

BRITISH STANDARD

Unified screw threads

Part 1: Screw threads with diameters $\frac{1}{4}$ in and larger – Requirements

ICS 21.040.20

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Foreword

Publishing information

This part of BS 1580 is published by BSI and came into effect on 31 December 2007. It was prepared by Subcommittee SFTSE/1, *Screws and fasteners technical specification committee*, under the authority of Technical Committee FME/9, *Nuts, bolts and accessories*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 1580 supersedes BS 1580: Parts 1 & 2:1962, which is withdrawn.

Relationship with other publications

BS 1580 is now published in two parts:

- *Part 1: Screw threads with diameters $\frac{1}{4}$ in and larger – Requirements*
- *Part 3: Screw threads with diameters below $\frac{1}{4}$ in – Requirements*

This part of BS 1580 is intended for use with BS 919-1 and BS 919-4 which specify the corresponding screw gauges.

Information about this document

This part of BS 1580 has been fully revised to bring it up to date.

The diameter/pitch combinations which are recognized as standard threads in the ISO inch system include the American numbered sizes. A copy of the ISO table of these standard threads (but with the omission of the numbered sizes), is reproduced in Table 1 of this part of BS 1580.

Hazard warnings

WARNING. Attention is drawn to the fact that, with the different screw thread forms available, there is the possibility of a mismatch, which is potentially hazardous. It is the responsibility of the designer of the end product to ensure that this possibility is reduced to a minimum. For further information on mismatches of screw thread systems see PD 6494.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is “shall”.

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

Section 1: General

1 Scope

This part of BS 1580 specifies limits of sizes, and tolerances, for single-start, clearance-fit unified screw threads, in inch units, with nominal diameters $\frac{1}{4}$ in and above, having the ISO basic profile as specified in BS ISO 68-2:1998.

The part of BS 1580 specifies the following unified thread series as follows:

- a) standard variable pitch series:
 - a coarse thread series (UNC) from $\frac{1}{4}$ in to 4 in nominal diameter;
 - a fine thread series (UNF) from $\frac{1}{4}$ in to $1\frac{1}{2}$ in nominal diameter;
 - an extra fine thread series (UNEF) from $\frac{1}{4}$ in to $1\frac{11}{16}$ in nominal diameter;
- b) standard constant pitch series:
 - a 4-threads per inch series (4 UN) from $2\frac{5}{8}$ in to 6 in nominal diameter;
 - a 6-threads per inch series (6 UN) from $1\frac{7}{16}$ in to 6 in nominal diameter;
 - an 8-threads per inch series (8 UN) from $1\frac{1}{16}$ in to 6 in nominal diameter;
 - a 12-threads per inch series (12 UN) from $\frac{5}{8}$ in to 6 in nominal diameter;
 - a 16-threads per inch series (16 UN) from $\frac{7}{16}$ in to 6 in nominal diameter;
 - a 20-threads per inch series (20 UN) from $\frac{5}{16}$ in to 3 in nominal diameter;
 - a 28-threads per inch series (28 UN) from $\frac{5}{16}$ in to $1\frac{1}{2}$ in nominal diameter;
 - a 32-threads per inch series (32 UN) from $\frac{7}{16}$ in to 1 in nominal diameter;
- c) a special thread series (UNS) with diameter/pitch combinations other than those specified for the standard series.

NOTE 1 A transition fit series and an interference fit series of UNC and UNF threads for application to screwed studs are given in BS 2693-1 and -2, respectively.

NOTE 2 Bases of tolerances and allowances are given in Annex A, guidance for calculating limits of size is given in Annex B, information on crest forms of external threads is given in Annex C, some general symbols are given in Annex D (see 3.2), information on tolerances is given in Annex E, guidance on selection and use of the standard unified thread series is given in Annex F and information and guidance on tolerance classes is given in Annex G.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 6528:1984, *Glossary of terms for cylindrical screw threads*

BS 919-1:2007, *Screw gauge limits and tolerances – Part 1: Specification for gauges for screw threads of unified form*

BS 919-4, *Screw gauge limits and tolerances – Part 4: Limits of size for gauges for screw threads of unified form diameters $\frac{1}{4}$ in and larger*

3 Terms and definitions and symbols

3.1 Terms and definitions

For the purposes of this part of BS 1580 the terms and definitions given in BS 6528:1984 and the following apply.

3.1.1 effective diameter

diameter of the pitch cylinder

NOTE 1 This is the “simple” effective diameter, as distinct from the “virtual” effective diameter (see 3.1.2).

NOTE 2 Also known as pitch diameter.

3.1.2 virtual effective diameter

effective diameter of an imaginary thread of perfect pitch and flank angle, having the full depth of flanks, but clear at the crests and roots, which would just assemble with the actual thread over the prescribed length of engagement

NOTE The “virtual” effective diameter exceeds the simple effective diameter in the case of an external thread, but is less than the simple effective diameter in the case of an internal thread, by an amount corresponding to the combined diametral effects due to any errors in the pitch and/or the flank angles of the thread.

3.2 Symbols

3.2.1 For the purposes of Figures 1 to 8 and Figure C.1a), b), c) and d) in this part of BS 1580 the following symbols apply.

NOTE 1 These symbols, which relate to the thread profile, have been taken from BS ISO 68-2:1998 because the thread profile specified in this part of BS 1580 is the same as that in BS ISO 68-2:1998. Also, these are the symbols given in BS 6528.

D major diameter of internal thread

D_1 minor diameter of internal thread

D_2 effective diameter of internal thread (see Note 2)

d major diameter of external thread

d_1 minor diameter of external thread

d_2 effective diameter of external thread (see Note 2)

H	height of fundamental triangle
P	pitch
T	tolerance
T_d	tolerances for d
T_{D1}	tolerances for D_1
T_{D2}	tolerances for D_2
T_{d1}	tolerances for d_1
T_{d2}	tolerances for d_2

NOTE 2 These are the symbols given for pitch diameter in BS 6528.

3.2.2 For the purposes of the remaining figures, and the tables and annexes, in this part of BS 1580, the symbols given in Annex D apply.

NOTE These symbols were given in the 1962 edition of this part of BS 1580 and have been retained for the convenience of users of the standard, in particular to enable the equations to be retained without alteration. The exception to this is the symbol for the pitch of the thread for which an upper case P is used throughout for consistency.

4 Profile of unified screw threads

4.1 Basic profile

The basic profile of unified screw threads shall be as shown in Figure 1.

NOTE This is the same as the profile of ISO inch screw threads specified in BS ISO 68-2.

4.2 Design profiles

The design profile of internal threads, i.e. the form of internal threads in their maximum material condition, shall be as shown in Figure 2a).

NOTE 1 This is the same as the basic profile except that, in practice, in order to avoid sharp corners at the root of the threads (at the major diameter), the roots may be rounded as shown by the dotted line and cleared beyond a width of $P/8$.

The design profile of external threads in their maximum material condition shall be as shown in Figure 2b). It shall be the same as the basic form shown in Figure 1 except that the root of the thread (at the minor diameter) shall be rounded to a radius equal to $0.144\ 3P$ below the flat of width $P/4$. (See Notes 3 to 8.)

The dimensions of the design profile of unified screw threads shall be as specified in Table 26.

NOTE 2 The design forms of the external and internal threads, shown in Figure 2, are such that, if a pair of screw threads of the same basic size (each in its maximum material condition) is assembled, contact between the two threads will be confined to the flanks over the radial depth of $(5/8)H$ as shown in Figure 1. The rounded root of the external thread will clear the flat of width $P/4$ at the minor diameter of the internal thread and the root of the internal thread will clear the flat of width $P/8$ at the major diameter of the external thread.

NOTE 3 To provide resistance to fatigue, it is important that the roots of the external threads should always be smoothly rounded within the limiting profiles specified. These limiting profiles permit manufacture by a new tool having a minimum crest radius of $0.108\ 3P$, and its retention in service until its crest radius wears to $0.144\ 3P$. (See Figure 2b and tolerance zone diagrams Figure 6, Figure 7 and Figure 8.) It is essential that the roots of external threads are never flat with sharp corners, as would result from the initial use of new screwing tools, rolls, or grinding wheels with flat crests.

NOTE 4 The root of an internal thread in the maximum material condition is shown as a flat of width $P/8$ in Figure 2 and the minimum major diameter (basic size) specified in the tables is based on this theoretically flat root. In practice, however, the root is rounded and cleared beyond the width of the $P/8$ flat.

NOTE 5 The actual forms of the roots of the external and internal threads cannot be proved by the GO screw gauges, since the crests of these gauges are flat and of width $P/4$ and $P/8$ for the respective gauges. The smoothness of the rounding at the roots of external threads can readily be inspected by optical methods.

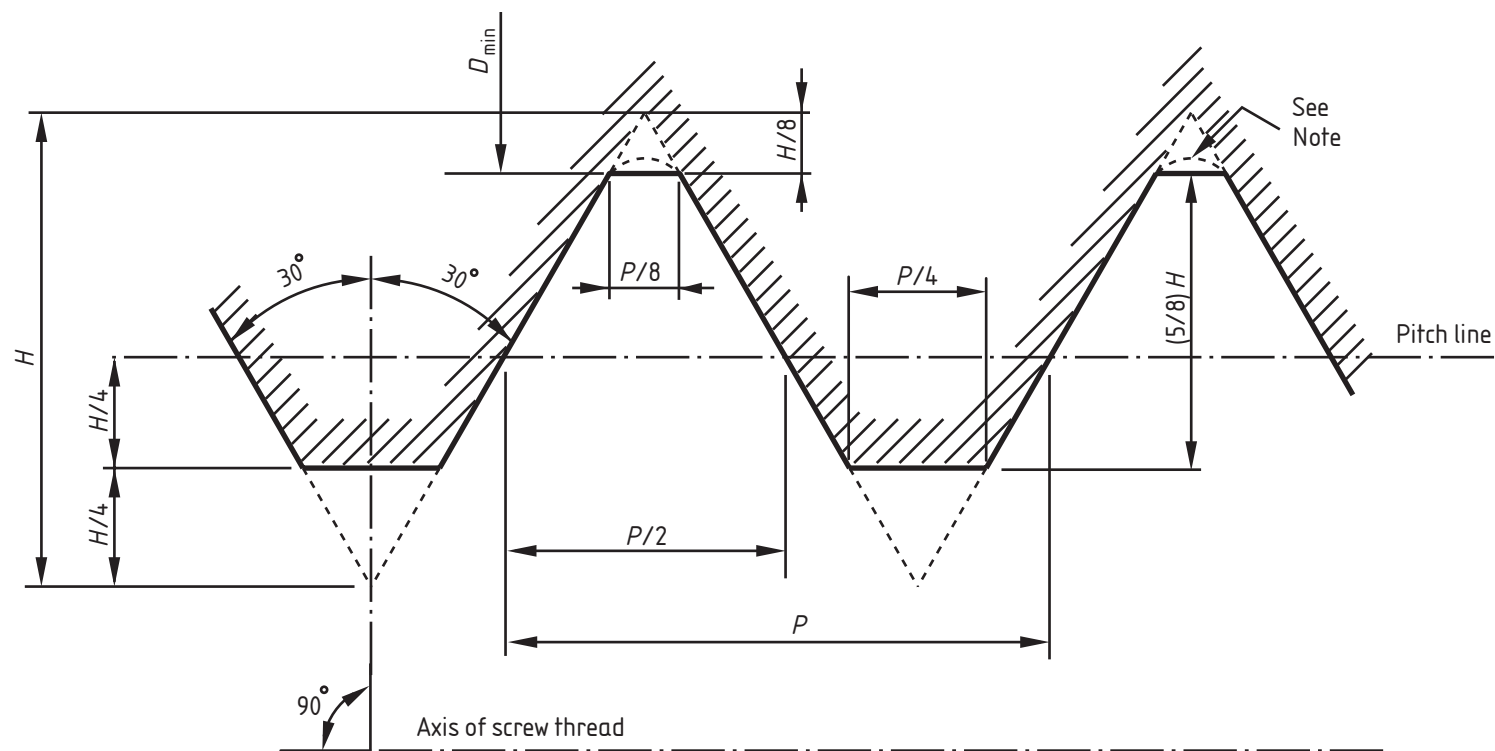
NOTE 6 Although, basically, external threads of unified form should have flat crests, modern methods of manufacture result in large quantities of external threads with crests which are not flat but partially or even completely rounded. This departure from flat crests is not detrimental, so that while the limiting profiles within which the forms of the crests of external threads should lie is as shown by the solid lines in Figure 3, the minimum limiting profile should, in practice, be taken as rounded at the crest, as shown by the dashed line in Figure 3. (See also Annex C.)

NOTE 7 The actual form of any rounding of the crests of external threads cannot be proved by gauging since the roots of the GO screw gauges for these threads are cleared to accept maximum material threads with flat crests of width $P/8$. The major diameters of external threads should be checked by measurement, or with GO and NOT GO plain gap gauges.

NOTE 8 In some cases, the external thread may be required to have a rounded crest. This should be stated in the thread designation (see Clause 11). The normal radius is $0.108\ 3P$ [see Figure C.1d)].

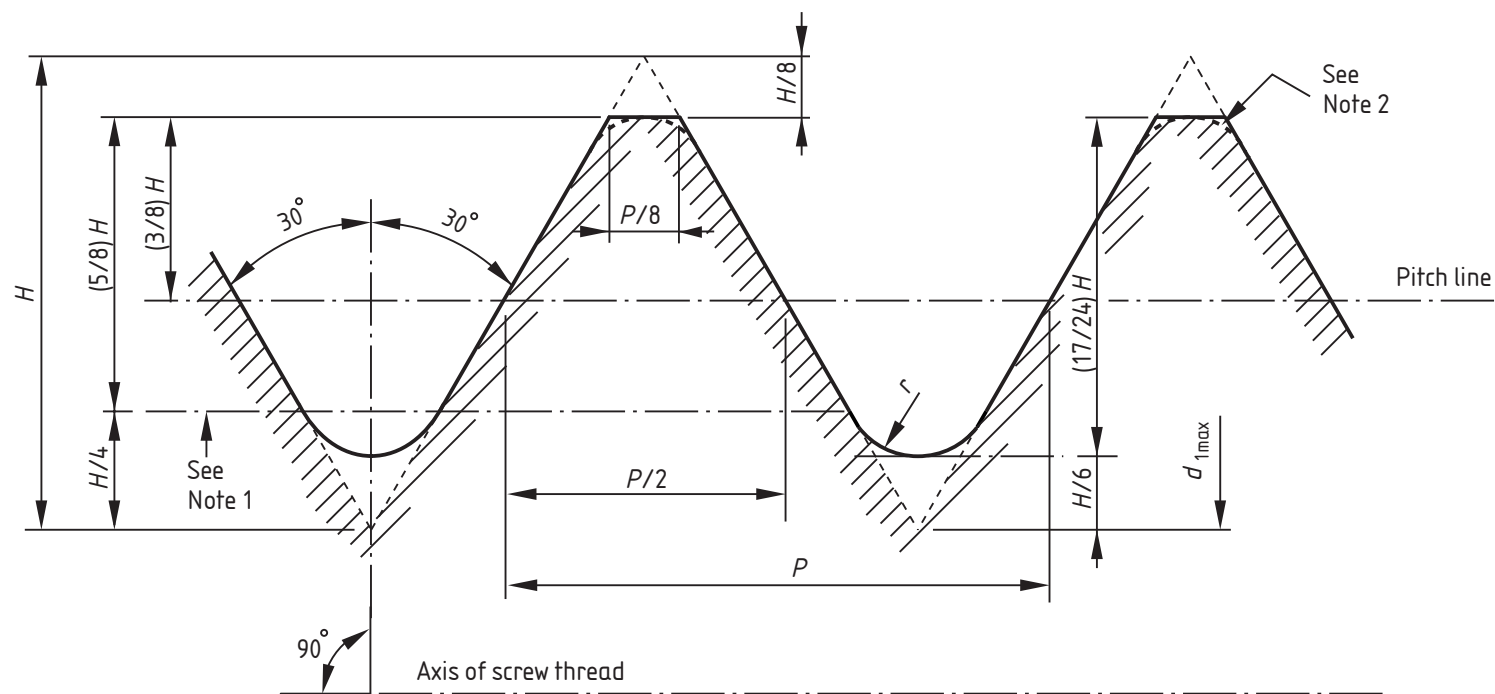
NOTE This profile is the same as that specified for ISO screw threads in BS ISO 68-2:1998.

