ASME B1.1-2003
[Revision of ASME B1.1-1989 (R2001)]

Unified Inch Screw Threads

(UN and UNR Thread Form)

AN AMERICAN NATIONAL STANDARD

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The 2004 edition of this Standard is being issued with an automatic addenda subscription service. The use of addenda allows revisions made in response to public review comments or committee actions to be published as necessary. This Standard will be revised when the Society approves the issuance of a new edition.

There will be no written interpretations of the requirements of this Standard issued to this edition.

The American Society of Mechanical Engineers
Three Park Avenue, New York, NY 10016-5990

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FOREWORD

This Standard is the outgrowth of and supersedes previous editions that were published as B1-1924, B1.1-1935, B1.1-1949, B1.1-1960, B1.1-1974, B1.1-1982, and B1.1-1989. Throughout such development, special attention has been given to the practical aspects of thread standardization, and many details of the current Standard result from studies and tests based on user problems. For example, there was disclosed the need for free assembly in high-production industries and the desirability of making some provision for threads that require a coating. The tolerance classes 2A/2B were developed to meet these two major requirements as well as to provide a general standard for externally and internally threaded fasteners. Thread symbols and nomenclature were changed to be expressed according to ASME B1.7. Thread acceptability now refers to ASME B1.3.

This issue includes the following changes to ASME B1.1-1989:

(a) The revision of some of the values in Table 2. These revisions are the result of the application of the consistent eight place decimal and rounding rules established in ASME B1.30-1992 that were mandated for use in all new and future revisions of ASME B1 documents. ASME B1.30 was developed under the direction of the B1 Committee as the basis for rounding of decimal values associated with the computation of screw thread dimensions. Using the thread calculation formulas in paras. 5 and 8 of this document and following the rounding rules of B1.30 all parties using a calculator or standard computer spreadsheet program will derive precisely the same values.

Table E-1 of Nonmandatory Appendix E identifies the thread sizes in Table 2 that have been revised and lists the dimensions from the ASME B1.1-1989 standard. The majority of the dimensional changes are within ± 0.0001 in.

Paragraph 8.2.1 states that both the values in Tables 2 and E-1 should be considered acceptable until a future revision of this standard makes the values in Table 2 the only acceptable values.

(b) Former Table 3B has been moved to Nonmandatory Appendix D. This table provides calculated values for various UNS (Unified Specials). ASME B1 strongly urges the adoption of the standard thread sizes in Table 2 whenever possible instead of those listed in Table D-1.

(c) Former Tables 20 through 30 have been eliminated because the allowances and tolerances contained in them was determined to be redundant with data provided in Table 2.

(d) Former Tables 31 through 40 have been moved to Nonmandatory Appendix D and were renamed Tables D-2 through D-11. These tables were used in the past for the quick calculation of special threads. In some cases the derived values resulted in values that differ from those derived by use of the formulas in paras. 5 and 8 of ASME B1.1. All future special threads should be based on calculations in paras. 5 and 8 in this document using the rounding rules in ASME B1.30 to ensure uniformity and consistency.

(e) All references to percent of thread engagement have been eliminated from this document. Past changes in the thread form designation of the "basic" thread height from $0.750H$ to $0.625H$ confused the calculation of percent of thread engagement. This calculation has been used in the past for threaded products users to determine drill size selection. It is now recommended that users select a drill size that will result in a hole size that lies between the maximum and minimum size of the internal thread's minor diameter shown in the tables included in this Standard.

(f) The definition of "functional diameter" has been included in this document and the term has been added in Table 2 in the same column as "pitch diameter" since both characteristics have the same limits of size.

(g) The effects of coating on threads have been explained in more depth in para. 7.

The Unified Screw Threads Standard is an integrated system of threads for fastening purposes in mechanisms and structures. Its outstanding characteristic is general interchangeability of threads, achieved through the standardization of thread form, diameter-pitch combinations, and limits of size.

The Standard has as its original basis the work done more than a century ago by William Sellers in the United States and Sir Joseph Whitworth in Great Britain. Throughout the intervening

years there have been many further developments and revisions, culminating in the system of Unified Threads approved and adopted for use by all inch-using countries.

The achievements represented by ASME B1.1 in development, standardization, and unification are the result of cooperation and coordination of many organizations, including The American Society of Mechanical Engineers, Society of Automotive Engineers, National Institute of Science and Technology (formerly National Bureau of Standards), Committee B1, the former National Screw Thread Commission, the former Interdepartmental Screw Thread Committee, British Standards Institution, Canadian Standards Association, and American National Standards Institute.

Unification of screw thread standards received its impetus from the need for interchangeability among the billions of fasteners used in the complex equipment of modern technology and made in different countries. Equally important, however, are international trade in mechanisms of all kinds and the servicing of transportation equipment which moves from country to country. These have made unification not only highly advantageous, but practically essential. In sizes $\frac{1}{4}$ in. and larger, complete unification of certain thread series and six tolerance classes was signaled by the signing of an accord on November 18, 1948. Since that time, further unification has been extended into smaller sizes. Working through Technical Committee No. 1 of the International Organization for Standardization (ISO), the unified standard was adopted as an ISO inch screw thread standard, ISO 5864, parallel to the ISO metric screw thread system. Both systems have a common basic profile. The standard was subject to Quadripartite Standardization Agreement (QSTAG) 247, in the ABCA Army Standardization Program of America, Britain, Canada, and Australia.

Suggestions for improvement of this Standard will be welcomed. They should be sent to the American Society of Mechanical Engineers at ASME International, Three Park Avenue, New York, NY 10016-5990, U.S.A.

ASME B1.1-2003 was approved by the American National Standards Institute (ANSI) on March 27, 2003.

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Standardization and Unification of Screw Threads

(The following is the roster of the Committee at the time of approval of this Standard.)

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UNIFIED INCH SCREW THREADS

(UN AND UNR THREAD FORM)

1 GENERAL

1.1 Scope

This Standard specifies the thread form, series, class, allowance, tolerance, and designation for unified screw threads. (In order to emphasize that unified screw threads are based on inch modules, they may be denoted unified inch screw threads.) Several variations in thread form have been developed for unified threads; however, this Standard covers only UN and UNR thread forms.

For easy reference, a metric translation of this Standard has been incorporated as Nonmandatory Appendix C. Nonmandatory Appendices A through E contain useful information that is supplementary to the sections of this Standard.

1.2 Unified Screw Thread Standards

The standards for unified screw threads published in this Standard are in agreement with formal standards of the International Organization for Standardization for diameter-pitch combinations, designations, and tolerances for 60 deg triangular form inch screw threads. Unified screw threads had their origin in an accord signed in Washington, D.C., on November 18, 1948, by representatives of standardizing bodies of Canada, the United Kingdom, and the United States, and have subsequently superseded American National screw threads.

1.3 UN and UNR Screw Threads

UNR applies only to external threads; the difference between UN and UNR threads, in addition to designation, is that a flat or optional rounded root contour is specified for UN threads, while only a rounded root contour is specified for UNR threads.

1.4 Interchangeability

Unified (UN/UNR) and its predecessor, American National screw threads, have substantially the same thread form, and threads of both standards having the same diameter and pitch are mechanically interchangeable. The principal differences between these standards relate to the application of allowances, the variation of tolerances with size, differences in the amounts of pitch diameter tolerances for external and internal threads, and differences in thread designations. Unified inch and ISO metric screw threads are not mechanically interchangeable.

1.5 Designations

Unified thread sizes (specific combinations of diameter and pitch) are identified by the letter combination "UN" in the thread symbol. In the unified standards, the pitch diameter tolerances for external threads differ from those for internal threads; for this reason the letter "A" is used in the thread symbol to denote an external thread and the letter "B," an internal thread. Where the letters "U," "A," or "B" do not appear in the thread designation, the threads conform to the outdated American National screw threads. Details regarding thread designations are given in para. 6.

1.6 Reference Documents

The latest issues of the following documents form a part of this Standard to the extent specified herein.

When the following American National Standards referred to in this Standard are superseded by a revision approved by the American National Standards Institute, Inc., the revision should apply.

ASME B1.2, Gages and Gaging for Unified Inch Screw Threads

ASME B1.3, Screw Thread Gaging Systems for Dimensional Acceptability — Inch and Metric Screw Threads

ASME B1.7, Nomenclature, Definitions, and Letter Symbols for Screw Threads

ASME B1.30, Screw Threads — Standard Practices for Calculating and Rounding Dimensions

ASME B47.1, Gage Blanks

ASME B94.11, Twist Drills

ASME Y14.5, Dimensioning and Tolerancing

Publisher: The American Society of Mechanical Engineers (ASME International), Three Park Avenue, New York, NY 10016-5990; Order Department: 22 Law Drive, Box 2300, Fairfield, NJ 07007-2300

ISO 68, General Purpose Screw Threads — Basic Profile

Publisher: International Organization for Standardization (ISO), 1 rue de Varembé, Case Postale 56, CH-1211, Genève 20, Switzerland/Suisse

1.7 Acceptability

Acceptability of product threads shall be in accordance with ASME B1.3. Gages and gaging shall be in accordance with ASME B1.2.

1.8 Reference Temperature

The reference temperature is 68°F for dimensions defined by this system.

1.9 Units of Measure

All dimensions in this Standard, including all tables, are in inches unless otherwise specified.

1.10 Federal Government Use

When this Standard is approved by the Department of Defense and federal agencies and is incorporated into FED-STD-H28/2, Screw-Thread Standards for Federal Services, para. 2, the use of this Standard by the federal government will be subject to all the requirements and limitations of FED-STD-H28/2.

2 SCREW THREAD PROFILE

2.1 Scope

The basic profile and design profiles are defined in this paragraph and are the basis of all thread dimensions given in this Standard.

2.2 Basic Profile

The basic profile for UN screw threads is identical to that for UNR screw threads and is shown in Fig. 1. Profile applies to an axial plane.

For reference, the basic profile for UN and UNR screw threads is identical to that for ISO metric screw threads shown in ISO 68.

2.3 Design Profiles

The design profiles define the maximum-material conditions for external and internal threads with no allowance and are derived from the basic profile. The design profiles of both external and internal screw threads vary from the basic profile.

2.3.1 Design Profiles of External Threads. The design profiles of external UN and UNR screw threads are included in Figs. 2 and 3. A flat root contour is specified for UN threads; however, it is permissible to provide for some threading tool crest wear. Therefore, a rounded root contour cleared beyond the 0.250P flat width of the basic profile is optional. The rounded root also reduces the rate of threading tool crest wear and improves fatigue strength over that of a flat root thread.

(a) The root contour of external UNR screw threads shown in Figs. 2 and 3 shall have a smooth, continuous, nonreversing contour with a radius of curvature not less than 0.10825318P at any point and shall blend tangentially into the flanks and any straight segment. At the maximum-material condition, the point of tangency shall be at a distance not less than 0.54126588P (0.625H) below the basic major diameter.

NOTE: The maximum full root radius is 0.14433757P, but this may be exceeded when the root contour consists of a combination of flats and radii.

(b) The design profiles of external UN and UNR screw threads have flat crests. However, in practice, product thread crests may be flat, or partially corner rounded. A rounded crest tangent at a 0.125P flat is shown as an option in Figs. 2 and 3.

2.3.2 Design Profile of Internal Threads. The design profile of the internal UN screw thread is included in Figs. 2 and 3 (there is no internal UNR screw thread). In practice, it is necessary to provide for some threading tool crest wear; therefore, the root of the design profile is rounded and cleared beyond the 0.125P flat width of the basic profile.

2.4 Formulas and Symbols

The formulas and symbols pertaining to the basic profile and the design profiles are given in para. 10.

3 SCREW THREAD SERIES

3.1 Thread Series Definition

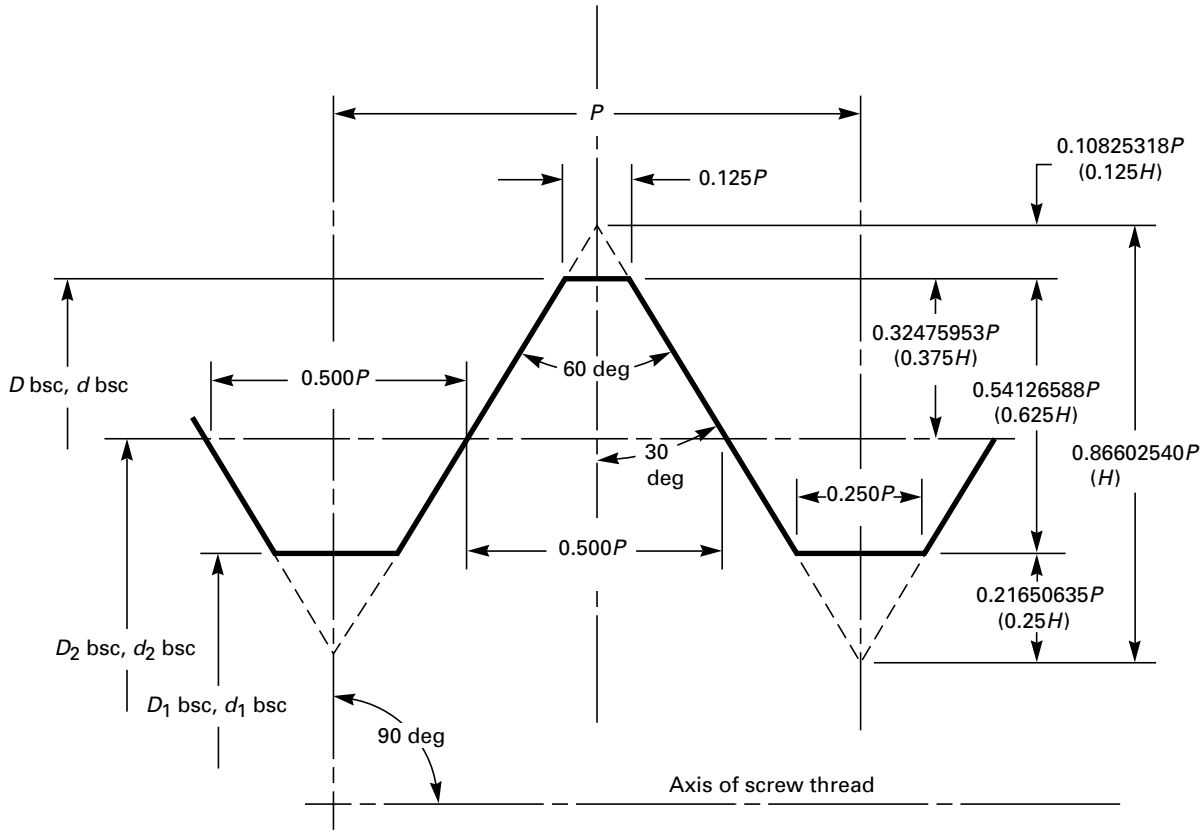
Thread series are groups of diameter-pitch combinations distinguished from each other by the number of threads per inch applied to a series of specific diameters. There are two general series classifications: standard and special.

3.1.1 Standard Series. The standard series consists of three series with graded pitches (coarse, fine, and extra fine) and eight series with constant pitches (4, 6, 8, 12, 16, 20, 28, and 32 threads per inch). The standard series is shown in Table 1. Limits of size are shown in Table 2. See para. 8 for limits of size.

3.1.2 Special Series. The special series consists of all threads with diameter-pitch combinations that are not included in the standard series. When allowances and tolerances of special series threads are derived from unified formulation as shown in para. 5, the threads are designated UNS or UNRS. If allowance and tolerance are not derived from unified formulation, the threads are designated "SPL 60 degree Form." See para. 6 for details of designation.

3.2 Order of Selection

Wherever possible, selection should be made from Table 2, Standard Series — Unified Screw Threads, preference being given to the coarse- and fine-thread series. Second choice; if the threads in the standard series in Table 2 do not meet the requirements of the design,



GENERAL NOTE: For standardization, values have been established based on a function of pitch, *P*. The thread values based on a function of height, *H*, are used for reference only.

Fig. 1 Basic Profile for UN and UNR Screw Threads

special thread sizes should be selected from Table E-1 of Nonmandatory Appendix E and their limits calculated using the formulas in para. 8. The limits in Table D-1 of Nonmandatory Appendix D are for reference only and are not recommended for new applications.

3.3 Coarse-Thread Series Applications

The coarse-thread series (UNC/UNRC) is generally used for the bulk production of screws, bolts, and nuts. It is commonly used in relatively low-strength materials such as cast iron, aluminum, magnesium, brass, bronze, and plastic, because the coarse-thread series provide more resistance to internal thread stripping than the fine or extra-fine series. Coarse-thread series are advantageous where rapid assembly or disassembly is required, or if corrosion or damage from nicks due to handling or use is likely.

3.4 Fine-Thread Series Applications

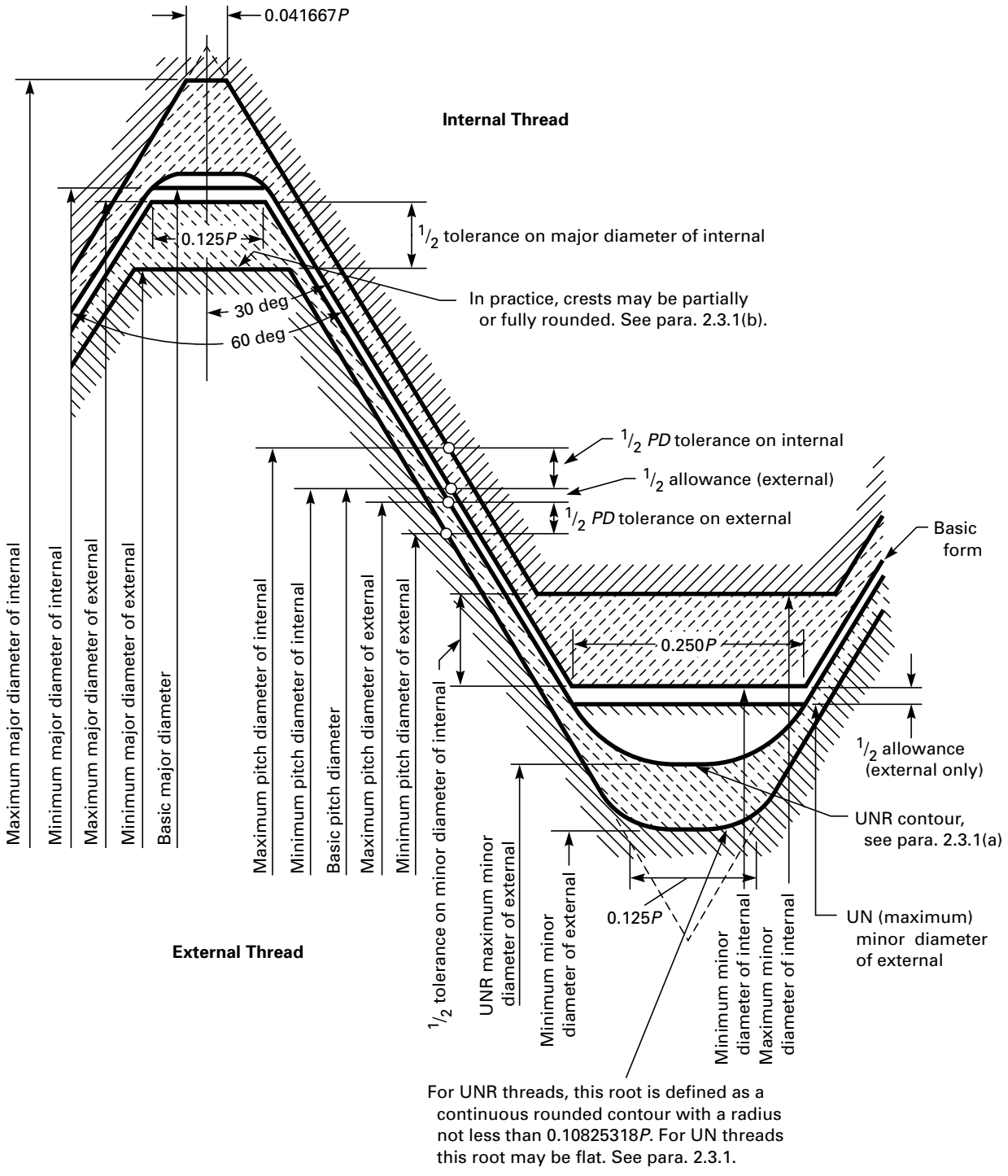
The fine-thread series (UNF/UNRF) is commonly used for bolts and nuts in high-strength applications. This series has less thread depth and a larger minor diameter than coarse-thread series. Consequently, thinner walls are permitted for internal threads and more strength is available to external threads than for coarse-thread series of the same nominal size. In order to prevent internal thread stripping, a longer length of engagement is required for fine-thread series than for coarse-thread series for thread materials of the same strength levels. However, for both fine- and coarse-thread series, length of engagement in tapped holes must be selected to meet strength requirements. This also allows for finer adjustment in cases such as a slotted nut and cotter pin assembly.

3.5 Extra-Fine-Thread Series Applications

The extra-fine-thread series (UNEF/UNREF) is used particularly for equipment and threaded parts that require fine adjustment, such as bearing retaining nuts, adjusting screws, etc., and for thin-wall tubing and thin nuts.

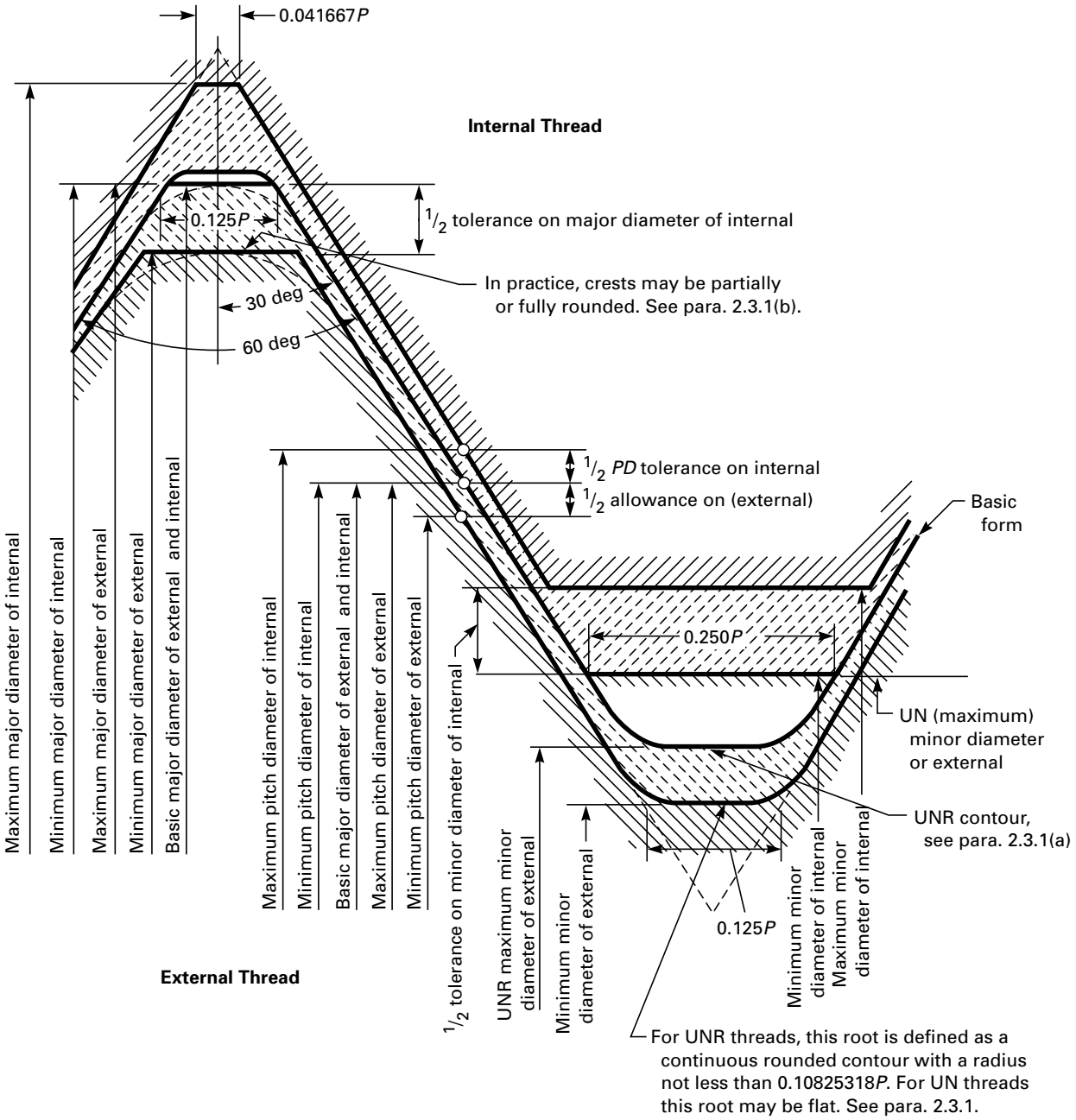
3.6 Constant-Pitch Thread Series Applications

The various constant-pitch series (UN/UNR) with 4, 6, 8, 12, 16, 20, 28, and 32 threads per inch, given in



GENERAL NOTE: Lead and angle tolerances are defined in para. 9.

