819	2	5 ¹⁵ / ₁₆			0.709	$\frac{7}{8}$
$1\frac{3}{8}$ – 6-UNC	1.375	6	0.9842	2 ¹ / ₄	6 $\frac{3}{8}$			0.787	$\frac{15}{16}$
$1\frac{1}{2}$ – 6-UNC	1.500		1.1024	2 ³ / ₈	6 ¹¹ / ₁₆			0.882	1 $\frac{1}{32}$
$1\frac{3}{4}$ – 5-UNC	1.750	5	1.2402	2 ⁵ / ₈	7 $\frac{3}{8}$			0.984	1 $\frac{3}{32}$
2 – 4 ¹ / ₂ -UNC	2.000	4 ¹ / ₂	1.3976	2 ³ / ₄	7 $\frac{7}{8}$			1.102	1 $\frac{7}{32}$
2 ¹ / ₄ – 4 ¹ / ₂ -UNC	2.250		1.5748	3	8 ¹¹ / ₁₆			1.240	1 ¹¹ / ₃₂
2 ¹ / ₂ – 4-UNC	2.500	4	1.9685	$3\frac{1}{8}$	8 ¹³ / ₁₆			1.398	1 $\frac{1}{2}$
2 ³ / ₄ – 4-UNC	2.750			$3\frac{1}{8}$	9 $\frac{3}{16}$			1.575	1 ²¹ / ₃₂
3 – 4-UNC	3.000			$3\frac{1}{4}$	10 $\frac{1}{8}$			1.772	1 ¹³ / ₁₆
3 ¹ / ₄ – 4-UNC	3.250			$3\frac{3}{8}$	10 $\frac{1}{4}$				
3 ¹ / ₂ – 4-UNC	3.500								
3 ³ / ₄ – 4-UNC	3.750								
4 – 4-UNC	4.000		2.2047	$3\frac{1}{2}$	11				

NOTE. — Tolerances and marking, see Notes after Table 3.2.

6. UNIFIED FINE (UNF) THREADS



6.1 Dimensions in millimetres

Designation	d nominal	Pitch approx.	d ₁ h9	l	L	d ₂ min.	l ₁	Square	
								a h11	l ₂
No. 0 – 80–UNF	1.524	0.318	2.50	8.0	41.0		5.0	2.00	4
No. 1 – 72–UNF	1.854	0.353					5.5		
No. 2 – 64–UNF	2.184	0.397	2.80	9.5	44.5		6.0	2.24	
No. 3 – 56–UNF	2.515	0.454				2.12	7.0	2.50	5
No. 4 – 48–UNF	2.845	0.529	2.36						
No. 5 – 44–UNF	3.175	0.577	2.50	2.80					
No. 6 – 40–UNF	3.505	0.635	3.15	8.0	3.55	6			
No. 8 – 36–UNF	4.166	0.706	4.50	13.0	58.0	3.55	4.00	7	
No. 10 – 32–UNF	4.826	0.794	5.60	17.0	62.0	4.25	4.50		
No. 12 – 28–UNF	5.486	0.907	6.30	19.0	66.0	4.50	5.00	8	
1/4 – 28–UNF	6.350		8.00	19.0	69.0	6.00	13.0	6.30	9
5/16 – 24–UNF	7.938	1.058	10.00	20.0	76.0	7.50	15.0	8.00	11
3/8 – 24–UNF	9.525		8.00	22.0	82.0			6.30	9
7/16 – 20–UNF	11.112	1.270	9.50	24.0	84.0			7.50	10
1/2 – 20–UNF	12.700		11.20	25.0	90.0			9.00	12
9/16 – 18–UNF	14.288	1.411	12.50	25.0	95.0			10.00	13
5/8 – 18–UNF	15.875		14.00	29.0	104.0			11.20	14
3/4 – 16–UNF	19.050	1.588	16.00	33.0	113.0			12.50	16
7/8 – 14–UNF	22.225	1.814	18.00	35.0	120.0			14.00	18
1 – 12–UNF	25.400	2.117	20.00	37.0	127.0			16.00	20
1 1/8 – 12–UNF	28.575		22.40	37.0	137.0			18.00	22
1 1/4 – 12–UNF	31.750		25.00	39.0	144.0			20.00	24
1 3/8 – 12–UNF	34.925		28.00	39.0	149.0			22.40	26
1 1/2 – 12–UNF	38.100								