Figure 2 Design profiles of unified internal and external threads (maximum material condition)



NOTE In practice the root is rounded and cleared beyond a width of $P/8$.

a) Internal threads

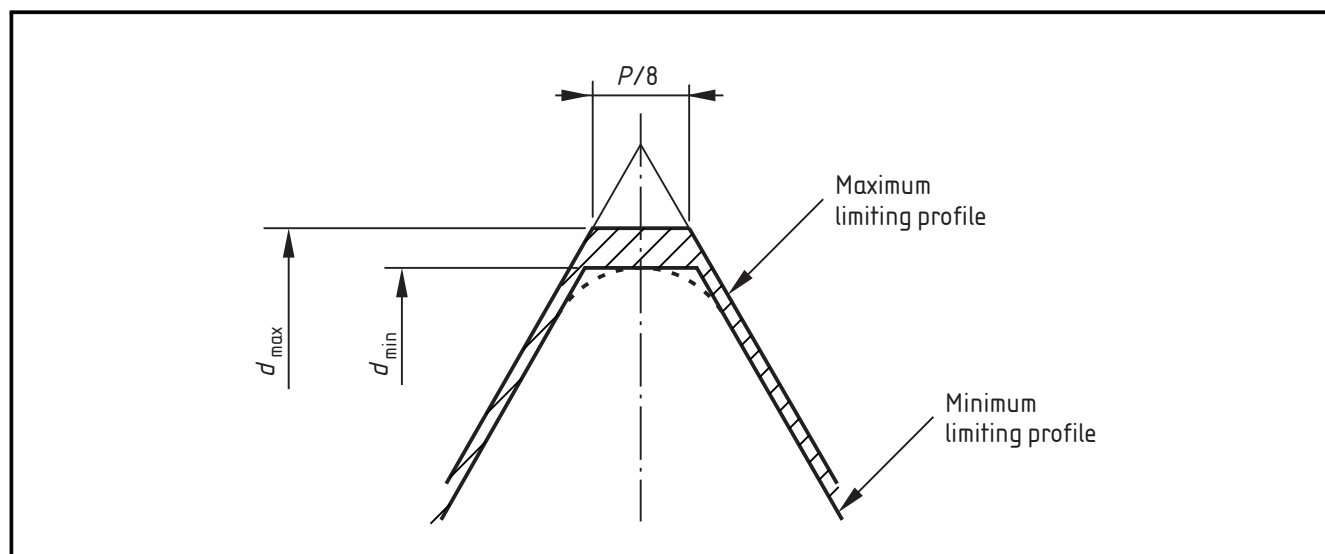
Figure 2 Design profiles of unified internal and external threads (maximum material condition) (*continued*)

NOTE 1 Maximum minor diameter at intersection of root contour and flank of thread.

NOTE 2 In practice the crests of external threads may be rounded inside the maximum outline (see 4.2, Note 6).

b) External threads

Figure 3 Limiting profiles for crests of external threads



Section 2: Standard series

5 Diameter/pitch combinations

The diameter/pitch combinations for standard series unified screw threads shall be as specified in Table 1.

NOTE When selecting a diameter/pitch combination for a particular use the first choice should be a thread from the UNC or UNF series. If these are unsuitable, a thread from the UNEF or the constant pitch series should be selected. Of the latter, the preferred series are the 8 UN, 12 UN, 16 UN and 20 UN series. When selecting from the constant pitch series, a first choice diameter should be used if possible. If no first choice diameter is suitable, a second choice diameter should be used.

6 Tolerance classes of external and internal threads

External threads and internal threads shall be of one of the following tolerance classes:

- a) external threads:
 - Class 1A;
 - Class 2A;
 - Class 2AG (see Note 1);
 - Class 3A;
- b) internal threads:
 - Class 1B;
 - Class 2B;
 - Class 3B.

NOTE 1 Class 2AG external threads are Class 2A coated external threads for which there is a requirement for the allowance shown in Figure 4 to be retained after coating. This is necessary to allow, for example, for the use of a lubricant in high-temperature applications.

The relative magnitudes and positions of the effective diameter tolerance zones and allowances for finished uncoated threads shall be as shown in Figure 4.

NOTE 2 The bases of the tolerances and allowances shown in Figure 4 are given in Annex A.

NOTE 3 Information on the different tolerance classes and guidance on their use is given in Annex G.

NOTE 4 For information on the effect of different thread classes on strength, see BS 3580.

7 Limits of size, and tolerances, for uncoated threads

Limits of size, and tolerances, for finished uncoated threads shall be as given in Table 2.

NOTE 1 Limits of size and tolerances are not specified in Table 2 for Class 1A and Class 1B threads in the UNEF and the UN series because of their limited application.

NOTE 2 Because the UNC and the UNF series are extensively used, the limits and tolerances specified for these series in Table 2 are repeated in Tables 3 to 14, separated according to series and tolerance class, for the convenience of users of this standard.

NOTE 3 Figure 6, Figure 7 and Figure 8 illustrate, for Classes 1A and 1B, 2A and 2B, and 3A and 3B, respectively, the relationship between the diametral tolerance zones for a $\frac{1}{4}$ in 20 UNC internal thread and a $\frac{1}{4}$ in 20 UNC external thread.

NOTE 4 The effective diameter tolerances (see Annex A) have been derived from a three part formula which takes account of diameter, pitch and length of engagement. The normal tolerances have been calculated for specific lengths of engagement as follows.

- a) *For UNC, UNF, 4 UN, 6 UN and 8 UN threads a length of engagement equal to one diameter has been used. These tolerances are recommended for lengths of engagement between 5P and $1\frac{1}{2}D$. It is important to note that any diameter/pitch combinations with 4, 6 or 8 t.p.i. not shown in Table 1 are UNS and their tolerances have been calculated using a length of engagement equal to 9P [see item b)].*
- b) *For UNEF, 12 UN, 16 UN, 20 UN, 28 UN, 32 UN and all UNS threads a length of engagement equal to 9P has been used. These tolerances are recommended for lengths of engagement between 5P and 15P.*

When the length of engagement is outside the limits stated in a) or b), it is advisable to relate the tolerance to the actual length of engagement using the formulae given in Table A.1 or the nomogram given in Figure A.1.

NOTE 5 The major diameter tolerances for external threads are based solely on thread pitches and have been calculated from the formulae given in Annex A. The values of these tolerances are shown in Table 29 and have been used to compute the limits of size of standard threads in Table 2.

NOTE 6 The minor diameter tolerances for internal threads have been calculated from the formulae given in Annex A. These minor diameter tolerances apply to threads having a length of engagement between $\frac{2}{3}D$ and $1\frac{1}{2}D$ (where D has the meaning given in Annex D). If the length of engagement is appreciably outside the above limits, consideration should be given to the modification of the tolerances in Table 36. For guidance on these cases, and other cases where stripping strength is critical, see BS 3580.

NOTE 7 The tolerances on the minor diameter of external threads specified in Table 2 have been calculated from the formulae in Annex A. It is not usual to gauge directly the limits of external thread minor diameters, but the maximum limit is indirectly controlled by the GO screw gauge. It is important to ensure a smooth, well-formed root to the thread on articles subject to high stress or fatigue.

NOTE 8 No tolerance is specified for the major diameter of internal threads as it is considered that this dimension will be adequately controlled by the crests of the taps, or other cutting tools, used to produce the threads. The minimum limit is controlled by the GO screw gauge.

8 Allowances for uncoated threads

Allowances on the effective diameters of Class 1A and Class 2A threads shall be 30% of the effective diameter tolerances for the Class 2A threads computed for the normal length of engagement (see Clause 6 and Figure 4). No change shall be made in the allowances if the effective diameter tolerance is changed with different lengths of engagement. The difference between the maximum limit of the effective diameter and the basic effective diameter of these two classes of threads (which constitutes the allowance) shall also be applied to the maximum limits of their major and minor diameters.

9 Coated threads

NOTE 1 Electroplated coatings on threaded components (cadmium on steel components and zinc on steel components) are specified in BS 3382: Parts 1&2. Recommendations on the appropriate system of gauging for coated threads are given in BS 919-1:2007, Annex D.

The relative magnitudes and positions of the effective diameter tolerance zones for external threads and internal threads prior to and after coating shall be in accordance with the following requirements, as shown in Figure 5.

NOTE 2 These requirements are applicable to coatings conforming to BS 3382: Parts 1&2, which are of the order of 0.000 2 in. For thicker coatings, special provisions are necessary (see BS 3382-7).

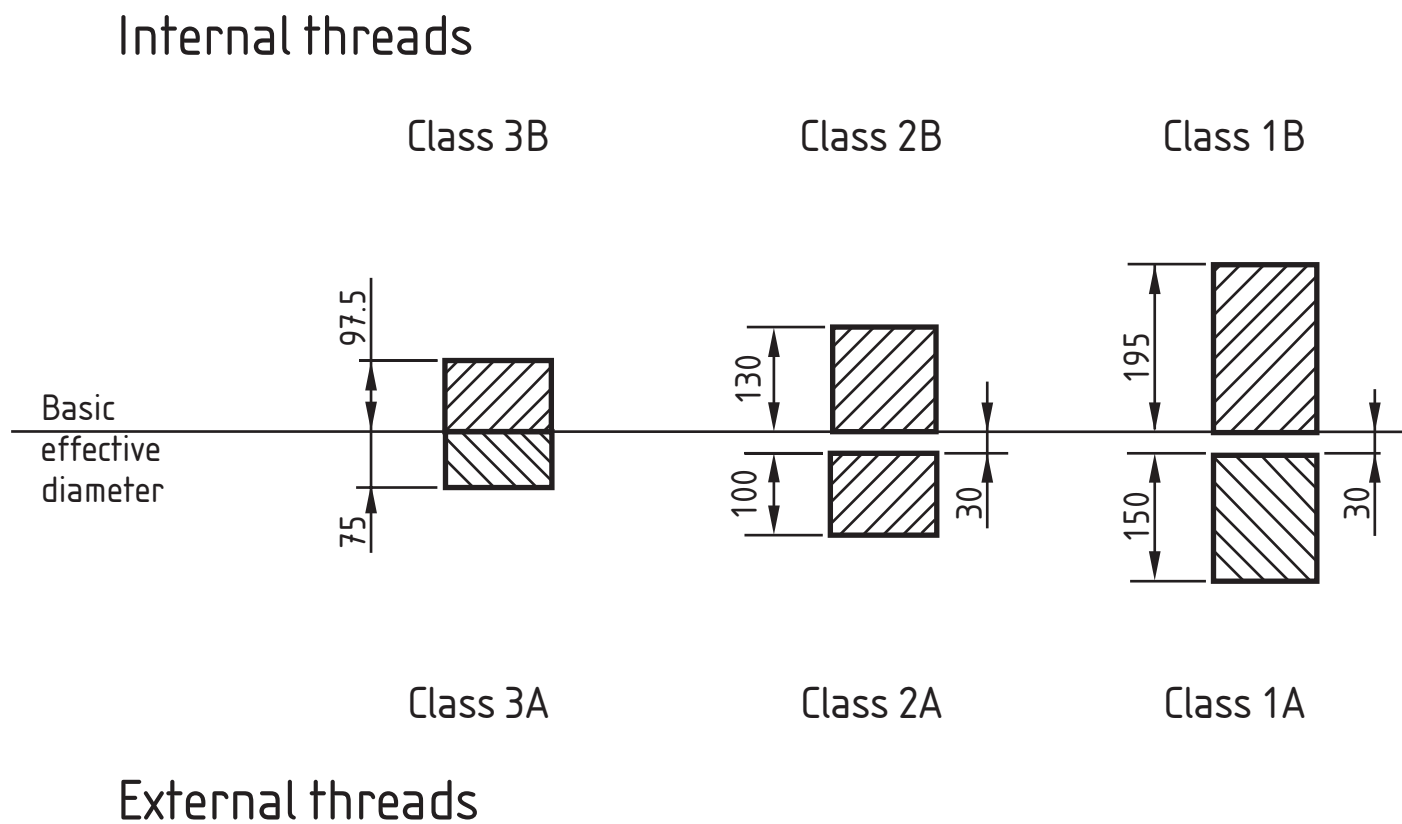
- a) *Class 1A, external threads.* The allowance shall be maintained after coating and the coated thread shall be accepted by the same GO screw gauge as the uncoated thread. The upper limits for all diameters of the thread before coating shall be 0.001 5 in less than the corresponding maximum diametral limits given in Table 2; the lower limit shall not be changed.
- b) *Class 2A, external threads.* In the case of Class 2A coated threads, it shall be permissible for the allowance to be absorbed by the thickness of the coating (see Note 3). Such threads shall be accepted by a GO screw gauge of basic size. The limits of the coated threads before coating shall be those given in Table 2.

NOTE 3 The minimum clearance at assembly can therefore be zero.

- c) *Class 2AG, external threads.* Both the maximum and minimum diametral limits before coating shall be 0.001 in less than those given in Table 2 for Class 2A. After coating the maximum tabulated limits shall not be exceeded.
- d) *Class 3A, external threads.* Since there is no allowance, the upper limits for all diameters of the thread before coating shall be 0.001 in less than the maximum diametral limits given in Table 2. After coating the finished product shall be accepted by a GO screw gauge of basic size. In view of the small tolerance, the lower diametral limits of size before coating shall be 0.001 in below the minimum diametral limits given in Table 2.
- e) *Internal threads (all classes).* After coating, internal threads of all classes shall be accepted by a GO screw gauge of basic size. The upper limit shall not be changed.

NOTE 4 An increase of 0.001 in on the lower limit for coating is recommended. However, in the case of Class 3B internal threads, this reduction in the tolerance is unduly large and it is strongly recommended that coated Class 2B internal threads be used instead of Class 3B internal threads where coating is required.