Fig. 2 Disposition of Diametral Tolerances, Allowance, and Crest Clearance for Unified Inch Screw Thread Classes 1A, 2A, 1B, and 2B



GENERAL NOTE: Lead and angle tolerances are defined in para. 9.

Fig. 3 Disposition of Diametral Tolerances and Crest Clearances for Unified Inch Screw Thread Classes 3A and 3B

Table 1 Standard Series Threads (UN/UNR)

Nominal Size, in.		Basic Major Diameter	Threads/in.											
			Series With Graded Pitches			Series With Constant Pitches								
Primary	Secondary		Course UNC	Fine UNF	Extra Fine UNEF	4-UN	6-UN	8-UN	12-UN	16-UN	20-UN	28-UN	32-UN	Nominal Size, in.
0	...	0.0600	...	80	...	...	...	...	...	...	...	...	...	0
...	1	0.0730	64	72	...	...	...	...	...	...	...	...	...	1
2	...	0.0860	56	64	...	...	...	...	...	...	...	...	...	2
...	3	0.0990	48	56	...	...	...	...	...	...	...	...	...	3
4	...	0.1120	40	48	...	...	...	...	...	...	...	...	...	4
5	...	0.1250	40	44	...	...	...	...	...	...	...	...	...	5
6	...	0.1380	32	40	...	...	...	...	...	...	...	...	UNC	6
8	...	0.1640	32	36	...	...	...	...	...	...	...	...	UNC	8
10	...	0.1900	24	32	...	...	...	...	...	...	...	...	UNF	10
...	12	0.2160	24	28	32	...	...	...	...	...	...	UNF	UNEF	12
1/4	...	0.2500	20	28	32	...	...	...	...	...	UNC	UNF	UNEF	1/4
5/16	...	0.3125	18	24	32	...	...	...	...	...	20	28	UNEF	5/16
3/8	...	0.3750	16	24	32	...	...	...	...	UNC	20	28	UNEF	3/8
7/16	...	0.4375	14	20	28	...	...	...	...	16	UNF	UNEF	32	7/16
1/2	...	0.5000	13	20	28	...	...	...	...	16	UNF	UNEF	32	1/2
9/16	...	0.5625	12	l8	24	...	...	...	UNC	16	20	28	32	9/16
5/8	...	0.6250	11	18	24	...	...	...	12	16	20	28	32	5/8
...	11/16	0.6875	...	...	24	...	...	...	12	16	20	28	32	11/16
3/4	...	0.7500	10	16	20	...	...	...	12	UNF	UNEF	28	32	3/4
...	13/16	0.8125	...	...	20	...	...	...	12	16	UNEF	28	32	13/16
7/8	...	0.8750	9	14	20	...	...	...	12	16	UNEF	28	32	7/8
...	15/16	0.9375	...	...	20	...	...	...	12	16	UNEF	28	32	15/16
1	...	1.0000	8	12	20	...	...	UNC	UNF	16	UNEF	28	32	1
...	1 1/16	1.0625	...	...	18	...	...	8	12	16	20	28	...	1 1/16
1 1/8	...	1.1250	7	12	18	...	...	8	UNF	16	20	28	...	1 1/8
...	1 3/16	1.1875	...	...	18	...	...	8	12	16	20	28	...	1 3/16
1 1/4	...	1.2500	7	12	18	...	...	8	UNF	16	20	28	...	1 1/4
...	1 5/16	1.3125	...	...	18	...	...	8	12	16	20	28	...	1 5/16
1 3/8	...	1.3750	6	12	18	...	UNC	8	UNF	16	20	28	...	1 3/8
...	1 7/16	1.4375	...	...	18	...	6	8	12	16	20	28	...	1 7/16
1 1/2	...	1.5000	6	12	18	...	UNC	8	UNF	16	20	28	. ..	1 1/2
...	1 9/16	1.5625	...	...	18	...	6	8	12	16	20	...	...	1 9/16
1 5/8	...	1.6250	...	...	18	...	6	8	12	16	20	...	...	1 5/8
...	1 11/16	1.6875	...	...	18	...	6	8	12	16	20	...	...	1 11/16
1 3/4	...	1.7500	5	...	...	...	6	8	12	16	20	...	...	1 3/4
...	1 13/16	1.8125	...	...	...	...	6	8	12	16	20	...	...	1 13/16
1 7/8	...	1.8750	...	...	...	...	6	8	12	16	20	...	...	1 7/8
...	1 15/16	1.9375	...	...	...	...	6	8	12	16	20	...	...	1 15/16
2	...	2.0000	4 1/2	...	...	...	6	8	12	16	20	...	...	2
...	2 1/8	2.1250	...	...	...	...	6	8	12	16	20	...	...	2 1/8
2 1/4	...	2.2500	4 1/2	...	...	...	6	8	12	16	20	...	...	2 1/4
...	2 3/8	2.3750	...	...	...	...	6	8	12	16	20	...	...	2 3/8
2 1/2	...	2.5000	4	...	...	UNC	6	8	12	16	20	...	...	2 1/2
...	2 5/8	2.6250	...	...	...	4	6	8	12	16	20	...	...	2 5/8
2 3/4	...	2.7500	4	...	...	UNC	6	8	12	16	20	...	...	2 3/4
...	2 7/8	2.8750	...	...	...	4	6	8	12	16	20	...	...	2 7/8

Table 1 Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size, in.		Basic Major	Threads/in.											Nominal
			Series With Graded Pitches			Series With Constant Pitches								
Primary	Secondary	Diameter	Course UNC	Fine UNF	Extra Fine UNEF	4-UN	6-UN	8-UN	12-UN	16-UN	20-UN	28-UN	32-UN	Size, in.
3	...	3.0000	4	...	...	UNC	6	8	12	16	20	...	...	3
...	3 1/8	3.1250	...	...	...	4	6	8	12	16	...	...	...	3 1/8
3 1/4	...	3.2500	4	...	...	UNC	6	8	12	16	...	...	...	3 1/4
...	3 3/8	3.3750	...	...	...	4	6	8	12	16	...	...	...	3 3/8
3 1/2	...	3.5000	4	...	...	UNC	6	8	12	16	...	...	...	3 1/2
...	3 5/8	3.6250	...	...	...	4	6	8	12	16	...	...	...	3 5/8
3 3/4	...	3.7500	4	...	...	UNC	6	8	12	16	...	...	...	3 3/4
...	3 7/8	3.8750	...	...	...	4	6	8	12	16	...	...	...	3 7/8
4	...	4.0000	4	...	...	UNC	6	8	12	1.6	...	...	...	4
...	4 1/8	4.1250	...	...	...	4	6	8	12	16	...	...	...	4 1/8
4 1/4	...	4.2500	...	...	...	4	6	8	12	16	...	...	...	4 1/4
...	4 3/8	4.3750	...	...	...	4	6	8	12	16	...	...	...	4 3/8
4 1/2	...	4.5000	...	...	...	4	6	8	12	16	...	...	...	4 1/2
...	4 5/8	4.6250	...	...	...	4	6	8	12	16	..	...	...	4 5/8
4 3/4	...	4.7500	...	...	...	4	6	8	12	16	...	...	...	4 3/4
...	4 7/8	4.8750	...	...	...	4	6	8	12	16	...	...	...	4 7/8
5	...	5.0000	...	...	...	4	6	8	12	16	...	...	...	5
...	5 1/8	5.1250	...	...	...	4	6	8	12	16	...	...	...	5 1/8
5 1/4	...	5.2500	...	...	...	4	6	8	12	16	...	...	...	5 1/4
...	5 3/8	5.3750	...	...	...	4	6	8	12	16	...	...	...	5 3/8
5 1/2	...	5.5000	...	...	...	4	6	8	12	16	...	...	...	5 1/2
...	5 5/8	5.6250	...	...	...	4	6	8	12	16	...	...	...	5 5/8
5 3/4	...	5.7500	...	...	...	4	6	8	12	16	...	...	...	5 3/4
...	5 7/8	5.8750	...	...	...	4	6	8	12	16	...	...	...	5 7/8
6	...	6.0000	...	...	...	4	6	8	12	16	...	...	...	6

GENERAL NOTE: Series designation shown indicates the UN thread form; however, the UNR thread form may be specified by substituting UNR in place of UN in all designations for external use only.

Table 1, offer a comprehensive range of diameter-pitch combinations for those purposes where the threads in the coarse-, fine-, and extra-fine-thread series do not meet the particular requirements of the design. The primary sizes of the 8-UN, 12-UN, and 16-UN series shown in Table 1 are the most commonly used.

Whenever a thread in a constant-pitch series also appears in the UNC, UNF, or UNEF series, the symbols and tolerances for limits of size of those standard series are applicable.

3.6.1 8-Thread Series. The 8-thread series (8-UN) is a uniform-pitch series for large diameters or as a compromise between coarse and fine thread series. Although originally intended for high-pressure-joint bolts and nuts, it is now widely used as a substitute for the coarse thread series for diameters larger than 1 in.

3.6.2 12-Thread Series. The 12-thread series (12-UN) is a uniform-pitch series for large diameters requiring threads of medium-fine pitch. Although originally intended for boiler practice, it is now used as a continuation of the fine thread series for diameters larger than $1\frac{1}{2}$ in.

3.6.3 16-Thread Series. The 16-thread series (16-UN) is a uniform-pitch series for large diameters requiring fine-pitch threads. It is suitable for adjusting collars and retaining nuts and also serves as a continuation of the extra-fine thread series for diameters larger than $1\frac{11}{16}$ in.

3.7 Fine Threads for Thin-Wall Tubing

The limits of size for a 28-thread series, ranging from 0.216 in. to 1.5 in. nominal size, are included in Table 2. These threads are recommended for general use on thin-wall tubing. The 27-thread series is no longer standard but is included in Table D-1 of Nonmandatory Appendix D.

Table 2 Limits of Size for Standard Series Threads (UN/UNR)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
0–80 or 0.060–80	UNF	2A	0.0005	0.0595	0.0563	...	0.0514	0.0496	0.001762	0.0446	2B	0.0465	0.0514	0.0519	0.0542	0.0023	0.0600
		3A	0.0000	0.0600	0.0568	...	0.0519	0.0506	0.001300	0.0451	3B	0.0465	0.0514	0.0519	0.0536	0.0017	0.0600
(7) 1–64 or 0.073–64	UNC	2A	0.0006	0.0724	0.0686	...	0.0623	0.0603	0.001970	0.0538	2B	0.0561	0.0622	0.0629	0.0655	0.0026	0.0730
(7)		3A	0.0000	0.0730	0.0692	...	0.0629	0.0614	0.001500	0.0544	3B	0.0561	0.0622	0.0629	0.0648	0.0019	0.0730
(7) 1–72 or 0.073–72	UNF	2A	0.0006	0.0724	0.0689	...	0.0634	0.0615	0.001899	0.0559	2B	0.058	0.0634	0.0640	0.0665	0.0025	0.0730
(7)		3A	0.0000	0.0730	0.0695	...	0.0640	0.0626	0.001400	0.0565	3B	0.0580	0.0634	0.0640	0.0659	0.0019	0.0730
2–56 or 0.086–56	UNC	2A	0.0006	0.0854	0.0813	...	0.0738	0.0717	0.002127	0.0641	2B	0.0667	0.0737	0.0744	0.0772	0.0028	0.0860
		3A	0.0000	0.0860	0.0819	...	0.0744	0.0728	0.001600	0.0647	3B	0.0667	0.0737	0.0744	0.0765	0.0021	0.0860
(7) 2–64 or 0.086–64	UNF	2A	0.0006	0.0854	0.0816	...	0.0753	0.0733	0.002040	0.0668	2B	0.0691	0.0752	0.0759	0.0786	0.0027	0.0860
(7)		3A	0.0000	0.0860	0.0822	...	0.0759	0.0744	0.001500	0.0674	3B	0.0691	0.0752	0.0759	0.0779	0.0020	0.0860
3–48 or 0.099–48	UNC	2A	0.0007	0.0983	0.0938	...	0.0848	0.0825	0.002302	0.0735	2B	0.0764	0.0845	0.0855	0.0885	0.0030	0.0990
		3A	0.0000	0.0990	0.0945	...	0.0855	0.0838	0.001700	0.0742	3B	0.0764	0.0845	0.0855	0.0877	0.0022	0.0990
3–56 or 0.099–56	UNF	2A	0.0007	0.0983	0.0942	...	0.0867	0.0845	0.002191	0.0770	2B	0.0797	0.0865	0.0874	0.0902	0.0028	0.0990
		3A	0.0000	0.0990	0.0949	...	0.0874	0.0858	0.001600	0.0777	3B	0.0797	0.0865	0.0874	0.0895	0.0021	0.0990
4–40 or 0.112–40	UNC	2A	0.0008	0.1112	0.1061	...	0.0950	0.0925	0.002507	0.0814	2B	0.0849	0.0939	0.0958	0.0991	0.0033	0.1120
		3A	0.0000	0.1120	0.1069	...	0.0958	0.0939	0.001900	0.0822	3B	0.0849	0.0939	0.0958	0.0982	0.0024	0.1120
4–48 or 0.112–48	UNF	2A	0.0007	0.1113	0.1068	...	0.0978	0.0954	0.002361	0.0865	2B	0.0894	0.0968	0.0985	0.1016	0.0031	0.1120
		3A	0.0000	0.1120	0.1075	...	0.0985	0.0967	0.001800	0.0872	3B	0.0894	0.0968	0.0985	0.1008	0.0023	0.1120
5–40 or 0.125–40	UNC	2A	0.0008	0.1242	0.1191	...	0.1080	0.1054	0.002562	0.0944	2B	0.0979	0.1062	0.1088	0.1121	0.0033	0.1250
		3A	0.0000	0.1250	0.1199	...	0.1088	0.1069	0.001900	0.0952	3B	0.0979	0.1062	0.1088	0.1113	0.0025	0.1250
5–44 or 0.125–44	UNF	2A	0.0007	0.1243	0.1195	...	0.1095	0.1070	0.002484	0.0972	2B	0.1004	0.1079	0.1102	0.1134	0.0032	0.1250
		3A	0.0000	0.1250	0.1202	...	0.1102	0.1083	0.001900	0.0979	3B	0.1004	0.1079	0.1102	0.1126	0.0024	0.1250
6–32 or 0.138–32	UNC	2A	0.0008	0.1372	0.1312	...	0.1169	0.1141	0.002820	0.1000	2B	0.104	0.114	0.1177	0.1214	0.0037	0.1380
(7)		3A	0.0000	0.1380	0.1320	...	0.1177	0.1156	0.002100	0.1008	3B	0.1040	0.1139	0.1177	0.1204	0.0027	0.1380
6–40 or 0.138–40	UNF	2A	0.0008	0.1372	0.1321	...	0.1210	0.1184	0.002614	0.1074	2B	0.111	0.119	0.1218	0.1252	0.0034	0.1380
		3A	0.0000	0.1380	0.1329	...	0.1218	0.1198	0.002000	0.1082	3B	0.1110	0.1186	0.1218	0.1243	0.0025	0.1380

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
8 – 32 or 0.164 – 32	UNC	2A	0.0009	0.1631	0.1571	...	0.1428	0.1399	0.002916	0.1259	2B	0.130	0.139	0.1437	0.1475	0.0038	0.1640
(7)		3A	0.0000	0.1640	0.1580	...	0.1437	0.1415	0.002200	0.1268	3B	0.1300	0.1388	0.1437	0.1465	0.0028	0.1640
8 – 36 or 0.164 – 36	UNF	2A	0.0008	0.1632	0.1577	...	0.1452	0.1424	0.002804	0.1301	2B	0.134	0.142	0.1460	0.1496	0.0036	0.1640
		3A	0.0000	0.1640	0.1585	...	0.1460	0.1439	0.002100	0.1309	3B	0.1340	0.1416	0.1460	0.1487	0.0027	0.1640
(7) 10 – 24 or 0.190 – 24	UNC	2A	0.0010	0.1890	0.1818	...	0.1619	0.1586	0.003319	0.1394	2B	0.145	0.155	0.1629	0.1672	0.0043	0.1900
		3A	0.0000	0.1900	0.1828	...	0.1629	0.1604	0.002500	0.1404	3B	0.1450	0.1555	0.1629	0.1661	0.0032	0.1900
10 – 32 or 0.190 – 32	UNF	2A	0.0009	0.1891	0.1831	...	0.1688	0.1658	0.003004	0.1519	2B	0.156	0.164	0.1697	0.1736	0.0039	0.1900
		3A	0.0000	0.1900	0.1840	...	0.1697	0.1674	0.002300	0.1528	3B	0.1560	0.1641	0.1697	0.1726	0.0029	0.1900
12 – 24 or 0.216 – 24	UNC	2A	0.0010	0.2150	0.2078	...	0.1879	0.1845	0.003400	0.1654	2B	0.171	0.181	0.1889	0.1933	0.0044	0.2160
		3A	0.0000	0.2160	0.2088	...	0.1889	0.1863	0.002600	0.1664	3B	0.1710	0.1807	0.1889	0.1922	0.0033	0.2160
12 – 28 or 0.216 – 28	UNF	2A	0.0010	0.2150	0.2085	...	0.1918	0.1886	0.003224	0.1725	2B	0.177	0.186	0.1928	0.1970	0.0042	0.2160
		3A	0.0000	0.2160	0.2095	...	0.1928	0.1904	0.002400	0.1735	3B	0.1770	0.1857	0.1928	0.1959	0.0031	0.2160
(7) 12 – 32 or 0.216 – 32	UNEF	2A	0.0010	0.2150	0.2090	...	0.1947	0.1915	0.003184	0.1778	2B	0.182	0.190	0.1957	0.1998	0.0041	0.2160
		3A	0.0000	0.2160	0.2100	...	0.1957	0.1933	0.002400	0.1788	3B	0.1820	0.1895	0.1957	0.1988	0.0031	0.2160
1/4 – 20 or 0.2500 – 20	UNC	1A	0.0011	0.2489	0.2367	...	0.2164	0.2108	0.005600	0.1894	1B	0.196	0.207	0.2175	0.2248	0.0073	0.2500
		2A	0.0011	0.2489	0.2408	0.2367	0.2164	0.2127	0.003731	0.1894	2B	0.196	0.207	0.2175	0.2224	0.0049	0.2500
		3A	0.0000	0.2500	0.2419	...	0.2175	0.2147	0.002800	0.1905	3B	0.1960	0.2067	0.2175	0.2211	0.0036	0.2500
1/4 – 28 or 0.2500 – 28	UNF	1A	0.0010	0.2490	0.2392	...	0.2258	0.2208	0.005000	0.2065	1B	0.211	0.22	0.2268	0.2333	0.0065	0.2500
		2A	0.0010	0.2490	0.2425	...	0.2258	0.2225	0.003322	0.2065	2B	0.211	0.220	0.2268	0.2311	0.0043	0.2500
		3A	0.0000	0.2500	0.2435	...	0.2268	0.2243	0.002500	0.2075	3B	0.2110	0.2190	0.2268	0.2300	0.0032	0.2500
1/4 – 32 or 0.2500 – 32	UNEF	2A	0.0010	0.2490	0.2430	...	0.2287	0.2255	0.003229	0.2118	2B	0.216	0.224	0.2297	0.2339	0.0042	0.2500
		3A	0.0000	0.2500	0.2440	...	0.2297	0.2273	0.002400	0.2128	3B	0.2160	0.2229	0.2297	0.2328	0.0031	0.2500
5/16 – 18 or 0.3125 – 18	UNC	1A	0.0012	0.3113	0.2982	...	0.2752	0.2691	0.006100	0.2451	1B	0.252	0.265	0.2764	0.2843	0.0079	0.3125
		2A	0.0012	0.3113	0.3026	0.2982	0.2752	0.2712	0.004041	0.2451	2B	0.252	0.265	0.2764	0.2817	0.0053	0.3125
		3A	0.0000	0.3125	0.3038	...	0.2764	0.2734	0.003000	0.2463	3B	0.2520	0.2630	0.2764	0.2803	0.0039	0.3125
(7) 5/16 – 20 or 0.3125 – 20	UN	2A	0.0012	0.3113	0.3032	...	0.2788	0.2747	0.004060	0.2518	2B	0.258	0.270	0.2800	0.2853	0.0053	0.3125
(7)		3A	0.0000	0.3125	0.3044	...	0.2800	0.2770	0.003000	0.2530	3B	0.2580	0.2680	0.2800	0.2840	0.0040	0.3125

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
5/16 – 24 or 0.3125 – 24	UNF	1A	0.0011	0.3114	0.3006	...	0.2843	0.2788	0.005500	0.2618	1B	0.267	0.277	0.2854	0.2925	0.0071	0.3125
		2A	0.0011	0.3114	0.3042	...	0.2843	0.2806	0.003660	0.2618	2B	0.267	0.277	0.2854	0.2902	0.0048	0.3125
		3A	0.0000	0.3125	0.3053	...	0.2854	0.2827	0.002700	0.2629	3B	0.2670	0.2754	0.2854	0.2890	0.0036	0.3125
(7) 5/16 – 28 or 0.3125 – 28	UN	2A	0.0010	0.3115	0.3050	...	0.2883	0.2848	0.003495	0.2690	2B	0.274	0.282	0.2893	0.2938	0.0045	0.3125
(7)		3A	0.0000	0.3125	0.3060	...	0.2893	0.2867	0.002600	0.2700	3B	0.2740	0.2807	0.2893	0.2927	0.0034	0.3125
(7) 5/16 – 32 or 0.3125 – 32	UNEF	2A	0.0010	0.3115	0.3055	...	0.2912	0.2879	0.003302	0.2743	2B	0.279	0.286	0.2922	0.2965	0.0043	0.3125
(7)		3A	0.0000	0.3125	0.3065	...	0.2922	0.2897	0.002500	0.2753	3B	0.2790	0.2846	0.2922	0.2954	0.0032	0.3125
3/8 – 16 or 0.3750 – 16	UNC	1A	0.0013	0.3737	0.3595	...	0.3331	0.3266	0.006500	0.2993	1B	0.307	0.321	0.3344	0.3429	0.0085	0.3750
		2A	0.0013	0.3737	0.3643	0.3595	0.3331	0.3287	0.004363	0.2993	2B	0.307	0.321	0.3344	0.3401	0.0057	0.3750
		3A	0.0000	0.3750	0.3656	...	0.3344	0.3311	0.003300	0.3006	3B	0.3070	0.3182	0.3344	0.3387	0.0043	0.3750
3/8 – 20 or 0.3750 – 20	UN	2A	0.0012	0.3738	0.3657	...	0.3413	0.3372	0.004124	0.3143	2B	0.321	0.332	0.3425	0.3479	0.0054	0.3750
		3A	0.0000	0.3750	0.3669	...	0.3425	0.3394	0.003100	0.3155	3B	0.3210	0.3297	0.3425	0.3465	0.0040	0.3750
3/8 – 24 or 0.3750 – 24	UNF	1A	0.0011	0.3739	0.3631	...	0.3468	0.3411	0.005700	0.3243	1B	0.33	0.34	0.3479	0.3553	0.0074	0.3750
		2A	0.0011	0.3739	0.3667	...	0.3468	0.3430	0.003804	0.3243	2B	0.330	0.340	0.3479	0.3528	0.0049	0.3750
		3A	0.0000	0.3750	0.3678	...	0.3479	0.3450	0.002900	0.3254	3B	0.3300	0.3372	0.3479	0.3516	0.0037	0.3750
3/8 – 28 or 0.3750 – 28	UN	2A	0.0011	0.3739	0.3674	...	0.3507	0.3471	0.003559	0.3314	2B	0.336	0.345	0.3518	0.3564	0.0046	0.3750
		3A	0.0000	0.3750	0.3685	...	0.3518	0.3491	0.002700	0.3325	3B	0.3360	0.3426	0.3518	0.3553	0.0035	0.3750
3/8 – 32 or 0.3750 – 32	UNEF	2A	0.0010	0.3740	0.3680	...	0.3537	0.3503	0.003366	0.3368	2B	0.341	0.349	0.3547	0.3591	0.0044	0.3750
		3A	0.0000	0.3750	0.3690	...	0.3547	0.3522	0.002500	0.3378	3B	0.3410	0.3469	0.3547	0.3580	0.0033	0.3750
7/16 – 14 or 0.4375 – 14	UNC	1A	0.0014	0.4361	0.4206	...	0.3897	0.3826	0.007100	0.3510	1B	0.36	0.376	0.3911	0.4003	0.0092	0.4375
		2A	0.0014	0.4361	0.4258	0.4206	0.3897	0.3850	0.004713	0.3510	2B	0.360	0.376	0.3911	0.3972	0.0061	0.4375
		3A	0.0000	0.4375	0.4272	...	0.3911	0.3876	0.003500	0.3524	3B	0.3600	0.3717	0.3911	0.3957	0.0046	0.4375
(7) 7/16 – 16 or 0.4375 – 16	UN	2A	0.0014	0.4361	0.4267	...	0.3955	0.3909	0.004626	0.3617	2B	0.370	0.384	0.3969	0.4029	0.0060	0.4375
(7)		3A	0.0000	0.4375	0.4281	...	0.3969	0.3934	0.003500	0.3631	3B	0.3700	0.3800	0.3969	0.4014	0.0045	0.4375
(7) 7/16 – 20 or 0.4375 – 20	UNF	1A	0.0013	0.4362	0.4240	...	0.4037	0.3974	0.006300	0.3767	1B	0.383	0.395	0.4050	0.4131	0.0081	0.4375
		2A	0.0013	0.4362	0.4281	...	0.4037	0.3995	0.004167	0.3767	2B	0.383	0.395	0.4050	0.4104	0.0054	0.4375
		3A	0.0000	0.4375	0.4294	...	0.4050	0.4019	0.003100	0.3780	3B	0.3830	0.3916	0.4050	0.4091	0.0041	0.4375