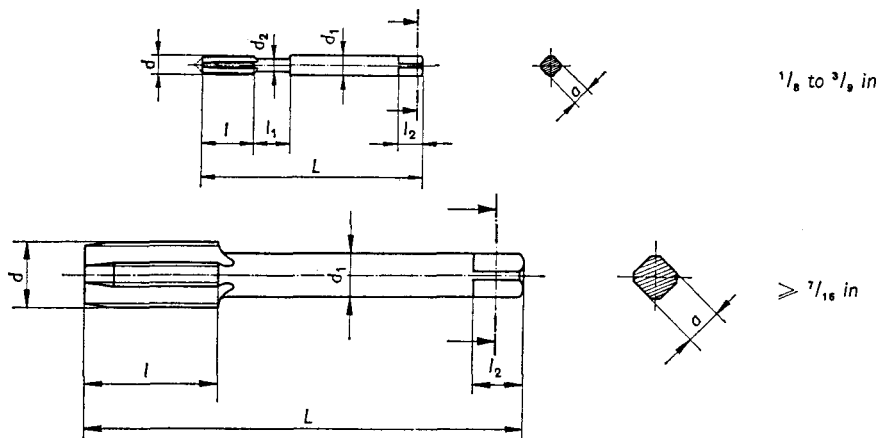
NOTE. — Tolerances and marking, see Notes after Table 3.1.

6.2 Dimensions in inches

Designation	d nominal	Number of threads per inch	d ₁ h9	l	L	d ₂ min.	l ₁	Square	
								a h11	l ₂
No. 0 – 80–UNF	0.060	80	0.0984	5/16	1 5/8		3/16	0.079	5/32
No. 1 – 72–UNF	0.073	72					7/32		
No. 2 – 64–UNF	0.086	64	0.1102	3/8	1 3/4		1/4	0.088	
No. 3 – 56–UNF	0.099	56							
No. 4 – 48–UNF	0.112	48	0.1240	7/16	1 7/8	0.083	9/32	0.098	3/16
No. 5 – 44–UNF	0.125	44				0.093			
No. 6 – 40–UNF	0.138	40	0.1398	1/2	1 15/16	0.098		0.110	
No. 8 – 36–UNF	0.164	36	0.1772	1/2	2 1/16	0.124	5/16	0.140	1/4
No. 10 – 32–UNF	0.190	32	0.1969	5/8	2 1/4	0.140	11/32	0.157	9/32
No. 12 – 28–UNF	0.216	28	0.2205	11/16	2 7/16	0.167		0.177	
1/4 – 28–UNF	0.250	24	0.2480	3/4	2 5/8	0.177	7/16	0.197	5/16
5/16 – 24–UNF	0.312		0.3150	3/4	2 3/4	0.236	1/2	0.248	11/32
3/8 – 24–UNF	0.375	20	0.3937	13/16	3	0.295	19/32	0.315	7/16
7/16 – 20–UNF	0.438		0.3150	7/8	3 1/4			0.248	11/32
1/2 – 20–UNF	0.500	0.3740	15/16	3 5/16	0.295			13/32	
9/16 – 18–UNF	0.562	18	0.4409	1	3 9/16			0.354	15/32
5/8 – 18–UNF	0.625		0.4921	1	3 3/4			0.394	1/2
3/4 – 16–UNF	0.750	16	0.5512	1 1/8	4 1/8			0.441	9/16
7/8 – 14–UNF	0.875	14	0.6299	1 5/16	4 7/16			0.492	5/8
1 – 12–UNF	1.000	12	0.7087	1 3/8	4 3/4			0.551	23/32
1 1/8 – 12–UNF	1.125		0.7874	1 7/16	5			0.630	25/32
1 1/4 – 12–UNF	1.250		0.8819	1 7/16	5 3/8			0.709	7/8
1 3/8 – 12–UNF	1.375		0.9842	1 9/16	5 11/16			0.787	15/16
1 1/2 – 12–UNF	1.500		1.1024	1 9/16	5 7/8			0.882	1 1/32

NOTE. — Tolerances and marking, see Notes after Table 3.2.