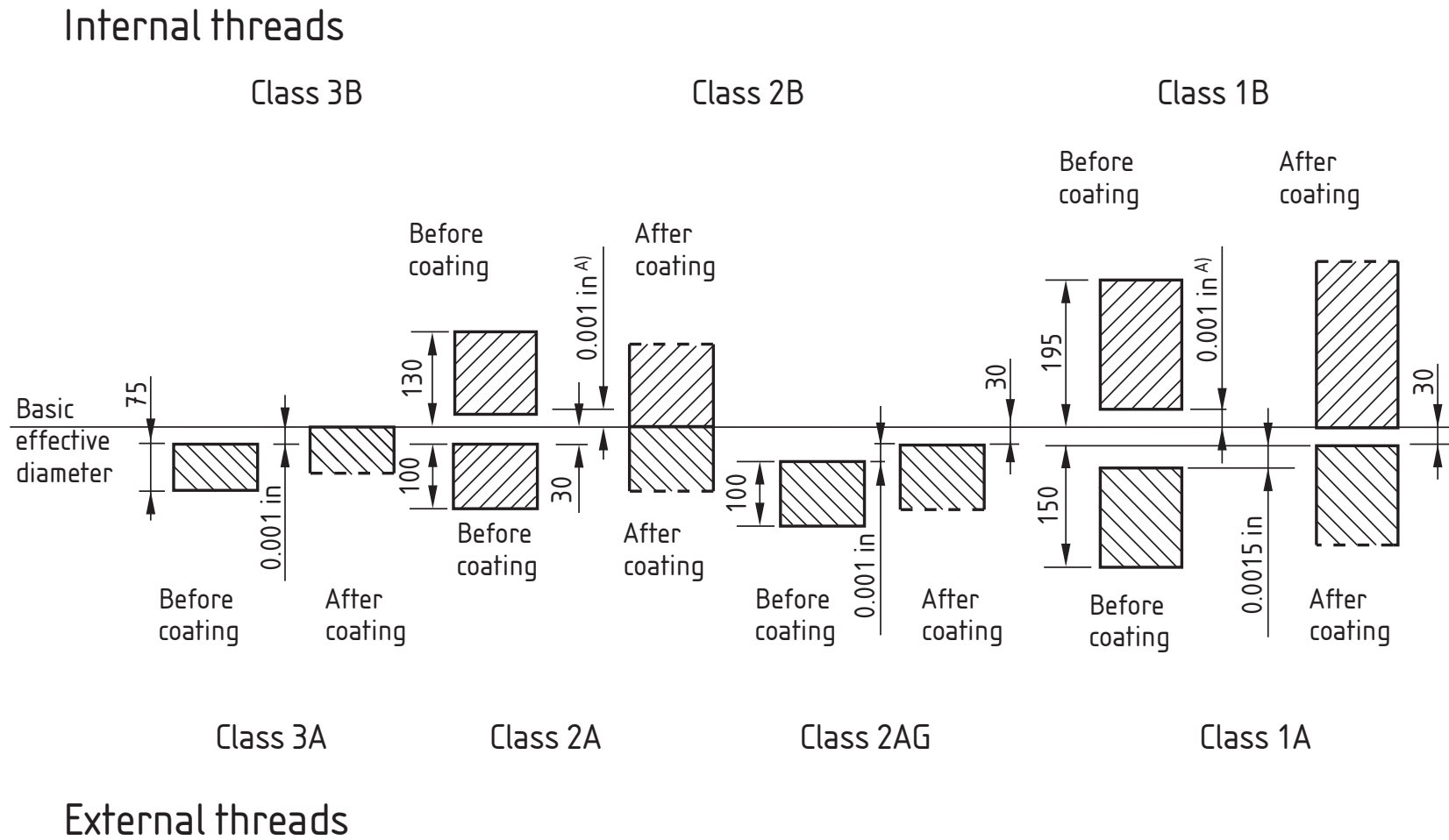
Figure 4 Classes of unified screw threads – Effective diameter tolerance zones of finished uncoated threads



NOTE 1 The tolerance on the effective diameter of a Class 2A thread is shown as 100 units and the other values are expressed as a percentage of this tolerance.

NOTE 2 The formulae that have been used for calculating effective diameter tolerances are given in Annex A.

Figure 5 Classes of unified screw threads – Effective diameter tolerance zones of coated threads before and after coating



NOTE 1 The tolerance on the effective diameter of a Class 2A thread before coating is shown as 100 units and the other values are expressed as a percentage of this tolerance.

NOTE 2 The formulae that have been used for calculating effective diameter tolerances are given in Annex A.

NOTE 3 Limits shown by broken lines are not intended to be gauged.

NOTE 4 It is strongly recommended that coated Class 2B internal threads be used instead of Class 3B internal threads where coating is required.

^{A)} This amount is recommended [see Clause 9e)].

10 Gauges

Where screw gauges are used to check the dimensions of the screw threads, screw gauges conforming to BS 919-1 and BS 919-4 shall be used.

NOTE In exceptional cases where the provision of screw gauges is uneconomical, direct measurement of the thread elements may be used instead.

Figure 6 Tolerance zones for unified threads, Class 1A external thread and Class 1B internal thread

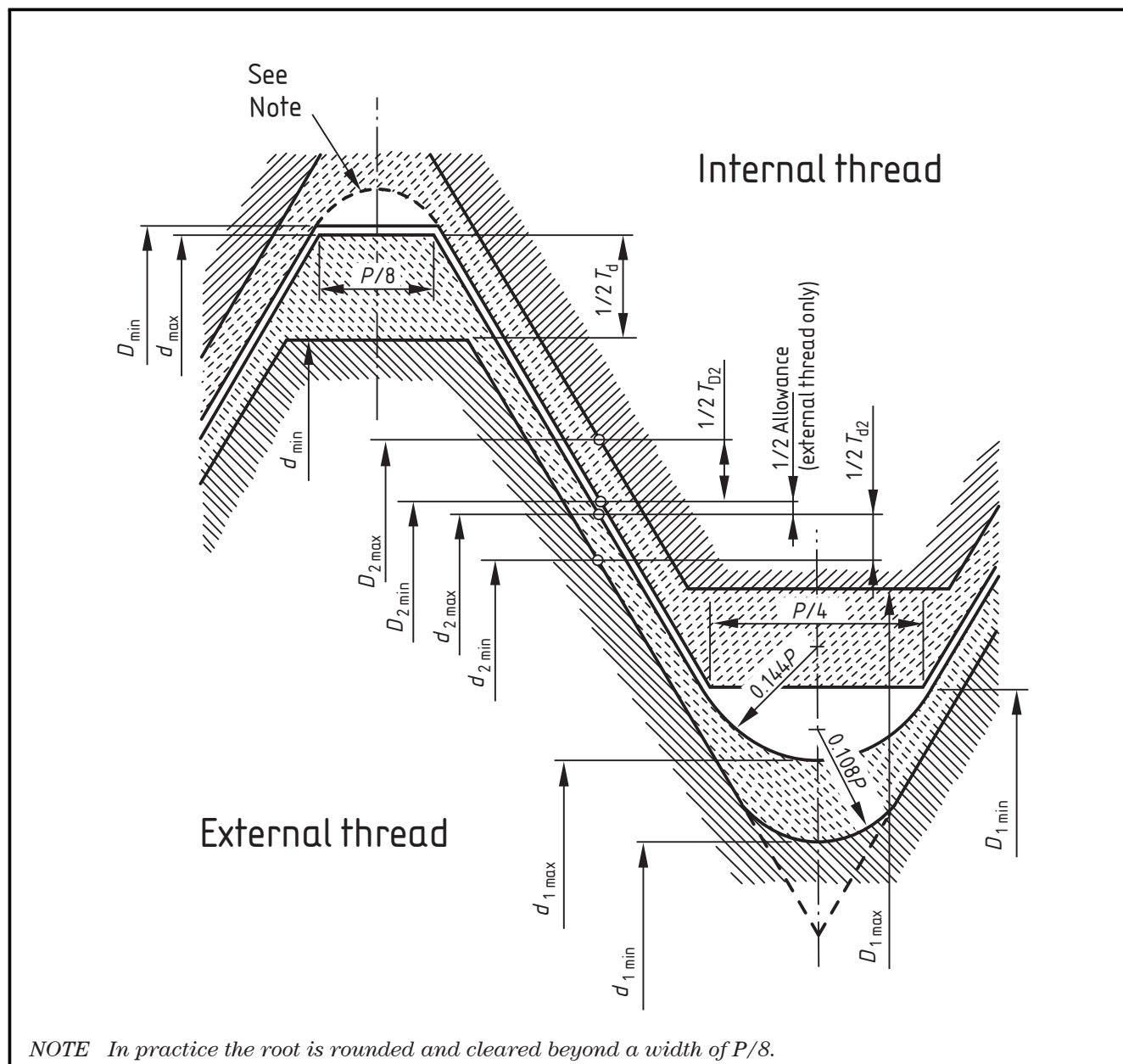
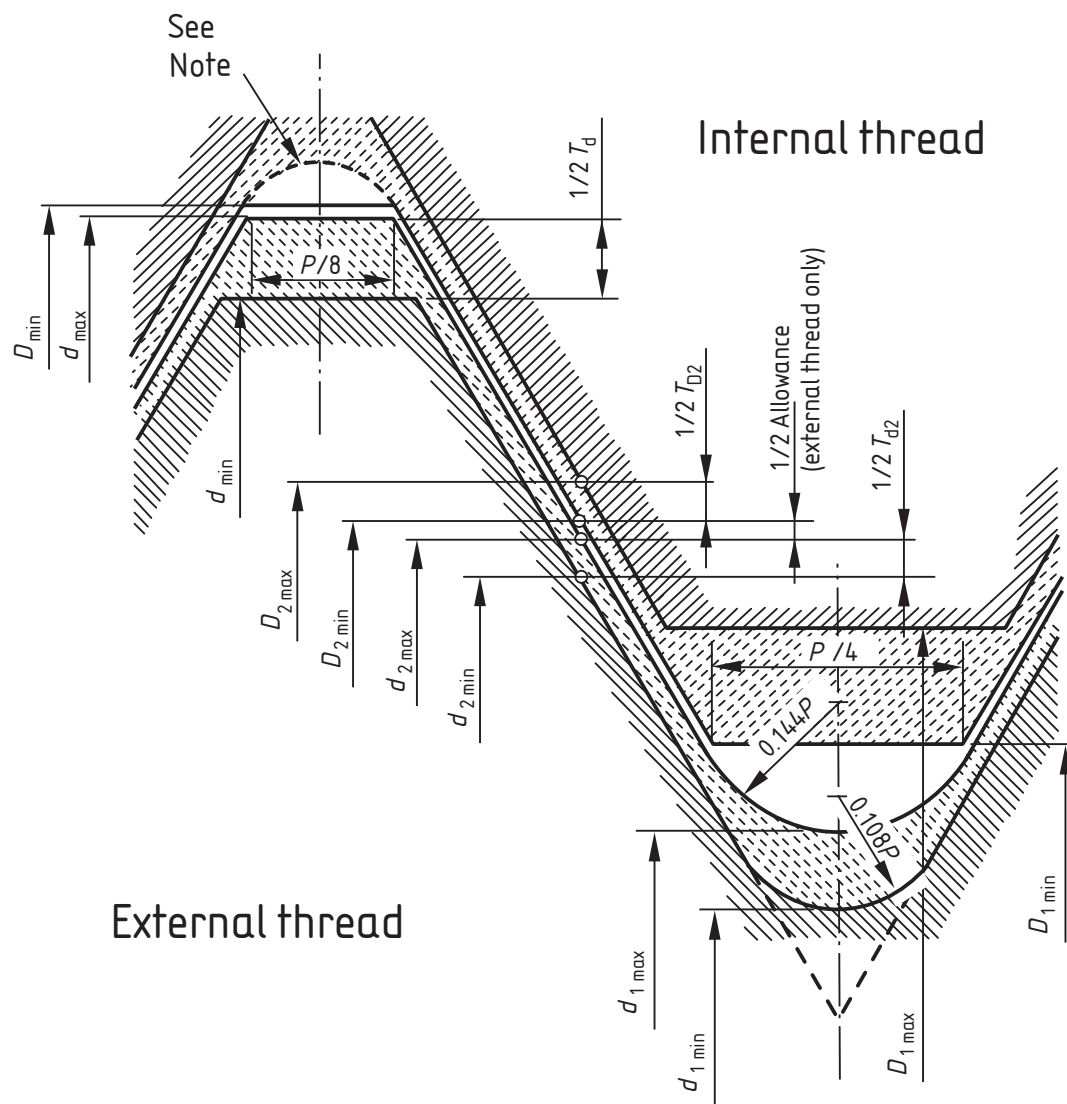
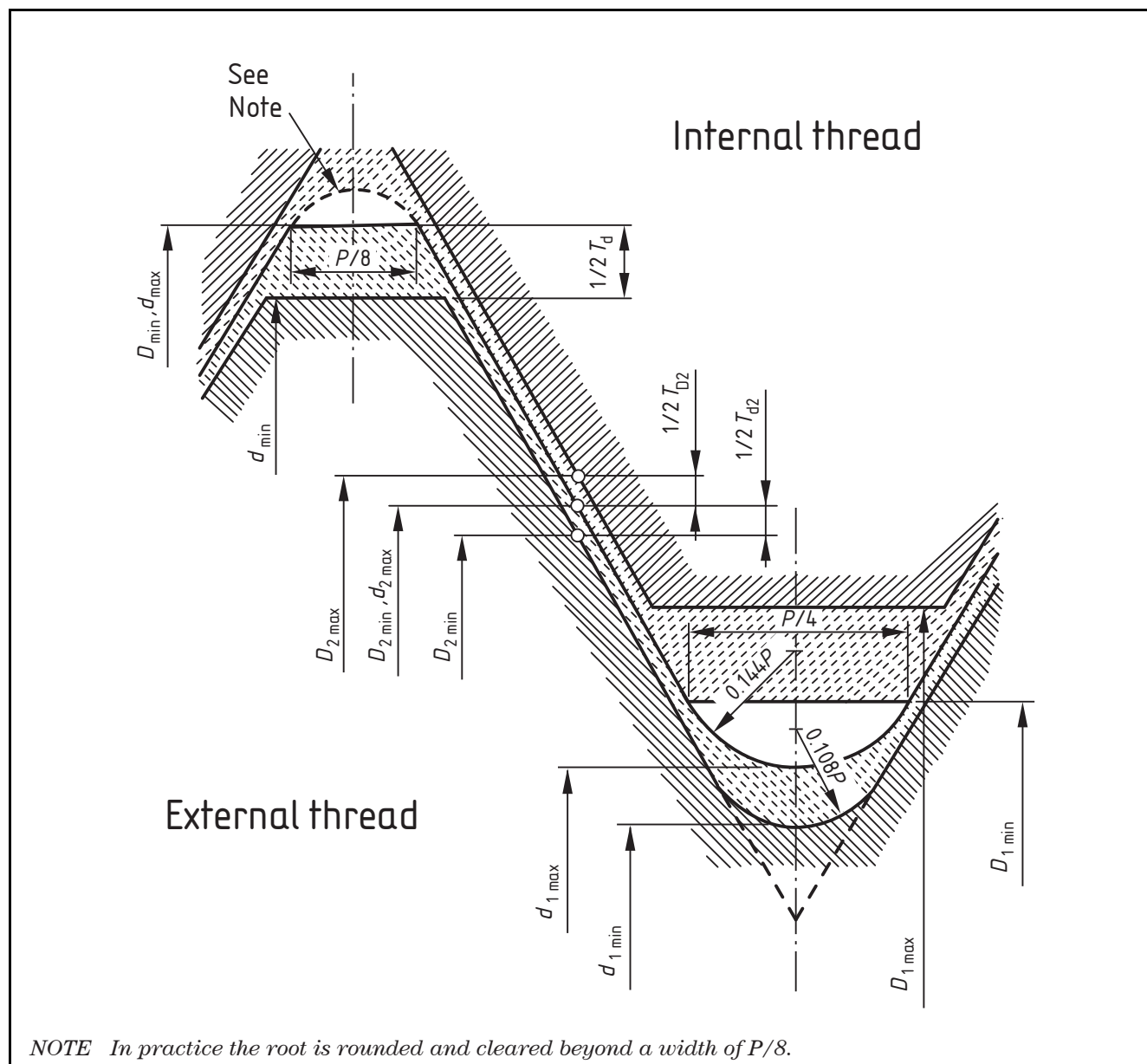


Figure 7 Tolerance zones for unified threads, Class 2A external thread and Class 2B internal thread



NOTE In practice the root is rounded and cleared beyond a width of $P/8$.

Figure 8 Tolerance zones for unified threads, Class 3A external thread and Class 3B internal thread



11 Designation of unified screw threads

11.1 Basic designation

The basic designation shall be used for threads with standard lengths of engagement (see Annex A) and shall comprise the following elements:

- the nominal size (which is equal to the basic major diameter) expressed as a fraction or a decimal equivalent. (Where decimal equivalents are used they shall be shown in four-place decimals, but omitting the cipher in the fourth place.)
- the number of threads per inch;
- the thread series, UNC, UNF, UNEF or UN;
- the thread class, 1A, 2A, 2AG, 3A, 1B, 2B or 3B.

EXAMPLES

$\frac{1}{4}$ — 20 UNC — 2A
 .250 — 20 UNC — 2A
 .4375 — 20 UNF — 2A
 .4375 — 20 UNF — 3A

NOTE For uncoated threads the maximum and minimum effective diameters may be added to the designation.