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(7) 7/16 – 28 or 0.4375 – 28	UNEF	2A	0.0011	0.4364	0.4299	...	0.4132	0.4096	0.003616	0.3939	2B	0.399	0.407	0.4143	0.4190	0.0047	0.4375
		3A	0.0000	0.4375	0.4310	...	0.4143	0.4116	0.002700	0.3950	3B	0.3990	0.4051	0.4143	0.4178	0.0035	0.4375
(7) 7/16 – 32 or 0.4375 – 32	UN	2A	0.0010	0.4365	0.4305	...	0.4162	0.4128	0.003423	0.3993	2B	0.404	0.411	0.4172	0.4216	0.0044	0.4375
		3A	0.0000	0.4375	0.4315	...	0.4172	0.4146	0.002600	0.4003	3B	0.4040	0.4094	0.4172	0.4205	0.0033	0.4375
1/2 – 13 or 0.5000 – 13	UNC	1A	0.0015	0.4985	0.4822	...	0.4485	0.4411	0.007400	0.4069	1B	0.417	0.434	0.4500	0.4597	0.0097	0.5000
		2A	0.0015	0.4985	0.4876	0.4822	0.4485	0.4435	0.004965	0.4069	2B	0.417	0.434	0.4500	0.4565	0.0065	0.5000
		3A	0.0000	0.5000	0.4891	...	0.4500	0.4463	0.003700	0.4084	3B	0.4170	0.4284	0.4500	0.4548	0.0048	0.5000
1/2 – 16 or 0.5000 – 16	UN	2A	0.0014	0.4986	0.4892	...	0.4580	0.4533	0.004678	0.4242	2B	0.432	0.446	0.4594	0.4655	0.0061	0.5000
(7)		3A	0.0000	0.5000	0.4906	...	0.4594	0.4559	0.003500	0.4256	3B	0.4320	0.4420	0.4594	0.4640	0.0046	0.5000
1/2 – 20 or 0.5000 – 20	UNF	1A	0.0013	0.4987	0.4865	...	0.4662	0.4598	0.006400	0.4392	1B	0.446	0.457	0.4675	0.4759	0.0084	0.5000
		2A	0.0013	0.4987	0.4906	...	0.4662	0.4619	0.004288	0.4392	2B	0.446	0.457	0.4675	0.4731	0.0056	0.5000
		3A	0.0000	0.5000	0.4919	...	0.4675	0.4643	0.003200	0.4405	3B	0.4460	0.4537	0.4675	0.4717	0.0042	0.5000
1/2 – 28 or 0.5000 – 28	UNEF	2A	0.0011	0.4989	0.4924	...	0.4757	0.4720	0.003668	0.4564	2B	0.461	0.470	0.4768	0.4816	0.0048	0.5000
		3A	0.0000	0.5000	0.4935	...	0.4768	0.4740	0.002800	0.4575	3B	0.4610	0.4676	0.4768	0.4804	0.0036	0.5000
1/2 – 32 or 0.5000 – 32	UN	2A	0.0010	0.4990	0.4930	...	0.4787	0.4752	0.003475	0.4618	2B	0.466	0.474	0.4797	0.4842	0.0045	0.5000
		3A	0.0000	0.5000	0.4940	...	0.4797	0.4771	0.002600	0.4628	3B	0.4660	0.4719	0.4797	0.4831	0.0034	0.5000
9/16 – 12 or 0.5625 – 12	UNC	1A	0.0016	0.5609	0.5437	...	0.5068	0.4990	0.007800	0.4617	1B	0.472	0.49	0.5084	0.5186	0.0102	0.5625
		2A	0.0016	0.5609	0.5495	0.5437	0.5068	0.5016	0.005225	0.4617	2B	0.472	0.490	0.5084	0.5152	0.0068	0.5625
		3A	0.0000	0.5625	0.5511	...	0.5084	0.5045	0.003900	0.4633	3B	0.4720	0.4843	0.5084	0.5135	0.0051	0.5625
9/16 – 16 or 0.5625 – 16	UN	2A	0.0014	0.5611	0.5517	...	0.5205	0.5158	0.004725	0.4867	2B	0.495	0.509	0.5219	0.5280	0.0061	0.5625
(7)		3A	0.0000	0.5625	0.5531	...	0.5219	0.5184	0.003500	0.4881	3B	0.4950	0.5041	0.5219	0.5265	0.0046	0.5625
9/16 – 18 or 0.5625 – 18	UNF	1A	0.0014	0.5611	0.5480	...	0.5250	0.5182	0.006800	0.4949	1B	0.502	0.515	0.5264	0.5353	0.0089	0.5625
		2A	0.0014	0.5611	0.5524	...	0.5250	0.5205	0.004547	0.4949	2B	0.502	0.515	0.5264	0.5323	0.0059	0.5625
		3A	0.0000	0.5625	0.5538	...	0.5264	0.5230	0.003400	0.4963	3B	0.5020	0.5106	0.5264	0.5308	0.0044	0.5625
(7) 9/16 – 20 or 0.5625 – 20	UN	2A	0.0013	0.5612	0.5531	...	0.5287	0.5244	0.004280	0.5017	2B	0.508	0.520	0.5300	0.5356	0.0056	0.5625
(7)		3A	0.0000	0.5625	0.5544	...	0.5300	0.5268	0.003200	0.5030	3B	0.5080	0.5161	0.5300	0.5342	0.0042	0.5625
(7) 9/16 – 24 or 0.5625 – 24	UNEF	2A	0.0012	0.5613	0.5541	...	0.5342	0.5302	0.003960	0.5117	2B	0.517	0.527	0.5354	0.5405	0.0051	0.5625
(7)		3A	0.0000	0.5625	0.5553	...	0.5354	0.5324	0.003000	0.5129	3B	0.5170	0.5244	0.5354	0.5393	0.0039	0.5625

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
9/16 – 28 or 0.5625 – 28	UN	2A	0.0011	0.5614	0.5549	...	0.5382	0.5345	0.003715	0.5189	2B	0.524	0.532	0.5393	0.5441	0.0048	0.5625
		3A	0.0000	0.5625	0.5560	...	0.5393	0.5365	0.002800	0.5200	3B	0.5240	0.5301	0.5393	0.5429	0.0036	0.5625
(7) 9/16 – 32 or 0.5625 – 32	UN	2A	0.0011	0.5614	0.5554	...	0.5411	0.5376	0.003522	0.5242	2B	0.529	0.536	0.5422	0.5468	0.0046	0.5625
		3A	0.0000	0.5625	0.5565	...	0.5422	0.5396	0.002600	0.5253	3B	0.5290	0.5344	0.5422	0.5456	0.0034	0.5625
(7) 5/8 – 11 or 0.6250 – 11	UNC	1A	0.0017	0.6233	0.6051	...	0.5643	0.5560	0.008300	0.5150	1B	0.527	0.546	0.5660	0.5767	0.0107	0.6250
(7)		2A	0.0017	0.6233	0.6112	0.6052	0.5643	0.5588	0.005501	0.5150	2B	0.527	0.546	0.5660	0.5732	0.0072	0.6250
		3A	0.0000	0.6250	0.6129	...	0.5660	0.5619	0.004100	0.5167	3B	0.5270	0.5391	0.5660	0.5714	0.0054	0.6250
5/8 – 12 or 0.6250 – 12	UN	2A	0.0016	0.6234	0.6120	...	0.5693	0.5639	0.005443	0.5242	2B	0.535	0.553	0.5709	0.5780	0.0071	0.6250
		3A	0.0000	0.6250	0.6136	...	0.5709	0.5668	0.004100	0.5258	3B	0.5350	0.5463	0.5709	0.5762	0.0053	0.6250
5/8 – 16 or 0.6250 – 16	UN	2A	0.0014	0.6236	0.6142	...	0.5830	0.5782	0.004769	0.5492	2B	0.557	0.571	0.5844	0.5906	0.0062	0.6250
		3A	0.0000	0.6250	0.6156	...	0.5844	0.5808	0.003600	0.5506	3B	0.5570	0.5662	0.5844	0.5890	0.0046	0.6250
5/8 – 18 or 0.6250 – 18	UNF	1A	0.0014	0.6236	0.6105	...	0.5875	0.5805	0.007000	0.5574	1B	0.565	0.578	0.5889	0.5980	0.0091	0.6250
		2A	0.0014	0.6236	0.6149	...	0.5875	0.5828	0.004652	0.5574	2B	0.565	0.578	0.5889	0.5949	0.0060	0.6250
		3A	0.0000	0.6250	0.6163	...	0.5889	0.5854	0.003500	0.5588	3B	0.5650	0.5730	0.5889	0.5934	0.0045	0.6250
5/8 – 20 or 0.6250 – 20	UN	2A	0.0013	0.6237	0.6156	...	0.5912	0.5869	0.004324	0.5642	2B	0.571	0.582	0.5925	0.5981	0.0056	0.6250
		3A	0.0000	0.6250	0.6169	...	0.5925	0.5893	0.003200	0.5655	3B	0.5710	0.5786	0.5925	0.5967	0.0042	0.6250
5/8 – 24 or 0.6250 – 24	UNEF	2A	0.0012	0.6238	0.6166	...	0.5967	0.5927	0.004004	0.5742	2B	0.580	0.590	0.5979	0.6031	0.0052	0.6250
		3A	0.0000	0.6250	0.6178	...	0.5979	0.5949	0.003000	0.5754	3B	0.5800	0.5869	0.5979	0.6018	0.0039	0.6250
5/8 – 28 or 0.6250 – 28	UN	2A	0.0011	0.6239	0.6174	...	0.6007	0.5969	0.003759	0.5814	2B	0.586	0.595	0.6018	0.6067	0.0049	0.6250
		3A	0.0000	0.6250	0.6185	...	0.6018	0.5990	0.002800	0.5825	3B	0.5860	0.5926	0.6018	0.6055	0.0037	0.6250
(7) 5/8 – 32 or 0.6250 – 32	UN	2A	0.0011	0.6239	0.6179	...	0.6036	0.6000	0.003566	0.5867	2B	0.591	0.599	0.6047	0.6093	0.0046	0.6250
		3A	0.0000	0.6250	0.6190	...	0.6047	0.6020	0.002700	0.5878	3B	0.5910	0.5969	0.6047	0.6082	0.0035	0.6250
(7) 11/16–12 or 0.6875–12	UN	2A	0.0016	0.6859	0.6745	...	0.6318	0.6263	0.005485	0.5867	2B	0.597	0.615	0.6334	0.6405	0.0071	0.6875
		3A	0.0000	0.6875	0.6761	...	0.6334	0.6293	0.004100	0.5883	3B	0.5970	0.6085	0.6334	0.6387	0.0053	0.6875
(7) 11/16–16 or 0.6875–16	UN	2A	0.0014	0.6861	0.6767	...	0.6455	0.6407	0.004811	0.6117	2B	0.620	0.634	0.6469	0.6532	0.0063	0.6875
		3A	0.0000	0.6875	0.6781	...	0.6469	0.6433	0.003600	0.6131	3B	0.6200	0.6284	0.6469	0.6516	0.0047	0.6875

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(7) 11/16–20 or 0.6875–20	UN	2A	0.0013	0.6862	0.6781	...	0.6537	0.6493	0.004366	0.6267	2B	0.633	0.645	0.6550	0.6607	0.0057	0.6875
(7)		3A	0.0000	0.6875	0.6794	...	0.6550	0.6517	0.003300	0.6280	3B	0.6330	0.6411	0.6550	0.6593	0.0043	0.6875
(7) 11/16–24 or 0.6875–24	UNEF	2A	0.0012	0.6863	0.6791	...	0.6592	0.6552	0.004046	0.6367	2B	0.642	0.652	0.6604	0.6657	0.0053	0.6875
		3A	0.0000	0.6875	0.6803	...	0.6604	0.6574	0.003000	0.6379	3B	0.6420	0.6494	0.6604	0.6643	0.0039	0.6875
11/16–28 or 0.6875–28	UN	2A	0.0011	0.6864	0.6799	...	0.6632	0.6594	0.003801	0.6439	2B	0.649	0.657	0.6643	0.6692	0.0049	0.6875
(7)		3A	0.0000	0.6875	0.6810	...	0.6643	0.6614	0.002900	0.6450	3B	0.6490	0.6551	0.6643	0.6680	0.0037	0.6875
(7) 11/16–32 or 0.6875–32	UN	2A	0.0011	0.6864	0.6804	...	0.6661	0.6625	0.003608	0.6492	2B	0.654	0.661	0.6672	0.6719	0.0047	0.6875
		3A	0.0000	0.6875	0.6815	...	0.6672	0.6645	0.002700	0.6503	3B	0.6540	0.6594	0.6672	0.6707	0.0035	0.6875
3/4 – 10 or 0.7500 – 10	UNC	1A	0.0018	0.7482	0.7288	...	0.6832	0.6744	0.008800	0.6291	1B	0.642	0.663	0.6850	0.6965	0.0115	0.7500
		2A	0.0018	0.7482	0.7353	0.7288	0.6832	0.6773	0.005894	0.6291	2B	0.642	0.663	0.6850	0.6927	0.0077	0.7500
		3A	0.0000	0.7500	0.7371	...	0.6850	0.6806	0.004400	0.6309	3B	0.6420	0.6545	0.6850	0.6907	0.0057	0.7500
3/4 – 12 or 0.7500 – 12	UN	2A	0.0017	0.7483	0.7369	...	0.6942	0.6887	0.005524	0.6491	2B	0.660	0.678	0.6959	0.7031	0.0072	0.7500
		3A	0.0000	0.7500	0.7386	...	0.6959	0.6918	0.004100	0.6508	3B	0.6600	0.6707	0.6959	0.7013	0.0054	0.7500
3/4 – 16 or 0.7500 – 16	UNF	1A	0.0015	0.7485	0.7343	...	0.7079	0.7004	0.007500	0.6741	1B	0.682	0.696	0.7094	0.7192	0.0098	0.7500
		2A	0.0015	0.7485	0.7391	...	0.7079	0.7029	0.005024	0.6741	2B	0.682	0.696	0.7094	0.7159	0.0065	0.7500
(7)		3A	0.0000	0.7500	0.7406	...	0.7094	0.7056	0.003800	0.6756	3B	0.6820	0.6909	0.7094	0.7143	0.0049	0.7500
3/4 – 20 or 0.7500 – 20	UNEF	2A	0.0013	0.7487	0.7406	...	0.7162	0.7118	0.004405	0.6892	2B	0.696	0.707	0.7175	0.7232	0.0057	0.7500
(7)		3A	0.0000	0.7500	0.7419	...	0.7175	0.7142	0.003300	0.6905	3B	0.6960	0.7036	0.7175	0.7218	0.0043	0.7500
3/4 – 28 or 0.7500 – 28	UN	2A	0.0012	0.7488	0.7423	...	0.7256	0.7218	0.003840	0.7063	2B	0.711	0.720	0.7268	0.7318	0.0050	0.7500
(7)		3A	0.0000	0.7500	0.7435	...	0.7268	0.7239	0.002900	0.7075	3B	0.7110	0.7176	0.7268	0.7305	0.0037	0.7500
3/4 – 32 or 0.7500 – 32	UN	2A	0.0011	0.7489	0.7429	...	0.7286	0.7250	0.003647	0.7117	2B	0.716	0.724	0.7297	0.7344	0.0047	0.7500
		3A	0.0000	0.7500	0.7440	...	0.7297	0.7270	0.002700	0.7128	3B	0.7160	0.7219	0.7297	0.7333	0.0036	0.7500
(7) 13/16–12 or 0.8125–12	UN	2A	0.0017	0.8108	0.7994	...	0.7567	0.7511	0.005561	0.7116	2B	0.722	0.740	0.7584	0.7656	0.0072	0.8125
(7)		3A	0.0000	0.8125	0.8011	...	0.7584	0.7542	0.004200	0.7133	3B	0.7220	0.7329	0.7584	0.7638	0.0054	0.8125
(7) 13/16–16 or 0.8125–16	UN	2A	0.0015	0.8110	0.8016	...	0.7704	0.7655	0.004887	0.7366	2B	0.745	0.759	0.7719	0.7783	0.0064	0.8125
(7)		3A	0.0000	0.8125	0.8031	...	0.7719	0.7682	0.003700	0.7381	3B	0.7450	0.7534	0.7719	0.7767	0.0048	0.8125

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
(7) 13/16–20 or 0.8125–20	UNEF	2A	0.0013	0.8112	0.8031	...	0.7787	0.7743	0.004442	0.7517	2B	0.758	0.770	0.7800	0.7858	0.0058	0.8125
(7)		3A	0.0000	0.8125	0.8044	...	0.7800	0.7767	0.003300	0.7530	3B	0.7580	0.7661	0.7800	0.7843	0.0043	0.8125
(7) 13/16–28 or 0.8125–28	UN	2A	0.0012	0.8113	0.8048	...	0.7881	0.7842	0.003877	0.7688	2B	0.774	0.782	0.7893	0.7943	0.0050	0.8125
(7)		3A	0.0000	0.8125	0.8060	...	0.7893	0.7864	0.002900	0.7700	3B	0.7740	0.7801	0.7893	0.7931	0.0038	0.8125
(7) 13/16–32 or 0.8125–32	UN	2A	0.0011	0.8114	0.8054	...	0.7911	0.7874	0.003684	0.7742	2B	0.779	0.786	0.7922	0.7970	0.0048	0.8125
(7)		3A	0.0000	0.8125	0.8065	...	0.7922	0.7894	0.002800	0.7753	3B	0.7790	0.7844	0.7922	0.7958	0.0036	0.8125
7/8 – 9 or 0.8750 – 9	UNC	1A	0.0019	0.8731	0.8523	...	0.8009	0.7914	0.009500	0.7408	1B	0.755	0.778	0.8028	0.8151	0.0123	0.8750
		2A	0.0019	0.8731	0.8592	0.8523	0.8009	0.7946	0.006305	0.7408	2B	0.755	0.778	0.8028	0.8110	0.0082	0.8750
		3A	0.0000	0.8750	0.8611	...	0.8028	0.7981	0.004700	0.7427	3B	0.7550	0.7681	0.8028	0.8089	0.0061	0.8750
(7) 7/8–12 or 0.8750–12	UN	2A	0.0017	0.8733	0.8619	...	0.8192	0.8136	0.005596	0.7741	2B	0.785	0.803	0.8209	0.8282	0.0073	0.8750
(7)		3A	0.0000	0.8750	0.8636	...	0.8209	0.8167	0.004200	0.7758	3B	0.7850	0.7952	0.8209	0.8264	0.0055	0.8750
(7) 7/8–14 or 0.8750–14	UNF	1A	0.0016	0.8734	0.8579	...	0.8270	0.8189	0.008100	0.7883	1B	0.798	0.813	0.8286	0.8392	0.0106	0.8750
(7)		2A	0.0016	0.8734	0.8631	...	0.8270	0.8216	0.005420	0.7883	2B	0.798	0.813	0.8286	0.8356	0.0070	0.8750
(7)		3A	0.0000	0.8750	0.8647	...	0.8286	0.8245	0.004100	0.7899	3B	0.7980	0.8067	0.8286	0.8339	0.0053	0.8750
(7) 7/8–16 or 0.8750–16	UN	2A	0.0015	0.8735	0.8641	...	0.8329	0.8280	0.004922	0.7991	2B	0.807	0.821	0.8344	0.8408	0.0064	0.8750
(7)		3A	0.0000	0.8750	0.8656	...	0.8344	0.8307	0.003700	0.8006	3B	0.8070	0.8159	0.8344	0.8392	0.0048	0.8750
(7) 7/8–20 or 0.8750–20	UNEF	2A	0.0013	0.8737	0.8656	...	0.8412	0.8367	0.004477	0.8142	2B	0.821	0.832	0.8425	0.8483	0.0058	0.8750
(7)		3A[7]	0.0000	0.8750	0.8669	...	0.8425	0.8391	0.003400	0.8155	3B	0.8210	0.8286	0.8425	0.8469	0.0044	0.8750
(7) 7/8–28 or 0.8750–28	UN	2A	0.0012	0.8738	0.8673	...	0.8506	0.8467	0.003912	0.8313	2B	0.836	0.845	0.8518	0.8569	0.0051	0.8750
(7)		3A[7]	0.0000	0.8750	0.8685	...	0.8518	0.8489	0.002900	0.8325	3B	0.8360	0.8426	0.8518	0.8556	0.0038	0.8750
(7) 7/8–32 or 0.8750–32	UN	2A	0.0011	0.8739	0.8679	...	0.8536	0.8499	0.003719	0.8367	2B	0.841	0.849	0.8547	0.8595	0.0048	0.8750
(7)		3A	0.0000	0.8750	0.8690	...	0.8547	0.8519	0.002800	0.8378	3B	0.8410	0.8469	0.8547	0.8583	0.0036	0.8750
(7) 15/16–12 or 0.9375–12	UN	2A	0.0017	0.9358	0.9244	...	0.8817	0.8761	0.005629	0.8366	2B	0.847	0.865	0.8834	0.8907	0.0073	0.9375
(7)		3A[7]	0.0000	0.9375	0.9261	...	0.8834	0.8792	0.004200	0.8383	3B	0.8470	0.8575	0.8834	0.8889	0.0055	0.9375
(7) 15/16–16 or 0.9375–16	UN	2A	0.0015	0.9360	0.9266	...	0.8954	0.8904	0.004955	0.8616	2B	0.870	0.884	0.8969	0.9033	0.0064	0.9375
(7)		3A	0.0000	0.9375	0.9281	...	0.8969	0.8932	0.003700	0.8631	3B	0.8700	0.8784	0.8969	0.9017	0.0048	0.9375