7. BRITISH STANDARD WHITWORTH (BSW) AND BRITISH STANDARD FINE (BSF) THREADS



7.1 Dimensions in millimetres

Designation		d nominal	Pitch approx.		d_1 h9	l	L	d_2 min.	l ₁	Square	
BSW	BSF		BSW	BSF						a h11	l ₂
$\frac{1}{8}$ - 40-BSW	—	3.175	0.635	—	3.15	11	48	2.36	7	2.5	5
$\frac{3}{16}$ - 24-BSW	$\frac{3}{16}$ - 32-BSF	4.762	1.058	0.794	5.00	16	58	3.55	9	4.0	7
—	$\frac{7}{32}$ - 28-BSF	5.556	—	0.907	5.60	17	62	4.25	—	4.5	—
$\frac{1}{4}$ - 20-BSW	$\frac{1}{4}$ - 26-BSF	6.350	1.270	0.977	6.30	19	66	4.50	11	5.0	8
—	$\frac{9}{32}$ - 26-BSF	7.144	—	—	7.10	—	—	5.60	—	5.6	—
$\frac{5}{16}$ - 18-BSW	$\frac{5}{16}$ - 22-BSF	7.938	1.411	1.154	8.00	22	72	6.00	13	6.3	9
$\frac{3}{8}$ - 16-BSW	$\frac{3}{8}$ - 20-BSF	9.525	1.588	1.270	10.00	24	80	7.50	15	8.0	11
$\frac{7}{16}$ - 14-BSW	$\frac{7}{16}$ - 18-BSF	11.112	1.814	1.411	8.00	25	85	—	—	6.3	9
$\frac{1}{2}$ - 12-BSW	$\frac{1}{2}$ - 16-BSF	12.700	2.117	1.588	9.50	29	89	—	—	7.5	10
$\frac{9}{16}$ - 12-BSW	$\frac{9}{16}$ - 16-BSF	14.288	—	—	11.20	30	95	—	—	9.0	12
$\frac{5}{8}$ - 11-BSW	$\frac{5}{8}$ - 14-BSF	15.875	2.309	1.814	12.50	32	102	—	—	10.0	13
$\frac{11}{16}$ - 11-BSW	$\frac{11}{16}$ - 14-BSF	17.462	—	—	14.00	37	112	—	—	11.2	14
$\frac{3}{4}$ - 10-BSW	$\frac{3}{4}$ - 12-BSF	19.050	2.540	2.117	—	—	—	—	—	—	—
$\frac{7}{8}$ - 9-BSW	$\frac{7}{8}$ - 11-BSF	22.225	2.822	2.309	16.00	38	118	—	—	12.5	16
1 - 8-BSW	1 - 10-BSF	25.400	3.175	2.540	18.00	45	130	—	—	14.0	18
$1\frac{1}{8}$ - 7-BSW	$1\frac{1}{8}$ - 9-BSF	28.575	3.629	2.822	20.00	48	138	—	—	16.0	20
$1\frac{1}{4}$ - 7-BSW	$1\frac{1}{4}$ - 9-BSF	31.750	—	—	22.40	51	151	—	—	18.0	22
—	$1\frac{3}{8}$ - 8-BSF	34.925	—	—	25.00	57	162	—	—	20.0	24
$1\frac{1}{2}$ - 6-BSW	$1\frac{1}{2}$ - 8-BSF	38.100	4.233	3.175	28.00	60	170	—	—	22.4	26
—	$1\frac{5}{8}$ - 8-BSF	41.275	—	—	—	—	—	—	—	—	—
$1\frac{3}{4}$ - 5-BSW	$1\frac{3}{4}$ - 7-BSF	44.450	5.080	3.629	31.50	67	187	—	—	25.0	28
2 - 4 $\frac{1}{2}$ -BSW	2 - 7-BSF	50.800	5.644	—	35.50	70	200	—	—	28.0	31
$2\frac{1}{4}$ - 4-BSW	$2\frac{1}{4}$ - 6-BSF	57.150	6.350	4.233	40.00	76	221	—	—	31.5	34
$2\frac{1}{2}$ - 4-BSW	$2\frac{1}{2}$ - 6-BSF	63.500	—	—	—	79	224	—	—	—	—
$2\frac{3}{4}$ - 3 $\frac{1}{2}$ -BSW	$2\frac{3}{4}$ - 6-BSF	69.850	7.257	—	45.00	79	234	—	—	35.5	38
3 - 3 $\frac{1}{2}$ -BSW	3 - 5-BSF	76.200	—	—	—	83	258	—	—	—	—
$3\frac{1}{4}$ - 3 $\frac{1}{4}$ -BSW	$3\frac{1}{4}$ - 5-BSF	82.550	7.815	—	50.00	86	261	—	—	40.0	42
$3\frac{1}{2}$ - 3 $\frac{1}{4}$ -BSW	$3\frac{1}{2}$ - 4 $\frac{1}{2}$ -BSF	88.900	—	—	—	—	—	—	—	—	—
$3\frac{3}{4}$ - 3-BSW	$3\frac{3}{4}$ - 4 $\frac{1}{2}$ -BSF	95.250	8.467	5.644	56.00	89	279	—	—	45.0	46
4 - 3-BSW	4 - 4 $\frac{1}{2}$ -BSF	101.600	—	—	—	—	—	—	—	—	—