EXAMPLE

$\frac{1}{4}$ — 20 UNC — 2A
 EFF. DIA. .2164 — .2127

11.2 Designation of coated threads

11.2.1 General

For coated threads, the basic designation specified in 11.1 shall be followed by the parameters specified in 11.2.2 or 11.2.3, as applicable.

11.2.2 External threads

11.2.2.1 Class 1A threads

For coated Class 1A external threads, the maximum major diameter and maximum effective diameter shall be given followed by AFTER COATING, thereby indicating that the thread before coating has to have special provisions to allow for coating thickness.

The major diameter and effective diameter limits of size before coating [calculated in accordance with Clause 9a)] shall be given followed by SPL (standing for special) and by BEFORE COATING.

EXAMPLE

$\frac{1}{4}$ — 20 UNC — 1A
 MAJOR DIA. .2489 MAX.
 EFF.DIA. .2164 MAX. AFTER COATING
 MAJOR DIA. .2474 — .2367 SPL
 EFF.DIA. .2149 — .2108 SPL BEFORE COATING

11.2.2.2 Class 2A threads

For coated Class 2A external threads, the basic major diameter and the basic effective diameter (which are equivalent to the maximum major diameter and the maximum effective diameter, respectively) shall be given followed by AFTER COATING. The major diameter and effective diameter limits of size before coating shall also be given followed by BEFORE COATING.

EXAMPLE

$\frac{3}{4}$ — 10 UNC — 2A
 MAJOR DIA. .7500 MAX.
 EFF.DIA. .6850 MAX. AFTER COATING
 MAJOR DIA. .7482 — .7353 SPL
 EFF.DIA. .6832 — .6773 SPL BEFORE COATING

NOTE The allowance given in the dimensional tables for Class 2A threads is sufficient to accommodate coating thicknesses of the order of 0.000 2 in.

11.2.2.3 Class 2AG threads

For coated Class 2AG external threads, the maximum major diameter and maximum effective diameter of the corresponding Class 2A thread shall be given followed by AFTER COATING thereby indicating that the allowance has to be maintained. The major diameter and effective diameter limits of size before coating [calculated in accordance with Clause 9a)] shall also be given followed by SPL (to stand for special) and by BEFORE COATING.

EXAMPLE

$$\frac{3}{4} - 10 \text{ UNC} - 2\text{AG}$$

MAJOR DIA. .7482 MAX.

EFF.DIA. .6832 MAX. AFTER COATING

MAJOR DIA. .7472 — .7343 SPL

EFF.DIA. .6822 — .6763 SPL BEFORE COATING

11.2.2.4 Class 3A threads

For coated Class 3A external threads, the basic major diameter and basic effective diameter (which are equivalent to the maximum major diameter and maximum effective diameter, respectively) shall be given followed by AFTER COATING thereby indicating that the thread before coating has to have special provisions to allow for coating thickness. The major diameter and effective diameter limits of size before coating [calculated in accordance with Clause 9a)] shall be given followed by SPL (standing for special) and by BEFORE COATING.

EXAMPLE

$$\frac{1}{4} - 28 \text{ UNF} - 3\text{A}$$

MAJOR DIA. .2500 MAX.

EFF.DIA. .2268 MAX. AFTER COATING

MAJOR DIA. .2490 — .2425 SPL

EFF.DIA. .2258 — .2233 SPL BEFORE COATING

11.2.3 Internal threads

For coated Class 1B, Class 2B and Class 3B internal threads, the minimum minor diameter and minimum effective diameter shall be given followed by AFTER COATING. The minor diameter and effective diameter limits of size before coating [calculated in accordance with Clause 9a)] shall be given followed by SPL (standing for special) and by BEFORE COATING.

EXAMPLES

$$\frac{1}{4} - 20 \text{ UNC} - 1\text{B}$$

MINOR DIA. .1959 MIN.

EFF.DIA. .2175 MIN. AFTER COATING

MINOR DIA. .1969 — .2074 SPL

EFF.DIA. .2185 — .2248 SPL BEFORE COATING

$$\frac{3}{4} - 10 \text{ UNC} - 2\text{B}$$

MINOR DIA. .6417 MIN.

EFF.DIA. .6850 MIN. AFTER COATING

MINOR DIA. .6427 — .6627 SPL

EFF.DIA. .6860 — .6927 SPL BEFORE COATING

$$\frac{1}{4} - 28 \text{ UNF} - 3\text{B}$$

MINOR DIA. .2113 MIN.

EFF.DIA. .2268 MIN. AFTER COATING

MINOR DIA. .2123 — .2190 SPL

EFF.DIA. .2278 — .2300 SPL BEFORE COATING

NOTE The before-coating limits for all of the examples have been calculated to be suitable for a coating thickness of 0.000 2 in on the thread flanks.

11.3 Designation of left-hand threads

For left-hand threads the basic designation specified in 11.1 shall be followed by LH.

EXAMPLE

$$\frac{1}{4} - 20 \text{ UNC} - 3\text{A} - \text{LH}$$

11.4 Designation of threads with a special length of engagement

For threads which have a special length of engagement differing from that for which the standard effective diameter tolerances are applicable, as indicated in Clause 7 Note 4, the thread class symbol shall be preceded by SE (standing for special engagement). The effective diameter limits of size shall be given. The length of engagement (LE) shall also be given to two decimal places.

EXAMPLE

$$\frac{1}{2} - 13 \text{ UNC} - \text{SE } 2\text{A}$$

EFF.DIA. .4485 — .4431

LE 1.00

11.5 Designation of threads with modified crests

If the limits of size of the major diameter of an external thread or the minor diameter of an internal thread have been modified, but the thread class and effective diameter limits have not been changed, MOD shall be added after the thread class. The modified limits of size shall also be given, followed by MOD.

EXAMPLE

$$\frac{3}{8} - 24 \text{ UNF} - 3\text{A MOD}$$

MAJOR DIA. .3720 — .3648 MOD

For external threads with rounded crests **ROUNDED CREST** shall be added to the designation after the thread series.

EXAMPLE

$$\frac{1}{4} - 20 \text{ UNC ROUNDED CREST} - 2\text{A}$$

11.6 Designation of threads with other alterations

For standard series threads that have alterations other than changes to the effective diameter limits for a special length of engagement or the modification of the crests or adjustment to the limits of size to accommodate a coating, the designation shall be in accordance with the following examples.

EXAMPLES

$\frac{7}{16}$ — 24 UNIFIED FORM SPECIAL — EXT.

MAJOR DIA. .4340 — .4280 SPL

EFF.DIA. .4065 — .4025 SPL

LE .38

$\frac{1}{2}$ — 13 UNIFIED FORM SPECIAL — INT.

MINOR DIA. .4167 — DEC .4284 SPL

EFF.DIA. .4500 — .4580 SPL

LE .50

Table 1 Unified screw threads, standard series

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sizes		Basic major diameter	Threads per inch											
1st choice	2nd choice		Series with graded pitches			Series with constant pitches								Sizes in
			Coarse UNC	Fine UNF	Extra fine UNEF	4 UN	6 UN	8 UN	12 UN	16 UN	20 UN	28 UN	32 UN	
in	in													
$\frac{1}{4}$	$\frac{11}{16}$	0.250 0	20	28	32	—	—	—	—	—	UNC	UNF	UNEF	$\frac{1}{4}$
$\frac{5}{16}$		0.312 5	18	24	32	—	—	—	—	—	20	28	UNEF	$\frac{5}{16}$
$\frac{3}{8}$		0.375 0	16	24	32	—	—	—	—	UNC	20	28	UNEF	$\frac{3}{8}$
$\frac{7}{16}$		0.437 5	14	20	28	—	—	—	—	16	UNF	UNEF	32	$\frac{7}{16}$
$\frac{1}{2}$		0.500 0	13	20	28	—	—	—	—	16	UNF	UNEF	32	$\frac{1}{2}$
$\frac{9}{16}$		0.562 5	12	18	24	—	—	—	UNC	16	20	28	32	$\frac{9}{16}$
$\frac{5}{8}$		0.625 0	11	18	24	—	—	—	12	16	20	28	32	$\frac{5}{8}$
		0.687 5	—	—	24	—	—	—	12	16	20	28	32	$\frac{11}{16}$
$\frac{3}{4}$		0.750 0	10	16	20	—	—	—	12	UNF	UNEF	28	32	$\frac{3}{4}$
		0.812 5	—	—	20	—	—	—	12	16	UNEF	28	32	$\frac{13}{16}$
$\frac{7}{8}$	$\frac{15}{16}$	0.875 0	9	14	20	—	—	—	12	16	UNEF	28	32	$\frac{7}{8}$
		0.937 5	—	—	20	—	—	—	12	16	UNEF	28	32	$\frac{15}{16}$
1	$1\frac{1}{16}$	1.000 0	8	12	20	—	—	UNC	UNF	16	UNEF	28	32	1
		1.062 5	—	—	18	—	—	8	12	16	20	28	—	$1\frac{1}{16}$
$1\frac{1}{8}$		1.125 0	7	12	18	—	—	8	UNF	16	20	28	—	$1\frac{1}{8}$
		1.187 5	—	—	18	—	—	8	12	16	20	28	—	$1\frac{3}{16}$
$1\frac{1}{4}$		1.250 0	7	12	18	—	—	8	UNF	16	20	28	—	$1\frac{1}{4}$
		1.312 5	—	—	18	—	—	8	12	16	20	28	—	$1\frac{5}{16}$
$1\frac{3}{8}$		1.375 0	6	12	18	—	UNC	8	UNF	16	20	28	—	$1\frac{3}{8}$
		1.437 5	—	—	18	—	6	8	12	16	20	28	—	$1\frac{7}{16}$
$1\frac{1}{2}$		1.500 0	6	12	18	—	UNC	8	UNF	16	20	28	—	$1\frac{1}{2}$
		1.562 5	—	—	18	—	6	8	12	16	20	—	—	$1\frac{9}{16}$
$1\frac{5}{8}$	$1\frac{11}{16}$	1.625 0	—	—	18	—	6	8	12	16	20	—	—	$1\frac{5}{8}$
		1.687 5	—	—	18	—	6	8	12	16	20	—	—	$1\frac{11}{16}$
$1\frac{3}{4}$		1.750 0	5	—	—	—	6	8	12	16	20	—	—	$1\frac{3}{4}$
		1.812 5	—	—	—	—	6	8	12	16	20	—	—	$1\frac{13}{16}$
$1\frac{7}{8}$		1.875 0	—	—	—	—	6	8	12	16	20	—	—	$1\frac{7}{8}$
	$1\frac{15}{16}$	1.937 5	—	—	—	—	6	8	12	16	20	—	—	$1\frac{15}{16}$

Table 1 Unified screw threads, standard series (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sizes		Basic major diameter	Threads per inch											
			Series with graded pitches			Series with constant pitches								
1st choice	2nd choice		Coarse UNC	Fine UNF	Extra fine UNEF	4 UN	6 UN	8 UN	12 UN	16 UN	20 UN	28 UN	32 UN	in
in	in													in
2		2.000 0	4½	—	—	—	6	8	12	16	20	—	—	2
	2⅛	2.125 0	—	—	—	—	6	8	12	16	20	—	—	2⅛
2¼		2.250 0	4½	—	—	—	6	8	12	16	20	—	—	2¼
	2⅜	2.375 0	—	—	—	—	6	8	12	16	20	—	—	2⅜
2½		2.500 0	4	—	—	UNC	6	8	12	16	20	—	—	2½
	2⅝	2.625 0	—	—	—	4	6	8	12	16	20	—	—	2⅝
2¾		2.750 0	4	—	—	UNC	6	8	12	16	20	—	—	2¾
	2⅞	2.875 0	—	—	—	4	6	8	12	16	20	—	—	2⅞
3		3.000 0	4	—	—	UNC	6	8	12	16	20	—	—	3
	3⅛	3.125 0	—	—	—	4	6	8	12	16	—	—	—	3⅛
3¼		3.250 0	4	—	—	UNC	6	8	12	16	—	—	—	3¼
	3⅜	3.375 0	—	—	—	4	6	8	12	16	—	—	—	3⅜
3½		3.500 0	4	—	—	UNC	6	8	12	16	—	—	—	3½
	3⅝	3.625 0	—	—	—	4	6	8	12	16	—	—	—	3⅝
3¾		3.750 0	4	—	—	UNC	6	8	12	16	—	—	—	3¾
	3⅞	3.875 0	—	—	—	4	6	8	12	16	—	—	—	3⅞
4		4.000 0	4	—	—	UNC	6	8	12	16	—	—	—	4
	4⅛	4.125 0	—	—	—	4	6	8	12	16	—	—	—	4⅛
4¼		4.250 0	—	—	—	4	6	8	12	16	—	—	—	4¼
	4⅜	4.375 0	—	—	—	4	6	8	12	16	—	—	—	4⅜
4½		4.500 0	—	—	—	4	6	8	12	16	—	—	—	4½
	4⅝	4.625 0	—	—	—	4	6	8	12	16	—	—	—	4⅝
4¾		4.750 0	—	—	—	4	6	8	12	16	—	—	—	4¾
	4⅞	4.875 0	—	—	—	4	6	8	12	16	—	—	—	4⅞
5		5.000 0	—	—	—	4	6	8	12	16	—	—	—	5
	5⅛	5.125 0	—	—	—	4	6	8	12	16	—	—	—	5⅛
5¼		5.250 0	—	—	—	4	6	8	12	16	—	—	—	5¼
	5⅜	5.375 0	—	—	—	4	6	8	12	16	—	—	—	5⅜
5½		5.500 0	—	—	—	4	6	8	12	16	—	—	—	5½
	5⅝	5.625 0	—	—	—	4	6	8	12	16	—	—	—	5⅝
5¾		5.750 0	—	—	—	4	6	8	12	16	—	—	—	5¾
	5⅞	5.875 0	—	—	—	4	6	8	12	16	—	—	—	5⅞
6		6.000 0	—	—	—	4	6	8	12	16	—	—	—	6

NOTE 1 When the designation symbols UNC, UNF or UNEF appear in a constant pitch series, it means that the place of that particular diameter/pitch combination is taken by the equivalent combination in the series indicated.

NOTE 2 Designations of the standard diameter/pitch combinations given in this table, are specified in Clause 11.

NOTE 3 The diameters given in Column 1 should be used in preference to those in Column 2.

NOTE 4 For values of the basic dimensions of the UNC, UNF and UNEF threads, see Table 15, Table 16 and Table 17, respectively. Those for the threads in the constant pitch series are given in Table 18 to Table 25.

NOTE 5 Whilst this table finishes at 6 in, it may be necessary in some applications to exceed this diameter (see Section 3.)