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
$^{15}/_{16}$ – 20 or 0.9375 – 20	UNEF	2A	0.0014	0.9361	0.9280	...	0.9036	0.8991	0.004510	0.8766	2B	0.883	0.895	0.9050	0.9109	0.0059	0.9375
(7)		3A	0.0000	0.9375	0.9294	...	0.9050	0.9016	0.003400	0.8780	3B	0.8830	0.8911	0.9050	0.9094	0.0044	0.9375
(7) $^{15}/_{16}$–28 or 0.9375–28	UN	2A	0.0012	0.9363	0.9298	...	0.9131	0.9092	0.003945	0.8938	2B	0.899	0.907	0.9143	0.9194	0.0051	0.9375
(7)		3A	0.0000	0.9375	0.9310	...	0.9143	0.9113	0.003000	0.8950	3B	0.8990	0.9051	0.9143	0.9181	0.0038	0.9375
$^{15}/_{16}$ – 32 or 0.9375 – 32	UN	2A	0.0011	0.9364	0.9304	...	0.9161	0.9123	0.003752	0.8992	2B	0.904	0.911	0.9172	0.9221	0.0049	0.9375
		3A	0.0000	0.9375	0.9315	...	0.9172	0.9144	0.002800	0.9003	3B	0.9040	0.9094	0.9172	0.9209	0.0037	0.9375
(7) 1 – 8 or 1.0000 – 8	UNC	1A	0.0020	0.9980	0.9755	...	0.9168	0.9067	0.010100	0.8492	1B	0.865	0.89	0.9188	0.9320	0.0132	1.0000
		2A	0.0020	0.9980	0.9830	0.9755	0.9168	0.9101	0.006750	0.8492	2B	0.865	0.890	0.9188	0.9276	0.0088	1.0000
		3A	0.0000	1.0000	0.9850	...	0.9188	0.9137	0.005100	0.8512	3B	0.8650	0.8797	0.9188	0.9254	0.0066	1.0000
1 – 12 or 1.0000 – 12	UNF	1A	0.0018	0.9982	0.9810	...	0.9441	0.9353	0.008800	0.8990	1B	0.91	0.928	0.9459	0.9573	0.0114	1.0000
		2A	0.0018	0.9982	0.9868	...	0.9441	0.9382	0.005862	0.8990	2B	0.910	0.928	0.9459	0.9535	0.0076	1.0000
		3A	0.0000	1.0000	0.9886	...	0.9459	0.9415	0.004400	0.9008	3B	0.9100	0.9198	0.9459	0.9516	0.0057	1.0000
(7) 1 – 14 or 1.0000 – 14	UNS (8)	2A	0.0016	0.9984	0.9881	...	0.9520	0.9467	0.005285	0.9133	2B	0.923	0.938	0.9536	0.9605	0.0069	1.0000
(7)		3A	0.0000	1.0000	0.9897	...	0.9536	0.9496	0.004000	0.9149	3B	0.9230	0.9315	0.9536	0.9588	0.0052	1.0000
1 – 16 or 1.0000 – 16	UN	2A	0.0015	0.9985	0.9891	...	0.9579	0.9529	0.004987	0.9241	2B	0.932	0.946	0.9594	0.9659	0.0065	1.0000
		3A	0.0000	1.0000	0.9906	...	0.9594	0.9557	0.003700	0.9256	3B	0.9320	0.9409	0.9594	0.9643	0.0049	1.0000
1 – 20 or 1.0000 – 20	UNEF	2A	0.0014	0.9986	0.9905	...	0.9661	0.9616	0.004542	0.9391	2B	0.946	0.957	0.9675	0.9734	0.0059	1.0000
		3A	0.0000	1.0000	0.9919	...	0.9675	0.9641	0.003400	0.9405	3B	0.9460	0.9536	0.9675	0.9719	0.0044	1.0000
1 – 28 or 1.0000 – 28	UN	2A	0.0012	0.9988	0.9923	...	0.9756	0.9716	0.003977	0.9563	2B	0.961	0.970	0.9768	0.9820	0.0052	1.0000
		3A	0.0000	1.0000	0.9935	...	0.9768	0.9738	0.003000	0.9575	3B	0.9610	0.9676	0.9768	0.9807	0.0039	1.0000
1 – 32 or 1.0000 – 32	UN	2A	0.0011	0.9989	0.9929	...	0.9786	0.9748	0.003784	0.9617	2B	0.966	0.974	0.9797	0.9846	0.0049	1.0000
		3A	0.0000	1.0000	0.9940	...	0.9797	0.9769	0.002800	0.9628	3B	0.9660	0.9719	0.9797	0.9834	0.0037	1.0000
$1^{1}/_{16}$ – 8 or 1.0625 – 8	UN	2A	0.0020	1.0605	1.0455	...	0.9793	0.9725	0.006827	0.9117	2B	0.927	0.952	0.9813	0.9902	0.0089	1.0625
		3A	0.0000	1.0625	1.0475	...	0.9813	0.9762	0.005100	0.9137	3B	0.9270	0.9422	0.9813	0.9880	0.0067	1.0625
$1^{1}/_{16}$ – 12 or 1.0625 – 12	UN	2A	0.0017	1.0608	1.0494	...	1.0067	1.0010	0.005692	0.9616	2B	0.972	0.990	1.0084	1.0158	0.0074	1.0625
(7)		3A	0.0000	1.0625	1.0511	...	1.0084	1.0041	0.004300	0.9633	3B	0.9720	0.9823	1.0084	1.0139	0.0055	1.0625
$1^{1}/_{16}$ – 16 or 1.0625 – 16	UN	2A	0.0015	1.0610	1.0516	...	1.0204	1.0154	0.005018	0.9866	2B	0.995	1.009	1.0219	1.0284	0.0065	1.0625
(7)		3A	0.0000	1.0625	1.0531	...	1.0219	1.0181	0.003800	0.9881	3B	0.9950	1.0034	1.0219	1.0268	0.0049	1.0625

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(7) $1\frac{1}{16}$ – 18 or 1.0625 – 18	UNEF	2A	0.0014	1.0611	1.0524	...	1.0250	1.0202	0.004776	0.9949	2B	1.002	1.015	1.0264	1.0326	0.0062	1.0625
(7)		3A	0.0000	1.0625	1.0538	...	1.0264	1.0228	0.003600	0.9963	3B	1.0020	1.0105	1.0264	1.0311	0.0047	1.0625
(7) $1\frac{1}{16}$ – 20 or 1.0625 – 20	UN	2A	0.0014	1.0611	1.0530	...	1.0286	1.0240	0.004573	1.0016	2B	1.008	1.020	1.0300	1.0359	0.0059	1.0625
(7)		3A	0.0000	1.0625	1.0544	...	1.0300	1.0266	0.003400	1.0030	3B	1.0080	1.0161	1.0300	1.0345	0.0045	1.0625
$1\frac{1}{16}$ – 28 or 1.0625 – 28	UN	2A	0.0012	1.0613	1.0548	...	1.0381	1.0341	0.004008	1.0188	2B	1.024	1.032	1.0393	1.0445	0.0052	1.0625
		3A	0.0000	1.0625	1.0560	...	1.0393	1.0363	0.003000	1.0200	3B	1.0240	1.0301	1.0393	1.0432	0.0039	1.0625
$1\frac{1}{8}$ – 7 or 1.1250 – 7	UNC	1A	0.0022	1.1228	1.0982	...	1.0300	1.0191	0.010900	0.9527	1B	0.97	0.998	1.0322	1.0463	0.0141	1.1250
(7)		2A	0.0022	1.1228	1.1064	1.0982	1.0300	1.0228	0.007250	0.9527	2B	0.970	0.998	1.0322	1.0416	0.0094	1.1250
		3A	0.0000	1.1250	1.1086	...	1.0322	1.0268	0.005400	0.9549	3B	0.9700	0.9875	1.0322	1.0393	0.0071	1.1250
$1\frac{1}{8}$ – 8 or 1.1250 – 8	UN	2A	0.0021	1.1229	1.1079	1.1004	1.0417	1.0348	0.006901	0.9741	2B	0.990	1.015	1.0438	1.0528	0.0090	1.1250
		3A	0.0000	1.1250	1.1100	...	1.0438	1.0386	0.005200	0.9762	3B	0.9900	1.0047	1.0438	1.0505	0.0067	1.1250
$1\frac{1}{8}$ – 12 or 1.1250 – 12	UNF	1A	0.0018	1.1232	1.1060	...	1.0691	1.0601	0.009000	1.0240	1B	1.035	1.053	1.0709	1.0826	0.0117	1.1250
		2A	0.0018	1.1232	1.1118	...	1.0691	1.0631	0.006013	1.0240	2B	1.035	1.053	1.0709	1.0787	0.0078	1.1250
		3A	0.0000	1.1250	1.1136	...	1.0709	1.0664	0.004500	1.0258	3B	1.0350	1.0448	1.0709	1.0768	0.0059	1.1250
(7) $1\frac{1}{8}$ – 16 or 1.1250 – 16	UN	2A	0.0015	1.1235	1.1141	...	1.0829	1.0779	0.005047	1.0491	2B	1.057	1.071	1.0844	1.0910	0.0066	1.1250
(7)		3A	0.0000	1.1250	1.1156	...	1.0844	1.0806	0.003800	1.0506	3B	1.0570	1.0659	1.0844	1.0893	0.0049	1.1250
(7) $1\frac{1}{8}$ – 18 or 1.1250 – 18	UNEF	2A	0.0014	1.1236	1.1149	...	1.0875	1.0827	0.004805	1.0574	2B	1.065	1.078	1.0889	1.0951	0.0062	1.1250
(7)		3A	0.0000	1.1250	1.1163	...	1.0889	1.0853	0.003600	1.0588	3B	1.0650	1.0730	1.0889	1.0936	0.0047	1.1250
(7) $1\frac{1}{8}$ – 20 or 1.1250 – 20	UN	2A	0.0014	1.1236	1.1155	...	1.0911	1.0865	0.004602	1.0641	2B	1.071	1.082	1.0925	1.0985	0.0060	1.1250
(7)		3A	0.0000	1.1250	1.1169	...	1.0925	1.0890	0.003500	1.0655	3B	1.0710	1.0786	1.0925	1.0970	0.0045	1.1250
$1\frac{1}{8}$ – 28 or 1.1250 – 28	UN	2A	0.0012	1.1238	1.1173	...	1.1006	1.0966	0.004037	1.0813	2B	1.086	1.095	1.1018	1.1070	0.0052	1.1250
		3A	0.0000	1.1250	1.1185	...	1.1018	1.0988	0.003000	1.0825	3B	1.0860	1.0926	1.1018	1.1057	0.0039	1.1250
$1\frac{3}{16}$ – 8 or 1.1875 – 8	UN	2A	0.0021	1.1854	1.1704	...	1.1042	1.0972	0.006973	1.0366	2B	1.052	1.077	1.1063	1.1154	0.0091	1.1875
		3A	0.0000	1.1875	1.1725	...	1.1063	1.1011	0.005200	1.0387	3B	1.0520	1.0672	1.1063	1.1131	0.0068	1.1875
(7) $1\frac{3}{16}$ – 12 or 1.1875 – 12	UN	2A	0.0017	1.1858	1.1744	...	1.1317	1.1260	0.005749	1.0866	2B	1.097	1.115	1.1334	1.1409	0.0075	1.1875
		3A	0.0000	1.1875	1.1761	...	1.1334	1.1291	0.004300	1.0883	3B	1.0970	1.1073	1.1334	1.1390	0.0056	1.1875

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Tolerance	Major Diameter, Min.
$1\frac{3}{16}$ – 16 or 1.1875 – 16	UN	2A	0.0015	1.1860	1.1766	...	1.1454	1.1403	0.005075	1.1116	2B	1.120	1.134	1.1469	1.1535	0.0066	1.1875
(7)		3A	0.0000	1.1875	1.1781	...	1.1469	1.1431	0.003800	1.1131	3B	1.1200	1.1284	1.1469	1.1518	0.0049	1.1875
(7) $1\frac{3}{16}$ – 18 or 1.1875 – 18	UNEF	2A	0.0014	1.1861	1.1774	...	1.1500	1.1452	0.004833	1.1199	2B	1.127	1.140	1.1514	1.1577	0.0063	1.1875
		3A	0.0000	1.1875	1.1788	...	1.1514	1.1478	0.003600	1.1213	3B	1.1270	1.1355	1.1514	1.1561	0.0047	1.1875
(7) $1\frac{3}{16}$ – 20 or 1.1875 – 20	UN	2A	0.0014	1.1861	1.1780	...	1.1536	1.1490	0.004630	1.1266	2B	1.133	1.145	1.1550	1.1610	0.0060	1.1875
(7)		3A	0.0000	1.1875	1.1794	...	1.1550	1.1515	0.003500	1.1280	3B	1.1330	1.1411	1.1550	1.1595	0.0045	1.1875
$1\frac{3}{16}$ – 28 or 1.1875 – 28	UN	2A	0.0012	1.1863	1.1798	...	1.1631	1.1590	0.004065	1.1438	2B	1.149	1.157	1.1643	1.1696	0.0053	1.1875
		3A	0.0000	1.1875	1.1810	...	1.1643	1.1613	0.003000	1.1450	3B	1.1490	1.1551	1.1643	1.1683	0.0040	1.1875
$1\frac{1}{4}$ – 7 or 1.2500 – 7	UNC	1A	0.0022	1.2478	1.2232	...	1.1550	1.1439	0.011100	1.0777	1B	1.095	1.123	1.1572	1.1716	0.0144	1.2500
		2A	0.0022	1.2478	1.2314	1.2232	1.1550	1.1476	0.007392	1.0777	2B	1.095	1.123	1.1572	1.1668	0.0096	1.2500
		3A	0.0000	1.2500	1.2336	...	1.1572	1.1517	0.005500	1.0799	3B	1.0950	1.1125	1.1572	1.1644	0.0072	1.2500
$1\frac{1}{4}$ – 8 or 1.2500 – 8	UN	2A	0.0021	1.2479	1.2329	1.2254	1.1667	1.1597	0.007043	1.0991	2B	1.115	1.140	1.1688	1.1780	0.0092	1.2500
		3A	0.0000	1.2500	1.2350	...	1.1688	1.1635	0.005300	1.1012	3B	1.1150	1.1297	1.1688	1.1757	0.0069	1.2500
$1\frac{1}{4}$ – 12 or 1.2500 – 12	UNF	1A	0.0018	1.2482	1.2310	...	1.1941	1.1849	0.009200	1.1490	1B	1.16	1.178	1.1959	1.2079	0.0120	1.2500
		2A	0.0018	1.2482	1.2368	...	1.1941	1.1879	0.006155	1.1490	2B	1.160	1.178	1.1959	1.2039	0.0080	1.2500
		3A	0.0000	1.2500	1.2386	...	1.1959	1.1913	0.004600	1.1508	3B	1.1600	1.1698	1.1959	1.2019	0.0060	1.2500
$1\frac{1}{4}$ – 16 or 1.2500 – 16	UN	2A	0.0015	1.2485	1.2391	...	1.2079	1.2028	0.005103	1.1741	2B	1.182	1.196	1.2094	1.2160	0.0066	1.2500
(7)		3A	0.0000	1.2500	1.2406	...	1.2094	1.2056	0.003800	1.1756	3B	1.1820	1.1909	1.2094	1.2144	0.0050	1.2500
$1\frac{1}{4}$ – 18 or 1.2500 – 18	UNEF	2A	0.0015	1.2485	1.2398	...	1.2124	1.2075	0.004861	1.1823	2B	1.190	1.203	1.2139	1.2202	0.0063	1.2500
		3A	0.0000	1.2500	1.2413	...	1.2139	1.2103	0.003600	1.1838	3B	1.1900	1.1980	1.2139	1.2186	0.0047	1.2500
$1\frac{1}{4}$ – 20 or 1.2500 – 20	UN	2A	0.0014	1.2486	1.2405	...	1.2161	1.2114	0.004658	1.1891	2B	1.196	1.207	1.2175	1.2236	0.0061	1.2500
(7)		3A	0.0000	1.2500	1.2419	...	1.2175	1.2140	0.003500	1.1905	3B	1.1960	1.2036	1.2175	1.2220	0.0045	1.2500
$1\frac{1}{4}$ – 28 or 1.2500 – 28	UN	2A	0.0012	1.2488	1.2423	...	1.2256	1.2215	0.004093	1.2063	2B	1.211	1.220	1.2268	1.2321	0.0053	1.2500
		3A	0.0000	1.2500	1.2435	...	1.2268	1.2237	0.003100	1.2075	3B	1.2110	1.2176	1.2268	1.2308	0.0040	1.2500
$1\frac{5}{16}$ – 8 or 1.3125 – 8	UN	2A	0.0021	1.3104	1.2954	...	1.2292	1.2221	0.007110	1.1616	2B	1.177	1.202	1.2313	1.2405	0.0092	1.3125
		3A	0.0000	1.3125	1.2975	...	1.2313	1.2260	0.005300	1.1637	3B	1.1770	1.1922	1.2313	1.2382	0.0069	1.3125

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
$1\frac{5}{16}$ – 12 or 1.3125 – 12	UN	2A	0.0017	1.3108	1.2994	...	1.2567	1.2509	0.005803	1.2116	2B	1.222	1.240	1.2584	1.2659	0.0075	1.3125
(7)		3A	0.0000	1.3125	1.3011	...	1.2584	1.2540	0.004400	1.2133	3B	1.2220	1.2323	1.2584	1.2641	0.0057	1.3125
(7) $1\frac{5}{16}$ – 16 or 1.3125 – 16	UN	2A	0.0015	1.3110	1.3016	...	1.2704	1.2653	0.005129	1.2366	2B	1.245	1.259	1.2719	1.2786	0.0067	1.3125
(7)		3A	0.0000	1.3125	1.3031	...	1.2719	1.2681	0.003800	1.2381	3B	1.2450	1.2534	1.2719	1.2769	0.0050	1.3125
(7) $1\frac{5}{16}$ – 18 or 1.3125 – 18	UNEF	2A	0.0015	1.3110	1.3023	...	1.2749	1.2700	0.004887	1.2448	2B	1.252	1.265	1.2764	1.2828	0.0064	1.3125
(7)		3A	0.0000	1.3125	1.3038	...	1.2764	1.2727	0.003700	1.2463	3B	1.2520	1.2605	1.2764	1.2812	0.0048	1.3125
$1\frac{5}{16}$ – 20 or 1.3125 – 20	UN	2A	0.0014	1.3111	1.3030	...	1.2786	1.2739	0.004684	1.2516	2B	1.258	1.270	1.2800	1.2861	0.0061	1.3125
(7)		3A	0.0000	1.3125	1.3044	...	1.2800	1.2765	0.003500	1.2530	3B	1.2580	1.2661	1.2800	1.2846	0.0046	1.3125
(7) $1\frac{5}{16}$ – 28 or 1.3125 – 28	UN	2A	0.0012	1.3113	1.3048	...	1.2881	1.2840	0.004119	1.2688	2B	1.274	1.282	1.2893	1.2947	0.0054	1.3125
		3A	0.0000	1.3125	1.3060	...	1.2893	1.2862	0.003100	1.2700	3B	1.2740	1.2801	1.2893	1.2933	0.0040	1.3125
$1\frac{3}{8}$ – 6 or 1.3750 – 6	UNC	1A	0.0024	1.3726	1.3453	...	1.2643	1.2523	0.012000	1.1741	1B	1.195	1.225	1.2667	1.2822	0.0155	1.3750
		2A	0.0024	1.3726	1.3544	1.3453	1.2643	1.2563	0.007970	1.1741	2B	1.195	1.225	1.2667	1.2771	0.0104	1.3750
		3A	0.0000	1.3750	1.3568	...	1.2667	1.2607	0.006000	1.1765	3B	1.1950	1.2146	1.2667	1.2745	0.0078	1.3750
$1\frac{3}{8}$ – 8 or 1.3750 – 8	UN	2A	0.0022	1.3728	1.3578	1.3503	1.2916	1.2844	0.007177	1.2240	2B	1.240	1.265	1.2938	1.3031	0.0093	1.3750
		3A	0.0000	1.3750	1.3600	...	1.2938	1.2884	0.005400	1.2262	3B	1.2400	1.2547	1.2938	1.3008	0.0070	1.3750
$1\frac{3}{8}$ – 12 or 1.3750 – 12	UNF	1A	0.0019	1.3731	1.3559	...	1.3190	1.3096	0.009400	1.2739	1B	1.285	1.303	1.3209	1.3332	0.0123	1.3750
		2A	0.0019	1.3731	1.3617	...	1.3190	1.3127	0.006289	1.2739	2B	1.285	1.303	1.3209	1.3291	0.0082	1.3750
		3A	0.0000	1.3750	1.3636	...	1.3209	1.3162	0.004700	1.2758	3B	1.2850	1.2948	1.3209	1.3270	0.0061	1.3750
(7) $1\frac{3}{8}$ – 16 or 1.3750 – 16	UN	2A	0.0015	1.3735	1.3641	...	1.3329	1.3277	0.005155	1.2991	2B	1.307	1.321	1.3344	1.3411	0.0067	1.3750
(7)		3A	0.0000	1.3750	1.3656	...	1.3344	1.3305	0.003900	1.3006	3B	1.3070	1.3159	1.3344	1.3394	0.0050	1.3750
(7) $1\frac{3}{8}$ – 18 or 1.3750 – 18	UNEF	2A	0.0015	1.3735	1.3648	...	1.3374	1.3325	0.004913	1.3073	2B	1.315	1.328	1.3389	1.3453	0.0064	1.3750
(7)		3A	0.0000	1.3750	1.3663	...	1.3389	1.3352	0.003700	1.3088	3B	1.3150	1.3230	1.3389	1.3437	0.0048	1.3750
$1\frac{3}{8}$ – 20 or 1.3750 – 20	UN	2A	0.0014	1.3736	1.3655	...	1.3411	1.3364	0.004710	1.3141	2B	1.321	1.332	1.3425	1.3486	0.0061	1.3750
(7)		3A	0.0000	1.3750	1.3669	...	1.3425	1.3390	0.003500	1.3155	3B	1.3210	1.3286	1.3425	1.3471	0.0046	1.3750
(7) $1\frac{3}{8}$ – 28 or 1.3750 – 28	UN	2A	0.0012	1.3738	1.3673	...	1.3506	1.3465	0.004145	1.3313	2B	1.336	1.345	1.3518	1.3572	0.0054	1.3750
		3A	0.0000	1.3750	1.3685	...	1.3518	1.3487	0.003100	1.3325	3B	1.3360	1.3426	1.3518	1.3558	0.0040	1.3750

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{7}{16}$ – 6 or 1.4375 – 6	UN	2A	0.0024	1.4351	1.4169	...	1.3268	1.3188	0.008034	1.2366	2B	1.257	1.288	1.3292	1.3396	0.0104	1.4375
		3A	0.0000	1.4375	1.4193	...	1.3292	1.3232	0.006000	1.2390	3B	1.2570	1.2771	1.3292	1.3370	0.0078	1.4375
$1\frac{7}{16}$ – 8 or 1.4375 – 8	UN	2A	0.0022	1.4353	1.4203	...	1.3541	1.3469	0.007241	1.2865	2B	1.302	1.327	1.3563	1.3657	0.0094	1.4375
		3A	0.0000	1.4375	1.4225	...	1.3563	1.3509	0.005400	1.2887	3B	1.3020	1.3172	1.3563	1.3634	0.0071	1.4375
$1\frac{7}{16}$ – 12 or 1.4375 – 12	UN	2A	0.0018	1.4357	1.4243	...	1.3816	1.3757	0.005854	1.3365	2B	1.347	1.365	1.3834	1.3910	0.0076	1.4375
		3A	0.0000	1.4375	1.4261	...	1.3834	1.3790	0.004400	1.3383	3B	1.3470	1.3573	1.3834	1.3891	0.0057	1.4375
(7) $1\frac{7}{16}$ – 16 or 1.4375 – 16	UN	2A	0.0016	1.4359	1.4265	...	1.3953	1.3901	0.005180	1.3615	2B	1.370	1.384	1.3969	1.4036	0.0067	1.4375
(7)		3A	0.0000	1.4375	1.4281	...	1.3969	1.3930	0.003900	1.3631	3B	1.3700	1.3784	1.3969	1.4020	0.0051	1.4375
(7) $1\frac{7}{16}$ – 18 or 1.4375 – 18	UNEF	2A	0.0015	1.4360	1.4273	...	1.3999	1.3950	0.004938	1.3698	2B	1.377	1.390	1.4014	1.4078	0.0064	1.4375
		3A	0.0000	1.4375	1.4288	...	1.4014	1.3977	0.003700	1.3713	3B	1.3770	1.3855	1.4014	1.4062	0.0048	1.4375
(7) $1\frac{7}{16}$ – 20 or 1.4375 – 20	UN	2A	0.0014	1.4361	1.4280	...	1.4036	1.3989	0.004735	1.3766	2B	1.383	1.395	1.4050	1.4112	0.0062	1.4375
(7)		3A	0.0000	1.4375	1.4294	...	1.4050	1.4014	0.003600	1.3780	3B	1.3830	1.3911	1.4050	1.4096	0.0046	1.4375
(7) $1\frac{7}{16}$ – 28 or 1.4375 – 28	UN	2A	0.0013	1.4362	1.4297	...	1.4130	1.4088	0.004170	1.3937	2B	1.399	1.407	1.4143	1.4197	0.0054	1.4375
		3A	0.0000	1.4375	1.4310	...	1.4143	1.4112	0.003100	1.3950	3B	1.3990	1.4051	1.4143	1.4184	0.0041	1.4375
$1\frac{1}{2}$ – 6 or 1.5000 – 6	UNC	1A	0.0024	1.4976	1.4703	...	1.3893	1.3772	0.012100	1.2991	1B	1.32	1.35	1.3917	1.4075	0.0158	1.5000
		2A	0.0024	1.4976	1.4794	1.4703	1.3893	1.3812	0.008097	1.2991	2B	1.320	1.350	1.3917	1.4022	0.0105	1.5000
		3A	0.0000	1.5000	1.4818	...	1.3917	1.3856	0.006100	1.3015	3B	1.3200	1.3396	1.3917	1.3996	0.0079	1.5000
$1\frac{1}{2}$ – 8 or 1.5000 – 8	UN	2A	0.0022	1.4978	1.4828	1.4753	1.4166	1.4093	0.007304	1.3490	2B	1.365	1.390	1.4188	1.4283	0.0095	1.5000
		3A	0.0000	1.5000	1.4850	...	1.4188	1.4133	0.005500	1.3512	3B	1.3650	1.3797	1.4188	1.4259	0.0071	1.5000
$1\frac{1}{2}$ – 12 or 1.5000 – 12	UNF	1A	0.0019	1.4981	1.4809	...	1.4440	1.4344	0.009600	1.3989	1B	1.41	1.428	1.4459	1.4584	0.0125	1.5000
		2A	0.0019	1.4981	1.4867	...	1.4440	1.4376	0.006416	1.3989	2B	1.410	1.428	1.4459	1.4542	0.0083	1.5000
		3A	0.0000	1.5000	1.4886	...	1.4459	1.4411	0.004800	1.4008	3B	1.4100	1.4198	1.4459	1.4522	0.0063	1.5000
(7) $1\frac{1}{2}$ – 16 or 1.5000 – 16	UN	2A	0.0016	1.4984	1.4890	...	1.4578	1.4526	0.005204	1.4240	2B	1.432	1.446	1.4594	1.4662	0.0068	1.5000
		3A	0.0000	1.5000	1.4906	...	1.4594	1.4555	0.003900	1.4256	3B	1.4320	1.4409	1.4594	1.4645	0.0051	1.5000
(7) $1\frac{1}{2}$ – 18 or 1.5000 – 18	UNEF	2A	0.0015	1.4985	1.4898	...	1.4624	1.4574	0.004962	1.4323	2B	1.440	1.453	1.4639	1.4704	0.0065	1.5000
		3A	0.0000	1.5000	1.4913	...	1.4639	1.4602	0.003700	1.4338	3B	1.4400	1.4480	1.4639	1.4687	0.0048	1.5000