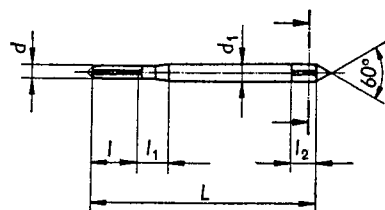
NOTE. — Tolerances and marking, see Notes after Table 3.1.

7.2 Dimensions in inches

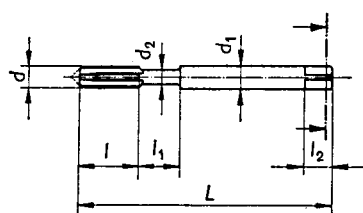
Designation		<i>d</i> nomi- nal	Number of threads per inch		<i>d</i> ₁ h9	<i>l</i>	<i>L</i>	<i>d</i> ₂ min.	<i>l</i> ₁	Square	
BSW	BSF		BSW	BSF						<i>a</i> h11	<i>l</i> ₂
1/8 - 40-BSW	—	0.1250	40	—	0.1240	7/16	1 7/8	0.093	9/32	0.098	3/16
3/16 - 24-BSW	3/16 - 32-BSF	0.1875	24	32	0.1969	5/8	2 1/4	0.140	11/32	0.157	9/32
—	7/32 - 28-BSF	0.2188	—	28	0.2205	11/16	2 7/16	0.167	—	0.177	—
1/4 - 20-BSW	1/4 - 26-BSF	0.2500	20	26	0.2480	3/4	2 5/8	0.177	7/16	0.197	5/16
—	9/32 - 26-BSF	0.2812	—	—	0.2795	—	—	0.220	—	0.220	—
5/16 - 18-BSW	5/16 - 22-BSF	0.3125	18	22	0.3150	7/8	2 7/8	0.236	1/2	0.248	11/32
3/8 - 16-BSW	3/8 - 20-BSF	0.3750	16	20	0.3937	15/16	3 1/8	0.295	19/32	0.315	7/16
7/16 - 14-BSW	7/16 - 18-BSF	0.4375	14	18	0.3150	1	3 3/8	—	—	0.248	11/32
1/2 - 12-BSW	1/2 - 16-BSF	0.5000	12	16	0.3740	1 1/8	3 1/2	—	—	0.295	13/32
9/16 - 12-BSW	9/16 - 16-BSF	0.5625	—	—	0.4409	1 3/16	3 3/4	—	—	0.354	15/32
5/8 - 11-BSW	5/8 - 14-BSF	0.6250	11	14	0.4921	1 1/4	4	—	—	0.394	1/2
11/16 - 11-BSW	11/16 - 14-BSF	0.6875	—	—	0.5512	1 7/16	4 7/16	—	—	0.441	9/16
3/4 - 10-BSW	3/4 - 12-BSF	0.7500	10	12	—	—	—	—	—	—	—