Table 2 Unified screw threads, standard series – Limits of size

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nominal size and threads per inch	Series designation	External threads									Internal threads						
		Class	Allowance	Major diameter		Effective diameter			Minor diameter		Class	Minor diameter		Effective diameter			Major diameter
				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Min.	Max.	Tol.	Min.
				in	in	in	in	in	in	in		in	in	in	in	in	in
$\frac{1}{4}$ — 20	UNC	1A	0.001 1	0.248 9	0.236 7	0.216 4	0.210 8	0.005 6	0.187 6	0.178 4	1B	0.195 9	0.207 4	0.217 5	0.224 8	0.007 3	0.250 0
		2A	0.001 1	0.248 9	0.240 8	0.216 4	0.212 7	0.003 7	0.187 6	0.180 3	2B	0.195 9	0.207 4	0.217 5	0.222 3	0.004 8	0.250 0
		3A	0.000 0	0.250 0	0.241 9	0.217 5	0.214 7	0.002 8	0.188 7	0.182 3	3B	0.195 9	0.206 7	0.217 5	0.221 1	0.003 6	0.250 0
$\frac{1}{4}$ — 28	UNF	1A	0.001 0	0.249 0	0.239 2	0.225 8	0.220 8	0.005 0	0.205 2	0.197 6	1B	0.211 3	0.219 7	0.226 8	0.233 3	0.006 5	0.250 0
		2A	0.001 0	0.249 0	0.242 5	0.225 8	0.222 5	0.003 3	0.205 2	0.199 3	2B	0.211 3	0.219 7	0.226 8	0.231 1	0.004 3	0.250 0
		3A	0.000 0	0.250 0	0.243 5	0.226 8	0.224 3	0.002 5	0.206 2	0.201 1	3B	0.211 3	0.219 0	0.226 8	0.230 0	0.003 2	0.250 0
$\frac{1}{4}$ — 32	UNEF	2A	0.001 0	0.249 0	0.243 0	0.228 7	0.225 5	0.003 2	0.210 7	0.205 3	2B	0.216 2	0.223 6	0.229 7	0.233 9	0.004 2	0.250 0
		3A	0.000 0	0.250 0	0.244 0	0.229 7	0.227 3	0.002 4	0.211 7	0.207 1	3B	0.216 2	0.222 9	0.229 7	0.232 8	0.003 1	0.250 0
$\frac{5}{16}$ — 18	UNC	1A	0.001 2	0.311 3	0.298 2	0.275 2	0.269 1	0.006 1	0.243 1	0.233 0	1B	0.252 4	0.265 1	0.276 4	0.284 3	0.007 9	0.312 5
		2A	0.001 2	0.311 3	0.302 6	0.275 2	0.271 2	0.004 0	0.243 1	0.235 1	2B	0.252 4	0.265 1	0.276 4	0.281 7	0.005 3	0.312 5
		3A	0.000 0	0.312 5	0.303 8	0.276 4	0.273 4	0.003 0	0.244 3	0.237 3	3B	0.252 4	0.263 0	0.276 4	0.280 3	0.003 9	0.312 5
$\frac{5}{16}$ — 20	UN	2A	0.001 2	0.311 3	0.303 2	0.278 8	0.274 8	0.004 0	0.250 0	0.242 4	2B	0.258 4	0.269 9	0.280 0	0.285 2	0.005 2	0.312 5
		3A	0.000 0	0.312 5	0.304 4	0.280 0	0.277 0	0.003 0	0.251 2	0.244 6	3B	0.258 4	0.268 0	0.280 0	0.283 9	0.003 9	0.312 5
$\frac{5}{16}$ — 24	UNF	1A	0.001 1	0.311 4	0.300 6	0.284 3	0.278 8	0.005 5	0.260 3	0.251 8	1B	0.267 4	0.277 1	0.285 4	0.292 5	0.007 1	0.312 5
		2A	0.001 1	0.311 4	0.304 2	0.284 3	0.280 6	0.003 7	0.260 3	0.253 6	2B	0.267 4	0.277 1	0.285 4	0.290 2	0.004 8	0.312 5
		3A	0.000 0	0.312 5	0.305 3	0.285 4	0.282 7	0.002 7	0.261 4	0.255 7	3B	0.267 4	0.275 4	0.285 4	0.289 0	0.003 6	0.312 5
$\frac{5}{16}$ — 28	UN	2A	0.001 0	0.311 5	0.305 0	0.288 3	0.284 9	0.003 4	0.267 7	0.261 7	2B	0.273 8	0.282 2	0.289 3	0.293 7	0.004 4	0.312 5
		3A	0.000 0	0.312 5	0.306 0	0.289 3	0.286 7	0.002 6	0.268 7	0.263 5	3B	0.273 8	0.280 7	0.289 3	0.292 6	0.003 3	0.312 5
$\frac{5}{16}$ — 32	UNEF	2A	0.001 0	0.311 5	0.305 5	0.291 2	0.288 0	0.003 2	0.273 2	0.267 8	2B	0.278 7	0.286 1	0.292 2	0.296 4	0.004 2	0.312 5
		3A	0.000 0	0.312 5	0.306 5	0.292 2	0.289 8	0.002 4	0.274 2	0.269 6	3B	0.278 7	0.284 7	0.292 2	0.295 3	0.003 1	0.312 5
$\frac{3}{8}$ — 16	UNC	1A	0.001 3	0.373 7	0.359 5	0.333 1	0.326 6	0.006 5	0.297 0	0.286 0	1B	0.307 3	0.321 4	0.334 4	0.342 9	0.008 5	0.375 0
		2A	0.001 3	0.373 7	0.364 3	0.333 1	0.328 7	0.004 4	0.297 0	0.288 1	2B	0.307 3	0.321 4	0.334 4	0.340 1	0.005 7	0.375 0
		3A	0.000 0	0.375 0	0.365 6	0.334 4	0.331 1	0.003 3	0.298 3	0.290 5	3B	0.307 3	0.318 2	0.334 4	0.338 7	0.004 3	0.375 0
$\frac{3}{8}$ — 20	UN	2A	0.001 2	0.373 8	0.365 7	0.341 3	0.337 2	0.004 1	0.312 5	0.304 8	2B	0.320 9	0.332 4	0.342 5	0.347 9	0.005 4	0.375 0
		3A	0.000 0	0.375 0	0.366 9	0.342 5	0.339 4	0.003 1	0.313 7	0.307 0	3B	0.320 9	0.329 7	0.342 5	0.346 5	0.004 0	0.375 0
$\frac{3}{8}$ — 24	UNF	1A	0.001 1	0.373 9	0.363 1	0.346 8	0.341 1	0.005 7	0.322 8	0.314 1	1B	0.329 9	0.339 6	0.347 9	0.355 3	0.007 4	0.375 0
		2A	0.001 1	0.373 9	0.366 7	0.346 8	0.343 0	0.003 8	0.322 8	0.316 0	2B	0.329 9	0.339 6	0.347 9	0.352 8	0.004 9	0.375 0
		3A	0.000 0	0.375 0	0.367 8	0.347 9	0.345 0	0.002 9	0.323 9	0.318 0	3B	0.329 9	0.337 2	0.347 9	0.351 6	0.003 7	0.375 0
$\frac{3}{8}$ — 28	UN	2A	0.001 1	0.373 9	0.367 4	0.350 7	0.347 1	0.003 6	0.330 1	0.323 9	2B	0.336 3	0.344 7	0.351 8	0.356 4	0.004 6	0.375 0
		3A	0.000 0	0.375 0	0.368 5	0.351 8	0.349 1	0.002 7	0.331 2	0.325 9	3B	0.336 3	0.342 6	0.351 8	0.355 3	0.003 5	0.375 0

Table 2 Unified screw threads, standard series – Limits of size (*continued*)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nominal size and threads per inch	Series designation	External threads									Internal threads						
		Class	Allowance	Major diameter		Effective diameter			Minor diameter		Class	Minor diameter		Effective diameter			Major diameter
				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Min.	Max.	Tol.	Min.
				in	in	in	in	in	in	in		in	in	in	in	in	in
$\frac{3}{8}$ — 32	UNEF	2A	0.001 0	0.374 0	0.368 0	0.353 7	0.350 3	0.003 4	0.335 7	0.330 1	2B	0.341 2	0.348 6	0.354 7	0.359 1	0.004 4	0.375 0
		3A	0.000 0	0.375 0	0.369 0	0.354 7	0.352 2	0.002 5	0.336 7	0.332 0	3B	0.341 2	0.346 9	0.354 7	0.358 0	0.003 3	0.375 0
$\frac{7}{16}$ — 14	UNC	1A	0.001 4	0.436 1	0.420 6	0.389 7	0.382 6	0.007 1	0.348 5	0.336 3	1B	0.360 2	0.376 0	0.391 1	0.400 3	0.009 2	0.437 5
		2A	0.001 4	0.436 1	0.425 8	0.389 7	0.385 0	0.004 7	0.348 5	0.338 7	2B	0.360 2	0.376 0	0.391 1	0.397 2	0.006 1	0.437 5
		3A	0.000 0	0.437 5	0.427 2	0.391 1	0.387 6	0.003 5	0.349 9	0.341 3	3B	0.360 2	0.371 7	0.391 1	0.395 7	0.004 6	0.437 5
$\frac{7}{16}$ — 16	UN	2A	0.001 4	0.436 1	0.426 7	0.395 5	0.390 9	0.004 6	0.359 4	0.350 3	2B	0.369 8	0.383 9	0.396 9	0.402 8	0.005 9	0.437 5
		3A	0.000 0	0.437 5	0.428 1	0.396 9	0.393 5	0.003 4	0.360 8	0.352 9	3B	0.369 8	0.380 0	0.396 9	0.400 9	0.004 0	0.437 5
$\frac{7}{16}$ — 20	UNF	1A	0.001 3	0.436 2	0.424 0	0.403 7	0.397 5	0.006 2	0.374 9	0.365 1	1B	0.383 4	0.394 9	0.405 0	0.413 1	0.008 1	0.437 5
		2A	0.001 3	0.436 2	0.428 1	0.403 7	0.399 5	0.004 2	0.374 9	0.367 1	2B	0.383 4	0.394 9	0.405 0	0.410 4	0.005 4	0.437 5
		3A	0.000 0	0.437 5	0.429 4	0.405 0	0.401 9	0.003 1	0.376 2	0.369 5	3B	0.383 4	0.391 6	0.405 0	0.409 1	0.004 1	0.437 5
$\frac{7}{16}$ — 28	UNEF	2A	0.001 1	0.436 4	0.429 9	0.413 2	0.409 6	0.003 6	0.392 6	0.386 4	2B	0.398 8	0.407 2	0.414 3	0.418 9	0.004 6	0.437 5
		3A	0.000 0	0.437 5	0.431 0	0.414 3	0.411 6	0.002 7	0.393 7	0.388 4	3B	0.398 8	0.405 1	0.414 3	0.417 8	0.003 5	0.437 5
$\frac{7}{16}$ — 32	UN	2A	0.001 0	0.436 5	0.430 5	0.416 2	0.412 8	0.003 4	0.398 2	0.392 6	2B	0.403 7	0.411 1	0.417 2	0.421 6	0.004 4	0.437 5
		3A	0.000 0	0.437 5	0.431 5	0.417 2	0.414 7	0.002 5	0.399 2	0.394 5	3B	0.403 7	0.409 4	0.417 2	0.420 5	0.003 3	0.437 5
$\frac{1}{2}$ — 13	UNC	1A	0.001 5	0.498 5	0.482 2	0.448 5	0.441 1	0.007 4	0.404 1	0.391 1	1B	0.416 7	0.433 6	0.450 0	0.459 7	0.009 7	0.500 0
		2A	0.001 5	0.498 5	0.487 6	0.448 5	0.443 5	0.005 0	0.404 1	0.393 6	2B	0.416 7	0.433 6	0.450 0	0.456 5	0.006 5	0.500 0
		3A	0.000 0	0.500 0	0.489 1	0.450 0	0.446 3	0.003 7	0.405 6	0.396 3	3B	0.416 7	0.428 4	0.450 0	0.454 8	0.004 8	0.500 0
$\frac{1}{2}$ — 16	UN	2A	0.001 4	0.498 6	0.489 2	0.458 0	0.453 3	0.004 7	0.421 9	0.412 7	2B	0.432 3	0.446 4	0.459 4	0.465 5	0.006 1	0.500 0
		3A	0.000 0	0.500 0	0.490 6	0.459 4	0.455 9	0.003 5	0.423 3	0.415 3	3B	0.432 3	0.441 9	0.459 4	0.464 0	0.004 6	0.500 0
$\frac{1}{2}$ — 20	UNF	1A	0.001 3	0.498 7	0.486 5	0.466 2	0.459 8	0.006 4	0.437 4	0.427 4	1B	0.445 9	0.457 4	0.467 5	0.475 9	0.008 4	0.500 0
		2A	0.001 3	0.498 7	0.490 6	0.466 2	0.461 9	0.004 3	0.437 4	0.429 5	2B	0.445 9	0.457 4	0.467 5	0.473 1	0.005 6	0.500 0
		3A	0.000 0	0.500 0	0.491 9	0.467 5	0.464 3	0.003 2	0.438 7	0.431 9	3B	0.445 9	0.453 7	0.467 5	0.471 7	0.004 2	0.500 0
$\frac{1}{2}$ — 28	UNEF	2A	0.001 1	0.498 9	0.492 4	0.475 7	0.472 0	0.003 7	0.455 1	0.448 8	2B	0.461 3	0.469 7	0.476 8	0.481 6	0.004 8	0.500 0
		3A	0.000 0	0.500 0	0.493 5	0.476 8	0.474 0	0.002 8	0.456 2	0.450 8	3B	0.461 3	0.467 6	0.476 8	0.480 4	0.003 6	0.500 0
$\frac{3}{4}$ — 32	UN	2A	0.001 0	0.499 0	0.493 0	0.478 7	0.475 2	0.003 5	0.460 7	0.455 0	2B	0.466 2	0.473 6	0.479 7	0.484 2	0.004 5	0.500 0
		3A	0.000 0	0.500 0	0.494 0	0.479 7	0.477 1	0.002 6	0.461 7	0.456 9	3B	0.466 2	0.471 9	0.479 7	0.483 1	0.003 4	0.500 0
$\frac{3}{4}$ — 12	UNC	1A	0.001 6	0.560 9	0.543 7	0.506 8	0.499 0	0.007 8	0.458 7	0.444 9	1B	0.472 3	0.490 4	0.508 4	0.518 6	0.010 2	0.562 5
		2A	0.001 6	0.560 9	0.549 5	0.506 8	0.501 6	0.005 2	0.458 7	0.447 5	2B	0.472 3	0.490 4	0.508 4	0.515 2	0.006 8	0.562 5
		3A	0.000 0	0.562 5	0.551 1	0.508 4	0.504 5	0.003 9	0.460 3	0.450 4	3B	0.472 3	0.484 3	0.508 4	0.513 5	0.005 1	0.562 5