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{1}{2}$ – 20 or 1.5000 – 20	UN	2A	0.0014	1.4986	1.4905	...	1.4661	1.4613	0.004759	1.4391	2B	1.446	1.457	1.4675	1.4737	0.0062	1.5000
(7)		3A	0.0000	1.5000	1.4919	...	1.4675	1.4639	0.003600	1.4405	3B	1.4460	1.4536	1.4675	1.4721	0.0046	1.5000
$1\frac{1}{2}$ – 28 or 1.5000 – 28	UN	2A	0.0013	1.4987	1.4922	...	1.4755	1.4713	0.004194	1.4562	2B	1.461	1.470	1.4768	1.4823	0.0055	1.5000
		3A	0.0000	1.5000	1.4935	...	1.4768	1.4737	0.003100	1.4575	3B	1.4610	1.4676	1.4768	1.4809	0.0041	1.5000
$1\frac{9}{16}$ – 6 or 1.5625 – 6	UN	2A	0.0024	1.5601	1.5419	...	1.4518	1.4436	0.008159	1.3616	2B	1.382	1.413	1.4542	1.4648	0.0106	1.5625
		3A	0.0000	1.5625	1.5443	...	1.4542	1.4481	0.006100	1.3640	3B	1.3820	1.4021	1.4542	1.4622	0.0080	1.5625
$1\frac{9}{16}$ – 8 or 1.5625 – 8	UN	2A	0.0022	1.5603	1.5453	...	1.4791	1.4717	0.007366	1.4115	2B	1.427	1.452	1.4813	1.4909	0.0096	1.5625
		3A	0.0000	1.5625	1.5475	...	1.4813	1.4758	0.005500	1.4137	3B	1.4270	1.4422	1.4813	1.4885	0.0072	1.5625
(7) $1\frac{9}{16}$ – 12 or 1.5625 – 12	UN	2A	0.0018	1.5607	1.5493	...	1.5066	1.5007	0.005902	1.4615	2B	1.472	1.490	1.5084	1.5161	0.0077	1.5625
(7)		3A	0.0000	1.5625	1.5511	...	1.5084	1.5040	0.004400	1.4633	3B	1.4720	1.4823	1.5084	1.5142	0.0058	1.5625
$1\frac{9}{16}$ – 16 or 1.5625 – 16	UN	2A	0.0016	1.5609	1.5515	...	1.5203	1.5151	0.005228	1.4865	2B	1.495	1.509	1.5219	1.5287	0.0068	1.5625
(7)		3A	0.0000	1.5625	1.5531	...	1.5219	1.5180	0.003900	1.4881	3B	1.4950	1.5034	1.5219	1.5270	0.0051	1.5625
$1\frac{9}{16}$ – 18 or 1.5625 – 18	UNEF	2A	0.0015	1.5610	1.5523	...	1.5249	1.5199	0.004986	1.4948	2B	1.502	1.515	1.5264	1.5329	0.0065	1.5625
(7)		3A	0.0000	1.5625	1.5538	...	1.5264	1.5227	0.003700	1.4963	3B	1.5020	1.5105	1.5264	1.5313	0.0049	1.5625
$1\frac{9}{16}$ – 20 or 1.5625 – 20	UN	2A	0.0014	1.5611	1.5530	...	1.5286	1.5238	0.004783	1.5016	2B	1.508	1.520	1.5300	1.5362	0.0062	1.5625
(7)		3A	0.0000	1.5625	1.5544	...	1.5300	1.5264	0.003600	1.5030	3B	1.5080	1.5161	1.5300	1.5347	0.0047	1.5625
$1\frac{5}{8}$ – 6 or 1.6250 – 6	UN	2A	0.0025	1.6225	1.6043	...	1.5142	1.5060	0.008219	1.4240	2B	1.445	1.475	1.5167	1.5274	0.0107	1.6250
		3A	0.0000	1.6250	1.6068	...	1.5167	1.5105	0.006200	1.4265	3B	1.4450	1.4646	1.5167	1.5247	0.0080	1.6250
$1\frac{5}{8}$ – 8 or 1.6250 – 8	UN	2A	0.0022	1.6228	1.6078	1.6003	1.5416	1.5342	0.007426	1.4740	2B	1.490	1.515	1.5438	1.5535	0.0097	1.6250
		3A	0.0000	1.6250	1.6100	...	1.5438	1.5382	0.005600	1.4762	3B	1.4900	1.5047	1.5438	1.5510	0.0072	1.6250
(7) $1\frac{5}{8}$ – 12 or 1.6250 – 12	UN	2A	0.0018	1.6232	1.6118	...	1.5691	1.5632	0.005925	1.5240	2B	1.535	1.553	1.5709	1.5786	0.0077	1.6250
(7)		3A	0.0000	1.6250	1.6136	...	1.5709	1.5665	0.004400	1.5258	3B	1.5350	1.5448	1.5709	1.5767	0.0058	1.6250
(7) $1\frac{5}{8}$ – 16 or 1.6250 – 16	UN	2A	0.0016	1.6234	1.6140	...	1.5828	1.5775	0.005251	1.5490	2B	1.557	1.571	1.5844	1.5912	0.0068	1.6250
		3A	0.0000	1.6250	1.6156	...	1.5844	1.5805	0.003900	1.5506	3B	1.5570	1.5659	1.5844	1.5895	0.0051	1.6250
(7) $1\frac{5}{8}$ – 18 or 1.6250 – 18	UNEF	2A	0.0015	1.6235	1.6148	...	1.5874	1.5824	0.005009	1.5573	2B	1.565	1.578	1.5889	1.5954	0.0065	1.6250
		3A	0.0000	1.6250	1.6163	...	1.5889	1.5851	0.003800	1.5588	3B	1.5650	1.5730	1.5889	1.5938	0.0049	1.6250

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(7) $1\frac{5}{8}$ – 20 or 1.6250 – 20	UN	2A	0.0014	1.6236	1.6155	...	1.5911	1.5863	0.004806	1.5641	2B	1.571	1.582	1.5925	1.5987	0.0062	1.6250
		3A	0.0000	1.6250	1.6169	...	1.5925	1.5889	0.003600	1.5655	3B	1.5710	1.5786	1.5925	1.5972	0.0047	1.6250
$1\frac{11}{16}$ – 6 or 1.6875 – 6	UN	2A	0.0025	1.6850	1.6668	...	1.5767	1.5684	0.008278	1.4865	2B	1.507	1.538	1.5792	1.5900	0.0108	1.6875
		3A	0.0000	1.6875	1.6693	...	1.5792	1.5730	0.006200	1.4890	3B	1.5070	1.5271	1.5792	1.5873	0.0081	1.6875
$1\frac{11}{16}$ – 8 or 1.6875 – 8	UN	2A	0.0022	1.6853	1.6703	...	1.6041	1.5966	0.007485	1.5365	2B	1.552	1.577	1.6063	1.6160	0.0097	1.6875
		3A	0.0000	1.6875	1.6725	...	1.6063	1.6007	0.005600	1.5387	3B	1.5520	1.5672	1.6063	1.6136	0.0073	1.6875
(7) $1\frac{11}{16}$ – 12 or 1.6875 – 12	UN	2A	0.0018	1.6857	1.6743	...	1.6316	1.6257	0.005947	1.5865	2B	1.597	1.615	1.6334	1.6411	0.0077	1.6875
		3A	0.0000	1.6875	1.6761	...	1.6334	1.6289	0.004500	1.5883	3B	1.5970	1.6073	1.6334	1.6392	0.0058	1.6875
$1\frac{11}{16}$ – 16 or 1.6875 – 16	UN	2A	0.0016	1.6859	1.6765	...	1.6453	1.6400	0.005273	1.6115	2B	1.620	1.634	1.6469	1.6538	0.0069	1.6875
(7)		3A	0.0000	1.6875	1.6781	...	1.6469	1.6429	0.004000	1.6131	3B	1.6200	1.6284	1.6469	1.6520	0.0051	1.6875
(7) $1\frac{11}{16}$ – 18 or 1.6875 – 18	UNEF	2A	0.0015	1.6860	1.6773	...	1.6499	1.6449	0.005031	1.6198	2B	1.627	1.640	1.6514	1.6579	0.0065	1.6875
		3A	0.0000	1.6875	1.6788	...	1.6514	1.6476	0.003800	1.6213	3B	1.6270	1.6355	1.6514	1.6563	0.0049	1.6875
(7) $1\frac{11}{16}$ – 20 or 1.6875 – 20	UN	2A	0.0014	1.6861	1.6780	...	1.6536	1.6488	0.004828	1.6266	2B	1.633	1.645	1.6550	1.6613	0.0063	1.6875
(7)		3A	0.0000	1.6875	1.6794	...	1.6550	1.6514	0.003600	1.6280	3B	1.6330	1.6411	1.6550	1.6597	0.0047	1.6875
(7) $1\frac{3}{4}$ – 5 or 1.7500 – 5	UNC	1A	0.0027	1.7473	1.7165	...	1.6174	1.6040	0.013400	1.5091	1B	1.533	1.567	1.6201	1.6375	0.0174	1.7500
(7)		2A	0.0027	1.7473	1.7268	1.7165	1.6174	1.6085	0.008922	1.5091	2B	1.533	1.567	1.6201	1.6317	0.0116	1.7500
(7)		3A	0.0000	1.7500	1.7295	...	1.6201	1.6134	0.006700	1.5118	3B	1.5330	1.5575	1.6201	1.6288	0.0087	1.7500
$1\frac{3}{4}$ – 6 or 1.7500 – 6	UN	2A	0.0025	1.7475	1.7293	...	1.6392	1.6309	0.008335	1.5490	2B	1.570	1.600	1.6417	1.6525	0.0108	1.7500
		3A	0.0000	1.7500	1.7318	...	1.6417	1.6354	0.006300	1.5515	3B	1.5700	1.5896	1.6417	1.6498	0.0081	1.7500
$1\frac{3}{4}$ – 8 or 1.7500 – 8	UN	2A	0.0023	1.7477	1.7327	1.7252	1.6665	1.6590	0.007542	1.5989	2B	1.615	1.640	1.6688	1.6786	0.0098	1.7500
(7)		3A	0.0000	1.7500	1.7350	...	1.6688	1.6631	0.005700	1.6012	3B	1.6150	1.6297	1.6688	1.6762	0.0074	1.7500
$1\frac{3}{4}$ – 12 or 1.7500 – 12	UN	2A	0.0018	1.7482	1.7368	...	1.6941	1.6881	0.005969	1.6490	2B	1.660	1.678	1.6959	1.7037	0.0078	1.7500
		3A	0.0000	1.7500	1.7386	...	1.6959	1.6914	0.004500	1.6508	3B	1.6600	1.6698	1.6959	1.7017	0.0058	1.7500
$1\frac{3}{4}$ – 16 or 1.7500 – 16	UN	2A	0.0016	1.7484	1.7390	...	1.7078	1.7025	0.005295	1.6740	2B	1.682	1.696	1.7094	1.7163	0.0069	1.7500
(7)		3A	0.0000	1.7500	1.7406	...	1.7094	1.7054	0.004000	1.6756	3B	1.6820	1.6909	1.7094	1.7146	0.0052	1.7500
$1\frac{3}{4}$ – 20 or 1.7500 – 20	UN	2A	0.0015	1.7485	1.7404	...	1.7160	1.7112	0.004850	1.6890	2B	1.696	1.707	1.7175	1.7238	0.0063	1.7500
(7)		3A	0.0000	1.7500	1.7419	...	1.7175	1.7139	0.003600	1.6905	3B	1.6960	1.7036	1.7175	1.7222	0.0047	1.7500

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. Note (3)]	Pitch Diameter and Functional Diameter [Note 4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note 4)] Min.	Pitch Diameter and Functional Diameter [Note 4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
$1\frac{13}{16}$ – 6 or 1.8125 – 6	UN	2A	0.0025	1.8100	1.7918	...	1.7017	1.6933	0.008391	1.6115	2B	1.632	1.663	1.7042	1.7151	0.0109	1.8125
		3A	0.0000	1.8125	1.7943	...	1.7042	1.6979	0.006300	1.6140	3B	1.6320	1.6521	1.7042	1.7124	0.0082	1.8125
$1\frac{13}{16}$ – 8 or 1.8125 – 8	UN	2A	0.0023	1.8102	1.7952	...	1.7290	1.7214	0.007598	1.6614	2B	1.677	1.702	1.7313	1.7412	0.0099	1.8125
		3A	0.0000	1.8125	1.7975	...	1.7313	1.7256	0.005700	1.6637	3B	1.6770	1.6922	1.7313	1.7387	0.0074	1.8125
$1\frac{13}{16}$ – 12 or 1.8125 – 12	UN	2A	0.0018	1.8107	1.7993	...	1.7566	1.7506	0.005990	1.7115	2B	1.722	1.740	1.7584	1.7662	0.0078	1.8125
		3A	0.0000	1.8125	1.8011	...	1.7584	1.7539	0.004500	1.7133	3B	1.7220	1.7323	1.7584	1.7642	0.0058	1.8125
$1\frac{13}{16}$ – 16 or 1.8125 – 16	UN	2A	0.0016	1.8109	1.8015	...	1.7703	1.7650	0.005316	1.7365	2B	1.745	1.759	1.7719	1.7788	0.0069	1.8125
(7)		3A	0.0000	1.8125	1.8031	...	1.7719	1.7679	0.004000	1.7381	3B	1.7450	1.7534	1.7719	1.7771	0.0052	1.8125
$1\frac{13}{16}$ – 20 or 1.8125 – 20	UN	2A	0.0015	1.8110	1.8029	...	1.7785	1.7736	0.004871	1.7515	2B	1.758	1.770	1.7800	1.7863	0.0063	1.8125
(7)		3A	0.0000	1.8125	1.8044	...	1.7800	1.7763	0.003700	1.7530	3B	1.7580	1.7661	1.7800	1.7847	0.0047	1.8125
$1\frac{7}{8}$ – 6 or 1.8750 – 6	UN	2A	0.0025	1.8725	1.8543	...	1.7642	1.7558	0.008447	1.6740	2B	1.695	1.725	1.7667	1.7777	0.0110	1.8750
		3A	0.0000	1.8750	1.8568	...	1.7667	1.7604	0.006300	1.6765	3B	1.6950	1.7146	1.7667	1.7749	0.0082	1.8750
$1\frac{7}{8}$ – 8 or 1.8750 – 8	UN	2A	0.0023	1.8727	1.8577	1.8502	1.7915	1.7838	0.007654	1.7239	2B	1.740	1.765	1.7938	1.8038	0.0100	1.8750
		3A	0.0000	1.8750	1.8600	...	1.7938	1.7881	0.005700	1.7262	3B	1.7400	1.7547	1.7938	1.8013	0.0075	1.8750
$1\frac{7}{8}$ – 12 or 1.8750 – 12	UN	2A	0.0018	1.8732	1.8618	...	1.8191	1.8131	0.006011	1.7740	2B	1.785	1.803	1.8209	1.8287	0.0078	1.8750
(7)		3A	0.0000	1.8750	1.8636	...	1.8209	1.8164	0.004500	1.7758	3B	1.7850	1.7948	1.8209	1.8268	0.0059	1.8750
$1\frac{7}{8}$ – 16 or 1.8750 – 16	UN	2A	0.0016	1.8734	1.8640	...	1.8328	1.8275	0.005337	1.7990	2B	1.807	1.821	1.8344	1.8413	0.0069	1.8750
(7)		3A	0.0000	1.8750	1.8656	...	1.8344	1.8304	0.004000	1.8006	3B	1.8070	1.8159	1.8344	1.8396	0.0052	1.8750
(7) $1\frac{7}{8}$ – 20 or 1.8750 – 20	UN	2A	0.0015	1.8735	1.8654	...	1.8410	1.8361	0.004892	1.8140	2B	1.821	1.832	1.8425	1.8489	0.0064	1.8750
(7)		3A	0.0000	1.8750	1.8669	...	1.8425	1.8388	0.003700	1.8155	3B	1.8210	1.8286	1.8425	1.8473	0.0048	1.8750
$1\frac{15}{16}$ – 6 or 1.9375 – 6	UN	2A	0.0026	1.9349	1.9167	...	1.8266	1.8181	0.008501	1.7364	2B	1.757	1.788	1.8292	1.8403	0.0111	1.9375
		3A	0.0000	1.9375	1.9193	...	1.8292	1.8228	0.006400	1.7390	3B	1.7570	1.7771	1.8292	1.8375	0.0083	1.9375
$1\frac{15}{16}$ – 8 or 1.9375 – 8	UN	2A	0.0023	1.9352	1.9202	...	1.8540	1.8463	0.007708	1.7864	2B	1.802	1.827	1.8563	1.8663	0.0100	1.9375
		3A	0.0000	1.9375	1.9225	...	1.8563	1.8505	0.005800	1.7887	3B	1.8020	1.8172	1.8563	1.8638	0.0075	1.9375
(7) $1\frac{15}{16}$ – 12 or 1.9375 – 12	UN	2A	0.0018	1.9357	1.9243	...	1.8816	1.8756	0.006031	1.8365	2B	1.847	1.865	1.8834	1.8912	0.0078	1.9375
		3A	0.0000	1.9375	1.9261	...	1.8834	1.8789	0.004500	1.8383	3B	1.8470	1.8573	1.8834	1.8893	0.0059	1.9375

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
$1\frac{15}{16}$ – 16 or 1.9375 – 16	UN	2A	0.0016	1.9359	1.9265	...	1.8953	1.8899	0.005357	1.8615	2B	1.870	1.884	1.8969	1.9039	0.0070	1.9375
(7)		3A	0.0000	1.9375	1.9281	...	1.8969	1.8929	0.004000	1.8631	3B	1.8700	1.8784	1.8969	1.9021	0.0052	1.9375
$1\frac{15}{16}$ – 20 or 1.9375 – 20	UN	2A	0.0015	1.9360	1.9279	...	1.9035	1.8986	0.004912	1.8765	2B	1.883	1.895	1.9050	1.9114	0.0064	1.9375
(7)		3A	0.0000	1.9375	1.9294	...	1.9050	1.9013	0.003700	1.8780	3B	1.8830	1.8911	1.9050	1.9098	0.0048	1.9375
2 – 4.5 or 2.0000 – 4.5	UNC	1A	0.0029	1.9971	1.9641	...	1.8528	1.8385	0.014300	1.7325	1B	1.759	1.795	1.8557	1.8743	0.0186	2.0000
		2A	0.0029	1.9971	1.9751	1.9641	1.8528	1.8433	0.009514	1.7325	2B	1.759	1.795	1.8557	1.8681	0.0124	2.0000
		3A	0.0000	2.0000	1.9780	...	1.8557	1.8486	0.007100	1.7354	3B	1.7590	1.7861	1.8557	1.8650	0.0093	2.0000
2 – 6 or 2.0000 – 6	UN	2A	0.0026	1.9974	1.9792	...	1.8891	1.8805	0.008554	1.7989	2B	1.820	1.850	1.8917	1.9028	0.0111	2.0000
		3A	0.0000	2.0000	1.9818	...	1.8917	1.8853	0.006400	1.8015	3B	1.8200	1.8396	1.8917	1.9000	0.0083	2.0000
2 – 8 or 2.0000 – 8	UN	2A	0.0023	1.9977	1.9827	1.9752	1.9165	1.9087	0.007761	1.8489	2B	1.865	1.890	1.9188	1.9289	0.0101	2.0000
		3A	0.0000	2.0000	1.9850	...	1.9188	1.9130	0.005800	1.8512	3B	1.8650	1.8797	1.9188	1.9264	0.0076	2.0000
2 – 12 or 2.0000 – 12	UN	2A	0.0018	1.9982	1.9868	...	1.9441	1.9380	0.006051	1.8990	2B	1.910	1.928	1.9459	1.9538	0.0079	2.0000
		3A	0.0000	2.0000	1.9886	...	1.9459	1.9414	0.004500	1.9008	3B	1.9100	1.9198	1.9459	1.9518	0.0059	2.0000
2 – 16 or 2.0000 – 16	UN	2A	0.0016	1.9984	1.9890	...	1.9578	1.9524	0.005377	1.9240	2B	1.932	1.946	1.9594	1.9664	0.0070	2.0000
(7)		3A	0.0000	2.0000	1.9906	...	1.9594	1.9554	0.004000	1.9256	3B	1.9320	1.9409	1.9594	1.9646	0.0052	2.0000
2 – 20 or 2.0000 – 20	UN	2A	0.0015	1.9985	1.9904	...	1.9660	1.9611	0.004932	1.9390	2B	1.946	1.957	1.9675	1.9739	0.0064	2.0000
(7)		3A	0.0000	2.0000	1.9919	...	1.9675	1.9638	0.003700	1.9405	3B	1.9460	1.9536	1.9675	1.9723	0.0048	2.0000
$2\frac{1}{8}$ – 6 or 2.1250 – 6	UN	2A	0.0026	2.1224	2.1042	...	2.0141	2.0054	0.008658	1.9239	2B	1.945	1.975	2.0167	2.0280	0.0113	2.1250
		3A	0.0000	2.1250	2.1068	...	2.0167	2.0102	0.006500	1.9265	3B	1.9450	1.9646	2.0167	2.0251	0.0084	2.1250
$2\frac{1}{8}$ – 8 or 2.1250 – 8	UN	2A	0.0024	2.1226	2.1076	2.1001	2.0414	2.0335	0.007865	1.9738	2B	1.990	2.015	2.0438	2.0540	0.0102	2.1250
		3A	0.0000	2.1250	2.1100	...	2.0438	2.0379	0.005900	1.9762	3B	1.9900	2.0047	2.0438	2.0515	0.0077	2.1250
$2\frac{1}{8}$ – 12 or 2.1250 – 12	UN	2A	0.0018	2.1232	2.1118	...	2.0691	2.0630	0.006089	2.0240	2B	2.035	2.053	2.0709	2.0788	0.0079	2.1250
(7)		3A	0.0000	2.1250	2.1136	...	2.0709	2.0663	0.004600	2.0258	3B	2.0350	2.0448	2.0709	2.0768	0.0059	2.1250
$2\frac{1}{8}$ – 16 or 2.1250 – 16	UN	2A	0.0016	2.1234	2.1140	...	2.0828	2.0774	0.005415	2.0490	2B	2.057	2.071	2.0844	2.0914	0.0070	2.1250
(7)		3A	0.0000	2.1250	2.1156	...	2.0844	2.0803	0.004100	2.0506	3B	2.0570	2.0659	2.0844	2.0897	0.0053	2.1250
(7) $2\frac{1}{8}$ – 20 or 2.1250 – 20	UN	2A	0.0015	2.1235	2.1154	...	2.0910	2.0860	0.004970	2.0640	2B	2.071	2.082	2.0925	2.0990	0.0065	2.1250
(7)		3A	0.0000	2.1250	2.1169	...	2.0925	2.0888	0.003700	2.0655	3B	2.0710	2.0786	2.0925	2.0973	0.0048	2.1250