7/8 - 9-BSW	7/8 - 11-BSF	0.8750	9	11	0.6299	1 1/2	4 5/8	—	—	0.492	5/8
1 - 8-BSW	1 - 10-BSF	1.0000	8	10	0.7087	1 3/4	5 1/8	—	—	0.551	23/32
1 1/8 - 7-BSW	1 1/8 - 9-BSF	1.1250	7	9	0.7874	1 7/8	5 7/16	—	—	0.630	25/32
1 1/4 - 7-BSW	1 1/4 - 9-BSF	1.2500	—	—	0.8819	2	5 15/16	—	—	0.709	7/8
—	1 3/8 - 8-BSF	1.3750	—	—	0.9842	2 1/4	6 3/8	—	—	0.787	15/16
1 1/2 - 6-BSW	1 1/2 - 8-BSF	1.5000	6	8	1.1024	2 3/8	6 11/16	—	—	0.882	1 1/32
—	1 5/8 - 8-BSF	1.6250	—	—	—	—	—	—	—	—	—
1 3/4 - 5-BSW	1 3/4 - 7-BSF	1.7500	5	7	1.2402	2 5/8	7 3/8	—	—	0.984	1 3/32
2 - 4 1/2-BSW	2 - 7-BSF	2.0000	4 1/2	—	1.3976	2 3/4	7 7/8	—	—	1.102	1 7/32
2 1/4 - 4-BSW	2 1/4 - 6-BSF	2.2500	4	6	1.5748	3	8 11/16	—	—	1.240	1 11/32
2 1/2 - 4-BSW	2 1/2 - 6-BSF	2.5000	—	—	—	3 1/8	8 13/16	—	—	—	—
2 3/4 - 3 1/2-BSW	2 3/4 - 6-BSF	2.7500	3 1/2	—	1.7717	3 1/8	9 3/16	—	—	1.398	1 1/2
3 - 3 1/2-BSW	3 - 5-BSF	3.0000	—	—	—	3 1/4	10 1/8	—	—	—	—
3 1/4 - 3 1/4-BSW	3 1/4 - 5-BSF	3.2500	3 1/4	5	1.9685	3 3/8	10 1/4	—	—	1.575	1 21/32
3 1/2 - 3 1/4-BSW	3 1/2 - 4 1/2-BSF	3.5000	—	—	—	—	—	—	—	—	—
3 3/4 - 3-BSW	3 3/4 - 4 1/2-BSF	3.7500	3	4 1/2	2.2047	3 1/2	11	—	—	1.772	1 13/16
4 - 3-BSW	4 - 4 1/2-BSF	4.0000	—	—	—	—	—	—	—	—	—

Note. — Tolerances and marking, see Notes after Table 3.2.