Table 2 Unified screw threads, standard series – Limits of size (*continued*)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nominal size and threads per inch	Series designation	External threads									Internal threads						
		Class	Allowance	Major diameter		Effective diameter			Minor diameter		Class	Minor diameter		Effective diameter			Major diameter
				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Min.	Max.	Tol.	Min.
				in	in	in	in	in	in	in		in	in	in	in	in	in
$\frac{1}{16}$ — 16	UN	2A	0.001 4	0.561 1	0.551 7	0.520 5	0.515 8	0.004 7	0.484 4	0.475 2	2B	0.494 8	0.508 9	0.521 9	0.528 0	0.006 1	0.562 5
		3A	0.000 0	0.562 5	0.553 1	0.521 9	0.518 4	0.003 5	0.485 8	0.477 8	3B	0.494 8	0.504 0	0.521 9	0.526 5	0.004 6	0.562 5
$\frac{9}{16}$ — 18	UNF	1A	0.001 4	0.561 1	0.548 0	0.525 0	0.518 2	0.006 8	0.492 9	0.482 1	1B	0.502 4	0.515 1	0.526 4	0.535 3	0.008 9	0.562 5
		2A	0.001 4	0.561 1	0.552 4	0.525 0	0.520 5	0.004 5	0.492 9	0.484 4	2B	0.502 4	0.515 1	0.526 4	0.532 3	0.005 9	0.562 5
		3A	0.000 0	0.562 5	0.553 8	0.526 4	0.523 0	0.003 4	0.494 3	0.486 9	3B	0.502 4	0.510 6	0.526 4	0.530 8	0.004 4	0.562 5
$\frac{9}{16}$ — 20	UN	2A	0.001 3	0.561 2	0.553 1	0.528 7	0.524 5	0.004 2	0.499 9	0.492 1	2B	0.508 4	0.519 9	0.530 0	0.535 5	0.005 5	0.562 5
		3A	0.000 0	0.562 5	0.554 4	0.530 0	0.526 8	0.003 2	0.501 2	0.494 4	3B	0.508 4	0.516 2	0.530 0	0.534 1	0.004 1	0.562 5
$\frac{9}{16}$ — 24	UNEF	2A	0.001 2	0.561 3	0.554 1	0.534 2	0.530 3	0.003 9	0.510 2	0.503 3	2B	0.517 4	0.527 1	0.535 4	0.540 5	0.005 1	0.562 5
		3A	0.000 0	0.562 5	0.555 3	0.535 4	0.532 5	0.002 9	0.511 4	0.505 5	3B	0.517 4	0.524 4	0.535 4	0.539 2	0.003 8	0.562 5
$\frac{9}{16}$ — 28	UN	2A	0.001 1	0.561 4	0.554 9	0.538 2	0.534 5	0.003 7	0.517 6	0.511 3	2B	0.523 8	0.532 2	0.539 3	0.544 1	0.004 8	0.562 5
		3A	0.000 0	0.562 5	0.556 0	0.539 3	0.536 5	0.002 8	0.518 7	0.513 3	3B	0.523 8	0.530 1	0.539 3	0.542 9	0.003 6	0.562 5
$\frac{9}{16}$ — 32	UN	2A	0.001 0	0.561 5	0.555 5	0.541 2	0.537 7	0.003 5	0.523 2	0.517 5	2B	0.528 7	0.536 1	0.542 2	0.546 7	0.004 5	0.562 5
		3A	0.000 0	0.562 5	0.556 5	0.542 2	0.539 6	0.002 6	0.524 2	0.519 4	3B	0.528 7	0.534 4	0.542 2	0.545 6	0.003 4	0.562 5
$\frac{1}{8}$ — 11	UNC	1A	0.001 6	0.623 4	0.605 2	0.564 4	0.556 1	0.008 3	0.511 9	0.497 1	1B	0.526 6	0.546 0	0.566 0	0.576 7	0.010 7	0.625 0
		2A	0.001 6	0.623 4	0.611 3	0.564 4	0.558 9	0.005 5	0.511 9	0.499 9	2B	0.526 6	0.546 0	0.566 0	0.573 2	0.007 2	0.625 0
		3A	0.000 0	0.625 0	0.612 9	0.566 0	0.561 9	0.004 1	0.513 5	0.502 9	3B	0.526 6	0.539 1	0.566 0	0.571 4	0.005 4	0.625 0
$\frac{1}{8}$ — 12	UN	2A	0.001 6	0.623 4	0.612 0	0.569 3	0.563 9	0.005 4	0.521 2	0.509 8	2B	0.534 8	0.552 9	0.570 9	0.578 0	0.007 1	0.625 0
		3A	0.000 0	0.625 0	0.613 6	0.570 9	0.566 8	0.004 1	0.522 8	0.512 7	3B	0.534 8	0.546 3	0.570 9	0.576 2	0.005 3	0.625 0
$\frac{1}{8}$ — 16	UN	2A	0.001 4	0.623 6	0.614 2	0.583 0	0.578 2	0.004 8	0.546 9	0.537 6	2B	0.557 3	0.571 4	0.584 4	0.590 6	0.006 2	0.625 0
		3A	0.000 0	0.625 0	0.615 6	0.584 4	0.580 8	0.003 6	0.548 3	0.540 2	3B	0.557 3	0.566 2	0.584 4	0.589 0	0.004 6	0.625 0
$\frac{1}{8}$ — 18	UNF	1A	0.001 4	0.623 6	0.610 5	0.587 5	0.580 5	0.007 0	0.555 4	0.544 4	1B	0.564 9	0.577 6	0.588 9	0.598 0	0.009 1	0.625 0
		2A	0.001 4	0.623 6	0.614 9	0.587 5	0.582 8	0.004 7	0.555 4	0.546 7	2B	0.564 9	0.577 6	0.588 9	0.594 9	0.006 0	0.625 0
		3A	0.000 0	0.625 0	0.616 3	0.588 9	0.585 4	0.003 5	0.556 8	0.549 3	3B	0.564 9	0.573 0	0.588 9	0.593 4	0.004 5	0.625 0
$\frac{1}{8}$ — 20	UN	2A	0.001 3	0.623 7	0.615 6	0.591 2	0.586 9	0.004 3	0.562 4	0.554 5	2B	0.570 9	0.582 4	0.592 5	0.598 1	0.005 6	0.625 0
		3A	0.000 0	0.625 0	0.616 9	0.592 5	0.589 3	0.003 2	0.563 7	0.556 9	3B	0.570 9	0.578 7	0.592 5	0.596 7	0.004 2	0.625 0
$\frac{1}{8}$ — 24	UNEF	2A	0.001 2	0.623 8	0.616 6	0.596 7	0.592 7	0.004 0	0.572 7	0.565 7	2B	0.579 9	0.589 6	0.597 9	0.603 1	0.005 2	0.625 0
		3A	0.000 0	0.625 0	0.617 8	0.597 9	0.594 9	0.003 0	0.573 9	0.567 9	3B	0.579 9	0.586 9	0.597 9	0.601 8	0.003 9	0.625 0
$\frac{1}{8}$ — 28	UN	2A	0.001 1	0.623 9	0.617 4	0.600 7	0.596 9	0.003 8	0.580 1	0.573 7	2B	0.586 3	0.594 7	0.601 8	0.606 7	0.004 9	0.625 0
		3A	0.000 0	0.625 0	0.618 5	0.601 8	0.599 0	0.002 8	0.581 2	0.575 8	3B	0.586 3	0.592 6	0.601 8	0.605 5	0.003 7	0.625 0

Table 2 Unified screw threads, standard series – Limits of size (*continued*)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nominal size and threads per inch	Series designation	External threads									Internal threads						
		Class	Allowance	Major diameter		Effective diameter			Minor diameter		Class	Minor diameter		Effective diameter			Major diameter
				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Min.	Max.	Tol.	Min.
			in	in	in	in	in	in	in	in		in	in	in	in	in	in
$\frac{5}{8}$ — 32	UN	2A	0.001 1	0.623 9	0.617 9	0.603 6	0.600 0	0.003 6	0.585 6	0.579 8	2B	0.591 2	0.598 6	0.604 7	0.609 3	0.004 6	0.625 0
		3A	0.000 0	0.625 0	0.619 0	0.604 7	0.602 0	0.002 7	0.586 7	0.581 8	3B	0.591 2	0.596 9	0.604 7	0.608 2	0.003 5	0.625 0
$\frac{11}{16}$ — 12	UN	2A	0.001 6	0.685 9	0.674 5	0.631 8	0.626 4	0.005 4	0.583 7	0.572 3	2B	0.597 3	0.615 4	0.633 4	0.640 5	0.007 1	0.687 5
		3A	0.000 0	0.687 5	0.676 1	0.633 4	0.629 3	0.004 1	0.585 3	0.575 2	3B	0.597 3	0.608 5	0.633 4	0.638 7	0.005 3	0.687 5
$\frac{11}{16}$ — 16	UN	2A	0.001 4	0.686 1	0.676 7	0.645 5	0.640 7	0.004 8	0.609 4	0.600 1	2B	0.619 8	0.633 9	0.646 9	0.653 1	0.006 2	0.687 5
		3A	0.000 0	0.687 5	0.678 1	0.646 9	0.643 3	0.003 6	0.610 8	0.602 7	3B	0.619 8	0.628 4	0.646 9	0.651 5	0.004 6	0.687 5
$\frac{11}{16}$ — 20	UN	2A	0.001 3	0.686 2	0.678 1	0.653 7	0.649 4	0.004 3	0.624 9	0.617 0	2B	0.633 4	0.644 9	0.655 0	0.660 6	0.005 6	0.687 5
		3A	0.000 0	0.687 5	0.679 4	0.655 0	0.651 8	0.003 2	0.626 2	0.619 4	3B	0.633 4	0.641 2	0.655 0	0.659 2	0.004 2	0.687 5
$\frac{11}{16}$ — 24	UNEF	2A	0.001 2	0.686 3	0.679 1	0.659 2	0.655 2	0.004 0	0.635 2	0.628 2	2B	0.642 4	0.652 1	0.660 4	0.665 6	0.005 2	0.687 5
		3A	0.000 0	0.687 5	0.680 3	0.660 4	0.657 4	0.003 0	0.636 4	0.630 4	3B	0.642 4	0.649 4	0.660 4	0.664 3	0.003 9	0.687 5
$\frac{11}{16}$ — 28	UN	2A	0.001 1	0.686 4	0.679 9	0.663 2	0.659 4	0.003 8	0.642 6	0.636 2	2B	0.648 8	0.657 2	0.664 3	0.669 2	0.004 9	0.687 5
		3A	0.000 0	0.687 5	0.681 0	0.664 3	0.661 5	0.002 8	0.643 7	0.638 3	3B	0.648 8	0.655 1	0.664 3	0.668 0	0.003 7	0.687 5
$\frac{11}{16}$ — 32	UN	2A	0.001 1	0.686 4	0.680 4	0.666 1	0.662 5	0.003 6	0.648 1	0.642 3	2B	0.653 7	0.661 1	0.667 2	0.671 8	0.004 6	0.687 5
		3A	0.000 0	0.687 5	0.681 5	0.667 2	0.664 5	0.002 7	0.649 2	0.644 3	3B	0.653 7	0.659 4	0.667 2	0.670 7	0.003 5	0.687 5
$\frac{3}{4}$ — 10	UNC	1A	0.001 8	0.748 2	0.728 8	0.683 2	0.674 4	0.008 8	0.625 5	0.609 5	1B	0.641 7	0.662 7	0.685 0	0.696 5	0.011 5	0.750 0
		2A	0.001 8	0.748 2	0.735 3	0.683 2	0.677 3	0.005 9	0.625 5	0.612 4	2B	0.641 7	0.662 7	0.685 0	0.692 7	0.007 7	0.750 0
		3A	0.000 0	0.750 0	0.737 1	0.685 0	0.680 6	0.004 4	0.627 3	0.615 7	3B	0.641 7	0.654 5	0.685 0	0.690 7	0.005 7	0.750 0
$\frac{3}{4}$ — 12	UN	2A	0.001 7	0.748 3	0.736 9	0.694 2	0.688 7	0.005 5	0.646 1	0.634 6	2B	0.659 8	0.677 9	0.695 9	0.703 1	0.007 2	0.750 0
		3A	0.000 0	0.750 0	0.738 6	0.695 9	0.691 8	0.004 1	0.647 8	0.637 7	3B	0.659 8	0.670 7	0.695 9	0.701 3	0.005 4	0.750 0
$\frac{3}{4}$ — 16	UNF	1A	0.001 5	0.748 5	0.734 3	0.707 9	0.700 4	0.007 5	0.671 8	0.659 8	1B	0.682 3	0.696 4	0.709 4	0.719 2	0.009 8	0.750 0
		2A	0.001 5	0.748 5	0.739 1	0.707 9	0.702 9	0.005 0	0.671 8	0.662 3	2B	0.682 3	0.696 4	0.709 4	0.715 9	0.006 5	0.750 0
		3A	0.000 0	0.750 0	0.740 6	0.709 4	0.705 6	0.003 8	0.673 3	0.665 0	3B	0.682 3	0.690 8	0.709 4	0.714 3	0.004 9	0.750 0
$\frac{3}{4}$ — 20	UNEF	2A	0.001 3	0.748 7	0.740 6	0.716 2	0.711 8	0.004 4	0.687 4	0.679 4	2B	0.695 9	0.707 4	0.717 5	0.723 2	0.005 7	0.750 0
		3A	0.000 0	0.750 0	0.741 9	0.717 5	0.714 2	0.003 3	0.688 7	0.681 8	3B	0.695 9	0.703 7	0.717 5	0.721 8	0.004 3	0.750 0
$\frac{3}{4}$ — 28	UN	2A	0.001 2	0.748 8	0.742 3	0.725 6	0.721 8	0.003 8	0.705 0	0.698 6	2B	0.711 3	0.719 7	0.726 8	0.731 8	0.005 0	0.750 0
		3A	0.000 0	0.750 0	0.743 5	0.726 8	0.723 9	0.002 9	0.706 2	0.700 7	3B	0.711 3	0.717 6	0.726 8	0.730 5	0.003 7	0.750 0
$\frac{3}{4}$ — 32	UN	2A	0.001 1	0.748 9	0.742 9	0.728 6	0.725 0	0.003 6	0.710 6	0.704 8	2B	0.716 2	0.723 6	0.729 7	0.734 4	0.004 7	0.750 0
		3A	0.000 0	0.750 0	0.744 0	0.729 7	0.727 0	0.002 7	0.711 7	0.706 8	3B	0.716 2	0.721 9	0.729 7	0.733 3	0.003 6	0.750 0

Table 2 Unified screw threads, standard series – Limits of size (*continued*)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nominal size and threads per inch	Series designation	External threads									Internal threads						
		Class	Allowance	Major diameter		Effective diameter			Minor diameter		Class	Minor diameter		Effective diameter			Major diameter
				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Min.	Max.	Tol.	
				in	in	in	in	in	in	in		in	in	in	in	in	in
$\frac{13}{16}$ — 12	UN	2A	0.001 7	0.810 8	0.799 4	0.756 7	0.751 2	0.005 5	0.708 6	0.697 1	2B	0.722 3	0.740 4	0.758 4	0.765 6	0.007 2	0.812 5
		3A	0.000 0	0.812 5	0.801 1	0.758 4	0.754 3	0.004 1	0.710 3	0.700 2	3B	0.722 3	0.732 9	0.758 4	0.763 8	0.005 4	0.812 5
$\frac{13}{16}$ — 16	UN	2A	0.001 5	0.811 0	0.801 6	0.770 4	0.765 5	0.004 9	0.734 3	0.724 9	2B	0.744 8	0.758 9	0.771 9	0.778 2	0.006 3	0.812 5
		3A	0.000 0	0.812 5	0.803 1	0.771 9	0.768 3	0.003 6	0.735 8	0.727 7	3B	0.744 8	0.753 3	0.771 9	0.776 6	0.004 7	0.812 5
$\frac{13}{16}$ — 20	UNEF	2A	0.001 3	0.811 2	0.803 1	0.778 7	0.774 3	0.004 4	0.749 8	0.741 8	2B	0.758 4	0.769 9	0.780 0	0.785 7	0.005 7	0.812 5
		3A	0.000 0	0.812 5	0.804 4	0.780 0	0.776 7	0.003 3	0.751 2	0.744 3	3B	0.758 4	0.766 2	0.780 0	0.784 3	0.004 3	0.812 5
$\frac{13}{16}$ — 28	UN	2A	0.001 2	0.811 3	0.804 8	0.788 1	0.784 3	0.003 8	0.767 5	0.761 1	2B	0.773 8	0.782 2	0.789 3	0.794 3	0.005 0	0.812 5
		3A	0.000 0	0.812 5	0.806 0	0.789 3	0.786 4	0.002 9	0.768 7	0.763 2	3B	0.773 8	0.780 1	0.789 3	0.793 0	0.003 7	0.812 5
$\frac{13}{16}$ — 32	UN	2A	0.001 1	0.811 4	0.805 4	0.791 1	0.787 5	0.003 6	0.773 1	0.767 3	2B	0.778 7	0.786 1	0.792 2	0.796 9	0.004 7	0.812 5
		3A	0.000 0	0.812 5	0.806 5	0.792 2	0.789 5	0.002 7	0.774 2	0.769 3	3B	0.778 7	0.784 4	0.792 2	0.795 8	0.003 6	0.812 5
$\frac{7}{8}$ — 9	UNC	1A	0.001 9	0.873 1	0.852 3	0.800 9	0.791 4	0.009 5	0.736 8	0.719 3	1B	0.754 7	0.777 5	0.802 8	0.815 1	0.012 3	0.875 0
		2A	0.001 9	0.873 1	0.859 2	0.800 9	0.794 6	0.006 3	0.736 8	0.722 5	2B	0.754 7	0.777 5	0.802 8	0.811 0	0.008 2	0.875 0
		3A	0.000 0	0.875 0	0.861 1	0.802 8	0.798 1	0.004 7	0.738 7	0.726 0	3B	0.754 7	0.768 5	0.802 8	0.808 9	0.006 1	0.875 0
$\frac{7}{8}$ — 12	UN	2A	0.001 7	0.873 3	0.861 9	0.819 2	0.813 7	0.005 5	0.771 1	0.759 6	2B	0.784 8	0.802 9	0.820 9	0.828 1	0.007 2	0.875 0
		3A	0.000 0	0.875 0	0.863 6	0.820 9	0.816 8	0.004 1	0.772 8	0.762 7	3B	0.784 8	0.795 2	0.820 9	0.826 3	0.005 4	0.875 0
$\frac{7}{8}$ — 14	UNF	1A	0.001 6	0.873 4	0.857 9	0.827 0	0.818 9	0.008 1	0.785 8	0.772 6	1B	0.797 7	0.813 5	0.828 6	0.839 2	0.010 6	0.875 0
		2A	0.001 6	0.873 4	0.863 1	0.827 0	0.821 6	0.005 4	0.785 8	0.775 3	2B	0.797 7	0.813 5	0.828 6	0.835 6	0.007 0	0.875 0
		3A	0.000 0	0.875 0	0.864 7	0.828 6	0.824 5	0.004 1	0.787 4	0.778 2	3B	0.797 7	0.806 8	0.828 6	0.833 9	0.005 3	0.875 0
$\frac{7}{8}$ — 16	UN	2A	0.001 5	0.873 5	0.864 1	0.832 9	0.828 0	0.004 9	0.796 8	0.787 4	2B	0.807 3	0.821 4	0.834 4	0.840 7	0.006 3	0.875 0
		3A	0.000 0	0.875 0	0.865 6	0.834 4	0.830 8	0.003 6	0.798 3	0.790 2	3B	0.807 3	0.815 8	0.834 4	0.839 1	0.004 7	0.875 0
$\frac{7}{8}$ — 20	UNEF	2A	0.001 3	0.873 7	0.865 6	0.841 2	0.836 8	0.004 4	0.812 4	0.804 4	2B	0.820 9	0.832 4	0.842 5	0.848 2	0.005 7	0.875 0
		3A	0.000 0	0.875 0	0.866 9	0.842 5	0.839 2	0.003 3	0.813 7	0.806 8	3B	0.820 9	0.828 7	0.842 5	0.846 8	0.004 3	0.875 0
$\frac{7}{8}$ — 28	UN	2A	0.001 2	0.873 8	0.867 3	0.850 6	0.846 8	0.003 8	0.830 0	0.823 6	2B	0.836 3	0.844 7	0.851 8	0.856 8	0.005 0	0.875 0
		3A	0.000 0	0.875 0	0.868 5	0.851 8	0.848 9	0.002 9	0.831 2	0.825 7	3B	0.836 3	0.842 6	0.851 8	0.855 5	0.003 7	0.875 0
$\frac{7}{8}$ — 32	UN	2A	0.001 1	0.873 9	0.867 9	0.853 6	0.850 0	0.003 6	0.835 6	0.829 8	2B	0.841 2	0.848 6	0.854 7	0.859 4	0.004 7	0.875 0
		3A	0.000 0	0.875 0	0.869 0	0.854 7	0.852 0	0.002 7	0.836 7	0.831 8	3B	0.841 2	0.846 9	0.854 7	0.858 3	0.003 6	0.875 0
$\frac{9}{16}$ — 12	UN	2A	0.001 7	0.935 8	0.924 4	0.881 7	0.876 0	0.005 7	0.833 6	0.821 9	2B	0.847 3	0.865 4	0.883 4	0.890 8	0.007 4	0.937 5
		3A	0.000 0	0.937 5	0.926 1	0.883 4	0.879 3	0.004 1	0.835 3	0.825 2	3B	0.847 3	0.857 5	0.883 4	0.888 9	0.005 5	0.937 5