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
$2\frac{1}{4}$ – 4.5 or 2.2500 – 4.5	UNC	1A	0.0029	2.2471	2.2141	...	2.1028	2.0882	0.014600	1.9825	1B	2.009	2.045	2.1057	2.1247	0.0190	2.2500
		2A	0.0029	2.2471	2.2251	2.2141	2.1028	2.0931	0.009719	1.9825	2B	2.009	2.045	2.1057	2.1183	0.0126	2.2500
		3A	0.0000	2.2500	2.2280	...	2.1057	2.0984	0.007300	1.9854	3B	2.0090	2.0361	2.1057	2.1152	0.0095	2.2500
$2\frac{1}{4}$ – 6 or 2.2500 – 6	UN	2A	0.0026	2.2474	2.2292	...	2.1391	2.1303	0.008759	2.0489	2B	2.070	2.100	2.1417	2.1531	0.0114	2.2500
		3A	0.0000	2.2500	2.2318	...	2.1417	2.1351	0.006600	2.0515	3B	2.0700	2.0896	2.1417	2.1502	0.0085	2.2500
$2\frac{1}{4}$ – 8 or 2.2500 – 8	UN	2A	0.0024	2.2476	2.2326	2.2251	2.1664	2.1584	0.007966	2.0988	2B	2.115	2.140	2.1688	2.1792	0.0104	2.2500
		3A	0.0000	2.2500	2.2350	...	2.1688	2.1628	0.006000	2.1012	3B	2.1150	2.1297	2.1688	2.1766	0.0078	2.2500
(7) $2\frac{1}{4}$ – 12 or 2.2500 – 12	UN	2A	0.0018	2.2482	2.2368	...	2.1941	2.1880	0.006127	2.1490	2B	2.160	2.178	2.1959	2.2039	0.0080	2.2500
(7)		3A	0.0000	2.2500	2.2386	...	2.1959	2.1913	0.004600	2.1508	3B	2.1600	2.1698	2.1959	2.2019	0.0060	2.2500
(7) $2\frac{1}{4}$ – 16 or 2.2500 – 16	UN	2A	0.0016	2.2484	2.2390	...	2.2078	2.2023	0.005453	2.1740	2B	2.182	2.196	2.2094	2.2165	0.0071	2.2500
(7)		3A	0.0000	2.2500	2.2406	...	2.2094	2.2053	0.004100	2.1756	3B	2.1820	2.1909	2.2094	2.2147	0.0053	2.2500
(7) $2\frac{1}{4}$ – 20 or 2.2500 – 20	UN	2A	0.0015	2.2485	2.2404	...	2.2160	2.2110	0.005008	2.1890	2B	2.196	2.207	2.2175	2.2240	0.0065	2.2500
(7)		3A	0.0000	2.2500	2.2419	...	2.2175	2.2137	0.003800	2.1905	3B	2.1960	2.2036	2.2175	2.2224	0.0049	2.2500
(7) $2\frac{3}{8}$ – 6 or 2.3750 – 6	UN	2A	0.0027	2.3723	2.3541	...	2.2640	2.2551	0.008856	2.1738	2B	2.195	2.225	2.2667	2.2782	0.0115	2.3750
		3A	0.0000	2.3750	2.3568	...	2.2667	2.2601	0.006600	2.1765	3B	2.1950	2.2146	2.2667	2.2753	0.0086	2.3750
$2\frac{3}{8}$ – 8 or 2.3750 – 8	UN	2A	0.0024	2.3726	2.3576	...	2.2914	2.2833	0.008063	2.2238	2B	2.240	2.265	2.2938	2.3043	0.0105	2.3750
		3A	0.0000	2.3750	2.3600	...	2.2938	2.2878	0.006000	2.2262	3B	2.2400	2.2547	2.2938	2.3017	0.0079	2.3750
(7) $2\frac{3}{8}$ – 12 or 2.3750 – 12	UN	2A	0.0018	2.3732	2.3618	...	2.3191	2.3129	0.006162	2.2740	2B	2.285	2.303	2.3209	2.3289	0.0080	2.3750
		3A	0.0000	2.3750	2.3636	...	2.3209	2.3163	0.004600	2.2758	3B	2.2850	2.2948	2.3209	2.3269	0.0060	2.3750
(7) $2\frac{3}{8}$ – 16 or 2.3750 – 16	UN	2A	0.0016	2.3734	2.3640	...	2.3328	2.3273	0.005488	2.2990	2B	2.307	2.321	2.3344	2.3415	0.0071	2.3750
(7)		3A	0.0000	2.3750	2.3656	...	2.3344	2.3303	0.004100	2.3006	3B	2.3070	2.3159	2.3344	2.3398	0.0054	2.3750
(7) $2\frac{3}{8}$ – 20 or 2.3750 – 20	UN	2A	0.0015	2.3735	2.3654	...	2.3410	2.3360	0.005043	2.3140	2B	2.321	2.332	2.3425	2.3491	0.0066	2.3750
(7)		3A	0.0000	2.3750	2.3669	...	2.3425	2.3387	0.003800	2.3155	3B	2.3210	2.3286	2.3425	2.3474	0.0049	2.3750
$2\frac{1}{2}$ – 4 or 2.5000 – 4	UNC	1A	0.0031	2.4969	2.4612	...	2.3345	2.3190	0.015500	2.1992	1B	2.229	2.267	2.3376	2.3578	0.0202	2.5000
		2A	0.0031	2.4969	2.4731	2.4612	2.3345	2.3241	0.010361	2.1992	2B	2.229	2.267	2.3376	2.3511	0.0135	2.5000
		3A	0.0000	2.5000	2.4762	...	2.3376	2.3298	0.007800	2.2023	3B	2.2290	2.2594	2.3376	2.3477	0.0101	2.5000

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
$2\frac{1}{2}$ – 6 or 2.5000 – 6	UN	2A	0.0027	2.4973	2.4791	...	2.3890	2.3800	0.008951	2.2988	2B	2.320	2.350	2.3917	2.4033	0.0116	2.5000
		3A	0.0000	2.5000	2.4818	...	2.3917	2.3850	0.006700	2.3015	3B	2.3200	2.3396	2.3917	2.4004	0.0087	2.5000
$2\frac{1}{2}$ – 8 or 2.5000 – 8	UN	2A	0.0024	2.4976	2.4826	2.4751	2.4164	2.4082	0.008158	2.3488	2B	2.365	2.390	2.4188	2.4294	0.0106	2.5000
		3A	0.0000	2.5000	2.4850	...	2.4188	2.4127	0.006100	2.3512	3B	2.3650	2.3797	2.4188	2.4268	0.0080	2.5000
$2\frac{1}{2}$ – 12 or 2.5000 – 12	UN	2A	0.0019	2.4981	2.4867	...	2.4440	2.4378	0.006197	2.3989	2B	2.410	2.428	2.4459	2.4540	0.0081	2.5000
		3A	0.0000	2.5000	2.4886	...	2.4459	2.4413	0.004600	2.4008	3B	2.4100	2.4198	2.4459	2.4519	0.0060	2.5000
$2\frac{1}{2}$ – 16 or 2.5000 – 16	UN	2A	0.0017	2.4983	2.4889	...	2.4577	2.4522	0.005523	2.4239	2B	2.432	2.446	2.4594	2.4666	0.0072	2.5000
(7)		3A	0.0000	2.5000	2.4906	...	2.4594	2.4553	0.004100	2.4256	3B	2.4320	2.4409	2.4594	2.4648	0.0054	2.5000
$2\frac{1}{2}$ – 20 or 2.5000 – 20	UN	2A	0.0015	2.4985	2.4904	...	2.4660	2.4609	0.005078	2.4390	2B	2.446	2.457	2.4675	2.4741	0.0066	2.5000
(7)		3A	0.0000	2.5000	2.4919	...	2.4675	2.4637	0.003800	2.4405	3B	2.4460	2.4536	2.4675	2.4725	0.0050	2.5000
$2\frac{5}{8}$ – 6 or 2.6250 – 6	UN	2A	0.0027	2.6223	2.6041	...	2.5140	2.5050	0.009042	2.4238	2B	2.445	2.475	2.5167	2.5285	0.0118	2.6250
		3A	0.0000	2.6250	2.6068	...	2.5167	2.5099	0.006800	2.4265	3B	2.4450	2.4646	2.5167	2.5255	0.0088	2.6250
$2\frac{5}{8}$ – 8 or 2.6250 – 8	UN	2A	0.0025	2.6225	2.6075	...	2.5413	2.5331	0.008249	2.4737	2B	2.490	2.515	2.5438	2.5545	0.0107	2.6250
		3A	0.0000	2.6250	2.6100	...	2.5438	2.5376	0.006200	2.4762	3B	2.4900	2.5047	2.5438	2.5518	0.0080	2.6250
(7) $2\frac{5}{8}$ – 12 or 2.6250 – 12	UN	2A	0.0019	2.6231	2.6117	...	2.5690	2.5628	0.006230	2.5239	2B	2.535	2.553	2.5709	2.5790	0.0081	2.6250
		3A	0.0000	2.6250	2.6136	...	2.5709	2.5662	0.004700	2.5258	3B	2.5350	2.5448	2.5709	2.5770	0.0061	2.6250
(7) $2\frac{5}{8}$ – 16 or 2.6250 – 16	UN	2A	0.0017	2.6233	2.6139	...	2.5827	2.5771	0.005556	2.5489	2B	2.557	2.571	2.5844	2.5916	0.0072	2.6250
(7)		3A	0.0000	2.6250	2.6156	...	2.5844	2.5802	0.004200	2.5506	3B	2.5570	2.5659	2.5844	2.5898	0.0054	2.6250
$2\frac{5}{8}$ – 20 or 2.6250 – 20	UN	2A	0.0015	2.6235	2.6154	...	2.5910	2.5859	0.005111	2.5640	2B	2.571	2.582	2.5925	2.5991	0.0066	2.6250
(7)		3A	0.0000	2.6250	2.6169	...	2.5925	2.5887	0.003800	2.5655	3B	2.5710	2.5786	2.5925	2.5975	0.0050	2.6250
$2\frac{3}{4}$ – 4 or 2.7500 – 4	UNC	1A	0.0032	2.7468	2.7111	...	2.5844	2.5686	0.015800	2.4491	1B	2.479	2.517	2.5876	2.6082	0.0206	2.7500
		2A	0.0032	2.7468	2.7230	2.7111	2.5844	2.5739	0.010542	2.4491	2B	2.479	2.517	2.5876	2.6013	0.0137	2.7500
		3A	0.0000	2.7500	2.7262	...	2.5876	2.5797	0.007900	2.4523	3B	2.4790	2.5094	2.5876	2.5979	0.0103	2.7500
$2\frac{3}{4}$ – 6 or 2.7500 – 6	UN	2A	0.0027	2.7473	2.7291	...	2.6390	2.6299	0.009132	2.5488	2B	2.570	2.600	2.6417	2.6536	0.0119	2.7500
		3A	0.0000	2.7500	2.7318	...	2.6417	2.6349	0.006800	2.5515	3B	2.5700	2.5896	2.6417	2.6506	0.0089	2.7500
$2\frac{3}{4}$ – 8 or 2.7500 – 8	UN	2A	0.0025	2.7475	2.7325	2.7250	2.6663	2.6580	0.008339	2.5987	2B	2.615	2.640	2.6688	2.6796	0.0108	2.7500
		3A	0.0000	2.7500	2.7350	...	2.6688	2.6625	0.006300	2.6012	3B	2.6150	2.6297	2.6688	2.6769	0.0081	2.7500

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
(7) $2\frac{3}{4}$ – 12 or 2.7500 – 12	UN	2A	0.0019	2.7481	2.7367	...	2.6940	2.6877	0.006263	2.6489	2B	2.660	2.678	2.6959	2.7040	0.0081	2.7500
(7)		3A	0.0000	2.7500	2.7386	...	2.6959	2.6912	0.004700	2.6508	3B	2.6600	2.6698	2.6959	2.7020	0.0061	2.7500
(7) $2\frac{3}{4}$ – 16 or 2.7500 – 16	UN	2A	0.0017	2.7483	2.7389	...	2.7077	2.7021	0.005589	2.6739	2B	2.682	2.696	2.7094	2.7167	0.0073	2.7500
(7)		3A	0.0000	2.7500	2.7406	...	2.7094	2.7052	0.004200	2.6756	3B	2.6820	2.6909	2.7094	2.7148	0.0054	2.7500
(7) $2\frac{3}{4}$ – 20 or 2.7500 – 20	UN	2A	0.0015	2.7485	2.7404	...	2.7160	2.7109	0.005144	2.6890	2B	2.696	2.707	2.7175	2.7242	0.0067	2.7500
(7)		3A	0.0000	2.7500	2.7419	...	2.7175	2.7136	0.003900	2.6905	3B	2.6960	2.7036	2.7175	2.7225	0.0050	2.7500
$2\frac{7}{8}$ – 6 or 2.8750 – 6	UN	2A	0.0028	2.8722	2.8540	...	2.7639	2.7547	0.009219	2.6737	2B	2.695	2.725	2.7667	2.7787	0.0120	2.8750
		3A	0.0000	2.8750	2.8568	...	2.7667	2.7598	0.006900	2.6765	3B	2.6950	2.7146	2.7667	2.7757	0.0090	2.8750
$2\frac{7}{8}$ – 8 or 2.8750 – 8	UN	2A	0.0025	2.8725	2.8575	...	2.7913	2.7829	0.008426	2.7237	2B	2.740	2.765	2.7938	2.8048	0.0110	2.8750
		3A	0.0000	2.8750	2.8600	...	2.7938	2.7875	0.006300	2.7262	3B	2.7400	2.7547	2.7938	2.8020	0.0082	2.8750
$2\frac{7}{8}$ – 12 or 2.8750 – 12	UN	2A	0.0019	2.8731	2.8617	...	2.8190	2.8127	0.006294	2.7739	2B	2.785	2.803	2.8209	2.8291	0.0082	2.8750
(7)		3A	0.0000	2.8750	2.8636	...	2.8209	2.8162	0.004700	2.7758	3B	2.7850	2.7948	2.8209	2.8270	0.0061	2.8750
$2\frac{7}{8}$ – 16 or 2.8750 – 16	UN	2A	0.0017	2.8733	2.8639	...	2.8327	2.8271	0.005620	2.7989	2B	2.807	2.821	2.8344	2.8417	0.0073	2.8750
(7)		3A	0.0000	2.8750	2.8656	...	2.8344	2.8302	0.004200	2.8006	3B	2.8070	2.8159	2.8344	2.8399	0.0055	2.8750
(7) $2\frac{7}{8}$ – 20 or 2.8750 – 20	UN	2A	0.0016	2.8734	2.8653	...	2.8409	2.8357	0.005175	2.8139	2B	2.821	2.832	2.8425	2.8492	0.0067	2.8750
(7)		3A	0.0000	2.8750	2.8669	...	2.8425	2.8386	0.003900	2.8155	3B	2.8210	2.8286	2.8425	2.8475	0.0050	2.8750
3 – 4 or 3.0000 – 4	UNC	1A	0.0032	2.9968	2.9611	...	2.8344	2.8183	0.016100	2.6991	1B	2.729	2.767	2.8376	2.8585	0.0209	3.0000
		2A	0.0032	2.9968	2.9730	2.9611	2.8344	2.8237	0.010714	2.6991	2B	2.729	2.767	2.8376	2.8515	0.0139	3.0000
		3A	0.0000	3.0000	2.9762	...	2.8376	2.8296	0.008000	2.7023	3B	2.7290	2.7594	2.8376	2.8480	0.0104	3.0000
3 – 6 or 3.0000 – 6	UN	2A	0.0028	2.9972	2.9790	...	2.8889	2.8796	0.009304	2.7987	2B	2.820	2.850	2.8917	2.9038	0.0121	3.0000
		3A	0.0000	3.0000	2.9818	...	2.8917	2.8847	0.007000	2.8015	3B	2.8200	2.8396	2.8917	2.9008	0.0091	3.0000
3 – 8 or 3.0000 – 8	UN	2A	0.0026	2.9974	2.9824	2.9749	2.9162	2.9077	0.008511	2.8486	2B	2.865	2.890	2.9188	2.9299	0.0111	3.0000
		3A	0.0000	3.0000	2.9850	...	2.9188	2.9124	0.006400	2.8512	3B	2.8650	2.8797	2.9188	2.9271	0.0083	3.0000
3 – 12 or 3.0000 – 12	UN	2A	0.0019	2.9981	2.9867	...	2.9440	2.9377	0.006324	2.8989	2B	2.910	2.928	2.9459	2.9541	0.0082	3.0000
		3A	0.0000	3.0000	2.9886	...	2.9459	2.9412	0.004700	2.9008	3B	2.9100	2.9198	2.9459	2.9521	0.0062	3.0000
(7) 3 – 16 or 3.0000 – 16	UN	2A	0.0017	2.9983	2.9889	...	2.9577	2.9521	0.005650	2.9239	2B	2.932	2.946	2.9594	2.9667	0.0073	3.0000
(7)		3A	0.0000	3.0000	2.9906	...	2.9594	2.9552	0.004200	2.9256	3B	2.9320	2.9409	2.9594	2.9649	0.0055	3.0000

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
3 – 20 or 3.0000 – 20	UN	2A	0.0016	2.9984	2.9903	...	2.9659	2.9607	0.005205	2.9389	2B	2.946	2.957	2.9675	2.9743	0.0068	3.0000
(7)		3A	0.0000	3.0000	2.9919	...	2.9675	2.9636	0.003900	2.9405	3B	2.9460	2.9536	2.9675	2.9726	0.0051	3.0000
$3\frac{1}{8}$ – 6 or 3.1250 – 6	UN	2A	0.0028	3.1222	3.1040	...	3.0139	3.0045	0.009388	2.9237	2B	2.945	2.975	3.0167	3.0289	0.0122	3.1250
		3A	0.0000	3.1250	3.1068	...	3.0167	3.0097	0.007000	2.9265	3B	2.9450	2.9646	3.0167	3.0259	0.0092	3.1250
$3\frac{1}{8}$ – 8 or 3.1250 – 8	UN	2A	0.0026	3.1224	3.1074	...	3.0412	3.0326	0.008595	2.9736	2B	2.990	3.015	3.0438	3.0550	0.0112	3.1250
		3A	0.0000	3.1250	3.1100	...	3.0438	3.0374	0.006400	2.9762	3B	2.9900	3.0047	3.0438	3.0522	0.0084	3.1250
(7) $3\frac{1}{8}$ – 12 or 3.1250 – 12	UN	2A	0.0019	3.1231	3.1117	...	3.0690	3.0626	0.006354	3.0239	2B	3.035	3.053	3.0709	3.0792	0.0083	3.1250
(7)		3A	0.0000	3.1250	3.1136	...	3.0709	3.0661	0.004800	3.0258	3B	3.0350	3.0448	3.0709	3.0771	0.0062	3.1250
(7) $3\frac{1}{8}$ – 16 or 3.1250 – 16	UN	2A	0.0017	3.1233	3.1139	...	3.0827	3.0770	0.005680	3.0489	2B	3.057	3.071	3.0844	3.0918	0.0074	3.1250
(7)		3A	0.0000	3.1250	3.1156	...	3.0844	3.0801	0.004300	3.0506	3B	3.0570	3.0659	3.0844	3.0899	0.0055	3.1250
$3\frac{1}{4}$ – 4 or 3.2500 – 4	UNC	1A	0.0033	3.2467	3.2110	...	3.0843	3.0680	0.016300	2.9490	1B	2.979	3.017	3.0876	3.1088	0.0212	3.2500
		2A	0.0033	3.2467	3.2229	3.2110	3.0843	3.0734	0.010879	2.9490	2B	2.979	3.017	3.0876	3.1017	0.0141	3.2500
		3A	0.0000	3.2500	3.2262	...	3.0876	3.0794	0.008200	2.9523	3B	2.9790	3.0094	3.0876	3.0982	0.0106	3.2500
$3\frac{1}{4}$ – 6 or 3.2500 – 6	UN	2A	0.0028	3.2472	3.2290	...	3.1389	3.1294	0.009469	3.0487	2B	3.070	3.100	3.1417	3.1540	0.0123	3.2500
		3A	0.0000	3.2500	3.2318	...	3.1417	3.1346	0.007100	3.0515	3B	3.0700	3.0896	3.1417	3.1509	0.0092	3.2500
$3\frac{1}{4}$ – 8 or 3.2500 – 8	UN	2A	0.0026	3.2474	3.2324	3.2249	3.1662	3.1575	0.008676	3.0986	2B	3.115	3.140	3.1688	3.1801	0.0113	3.2500
		3A	0.0000	3.2500	3.2350	...	3.1688	3.1623	0.006500	3.1012	3B	3.1150	3.1297	3.1688	3.1773	0.0085	3.2500
(7) $3\frac{1}{4}$ – 12 or 3.2500 – 12	UN	2A	0.0019	3.2481	3.2367	...	3.1940	3.1876	0.006383	3.1489	2B	3.160	3.178	3.1959	3.2042	0.0083	3.2500
(7)		3A	0.0000	3.2500	3.2386	...	3.1959	3.1911	0.004800	3.1508	3B	3.1600	3.1698	3.1959	3.2021	0.0062	3.2500
(7) $3\frac{1}{4}$ – 16 or 3.2500 – 16	UN	2A	0.0017	3.2483	3.2389	...	3.2077	3.2020	0.005709	3.1739	2B	3.182	3.196	3.2094	3.2168	0.0074	3.2500
(7)		3A	0.0000	3.2500	3.2406	...	3.2094	3.2051	0.004300	3.1756	3B	3.1820	3.1909	3.2094	3.2150	0.0056	3.2500
$3\frac{3}{8}$ – 6 or 3.3750 – 6	UN	2A	0.0029	3.3721	3.3539	...	3.2638	3.2543	0.009549	3.1736	2B	3.195	3.225	3.2667	3.2791	0.0124	3.3750
		3A	0.0000	3.3750	3.3568	...	3.2667	3.2595	0.007200	3.1765	3B	3.1950	3.2146	3.2667	3.2760	0.0093	3.3750
$3\frac{3}{8}$ – 8 or 3.3750 – 8	UN	2A	0.0026	3.3724	3.3574	...	3.2912	3.2824	0.008756	3.2236	2B	3.240	3.265	3.2938	3.3052	0.0114	3.3750
		3A	0.0000	3.3750	3.3600	...	3.2938	3.2872	0.006600	3.2262	3B	3.2400	3.2547	3.2938	3.3023	0.0085	3.3750
(7) $3\frac{3}{8}$ – 12 or 3.3750 – 12	UN	2A	0.0019	3.3731	3.3617	...	3.3190	3.3126	0.006411	3.2739	2B	3.285	3.303	3.3209	3.3292	0.0083	3.3750
		3A	0.0000	3.3750	3.3636	...	3.3209	3.3161	0.004800	3.2758	3B	3.2850	3.2948	3.3209	3.3272	0.0063	3.3750