8. BRITISH ASSOCIATION (BA) THREADS



Nos. 14 to 6



Nos. 5 to 0



8.1 Dimensions in millimetres

Designation	d nominal	Pitch	d ₁ h9	l	L	d ₂ min.	l ₁	Square	
								a h11	l ₂
BA No. 14	1.0	0.23	2.50	5.5	38.5		4.5	2.00	4
BA No. 13	1.2	0.25		7.0	40.0				
BA No. 12	1.3	0.28							
BA No. 11	1.5	0.31					5.0		
BA No. 10	1.7	0.35		8.0	41.0				
BA No. 9	1.9	0.39	2.80				5.5	2.24	5
BA No. 8	2.2	0.43							
BA No. 7	2.5	0.48		9.5	44.5		6.0		
BA No. 6	2.8	0.53							
BA No. 5	3.2	0.59	3.15	11.0	48.0	2.12	7.0	2.50	5
BA No. 4	3.6	0.66	3.55	13.0	50.0	2.50		2.80	
BA No. 3	4.1	0.73	4.50	13.0	53.0	3.15	8.0	3.55	6
BA No. 2	4.7	0.81	5.00	16.0	58.0	3.55	9.0	4.00	7
BA No. 1	5.3	0.90	5.60	17.0	62.0	4.25		4.50	
BA No. 0	6.0	1.00	6.30	19.0	66.0	4.50	11.0	5.00	8

NOTE. — Tolerances and marking, see Notes after Table 3.1.

A.6 LENGTH OF THREAD: PERMISSIBLE

A.6.1 Dimensions in millimetres

Metric pitches in millimetres	0.20	0.23 0.25	0.28 0.35	0.39 0.40	0.43 0.45	0.48 0.53	0.59 0.66	0.70 0.81	0.90 1.00	1.25
Number of threads per inch (tpi)	—	—	80 72	64	56	48	44 40	36 32	28 24	22 18
Inch pitches converted to millimetres (approximately)	—	—	0.318 0.353	0.397	0.454	0.529	0.577 0.635	0.706 0.794	0.907 1.058	1.154 1.411
Diameter ranges <i>d</i>										
(over)	(including)									
0.90	1.25	5.5	5.5							
1.25	1.40	5.5	6	7						
1.40	1.80	5.5	6	7	8					
1.80	2.00		7	8	8	9	9.5			
2.00	2.80		7	8	8	9	10	11	11	
2.80	3.20		7	8	9	9	10	11	11	
3.20	3.60									
3.60	4.00			9	10	11	11	12	13	
4.00	4.50									
4.50	5.00							14	16	
5.00	5.60									
5.60	6.35			10	11	12	12	13	15	17
6.35	7.20									19
7.20	8.00				11					
8.00	9.00					13	13	14	16	19
9.00	10.00									
10.00	10.60							15		
10.60	11.80					14	14		17	20
11.80	13.20							16		
13.20	15.00									24
15.00	17.00							17	19	22
17.00	19.00									25
19.00	21.20							17	20	22
21.20	23.60									27
23.60	26.50								22	24
26.50	28.00									29
28.00	30.00								22	25
30.00	33.50								24	30
33.50	37.50									
37.50	42.50								24	27
42.50	45.00									32
45.00	50.00									
50.00	56.00									29
56.00	63.00									30
63.00	67.00									35
67.00	75.00								32	35
75.00	80.00									37
80.00	90.00									
90.00	101.60									39

l_0 = minimum permissible

F THREAD: PERMISSIBLE MINIMUM VALUES

0.70 0.81	0.90 1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00 4.50	5.00	5.50	6.00
36 32	28 24	22 18	16	14	13 12	11 10	9 8	7	6	5	4 ¹ / ₂	4 3
0.706 0.794	0.907 1.058	1.154 1.411	1.588	1.814	1.954 2.117	2.309 2.540	2.822 3.175	3.629	4.233	5.080	5.644	6.350 8.467

l_0 = minimum permissible values of length of thread

11												
13												
14	16											
15	17	19										
16	19	22										
17	20	22	24									
			25	25								
		24	25	27	29							
19	22	25	27	29	30							
			30	30	30	32						
20	22	27	29	30	33	37						
22	24	29	30	33	35	37	38					
						39	45					
22	25	30	32	33	37	41	45	48				
24			33	35				51				
24	27	32	33	35	39	43	48	51	57			
			35	37				54	60			
	29	33	37	39	41	45	51	54	60	67		
	30	35	37	39	43	45	54	57	60	67	70	
		35	39	41	43		54	57		70		76
	32	37	41	43	45	48			64	73	76	79
							57	60				83
		39	43	45	48	51			67	76	79	86
			45	48	49	54	60	64	70	83		89