Table 2 Unified screw threads, standard series – Limits of size (*continued*)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nominal size and threads per inch	Series designation	External threads									Internal threads						
		Class	Allowance	Major diameter		Effective diameter			Minor diameter		Class	Minor diameter		Effective diameter			Major diameter
				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Min.	Max.	Tol.	Min.
				in	in	in	in	in	in	in		in	in	in	in	in	in
$\frac{15}{16}$ — 16	UN	2A	0.001 5	0.936 0	0.926 6	0.895 4	0.890 4	0.005 0	0.859 3	0.849 8	2B	0.869 8	0.883 9	0.896 9	0.903 4	0.006 5	0.937 5
		3A	0.000 0	0.937 5	0.928 1	0.896 9	0.893 2	0.003 7	0.860 8	0.852 6	3B	0.869 8	0.878 3	0.896 9	0.901 8	0.004 9	0.937 5
$\frac{15}{16}$ — 20	UNEF	2A	0.001 4	0.936 1	0.928 0	0.903 6	0.899 1	0.004 5	0.874 8	0.866 7	2B	0.883 4	0.894 9	0.905 0	0.910 9	0.005 9	0.937 5
		3A	0.000 0	0.937 5	0.929 4	0.905 0	0.901 6	0.003 4	0.876 2	0.869 2	3B	0.883 4	0.891 2	0.905 0	0.909 4	0.004 4	0.937 5
$\frac{15}{16}$ — 28	UN	2A	0.001 2	0.936 3	0.929 8	0.913 1	0.909 1	0.004 0	0.892 5	0.885 9	2B	0.898 8	0.907 2	0.914 3	0.919 5	0.005 2	0.937 5
		3A	0.000 0	0.937 5	0.931 0	0.914 3	0.911 3	0.003 0	0.893 7	0.888 1	3B	0.898 8	0.905 1	0.914 3	0.918 2	0.003 9	0.937 5
$\frac{15}{16}$ — 32	UN	2A	0.001 1	0.936 4	0.930 4	0.916 1	0.912 3	0.003 8	0.898 1	0.892 1	2B	0.903 7	0.911 1	0.917 2	0.922 1	0.004 9	0.937 5
		3A	0.000 0	0.937 5	0.931 5	0.917 2	0.914 4	0.002 8	0.899 2	0.894 2	3B	0.903 7	0.909 4	0.917 2	0.920 9	0.003 7	0.937 5
1 — 8	UNC	1A	0.002 0	0.998 0	0.975 5	0.916 8	0.906 7	0.010 1	0.844 6	0.825 5	1B	0.864 7	0.889 7	0.918 8	0.932 0	0.013 2	1.000 0
		2A	0.002 0	0.998 0	0.983 0	0.916 8	0.910 0	0.006 8	0.844 6	0.828 8	2B	0.864 7	0.889 7	0.918 8	0.927 6	0.008 8	1.000 0
		3A	0.000 0	1.000 0	0.985 0	0.918 8	0.913 7	0.005 1	0.846 6	0.832 5	3B	0.864 7	0.879 7	0.918 8	0.925 4	0.006 6	1.000 0
1 — 12	UNF	1A	0.001 8	0.998 2	0.981 0	0.944 1	0.935 3	0.008 8	0.896 0	0.881 2	1B	0.909 8	0.927 9	0.945 9	0.957 3	0.011 4	1.000 0
		2A	0.001 8	0.998 2	0.986 8	0.944 1	0.938 2	0.005 9	0.896 0	0.884 1	2B	0.909 8	0.927 9	0.945 9	0.953 5	0.007 6	1.000 0
		3A	0.000 0	1.000 0	0.988 6	0.945 9	0.941 5	0.004 4	0.897 8	0.887 4	3B	0.909 8	0.919 8	0.945 9	0.951 6	0.005 7	1.000 0
1 — 16	UN	2A	0.001 5	0.998 5	0.989 1	0.957 9	0.952 9	0.005 0	0.921 8	0.912 3	2B	0.932 3	0.946 4	0.959 4	0.965 9	0.006 5	1.000 0
		3A	0.000 0	1.000 0	0.990 6	0.959 4	0.955 7	0.003 7	0.923 3	0.915 1	3B	0.932 3	0.940 8	0.959 4	0.964 3	0.004 9	1.000 0
1 — 20	UNEF	2A	0.001 4	0.998 6	0.990 5	0.966 1	0.961 6	0.004 5	0.937 3	0.929 2	2B	0.945 9	0.957 4	0.967 5	0.973 4	0.005 9	1.000 0
		3A	0.000 0	1.000 0	0.991 9	0.967 5	0.964 1	0.003 4	0.938 7	0.931 7	3B	0.945 9	0.953 7	0.967 5	0.971 9	0.004 4	1.000 0
1 — 28	UN	2A	0.001 2	0.998 8	0.992 3	0.975 6	0.971 6	0.004 0	0.955 0	0.948 4	2B	0.961 3	0.969 7	0.976 8	0.982 0	0.005 2	1.000 0
		3A	0.000 0	1.000 0	0.993 5	0.976 8	0.973 8	0.003 0	0.956 2	0.950 6	3B	0.961 3	0.967 6	0.976 8	0.980 7	0.003 9	1.000 0
1 — 32	UN	2A	0.001 1	0.998 9	0.992 9	0.978 6	0.974 8	0.003 8	0.960 6	0.954 6	2B	0.966 2	0.973 6	0.979 7	0.984 6	0.004 9	1.000 0
		3A	0.000 0	1.000 0	0.994 0	0.979 7	0.976 9	0.002 8	0.961 7	0.956 7	3B	0.966 2	0.971 9	0.979 7	0.983 4	0.003 7	1.000 0
$\frac{1}{16}$ — 8	UN	2A	0.002 0	1.060 5	1.045 5	0.979 3	0.972 5	0.006 8	0.907 1	0.891 3	2B	0.927 2	0.952 2	0.981 3	0.990 2	0.008 9	1.062 5
		3A	0.000 0	1.062 5	1.047 5	0.981 3	0.976 2	0.005 1	0.909 1	0.895 0	3B	0.927 2	0.942 2	0.981 3	0.988 0	0.006 7	1.062 5
$\frac{1}{16}$ — 12	UN	2A	0.001 7	1.060 8	1.049 4	1.006 7	1.001 0	0.005 7	0.958 6	0.946 9	2B	0.972 3	0.990 4	1.008 4	1.015 8	0.007 4	1.062 5
		3A	0.000 0	1.062 5	1.051 1	1.008 4	1.004 2	0.004 2	0.960 3	0.950 1	3B	0.972 3	0.982 3	1.008 4	1.013 9	0.005 5	1.062 5
$\frac{1}{16}$ — 16	UN	2A	0.001 5	1.061 0	1.051 6	1.020 4	1.015 4	0.005 0	0.984 3	0.974 8	2B	0.994 8	1.008 9	1.021 9	1.028 4	0.006 5	1.062 5
		3A	0.000 0	1.062 5	1.053 1	1.021 9	1.018 2	0.003 7	0.985 8	0.977 6	3B	0.994 8	1.003 3	1.021 9	1.026 8	0.004 9	1.062 5

Table 2 Unified screw threads, standard series – Limits of size (*continued*)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nominal size and threads per inch	Series designation	External threads									Internal threads						
		Class	Allowance	Major diameter		Effective diameter			Minor diameter		Class	Minor diameter		Effective diameter			Major diameter
				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Tol.	Min.		
																in	in
1 ¹ / ₁₆ — 18	UNEF	2A 3A	0.001 4 0.000 0	1.061 1 1.062 5	1.052 4 1.053 8	1.025 0 1.026 4	1.020 3 1.022 8	0.004 7 0.003 6	0.992 9 0.994 3	0.984 2 0.986 7	2B 3B	1.002 4 1.002 4	1.015 1 1.010 5	1.026 4 1.026 4	1.032 6 1.031 0	0.006 2 0.004 6	1.062 5 1.062 5
1 ¹ / ₁₆ — 20	UN	2A 3A	0.001 4 0.000 0	1.061 1 1.062 5	1.053 0 1.054 4	1.028 6 1.030 0	1.024 1 1.026 6	0.004 5 0.003 4	0.999 8 1.001 2	0.991 7 0.994 2	2B 3B	1.008 4 1.008 4	1.019 9 1.016 2	1.030 0 1.030 0	1.035 9 1.034 4	0.005 9 0.004 4	1.062 5 1.062 5
1 ¹ / ₁₆ — 28	UN	2A 3A	0.001 2 0.000 0	1.061 3 1.062 5	1.054 8 1.056 0	1.038 1 1.039 3	1.034 1 1.036 3	0.004 0 0.003 0	1.017 5 1.018 7	1.010 9 1.013 1	2B 3B	1.023 8 1.023 8	1.032 2 1.030 1	1.039 3 1.039 3	1.044 5 1.043 2	0.005 2 0.003 9	1.062 5 1.062 5
1 ¹ / ₈ — 7	UNC	1A 2A 3A	0.002 2 0.002 2 0.000 0	1.122 8 1.122 8 1.125 0	1.098 2 1.106 4 1.108 6	1.030 0 1.030 0 1.032 2	1.019 1 1.022 8 1.026 8	0.010 9 0.007 2 0.005 4	0.947 5 0.947 5 0.949 7	0.926 3 0.930 0 0.934 0	1B 2B 3B	0.970 4 0.970 4 0.970 4	0.998 0 0.998 0 0.987 5	1.032 2 1.032 2 1.032 2	1.046 3 1.041 6 1.039 3	0.014 1 0.009 4 0.007 1	1.125 0 1.125 0 1.125 0
1 ¹ / ₈ — 8	UN	2A 3A	0.002 1 0.000 0	1.122 9 1.125 0	1.107 9 1.110 0	1.041 7 1.043 8	1.034 8 1.038 6	0.006 9 0.005 2	0.969 5 0.971 6	0.953 6 0.957 4	2B 3B	0.989 7 0.989 7	1.014 7 1.004 7	1.043 8 1.043 8	1.052 8 1.050 5	0.009 0 0.006 7	1.125 0 1.125 0
1 ¹ / ₈ — 12	UNF	1A 2A 3A	0.001 8 0.001 8 0.000 0	1.123 2 1.123 2 1.125 0	1.106 0 1.111 8 1.113 6	1.069 1 1.069 1 1.070 9	1.060 1 1.063 1 1.066 4	0.009 0 0.006 0 0.004 5	1.021 0 1.021 0 1.022 8	1.006 0 1.009 0 1.012 3	1B 2B 3B	1.034 8 1.034 8 1.034 8	1.052 9 1.052 9 1.044 8	1.070 9 1.070 9 1.070 9	1.082 6 1.078 7 1.076 8	0.011 7 0.007 8 0.005 9	1.125 0 1.125 0 1.125 0
1 ¹ / ₈ — 16	UN	2A 3A	0.001 5 0.000 0	1.123 5 1.125 0	1.114 1 1.115 6	1.082 9 1.084 4	1.077 9 1.080 7	0.005 0 0.003 7	1.046 8 1.048 3	1.037 3 1.040 1	2B 3B	1.057 3 1.057 3	1.071 4 1.065 8	1.084 4 1.084 4	1.090 9 1.089 3	0.006 5 0.004 9	1.125 0 1.125 0
1 ¹ / ₈ — 18	UNEF	2A 3A	0.001 4 0.000 0	1.123 6 1.125 0	1.114 9 1.116 3	1.087 5 1.088 9	1.082 8 1.085 3	0.004 7 0.003 6	1.055 4 1.056 8	1.046 7 1.049 2	2B 3B	1.064 9 1.064 9	1.077 6 1.073 0	1.088 9 1.088 9	1.095 1 1.093 5	0.006 2 0.004 6	1.125 0 1.125 0
1 ¹ / ₈ — 20	UN	2A 3A	0.001 4 0.000 0	1.123 6 1.125 0	1.115 5 1.116 9	1.091 1 1.092 5	1.086 6 1.089 1	0.004 5 0.003 4	1.062 3 1.063 7	1.054 2 1.056 7	2B 3B	1.070 9 1.070 9	1.082 4 1.078 7	1.092 5 1.092 5	1.098 4 1.096 9	0.005 9 0.004 4	1.125 0 1.125 0
1 ¹ / ₈ — 28	UN	2A 3A	0.001 2 0.000 0	1.123 8 1.125 0	1.117 3 1.118 5	1.100 6 1.101 8	1.096 6 1.098 8	0.004 0 0.003 0	1.080 0 1.081 2	1.073 4 1.075 6	2B 3B	1.086 3 1.086 3	1.094 7 1.092 6	1.101 8 1.101 8	1.107 0 1.105 7	0.005 2 0.003 9	1.125 0 1.125 0
1 ³ / ₁₆ — 8	UN	2A 3A	0.002 1 0.000 0	1.185 4 1.187 5	1.170 4 1.172 5	1.104 2 1.106 3	1.097 2 1.101 1	0.007 0 0.005 2	1.032 0 1.034 1	1.016 0 1.019 9	2B 3B	1.052 2 1.052 2	1.077 2 1.067 2	1.106 3 1.106 3	1.115 4 1.113 1	0.009 1 0.006 8	1.187 5 1.187 5
3 ³ / ₁₆ — 12	UN	2A 3A	0.001 7 0.000 0	1.185 8 1.187 5	1.174 4 1.176 1	1.131 7 1.133 4	1.125 9 1.129 1	0.005 8 0.004 3	1.083 6 1.085 3	1.071 8 1.075 0	2B 3B	1.097 3 1.097 3	1.115 4 1.107 3	1.133 4 1.133 4	1.140 9 1.139 0	0.007 5 0.005 6	1.187 5 1.187 5
3 ³ / ₁₆ — 16	UN	2A 3A	0.001 5 0.000 0	1.186 0 1.187 5	1.176 6 1.178 1	1.145 4 1.146 9	1.140 3 1.143 1	0.005 1 0.003 8	1.109 3 1.110 8	1.099 7 1.102 5	2B 3B	1.119 8 1.119 8	1.133 9 1.128 3	1.146 9 1.146 9	1.153 5 1.151 9	0.006 6 0.005 0	1.187 5 1.187 5