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(7) $3\frac{3}{8}$ – 16 or 3.3750 – 16	UN	2A	0.0017	3.3733	3.3639	...	3.3327	3.3270	0.005737	3.2989	2B	3.307	3.321	3.3344	3.3419	0.0075	3.3750
(7)		3A	0.0000	3.3750	3.3656	...	3.3344	3.3301	0.004300	3.3006	3B	3.3070	3.3159	3.3344	3.3400	0.0056	3.3750
$3\frac{1}{2}$ – 4 or 3.5000 – 4	UNC	1A	0.0033	3.4967	3.4610	...	3.3343	3.3177	0.016600	3.1990	1B	3.229	3.267	3.3376	3.3591	0.0215	3.5000
		2A	0.0033	3.4967	3.4729	3.4610	3.3343	3.3233	0.011036	3.1990	2B	3.229	3.267	3.3376	3.3519	0.0143	3.5000
		3A	0.0000	3.5000	3.4762	...	3.3376	3.3293	0.008300	3.2023	3B	3.2290	3.2594	3.3376	3.3484	0.0108	3.5000
$3\frac{1}{2}$ – 6 or 3.5000 – 6	UN	2A	0.0029	3.4971	3.4789	...	3.3888	3.3792	0.009626	3.2986	2B	3.320	3.350	3.3917	3.4042	0.0125	3.5000
		3A	0.0000	3.5000	3.4818	...	3.3917	3.3845	0.007200	3.3015	3B	3.3200	3.3396	3.3917	3.4011	0.0094	3.5000
$3\frac{1}{2}$ – 8 or 3.5000 – 8	UN	2A	0.0026	3.4974	3.4824	3.4749	3.4162	3.4074	0.008833	3.3486	2B	3.365	3.390	3.4188	3.4303	0.0115	3.5000
		3A	0.0000	3.5000	3.4850	...	3.4188	3.4122	0.006600	3.3512	3B	3.3650	3.3797	3.4188	3.4274	0.0086	3.5000
$3\frac{1}{2}$ – 12 or 3.5000 – 12	UN	2A	0.0019	3.4981	3.4867	...	3.4440	3.4376	0.006438	3.3989	2B	3.410	3.428	3.4459	3.4543	0.0084	3.5000
		3A	0.0000	3.5000	3.4886	...	3.4459	3.4411	0.004800	3.4008	3B	3.4100	3.4198	3.4459	3.4522	0.0063	3.5000
$3\frac{1}{2}$ – 16 or 3.5000 – 16	UN	2A	0.0017	3.4983	3.4889	...	3.4577	3.4519	0.005764	3.4239	2B	3.432	3.446	3.4594	3.4669	0.0075	3.5000
(7)		3A	0.0000	3.5000	3.4906	...	3.4594	3.4551	0.004300	3.4256	3B	3.4320	3.4409	3.4594	3.4650	0.0056	3.5000
$3\frac{5}{8}$ – 6 or 3.6250 – 6	UN	2A	0.0029	3.6221	3.6039	...	3.5138	3.5041	0.009703	3.4236	2B	3.445	3.475	3.5167	3.5293	0.0126	3.6250
		3A	0.0000	3.6250	3.6068	...	3.5167	3.5094	0.007300	3.4265	3B	3.4450	3.4646	3.5167	3.5262	0.0095	3.6250
$3\frac{5}{8}$ – 8 or 3.6250 – 8	UN	2A	0.0027	3.6223	3.6073	...	3.5411	3.5322	0.008910	3.4735	2B	3.490	3.515	3.5438	3.5554	0.0116	3.6250
		3A	0.0000	3.6250	3.6100	...	3.5438	3.5371	0.006700	3.4762	3B	3.4900	3.5047	3.5438	3.5525	0.0087	3.6250
$3\frac{5}{8}$ – 12 or 3.6250 – 12	UN	2A	0.0019	3.6231	3.6117	...	3.5690	3.5625	0.006465	3.5239	2B	3.535	3.553	3.5709	3.5793	0.0084	3.6250
(7)		3A	0.0000	3.6250	3.6136	...	3.5709	3.5661	0.004800	3.5258	3B	3.5350	3.5448	3.5709	3.5772	0.0063	3.6250
(7) $3\frac{5}{8}$ – 16 or 3.6250 – 16	UN	2A	0.0017	3.6233	3.6139	...	3.5827	3.5769	0.005791	3.5489	2B	3.557	3.571	3.5844	3.5919	0.0075	3.6250
		3A	0.0000	3.6250	3.6156	...	3.5844	3.5801	0.004300	3.5506	3B	3.5570	3.5659	3.5844	3.5900	0.0056	3.6250
$3\frac{3}{4}$ – 4 or 3.7500 – 4	UNC	1A	0.0034	3.7466	3.7109	...	3.5842	3.5674	0.016800	3.4489	1B	3.479	3.517	3.5876	3.6094	0.0218	3.7500
		2A	0.0034	3.7466	3.7228	3.7109	3.5842	3.5730	0.011188	3.4489	2B	3.479	3.517	3.5876	3.6021	0.0145	3.7500
		3A	0.0000	3.7500	3.7262	...	3.5876	3.5792	0.008400	3.4523	3B	3.4790	3.5094	3.5876	3.5985	0.0109	3.7500
$3\frac{3}{4}$ – 6 or 3.7500 – 6	UN	2A	0.0029	3.7471	3.7289	...	3.6388	3.6290	0.009778	3.5486	2B	3.570	3.600	3.6417	3.6544	0.0127	3.7500
		3A	0.0000	3.7500	3.7318	...	3.6417	3.6344	0.007300	3.5515	3B	3.5700	3.5896	3.6417	3.6512	0.0095	3.7500

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
$3\frac{3}{4}$ – 8 or 3.7500 – 8	UN	2A	0.0027	3.7473	3.7323	3.7248	3.6661	3.6571	0.008985	3.5985	2B	3.615	3.640	3.6688	3.6805	0.0117	3.7500
		3A	0.0000	3.7500	3.7350	...	3.6688	3.6621	0.006700	3.6012	3B	3.6150	3.6297	3.6688	3.6776	0.0088	3.7500
(7) $3\frac{3}{4}$ – 12 or 3.7500 – 12	UN	2A	0.0019	3.7481	3.7367	...	3.6940	3.6875	0.006491	3.6489	2B	3.660	3.678	3.6959	3.7043	0.0084	3.7500
(7)		3A	0.0000	3.7500	3.7386	...	3.6959	3.6910	0.004900	3.6508	3B	3.6600	3.6698	3.6959	3.7022	0.0063	3.7500
(7) $3\frac{3}{4}$ – 16 or 3.7500 – 16	UN	2A	0.0017	3.7483	3.7389	...	3.7077	3.7019	0.005817	3.6739	2B	3.682	3.696	3.7094	3.7170	0.0076	3.7500
(7)		3A	0.0000	3.7500	3.7406	...	3.7094	3.7050	0.004400	3.6756	3B	3.6820	3.6909	3.7094	3.7151	0.0057	3.7500
$3\frac{7}{8}$ – 6 or 3.8750 – 6	UN	2A	0.0030	3.8720	3.8538	...	3.7637	3.7538	0.009852	3.6735	2B	3.695	3.725	3.7667	3.7795	0.0128	3.8750
		3A	0.0000	3.8750	3.8568	...	3.7667	3.7593	0.007400	3.6765	3B	3.6950	3.7146	3.7667	3.7763	0.0096	3.8750
$3\frac{7}{8}$ – 8 or 3.8750 – 8	UN	2A	0.0027	3.8723	3.8573	...	3.7911	3.7820	0.009059	3.7235	2B	3.740	3.765	3.7938	3.8056	0.0118	3.8750
		3A	0.0000	3.8750	3.8600	...	3.7938	3.7870	0.006800	3.7262	3B	3.7400	3.7547	3.7938	3.8026	0.0088	3.8750
$3\frac{7}{8}$ – 12 or 3.8750 – 12	UN	2A	0.0020	3.8730	3.8616	...	3.8189	3.8124	0.006517	3.7738	2B	3.785	3.803	3.8209	3.8294	0.0085	3.8750
		3A	0.0000	3.8750	3.8636	...	3.8209	3.8160	0.004900	3.7758	3B	3.7850	3.7948	3.8209	3.8273	0.0064	3.8750
(7) $3\frac{7}{8}$ – 16 or 3.8750 – 16	UN	2A	0.0018	3.8732	3.8638	...	3.8326	3.8268	0.005843	3.7988	2B	3.807	3.821	3.8344	3.8420	0.0076	3.8750
(7)		3A	0.0000	3.8750	3.8656	...	3.8344	3.8300	0.004400	3.8006	3B	3.8070	3.8159	3.8344	3.8401	0.0057	3.8750
4 – 4 or 4.0000 – 4	UNC	1A	0.0034	3.9966	3.9609	...	3.8342	3.8172	0.017000	3.6989	1B	3.729	3.767	3.8376	3.8597	0.0221	4.0000
		2A	0.0034	3.9966	3.9728	3.9609	3.8342	3.8229	0.011334	3.6989	2B	3.729	3.767	3.8376	3.8523	0.0147	4.0000
		3A	0.0000	4.0000	3.9762	...	3.8376	3.8291	0.008500	3.7023	3B	3.7290	3.7594	3.8376	3.8487	0.0111	4.0000
4 – 6 or 4.0000 – 6	UN	2A	0.0030	3.9970	3.9788	...	3.8887	3.8788	0.009924	3.7985	2B	3.820	3.850	3.8917	3.9046	0.0129	4.0000
		3A	0.0000	4.0000	3.9818	...	3.8917	3.8843	0.007400	3.8015	3B	3.8200	3.8396	3.8917	3.9014	0.0097	4.0000
4 – 8 or 4.0000 – 8	UN	2A	0.0027	3.9973	3.9823	3.9748	3.9161	3.9070	0.009131	3.8485	2B	3.865	3.890	3.9188	3.9307	0.0119	4.0000
		3A	0.0000	4.0000	3.9850	...	3.9188	3.9120	0.006800	3.8512	3B	3.8650	3.8797	3.9188	3.9277	0.0089	4.0000
4 – 12 or 4.0000 – 12	UN	2A	0.0020	3.9980	3.9866	...	3.9439	3.9374	0.006542	3.8988	2B	3.910	3.928	3.9459	3.9544	0.0085	4.0000
		3A	0.0000	4.0000	3.9886	...	3.9459	3.9410	0.004900	3.9008	3B	3.9100	3.9198	3.9459	3.9523	0.0064	4.0000
4 – 16 or 4.0000 – 16	UN	2A	0.0018	3.9982	3.9888	...	3.9576	3.9517	0.005868	3.9238	2B	3.932	3.946	3.9594	3.9670	0.0076	4.0000
(7)		3A	0.0000	4.0000	3.9906	...	3.9594	3.9550	0.004400	3.9256	3B	3.9320	3.9409	3.9594	3.9651	0.0057	4.0000
$4\frac{1}{8}$ – 6 or 4.1250 – 6	UN	2A	0.0030	4.1220	4.1038	...	4.0137	4.0037	0.009996	3.9235	2B	3.945	3.975	4.0167	4.0297	0.0130	4.1250
		3A	0.0000	4.1250	4.1068	...	4.0167	4.0092	0.007500	3.9265	3B	3.9450	3.9646	4.0167	4.0264	0.0097	4.1250

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
$4\frac{1}{8}$ – 8 or 4.1250 – 8	UN	2A	0.0028	4.1222	4.1072	...	4.0410	4.0318	0.009203	3.9734	2B	3.990	4.015	4.0438	4.0558	0.0120	4.1250
		3A	0.0000	4.1250	4.1100	...	4.0438	4.0369	0.006900	3.9762	3B	3.9900	4.0047	4.0438	4.0528	0.0090	4.1250
(7) $4\frac{1}{8}$ – 12 or 4.1250 – 12	UN	2A	0.0020	4.1230	4.1116	...	4.0689	4.0623	0.006567	4.0238	2B	4.035	4.053	4.0709	4.0794	0.0085	4.1250
		3A	0.0000	4.1250	4.1136	...	4.0709	4.0660	0.004900	4.0258	3B	4.0350	4.0448	4.0709	4.0773	0.0064	4.1250
(7) $4\frac{1}{8}$ – 16 or 4.1250 – 16	UN	2A	0.0018	4.1232	4.1138	...	4.0826	4.0767	0.005893	4.0488	2B	4.057	4.071	4.0844	4.0921	0.0077	4.1250
(7)		3A	0.0000	4.1250	4.1156	...	4.0844	4.0800	0.004400	4.0506	3B	4.0570	4.0659	4.0844	4.0901	0.0057	4.1250
$4\frac{1}{4}$ – 4 or 4.2500 – 4	UN	2A	0.0034	4.2466	4.2228	...	4.0842	4.0727	0.011475	3.9489	2B	3.979	4.017	4.0876	4.1025	0.0149	4.2500
		3A	0.0000	4.2500	4.2262	...	4.0876	4.0790	0.008600	3.9523	3B	3.9790	4.0094	4.0876	4.0988	0.0112	4.2500
$4\frac{1}{4}$ – 6 or 4.2500 – 6	UN	2A	0.0030	4.2470	4.2288	...	4.1387	4.1286	0.010065	4.0485	2B	4.070	4.100	4.1417	4.1548	0.0131	4.2500
		3A	0.0000	4.2500	4.2318	...	4.1417	4.1342	0.007500	4.0515	3B	4.0700	4.0896	4.1417	4.1515	0.0098	4.2500
(7) $4\frac{1}{4}$ – 8 or 4.2500 – 8	UN	2A	0.0028	4.2472	4.2322	...	4.1660	4.1567	0.009272	4.0984	2B	4.115	4.140	4.1688	4.1809	0.0121	4.2500
(7)		3A	0.0000	4.2500	4.2350	...	4.1688	4.1618	0.007000	4.1012	3B	4.1150	4.1297	4.1688	4.1778	0.0090	4.2500
(7) $4\frac{1}{4}$ – 12 or 4.2500 – 12	UN	2A	0.0020	4.2480	4.2366	...	4.1939	4.1873	0.006591	4.1488	2B	4.160	4.178	4.1959	4.2045	0.0086	4.2500
		3A	0.0000	4.2500	4.2386	...	4.1959	4.1910	0.004900	4.1508	3B	4.1600	4.1698	4.1959	4.2023	0.0064	4.2500
(7) $4\frac{1}{4}$ – 16 or 4.2500 – 16	UN	2A	0.0018	4.2482	4.2388	...	4.2076	4.2017	0.005917	4.1738	2B	4.182	4.196	4.2094	4.2171	0.0077	4.2500
(7)		3A	0.0000	4.2500	4.2406	...	4.2094	4.2050	0.004400	4.1756	3B	4.1820	4.1909	4.2094	4.2152	0.0058	4.2500
$4\frac{3}{8}$ – 6 or 4.3750 – 6	UN	2A	0.0030	4.3720	4.3538	...	4.2637	4.2536	0.010133	4.1735	2B	4.195	4.225	4.2667	4.2799	0.0132	4.3750
		3A	0.0000	4.3750	4.3568	...	4.2667	4.2591	0.007600	4.1765	3B	4.1950	4.2146	4.2667	4.2766	0.0099	4.3750
(7) $4\frac{3}{8}$ – 8 or 4.3750 – 8	UN	2A	0.0028	4.3722	4.3572	...	4.2910	4.2817	0.009340	4.2234	2B	4.240	4.265	4.2938	4.3059	0.0121	4.3750
		3A	0.0000	4.3750	4.3600	...	4.2938	4.2868	0.007000	4.2262	3B	4.2400	4.2547	4.2938	4.3029	0.0091	4.3750
(7) $4\frac{3}{8}$ – 12 or 4.3750 – 12	UN	2A	0.0020	4.3730	4.3616	...	4.3189	4.3123	0.006614	4.2738	2B	4.285	4.303	4.3209	4.3295	0.0086	4.3750
(7)		3A	0.0000	4.3750	4.3636	...	4.3209	4.3159	0.005000	4.2758	3B	4.2850	4.2948	4.3209	4.3273	0.0064	4.3750
(7) $4\frac{3}{8}$ – 16 or 4.3750 – 16	UN	2A	0.0018	4.3732	4.3638	...	4.3326	4.3267	0.005940	4.2988	2B	4.307	4.321	4.3344	4.3421	0.0077	4.3750
(7)		3A	0.0000	4.3750	4.3656	...	4.3344	4.3299	0.004500	4.3006	3B	4.3070	4.3159	4.3344	4.3402	0.0058	4.3750
$4\frac{1}{2}$ – 4 or 4.5000 – 4	UN	2A	0.0035	4.4965	4.4727	...	4.3341	4.3225	0.011611	4.1988	2B	4.229	4.267	4.3376	4.3527	0.0151	4.5000
		3A	0.0000	4.5000	4.4762	...	4.3376	4.3289	0.008700	4.2023	3B	4.2290	4.2594	4.3376	4.3489	0.0113	4.5000

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
$4\frac{1}{2}$ – 6 or 4.5000 – 6	UN	2A	0.0031	4.4969	4.4787	...	4.3886	4.3784	0.010201	4.2984	2B	4.320	4.350	4.3917	4.4050	0.0133	4.5000
		3A	0.0000	4.5000	4.4818	...	4.3917	4.3840	0.007700	4.3015	3B	4.3200	4.3396	4.3917	4.4016	0.0099	4.5000
$4\frac{1}{2}$ – 8 or 4.5000 – 8	UN	2A	0.0028	4.4972	4.4822	...	4.4160	4.4066	0.009408	4.3484	2B	4.365	4.390	4.4188	4.4310	0.0122	4.5000
		3A	0.0000	4.5000	4.4850	...	4.4188	4.4117	0.007100	4.3512	3B	4.3650	4.3797	4.4188	4.4280	0.0092	4.5000
(7) $4\frac{1}{2}$ – 12 or 4.5000 – 12	UN	2A	0.0020	4.4980	4.4866	...	4.4439	4.4373	0.006637	4.3988	2B	4.410	4.428	4.4459	4.4545	0.0086	4.5000
(7)		3A	0.0000	4.5000	4.4886	...	4.4459	4.4409	0.005000	4.4008	3B	4.4100	4.4198	4.4459	4.4524	0.0065	4.5000
(7) $4\frac{1}{2}$ – 16 or 4.5000 – 16	UN	2A	0.0018	4.4982	4.4888	...	4.4576	4.4516	0.005963	4.4238	2B	4.432	4.446	4.4594	4.4672	0.0078	4.5000
(7)		3A	0.0000	4.5000	4.4906	...	4.4594	4.4549	0.004500	4.4256	3B	4.4320	4.4409	4.4594	4.4652	0.0058	4.5000
$4\frac{5}{8}$ – 6 or 4.6250 – 6	UN	2A	0.0031	4.6219	4.6037	...	4.5136	4.5033	0.010268	4.4234	2B	4.445	4.475	4.5167	4.5300	0.0133	4.6250
		3A	0.0000	4.6250	4.6068	...	4.5167	4.5090	0.007700	4.4265	3B	4.4450	4.4646	4.5167	4.5267	0.0100	4.6250
(7) $4\frac{5}{8}$ – 8 or 4.6250 – 8	UN	2A	0.0028	4.6222	4.6072	...	4.5410	4.5315	0.009475	4.4734	2B	4.490	4.515	4.5438	4.5561	0.0123	4.6250
(7)		3A	0.0000	4.6250	4.6100	...	4.5438	4.5367	0.007100	4.4762	3B	4.4900	4.5047	4.5438	4.5530	0.0092	4.6250
$4\frac{5}{8}$ – 12 or 4.6250 – 12	UN	2A	0.0020	4.6230	4.6116	...	4.5689	4.5622	0.006660	4.5238	2B	4.535	4.553	4.5709	4.5796	0.0087	4.6250
(7)		3A	0.0000	4.6250	4.6136	...	4.5709	4.5659	0.005000	4.5258	3B	4.5350	4.5448	4.5709	4.5774	0.0066	4.6250
(7) $4\frac{5}{8}$ – 16 or 4.6250 – 16	UN	2A	0.0018	4.6232	4.6138	...	4.5826	4.5766	0.005986	4.5488	2B	4.557	4.571	4.5844	4.5922	0.0078	4.6250
(7)		3A	0.0000	4.6250	4.6156	...	4.5844	4.5799	0.004500	4.5506	3B	4.5570	4.5659	4.5844	4.5902	0.0058	4.6250
$4\frac{3}{4}$ – 4 or 4.7500 – 4	UN	2A	0.0035	4.7465	4.7227	...	4.5841	4.5724	0.011743	4.4488	2B	4.479	4.517	4.5876	4.6029	0.0153	4.7500
		3A	0.0000	4.7500	4.7262	...	4.5876	4.5788	0.008800	4.4523	3B	4.4790	4.5094	4.5876	4.5990	0.0114	4.7500
$4\frac{3}{4}$ – 6 or 4.7500 – 6	UN	2A	0.0031	4.7469	4.7287	...	4.6386	4.6283	0.010333	4.5484	2B	4.570	4.600	4.6417	4.6551	0.0134	4.7500
		3A	0.0000	4.7500	4.7318	...	4.6417	4.6340	0.007700	4.5515	3B	4.5700	4.5896	4.6417	4.6518	0.0101	4.7500
$4\frac{3}{4}$ – 8 or 4.7500 – 8	UN	2A	0.0029	4.7471	4.7321	...	4.6659	4.6564	0.009540	4.5983	2B	4.615	4.640	4.6688	4.6812	0.0124	4.7500
(7)		3A	0.0000	4.7500	4.7350	...	4.6688	4.6616	0.007200	4.6012	3B	4.6150	4.6297	4.6688	4.6781	0.0093	4.7500
$4\frac{3}{4}$ – 12 or 4.7500 – 12	UN	2A	0.0020	4.7480	4.7366	...	4.6939	4.6872	0.006682	4.6488	2B	4.660	4.678	4.6959	4.7046	0.0087	4.7500
(7)		3A	0.0000	4.7500	4.7386	...	4.6959	4.6909	0.005000	4.6508	3B	4.6600	4.6698	4.6959	4.7024	0.0065	4.7500
(7) $4\frac{3}{4}$ – 16 or 4.7500 – 16	UN	2A	0.0018	4.7482	4.7388	...	4.7076	4.7016	0.006008	4.6738	2B	4.682	4.696	4.7094	4.7172	0.0078	4.7500
(7)		3A	0.0000	4.7500	4.7406	...	4.7094	4.7049	0.004500	4.6756	3B	4.6820	4.6909	4.7094	4.7153	0.0059	4.7500

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
$4\frac{7}{8}$ – 6 or 4.8750 – 6	UN	2A	0.0031	4.8719	4.8537	...	4.7636	4.7532	0.010398	4.6734	2B	4.695	4.725	4.7667	4.7802	0.0135	4.8750
		3A	0.0000	4.8750	4.8568	...	4.7667	4.7589	0.007800	4.6765	3B	4.6950	4.7146	4.7667	4.7768	0.0101	4.8750
$4\frac{7}{8}$ – 8 or 4.8750 – 8	UN	2A	0.0029	4.8721	4.8571	...	4.7909	4.7813	0.009605	4.7233	2B	4.740	4.765	4.7938	4.8063	0.0125	4.8750
		3A	0.0000	4.8750	4.8600	...	4.7938	4.7866	0.007200	4.7262	3B	4.7400	4.7547	4.7938	4.8032	0.0094	4.8750
$4\frac{7}{8}$ – 12 or 4.8750 – 12	UN	2A	0.0020	4.8730	4.8616	...	4.8189	4.8122	0.006704	4.7738	2B	4.785	4.803	4.8209	4.8296	0.0087	4.8750
(7)		3A	0.0000	4.8750	4.8636	...	4.8209	4.8159	0.005000	4.7758	3B	4.7850	4.7948	4.8209	4.8274	0.0065	4.8750
(7) $4\frac{7}{8}$ – 16 or 4.8750 – 16	UN	2A	0.0018	4.8732	4.8638	...	4.8326	4.8266	0.006030	4.7988	2B	4.807	4.821	4.8344	4.8422	0.0078	4.8750
(7)		3A	0.0000	4.8750	4.8656	...	4.8344	4.8299	0.004500	4.8006	3B	4.8070	4.8159	4.8344	4.8403	0.0059	4.8750
5 – 4 or 5.0000 – 4	UN	2A	0.0036	4.9964	4.9726	...	4.8340	4.8221	0.011872	4.6987	2B	4.729	4.767	4.8376	4.8530	0.0154	5.0000
		3A	0.0000	5.0000	4.9762	...	4.8376	4.8287	0.008900	4.7023	3B	4.7290	4.7594	4.8376	4.8492	0.0116	5.0000
5 – 6 or 5.0000 – 6	UN	2A	0.0031	4.9969	4.9787	...	4.8886	4.8781	0.010462	4.7984	2B	4.820	4.850	4.8917	4.9053	0.0136	5.0000
		3A	0.0000	5.0000	4.9818	...	4.8917	4.8839	0.007800	4.8015	3B	4.8200	4.8396	4.8917	4.9019	0.0102	5.0000
5 – 8 or 5.0000 – 8	UN	2A	0.0029	4.9971	4.9821	...	4.9159	4.9062	0.009669	4.8483	2B	4.865	4.890	4.9188	4.9314	0.0126	5.0000
(7)		3A	0.0000	5.0000	4.9850	...	4.9188	4.9115	0.007300	4.8512	3B	4.8650	4.8797	4.9188	4.9282	0.0094	5.0000
5 – 12 or 5.0000 – 12	UN	2A	0.0020	4.9980	4.9866	...	4.9439	4.9372	0.006726	4.8988	2B	4.910	4.928	4.9459	4.9546	0.0087	5.0000
		3A	0.0000	5.0000	4.9886	...	4.9459	4.9409	0.005000	4.9008	3B	4.9100	4.9198	4.9459	4.9525	0.0066	5.0000
5 – 16 or 5.0000 – 16	UN	2A	0.0018	4.9982	4.9888	...	4.9576	4.9515	0.006052	4.9238	2B	4.932	4.946	4.9594	4.9673	0.0079	5.0000
(7)		3A	0.0000	5.0000	4.9906	...	4.9594	4.9549	0.004500	4.9256	3B	4.9320	4.9409	4.9594	4.9653	0.0059	5.0000
$5\frac{1}{8}$ – 6 or 5.1250 – 6	UN	2A	0.0032	5.1218	5.1036	...	5.0135	5.0030	0.010525	4.9233	2B	4.945	4.975	5.0167	5.0304	0.0137	5.1250
		3A	0.0000	5.1250	5.1068	...	5.0167	5.0088	0.007900	4.9265	3B	4.9450	4.9646	5.0167	5.0270	0.0103	5.1250
(7) $5\frac{1}{8}$ – 8 or 5.1250 – 8	UN	2A	0.0029	5.1221	5.1071	...	5.0409	5.0312	0.009732	4.9733	2B	4.990	5.015	5.0438	5.0565	0.0127	5.1250
		3A	0.0000	5.1250	5.1100	...	5.0438	5.0365	0.007300	4.9762	3B	4.9900	5.0047	5.0438	5.0533	0.0095	5.1250
(7) $5\frac{1}{8}$ – 12 or 5.1250 – 12	UN	2A	0.0020	5.1230	5.1116	...	5.0689	5.0622	0.006747	5.0238	2B	5.035	5.053	5.0709	5.0797	0.0088	5.1250
(7)		3A	0.0000	5.1250	5.1136	...	5.0709	5.0658	0.005100	5.0258	3B	5.0350	5.0448	5.0709	5.0775	0.0066	5.1250
$5\frac{1}{8}$ – 16 or 5.1250 – 16	UN	2A	0.0018	5.1232	5.1138	...	5.0826	5.0765	0.006073	5.0488	2B	5.057	5.071	5.0844	5.0923	0.0079	5.1250
(7)		3A	0.0000	5.1250	5.1156	...	5.0844	5.0798	0.004600	5.0506	3B	5.0570	5.0659	5.0844	5.0903	0.0059	5.1250