Table 2 Unified screw threads, standard series – Limits of size (*continued*)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nominal size and threads per inch	Series designation	External threads									Internal threads						
		Class	Allowance	Major diameter		Effective diameter			Minor diameter		Class	Minor diameter		Effective diameter			Major diameter
				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Min.	Tol.	Min.	
				in	in	in	in	in	in	in		in	in	in	in	in	in
1 ³ / ₁₆ — 18	UNEF	2A	0.001 5	1.186 0	1.177 3	1.149 9	1.145 0	0.004 9	1.117 8	1.108 9	2B	1.127 4	1.140 1	1.151 4	1.157 7	0.006 3	1.187 5
		3A	0.000 0	1.187 5	1.178 8	1.151 4	1.147 8	0.003 6	1.119 3	1.111 7	3B	1.127 4	1.135 5	1.151 4	1.156 1	0.004 7	1.187 5
1 ³ / ₁₆ — 20	UN	2A	0.001 4	1.186 1	1.178 0	1.153 6	1.148 9	0.004 7	1.124 8	1.116 5	2B	1.133 4	1.144 9	1.155 0	1.161 1	0.006 1	1.187 5
		3A	0.000 0	1.187 5	1.179 4	1.155 0	1.151 5	0.003 5	1.126 2	1.119 1	3B	1.133 4	1.141 2	1.155 0	1.159 5	0.004 5	1.187 5
1 ³ / ₁₆ — 28	UN	2A	0.001 2	1.186 3	1.179 8	1.163 1	1.159 0	0.004 1	1.142 5	1.135 8	2B	1.148 8	1.157 2	1.164 3	1.169 6	0.005 3	1.187 5
		3A	0.000 0	1.187 5	1.181 0	1.164 3	1.161 2	0.003 1	1.143 7	1.138 0	3B	1.148 8	1.155 1	1.164 3	1.168 3	0.004 0	1.187 5
1 ¹ / ₄ — 7	UNC	1A	0.002 2	1.247 8	1.223 2	1.155 0	1.143 9	0.011 1	1.072 5	1.051 1	1B	1.095 4	1.123 0	1.157 2	1.171 6	0.014 4	1.250 0
		2A	0.002 2	1.247 8	1.231 4	1.155 0	1.147 6	0.007 4	1.072 5	1.054 8	2B	1.095 4	1.123 0	1.157 2	1.166 8	0.009 6	1.250 0
		3A	0.000 0	1.250 0	1.233 6	1.157 2	1.151 7	0.005 5	1.074 7	1.058 9	3B	1.095 4	1.112 5	1.157 2	1.164 4	0.007 2	1.250 0
1 ¹ / ₄ — 8	UN	2A	0.002 1	1.247 9	1.232 9	1.166 7	1.159 7	0.007 0	1.094 5	1.078 5	2B	1.114 7	1.139 7	1.168 8	1.178 0	0.009 2	1.250 0
		3A	0.000 0	1.250 0	1.235 0	1.168 8	1.163 5	0.005 3	1.096 6	1.082 3	3B	1.114 7	1.129 7	1.168 8	1.175 7	0.006 9	1.250 0
1 ¹ / ₄ — 12	UNF	1A	0.001 8	1.248 2	1.231 0	1.194 1	1.184 9	0.009 2	1.146 0	1.130 8	1B	1.159 8	1.177 9	1.195 9	1.207 9	0.012 0	1.250 0
		2A	0.001 8	1.248 2	1.236 8	1.194 1	1.187 9	0.006 2	1.146 0	1.133 8	2B	1.159 8	1.177 9	1.195 9	1.203 9	0.008 0	1.250 0
		3A	0.000 0	1.250 0	1.238 6	1.195 9	1.191 3	0.004 6	1.147 8	1.137 2	3B	1.159 8	1.169 8	1.195 9	1.201 9	0.006 0	1.250 0
1 ¹ / ₄ — 16	UN	2A	0.001 5	1.248 5	1.239 1	1.207 9	1.202 8	0.005 1	1.171 8	1.162 2	2B	1.182 3	1.196 4	1.209 4	1.216 0	0.006 6	1.250 0
		3A	0.000 0	1.250 0	1.240 6	1.209 4	1.205 6	0.003 8	1.173 3	1.165 0	3B	1.182 3	1.190 8	1.209 4	1.214 4	0.005 0	1.250 0
1 ¹ / ₄ — 18	UNEF	2A	0.001 5	1.248 5	1.239 8	1.212 4	1.207 5	0.004 9	1.180 3	1.171 4	2B	1.189 9	1.202 6	1.213 9	1.220 2	0.006 3	1.250 0
		3A	0.000 0	1.250 0	1.241 3	1.213 9	1.210 3	0.003 6	1.181 8	1.174 2	3B	1.189 9	1.198 0	1.213 9	1.218 6	0.004 7	1.250 0
1 ¹ / ₄ — 20	UN	2A	0.001 4	1.248 6	1.240 5	1.216 1	1.211 4	0.004 7	1.187 3	1.179 0	2B	1.195 9	1.207 4	1.217 5	1.223 6	0.006 1	1.250 0
		3A	0.000 0	1.250 0	1.241 9	1.217 5	1.214 0	0.003 5	1.188 7	1.181 6	3B	1.195 9	1.203 7	1.217 5	1.222 0	0.004 5	1.250 0
1 ¹ / ₄ — 28	UN	2A	0.001 2	1.248 8	1.242 3	1.225 6	1.221 5	0.004 1	1.205 0	1.198 3	2B	1.211 3	1.219 7	1.226 8	1.232 1	0.005 3	1.250 0
		3A	0.000 0	1.250 0	1.243 5	1.226 8	1.223 7	0.003 1	1.206 2	1.200 5	3B	1.211 3	1.217 6	1.226 8	1.230 8	0.004 0	1.250 0
5 ⁵ / ₁₆ — 8	UN	2A	0.002 1	1.310 4	1.295 4	1.229 2	1.222 1	0.007 1	1.157 0	1.140 9	2B	1.177 2	1.202 2	1.231 3	1.240 5	0.009 2	1.312 5
		3A	0.000 0	1.312 5	1.297 5	1.231 3	1.226 0	0.005 3	1.159 1	1.144 8	3B	1.177 2	1.192 2	1.231 3	1.238 2	0.006 9	1.312 5
5 ⁵ / ₁₆ — 12	UN	2A	0.001 7	1.310 8	1.299 4	1.256 7	1.250 9	0.005 8	1.208 6	1.196 8	2B	1.222 3	1.240 4	1.258 4	1.265 9	0.007 5	1.312 5
		3A	0.000 0	1.312 5	1.301 1	1.258 4	1.254 1	0.004 3	1.210 3	1.200 0	3B	1.222 3	1.232 3	1.258 4	1.264 0	0.005 6	1.312 5
5 ⁵ / ₁₆ — 16	UN	2A	0.001 5	1.311 0	1.301 6	1.270 4	1.265 3	0.005 1	1.234 3	1.224 7	2B	1.244 8	1.258 9	1.271 9	1.278 5	0.006 6	1.312 5
		3A	0.000 0	1.312 5	1.303 1	1.271 9	1.268 1	0.003 8	1.235 8	1.227 5	3B	1.244 8	1.253 3	1.271 9	1.276 9	0.005 0	1.312 5

Table 2 Unified screw threads, standard series – Limits of size (*continued*)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Nominal size and threads per inch	Series designation	External threads									Internal threads						
		Class	Allowance	Major diameter		Effective diameter			Minor diameter		Class	Minor diameter		Effective diameter			Major diameter
				Max.	Min.	Max.	Min.	Tol.	Max.	Min.		Min.	Max.	Tol.	Min.		
																in	in
1 ⁵ / ₁₆ — 18	UNEF	2A	0.001 5	1.311 0	1.302 3	1.274 9	1.270 0	0.004 9	1.242 8	1.233 9	2B	1.252 4	1.265 1	1.276 4	1.282 7	0.006 3	1.312 5
		3A	0.000 0	1.312 5	1.303 8	1.276 4	1.272 8	0.003 6	1.244 3	1.236 7	3B	1.252 4	1.260 5	1.276 4	1.281 1	0.004 7	1.312 5
1 ⁵ / ₁₆ — 20	UN	2A	0.001 4	1.311 1	1.303 0	1.278 6	1.273 9	0.004 7	1.249 8	1.241 5	2B	1.258 4	1.269 9	1.280 0	1.286 1	0.006 1	1.312 5
		3A	0.000 0	1.312 5	1.304 4	1.280 0	1.276 5	0.003 5	1.251 2	1.244 1	3B	1.258 4	1.266 2	1.280 0	1.284 5	0.004 5	1.312 5
1 ⁵ / ₁₆ — 28	UN	2A	0.001 2	1.311 3	1.304 8	1.288 1	1.284 0	0.004 1	1.267 5	1.260 8	2B	1.273 8	1.282 2	1.289 3	1.294 6	0.005 3	1.312 5
		3A	0.000 0	1.312 5	1.306 0	1.289 3	1.286 2	0.003 1	1.268 7	1.263 0	3B	1.273 8	1.280 1	1.289 3	1.293 3	0.004 0	1.312 5
1 ³ / ₈ — 6	UNC	1A	0.002 4	1.372 6	1.345 3	1.264 3	1.252 3	0.012 0	1.168 1	1.144 1	1B	1.194 6	1.225 2	1.266 7	1.282 2	0.015 5	1.375 0
		2A	0.002 4	1.372 6	1.354 4	1.264 3	1.256 3	0.008 0	1.168 1	1.148 1	2B	1.194 6	1.225 2	1.266 7	1.277 1	0.010 4	1.375 0
		3A	0.000 0	1.375 0	1.356 8	1.266 7	1.260 7	0.006 0	1.170 5	1.152 5	3B	1.194 6	1.214 6	1.266 7	1.274 5	0.007 8	1.375 0
1 ³ / ₈ — 8	UN	2A	0.002 2	1.372 8	1.357 8	1.291 6	1.284 4	0.007 2	1.219 4	1.203 2	2B	1.239 7	1.264 7	1.293 8	1.303 1	0.009 3	1.375 0
		3A	0.000 0	1.375 0	1.360 0	1.293 8	1.288 4	0.005 4	1.221 6	1.207 2	3B	1.239 7	1.254 7	1.293 8	1.300 8	0.007 0	1.375 0
1 ³ / ₈ — 12	UNF	1A	0.001 9	1.373 1	1.355 9	1.319 0	1.309 6	0.009 4	1.270 9	1.255 5	1B	1.284 8	1.302 9	1.320 9	1.333 2	0.012 3	1.375 0
		2A	0.001 9	1.373 1	1.361 7	1.319 0	1.312 7	0.006 3	1.270 9	1.258 6	2B	1.284 8	1.302 9	1.320 9	1.329 1	0.008 2	1.375 0
		3A	0.000 0	1.375 0	1.363 6	1.320 9	1.316 2	0.004 7	1.272 8	1.262 1	3B	1.284 8	1.294 8	1.320 9	1.327 0	0.006 1	1.375 0
1 ³ / ₈ — 16	UN	2A	0.001 5	1.373 5	1.364 1	1.332 9	1.327 8	0.005 1	1.296 8	1.287 2	2B	1.307 3	1.321 4	1.334 4	1.341 0	0.006 6	1.375 0
		3A	0.000 0	1.375 0	1.365 6	1.334 4	1.330 6	0.003 8	1.298 3	1.290 0	3B	1.307 3	1.315 8	1.334 4	1.339 4	0.005 0	1.375 0
1 ³ / ₈ — 18	UNEF	2A	0.001 5	1.373 5	1.364 8	1.337 4	1.332 5	0.004 9	1.305 3	1.296 4	2B	1.314 9	1.327 6	1.338 9	1.345 2	0.006 3	1.375 0
		3A	0.000 0	1.375 0	1.366 3	1.338 9	1.335 3	0.003 6	1.306 8	1.299 2	3B	1.314 9	1.323 0	1.338 9	1.343 6	0.004 7	1.375 0
1 ³ / ₈ — 20	UN	2A	0.001 4	1.373 6	1.365 5	1.341 1	1.336 4	0.004 7	1.312 3	1.304 0	2B	1.320 9	1.332 4	1.342 5	1.348 6	0.006 1	1.375 0
		3A	0.000 0	1.375 0	1.366 9	1.342 5	1.339 0	0.003 5	1.313 7	1.306 6	3B	1.320 9	1.328 7	1.342 5	1.347 0	0.004 5	1.375 0
1 ³ / ₈ — 28	UN	2A	0.001 2	1.373 8	1.367 3	1.350 6	1.346 5	0.004 1	1.330 0	1.323 3	2B	1.336 3	1.344 7	1.351 8	1.357 1	0.005 3	1.375 0
		3A	0.000 0	1.375 0	1.368 5	1.351 8	1.348 7	0.003 1	1.331 2	1.325 5	3B	1.336 3	1.342 6	1.351 8	1.355 8	0.004 0	1.375 0
1 ⁷ / ₁₆ — 6	UN	2A	0.002 4	1.435 1	1.416 9	1.326 8	1.318 8	0.008 0	1.230 6	1.210 6	2B	1.257 1	1.287 7	1.329 2	1.339 6	0.010 4	1.437 5
		3A	0.000 0	1.437 5	1.419 3	1.329 2	1.323 2	0.006 0	1.233 0	1.215 0	3B	1.257 1	1.277 1	1.329 2	1.337 0	0.007 8	1.437 5
1 ⁷ / ₁₆ — 8	UN	2A	0.002 2	1.435 3	1.420 3	1.354 1	1.346 9	0.007 2	1.281 9	1.265 7	2B	1.302 2	1.327 2	1.356 3	1.365 7	0.009 4	1.437 5
		3A	0.000 0	1.437 5	1.422 5	1.356 3	1.350 9	0.005 4	1.284 1	1.269 7	3B	1.302 2	1.317 2	1.356 3	1.363 4	0.007 1	1.437 5
1 ⁷ / ₁₆ — 12	UN	2A	0.001 8	1.435 7	1.424 3	1.381 6	1.375 7	0.005 9	1.333 5	1.321 6	2B	1.347 3	1.365 4	1.383 4	1.391 0	0.007 6	1.437 5
		3A	0.000 0	1.437 5	1.426 1	1.383 4	1.379 0	0.004 4	1.335 3	1.324 9	3B	1.347 3	1.357 3	1.383 4	1.389 1	0.005 7	1.437 5