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
$5\frac{1}{4}$ – 4 or 5.2500 – 4	UN	2A	0.0036	5.2464	5.2226	...	5.0840	5.0720	0.011997	4.9487	2B	4.979	5.017	5.0876	5.1032	0.0156	5.2500
		3A	0.0000	5.2500	5.2262	...	5.0876	5.0786	0.009000	4.9523	3B	4.9790	5.0094	5.0876	5.0993	0.0117	5.2500
$5\frac{1}{4}$ – 6 or 5.2500 – 6	UN	2A	0.0032	5.2468	5.2286	...	5.1385	5.1279	0.010587	5.0483	2B	5.070	5.100	5.1417	5.1555	0.0138	5.2500
		3A	0.0000	5.2500	5.2318	...	5.1417	5.1338	0.007900	5.0515	3B	5.0700	5.0896	5.1417	5.1520	0.0103	5.2500
$5\frac{1}{4}$ – 8 or 5.2500 – 8	UN	2A	0.0029	5.2471	5.2321	...	5.1659	5.1561	0.009794	5.0983	2B	5.115	5.140	5.1688	5.1815	0.0127	5.2500
(7)		3A	0.0000	5.2500	5.2350	...	5.1688	5.1615	0.007300	5.1012	3B	5.1150	5.1297	5.1688	5.1783	0.0095	5.2500
(7) $5\frac{1}{4}$ – 12 or 5.2500 – 12	UN	2A	0.0020	5.2480	5.2366	...	5.1939	5.1871	0.006768	5.1488	2B	5.160	5.178	5.1959	5.2047	0.0088	5.2500
(7)		3A	0.0000	5.2500	5.2386	...	5.1959	5.1908	0.005100	5.1508	3B	5.1600	5.1698	5.1959	5.2025	0.0066	5.2500
$5\frac{1}{4}$ – 16 or 5.2500 – 16	UN	2A	0.0018	5.2482	5.2388	...	5.2076	5.2015	0.006094	5.1738	2B	5.182	5.196	5.2094	5.2173	0.0079	5.2500
(7)		3A	0.0000	5.2500	5.2406	...	5.2094	5.2048	0.004600	5.1756	3B	5.1820	5.1909	5.2094	5.2153	0.0059	5.2500
$5\frac{3}{8}$ – 6 or 5.3750 – 6	UN	2A	0.0032	5.3718	5.3536	...	5.2635	5.2529	0.010649	5.1733	2B	5.195	5.225	5.2667	5.2805	0.0138	5.3750
		3A	0.0000	5.3750	5.3568	...	5.2667	5.2587	0.008000	5.1765	3B	5.1950	5.2146	5.2667	5.2771	0.0104	5.3750
(7) $5\frac{3}{8}$ – 8 or 5.3750 – 8	UN	2A	0.0030	5.3720	5.3570	...	5.2908	5.2809	0.009856	5.2232	2B	5.240	5.265	5.2938	5.3066	0.0128	5.3750
(7)		3A	0.0000	5.3750	5.3600	...	5.2938	5.2864	0.007400	5.2262	3B	5.2400	5.2547	5.2938	5.3034	0.0096	5.3750
(7) $5\frac{3}{8}$ – 12 or 5.3750 – 12	UN	2A	0.0020	5.3730	5.3616	...	5.3189	5.3121	0.006789	5.2738	2B	5.285	5.303	5.3209	5.3297	0.0088	5.3750
(7)		3A	0.0000	5.3750	5.3636	...	5.3209	5.3158	0.005100	5.2758	3B	5.2850	5.2948	5.3209	5.3275	0.0066	5.3750
$5\frac{3}{8}$ – 16 or 5.3750 – 16	UN	2A	0.0018	5.3732	5.3638	...	5.3326	5.3265	0.006115	5.2988	2B	5.307	5.321	5.3344	5.3423	0.0079	5.3750
(7)		3A	0.0000	5.3750	5.3656	...	5.3344	5.3298	0.004600	5.3006	3B	5.3070	5.3159	5.3344	5.3404	0.0060	5.3750
$5\frac{1}{2}$ – 4 or 5.5000 – 4	UN	2A	0.0036	5.4964	5.4726	...	5.3340	5.3219	0.012119	5.1987	2B	5.229	5.267	5.3376	5.3534	0.0158	5.5000
		3A	0.0000	5.5000	5.4762	...	5.3376	5.3285	0.009100	5.2023	3B	5.2290	5.2594	5.3376	5.3494	0.0118	5.5000
$5\frac{1}{2}$ – 6 or 5.5000 – 6	UN	2A	0.0032	5.4968	5.4786	...	5.3885	5.3778	0.010709	5.2983	2B	5.320	5.350	5.3917	5.4056	0.0139	5.5000
		3A	0.0000	5.5000	5.4818	...	5.3917	5.3837	0.008000	5.3015	3B	5.3200	5.3396	5.3917	5.4021	0.0104	5.5000
$5\frac{1}{2}$ – 8 or 5.5000 – 8	UN	2A	0.0030	5.4970	5.4820	...	5.4158	5.4059	0.009916	5.3482	2B	5.365	5.390	5.4188	5.4317	0.0129	5.5000
		3A	0.0000	5.5000	5.4850	...	5.4188	5.4114	0.007400	5.3512	3B	5.3650	5.3797	5.4188	5.4285	0.0097	5.5000
(7) $5\frac{1}{2}$ – 12 or 5.5000 – 12	UN	2A	0.0020	5.4980	5.4866	...	5.4439	5.4371	0.006809	5.3988	2B	5.410	5.428	5.4459	5.4548	0.0089	5.5000
(7)		3A	0.0000	5.5000	5.4886	...	5.4459	5.4408	0.005100	5.4008	3B	5.4100	5.4198	5.4459	5.4525	0.0066	5.5000

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]									Internal [Note (1)]						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (4)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (4)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance [Note (5)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(7) $5\frac{1}{2}$ – 16 or 5.5000 – 16	UN	2A	0.0018	5.4982	5.4888	...	5.4576	5.4515	0.006135	5.4238	2B	5.432	5.446	5.4594	5.4674	0.0080	5.5000
(7)		3A	0.0000	5.5000	5.4906	...	5.4594	5.4548	0.004600	5.4256	3B	5.4320	5.4409	5.4594	5.4654	0.0060	5.5000
$5\frac{5}{8}$ – 6 or 5.6250 – 6	UN	2A	0.0032	5.6218	5.6036	...	5.5135	5.5027	0.010769	5.4233	2B	5.445	5.475	5.5167	5.5307	0.0140	5.6250
		3A	0.0000	5.6250	5.6068	...	5.5167	5.5086	0.008100	5.4265	3B	5.4450	5.4646	5.5167	5.5272	0.0105	5.6250
$5\frac{5}{8}$ – 8 or 5.6250 – 8	UN	2A	0.0030	5.6220	5.6070	...	5.5408	5.5308	0.009976	5.4732	2B	5.490	5.515	5.5438	5.5568	0.0130	5.6250
(7)		3A	0.0000	5.6250	5.6100	...	5.5438	5.5363	0.007500	5.4762	3B	5.4900	5.5047	5.5438	5.5535	0.0097	5.6250
(7) $5\frac{5}{8}$ – 12 or 5.6250 – 12	UN	2A	0.0020	5.6230	5.6116	...	5.5689	5.5621	0.006829	5.5238	2B	5.535	5.553	5.5709	5.5798	0.0089	5.6250
(7)		3A	0.0000	5.6250	5.6136	...	5.5709	5.5658	0.005100	5.5258	3B	5.5350	5.5448	5.5709	5.5776	0.0067	5.6250
(7) $5\frac{5}{8}$ – 16 or 5.6250 – 16	UN	2A	0.0018	5.6232	5.6138	...	5.5826	5.5764	0.006155	5.5488	2B	5.557	5.571	5.5844	5.5924	0.0080	5.6250
(7)		3A	0.0000	5.6250	5.6156	...	5.5844	5.5798	0.004600	5.5506	3B	5.5570	5.5659	5.5844	5.5904	0.0060	5.6250
$5\frac{3}{4}$ – 4 or 5.7500 – 4	UN	2A	0.0037	5.7463	5.7225	...	5.5839	5.5717	0.012237	5.4486	2B	5.479	5.517	5.5876	5.6035	0.0159	5.7500
		3A	0.0000	5.7500	5.7262	...	5.5876	5.5784	0.009200	5.4523	3B	5.4790	5.5094	5.5876	5.5995	0.0119	5.7500
$5\frac{3}{4}$ – 6 or 5.7500 – 6	UN	2A	0.0032	5.7468	5.7286	...	5.6385	5.6277	0.010827	5.5483	2B	5.570	5.600	5.6417	5.6558	0.0141	5.7500
		3A	0.0000	5.7500	5.7318	...	5.6417	5.6336	0.008100	5.5515	3B	5.5700	5.5896	5.6417	5.6523	0.0106	5.7500
(7) $5\frac{3}{4}$ – 8 or 5.7500 – 8	UN	2A	0.0030	5.7470	5.7320	...	5.6658	5.6558	0.010034	5.5982	2B	5.615	5.640	5.6688	5.6818	0.0130	5.7500
		3A	0.0000	5.7500	5.7350	...	5.6688	5.6613	0.007500	5.6012	3B	5.6150	5.6297	5.6688	5.6786	0.0098	5.7500
(7) $5\frac{3}{4}$ – 12 or 5.7500 – 12	UN	2A	0.0021	5.7479	5.7365	...	5.6938	5.6870	0.006848	5.6487	2B	5.660	5.678	5.6959	5.7048	0.0089	5.7500
(7)		3A	0.0000	5.7500	5.7386	...	5.6959	5.6908	0.005100	5.6508	3B	5.6600	5.6698	5.6959	5.7026	0.0067	5.7500
(7) $5\frac{3}{4}$ – 6 or 5.7500 – 16	UN	2A	0.0019	5.7481	5.7387	...	5.7075	5.7013	0.006174	5.6737	2B	5.682	5.696	5.7094	5.7174	0.0080	5.7500
(7)		3A	0.0000	5.7500	5.7406	...	5.7094	5.7048	0.004600	5.6756	3B	5.6820	5.6909	5.7094	5.7154	0.0060	5.7500
$5\frac{7}{8}$ – 6 or 5.8750 – 6	UN	2A	0.0033	5.8717	5.8535	...	5.7634	5.7525	0.010886	5.6732	2B	5.695	5.725	5.7667	5.7809	0.0142	5.8750
		3A	0.0000	5.8750	5.8568	...	5.7667	5.7585	0.008200	5.6765	3B	5.6950	5.7146	5.7667	5.7773	0.0106	5.8750
(7) $5\frac{7}{8}$ – 8 or 5.8750 – 8	UN	2A	0.0030	5.8720	5.8570	...	5.7908	5.7807	0.010093	5.7232	2B	5.740	5.765	5.7938	5.8069	0.0131	5.8750
		3A	0.0000	5.8750	5.8600	...	5.7938	5.7862	0.007600	5.7262	3B	5.7400	5.7547	5.7938	5.8036	0.0098	5.8750
(7) $5\frac{7}{8}$ – 12 or 5.8750 – 12	UN	2A	0.0021	5.8729	5.8615	...	5.8188	5.8119	0.006868	5.7737	2B	5.785	5.803	5.8209	5.8298	0.0089	5.8750
		3A	0.0000	5.8750	5.8636	...	5.8209	5.8157	0.005200	5.7758	3B	5.7850	5.7948	5.8209	5.8276	0.0067	5.8750

Table 2 Limits of Size for Standard Series Threads (UN/UNR) (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)] Class	Allowance	Major Diameter Max. [Note (2)]	Major Diameter Min.	Major Diameter Min. [Note (3)]	Pitch Diameter and Functional Diameter [Note (4)] Max. [Note (2)]	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance [Note (5)]	UNR Minor Diameter, Max. [Note (6)] (Ref.)	Internal [Note (1)] Class	Minor Diameter Min.	Minor Diameter Max.	Pitch Diameter and Functional Diameter [Note (4)] Min.	Pitch Diameter and Functional Diameter [Note (4)] Max.	Pitch Diameter and Functional Diameter [Note (4)] Tolerance	Major Diameter, Min.
$5\frac{7}{8}$ – 16 or 5.8750 – 16	UN	2A	0.0019	5.8731	5.8637	...	5.8325	5.8263	0.006194	5.7987	2B	5.807	5.821	5.8344	5.8425	0.0081	5.8750
(7)		3A	0.0000	5.8750	5.8656	...	5.8344	5.8298	0.004600	5.8006	3B	5.8070	5.8159	5.8344	5.8404	0.0060	5.8750
6 – 4 or 6.0000 – 4	UN	2A	0.0037	5.9963	5.9725	...	5.8339	5.8215	0.012353	5.6986	2B	5.729	5.767	5.8376	5.8537	0.0161	6.0000
		3A	0.0000	6.0000	5.9762	...	5.8376	5.8283	0.009300	5.7023	3B	5.7290	5.7594	5.8376	5.8496	0.0120	6.0000
6 – 6 or 6.0000 – 6	UN	2A	0.0033	5.9967	5.9785	...	5.8884	5.8775	0.010943	5.7982	2B	5.820	5.850	5.8917	5.9059	0.0142	6.0000
		3A	0.0000	6.0000	5.9818	...	5.8917	5.8835	0.008200	5.8015	3B	5.8200	5.8396	5.8917	5.9024	0.0107	6.0000
(7) 6 – 8 or 6.0000 – 8	UN	2A	0.0030	5.9970	5.9820	...	5.9158	5.9057	0.010150	5.8482	2B	5.865	5.890	5.9188	5.9320	0.0132	6.0000
(7)		3A	0.0000	6.0000	5.9850	...	5.9188	5.9112	0.007600	5.8512	3B	5.8650	5.8797	5.9188	5.9287	0.0099	6.0000
6 – 12 or 6.0000 – 12	UN	2A	0.0021	5.9979	5.9865	...	5.9438	5.9369	0.006887	5.8987	2B	5.910	5.928	5.9459	5.9549	0.0090	6.0000
		3A	0.0000	6.0000	5.9886	...	5.9459	5.9407	0.005200	5.9008	3B	5.9100	5.9198	5.9459	5.9526	0.0067	6.0000
6 – 16 or 6.0000 – 16	UN	2A	0.0019	5.9981	5.9887	...	5.9575	5.9513	0.006213	5.9237	2B	5.932	5.946	5.9594	5.9675	0.0081	6.0000
(7)		3A	0.0000	6.0000	5.9906	...	5.9594	5.9547	0.004700	5.9256	3B	5.9320	5.9409	5.9594	5.9655	0.0061	6.0000

GENERAL NOTE: Series designation shown indicates the UN thread form; however, the UNR thread form may be specified by substituting UNR in place of UN in all designations for external use only.

NOTES:

(1) Thread classes may be combined. See para. 4.2.

(2) For Class 2A threads having an additive finish, the maximum major and pitch diameters, after coating, may equal the basic sizes, whose values are the same as maximum values shown for Class 3A in these columns. See paras. 4.1.1 and 4.1.3.

(3) For unfinished hot material, not including standard fasteners with rolled threads.

(4) See para. 5.2.1 for Functional Diameter.

(5) 2A pitch diameter tolerance (Td_2) is listed and used to a six place decimal to calculate the listed Class 1A/1B, 2B, 3A/3B tolerances and Class 1A/2A allowances and all dimensional limits that depend upon them.

(6) These values are for reference only. UN series external thread maximum minor diameter is basic (D_1 in para. 11) for Class 3A and basic minus allowance for Classes 1A and 2A.

(7) One or more of the numbers listed in this row have been changed to correct for calculation and rounding errors. The original numbers from past issues of B1.1 are listed in Appendix E and are for reference only.

(8) Formerly NF. Not a recommended standard size. Tolerances and allowances are based on one diameter length of engagement.

4 SCREW THREAD CLASSES

4.1 Thread Classes

Thread classes are distinguished from each other by the amounts of tolerance and allowance. Classes 1A, 2A, and 3A apply to external threads only, and Classes 1B, 2B, and 3B apply to internal threads only. Allowance is specified only for Classes 1A and 2A and the allowance is identical for both classes. Tolerance decreases as class number increases (e.g., tolerance for Class 3A is less than that for Class 2A, which is less than that for Class 1A).

4.1.1 Classes 1A and 1B Threads. Classes 1A (external) and 1B (internal) threads replaced American National Class 1 screw threads. These classes provide for applications where a liberal tolerance and an allowance are required to permit easy assembly even with slightly nicked threads. These classes are intended for ordnance and other special uses. Maximum diameters of Class 1A threads are less than basic by the amount of the allowance (the allowance is identical to that for Class 2A). The allowance is not available for plating or coating; and consequently, in some cases it may be necessary to make special provisions in thread manufacturing for accommodation of plating or coating. The minimum diameters of Class 1B threads, whether or not plated or coated, are basic and consequently afford no allowance or clearance for assembly at maximum-material limits.

4.1.2 Classes 2A and 2B Threads. Classes 2A (external) and 2B (internal) threads are the most commonly used thread classes for general applications, including production of bolts, screws, nuts, and similar threaded fasteners.

The maximum diameters of Class 2A uncoated threads are less than basic by the amount of the allowance. The allowance minimizes galling and seizing in high-cycle wrench assembly, or it can be used to accommodate plated finishes or other coating. However, for threads with additive finish, the maximum diameters of Class 2A may be exceeded by the amount of the allowance; i.e., the 2A maximum diameters apply to an unplated part or to a part before plating, whereas the basic diameters apply to a part after plating. The minimum diameters of Class 2B threads, whether or not plated or coated, are basic, affording no allowance or clearance in assembly at maximum-material limits.

4.1.3 Classes 3A and 3B Threads. Classes 3A (external) and 3B (internal) threads provide for applications where closeness of fit and/or accuracy of thread elements are important. The maximum diameters of Class 3A threads and the minimum diameters of Class 3B threads, whether or not plated or coated, are basic, affording no allowance or clearance for assembly at maximum-material limits.

4.2 Combinations of Classes

The requirements for screw thread fits for specific applications are predicated on end use and can be met by specifying the proper combinations of thread classes for the components. For example, a Class 2A external thread may be used with a Class 1B, 2B, or 3B internal thread.

5 SCREW THREAD ALLOWANCE AND TOLERANCE

5.1 Allowance

Allowance is specified only for Classes 1A and 2A external threads. For Class 1A threads, its purpose is to preclude the possibility of surface-to-surface fit between mating parts and it cannot be used to accommodate plating or coating. For Class 2A threads, the allowance may be used to accommodate plating or coating. Allowance for Classes 1A and 2A is identical and is based on Class 2A pitch diameter tolerance for the respective series standard length of engagement and is applicable for all lengths of engagement.

Formulas for allowance are given in para. 5.8.1(a).

Applications of allowances to the basic thread form are shown in Fig. 2.

EXAMPLE: 2.0625-12-UNS-2A

From para. 5.8.1(a): Allowance, $es = 0.300\ Td_2(2A)$.

From para. 5.2, example (1): $Td_2(2A) = 0.006070$.

Therefore, $es = 0.300 \times 0.006070 = 0.001821$, or 0.0018 in. when rounded.

5.2 Pitch Diameter Tolerance, All Classes

NOTE: Refer to Table 1 for the standard series of diameter-pitch combinations. Allowances and tolerances for standard series threads are applied in Table 2. All other diameter-pitch combinations are considered nonstandard. Allowances and tolerances for nonstandard threads must be calculated using the appropriate formulas contained in this Standard.

The pitch diameter tolerances specified in Table 2 for all classes of the UNC and UNF series are based on a length of engagement equal to the basic major (nominal) diameter and are applicable for lengths of engagement from 5 pitches to up to 1.5 diameters. For the 4-UN, 6-UN, and 8-UN series, the pitch diameter tolerances specified for Classes 2A, 2B, 3A, and 3B are based on a length of engagement equal to the basic major (nominal) diameter and are applicable for lengths of engagement up to 1.5 diameters.

The pitch diameter tolerances specified in Table 2 for all classes of the UNEF, 12-UN, 16-UN, 20-UN, 28-UN, and 32-UN series are based on a length of engagement of 9 pitches and are applicable for lengths of engagement from 5 to 15 pitches.

The pitch diameter tolerances specified in Table D-1 of Nonmandatory Appendix D for all classes of the UNS series are based on a length of engagement of 9 pitches and are applicable for lengths of engagement from 5 to 15 pitches.

Formulas for pitch diameter tolerance are given in paras. 5.8.1(c) and 5.8.2(b).

Applications of tolerances to the thread form are shown in Figs. 2 and 3.

For special threads, tolerances and allowances shall be computed from the formulas in paras. 5.8.1 and 5.8.2. If the length of engagement is between 5 and 15 pitches or is unknown, use 9 pitches in the applicable formulas. For all other lengths of engagement, use the known values.

EXAMPLES:

(1) 2.0625-12-UNS-2A (length of engagement not specified)

$$Td_2 = 0.0015\sqrt[3]{D} + 0.0015\sqrt{LE} + 0.015\sqrt[3]{P^2}$$

$$Td_2 = 0.0015\sqrt[3]{2.0625} + 0.0015\sqrt{9/12} + 0.015\sqrt[3]{0.08333333^2}$$

$$Td_2 = 0.001909 + 0.001299 + 0.002862$$

$$Td_2 = 0.006070$$

(2) 2.0625-12-UNS-SE2A (18 pitches length of engagement)

$$Td_2 = 0.0015\sqrt[3]{D} + 0.0015\sqrt{LE} + 0.015\sqrt[3]{P^2}$$

$$Td_2 = 0.0015\sqrt[3]{2.0625} + 0.0015\sqrt{1.500} + 0.015\sqrt[3]{0.08333333^2}$$

$$Td_2 = 0.001909 + 0.001837 + 0.002862$$

$$Td_2 = 0.006608$$

5.2.1 Functional Diameter. Functional diameter size includes the effects of all variations in pitch diameter, thread form, and profile. The variations in the individual thread characteristics, such as flank angle, lead, taper, and roundness, on a given thread cause the measurements of the pitch diameter and functional diameter to vary from one another on most threads. The pitch diameter and functional diameter on a given thread are equal to one another only when the thread form is perfect.

When required to inspect/evaluate either the pitch diameter and/or the functional diameter for thread acceptance (see ASME B1.3), use the same limits of size for the appropriate thread size and class.

5.3 Special Lengths of Engagement, *LE*

For special applications, the required length of engagement might be the determining factor in the proper selection of thread tolerances. When design considerations require nonstandard pitches or extreme conditions of engagement not covered by the tables, the tolerances may be adjusted using the formulas. It is particularly important that changes in tolerance be noted by the user for external threads designated Class 3A when using longer than standard lengths of engagement.

5.3.1 Long *LE* Using Gage Length *LG* Equal to *LE*

(a) High-Strength Materials Using Standard Pitch Diameter Tolerances. For applications of long length of engagement of mating parts involving very high-strength materials, increases in tolerances based on standard length of engagement may be detrimental. In these cases, the tolerances based on the standard length of engagement may be applied to increased length of engagement threads. This requires the GO thread gages to have a special length equal to the length of engagement.

(b) Standard Bolt, Added Allowance in Tapped Hole, LE Increases. In some cases where greater than standard length of engagement is required, it is desirable to use standard externally threaded parts with tolerances based on standard length of engagement. For example, in the case of a standard bolt assembled into a tapped hole in aluminum, the designation of the bolt thread will conform to that of a thread for a standard length of engagement.

To ensure proper assembly, the tapped hole thread into which the bolt is assembled must not interfere with the bolt thread. This could happen if no special provisions were made in the tapped hole thread due to the cumulative effect of lead variation on the bolt thread, inasmuch as the increased length of engagement exceeds the thickness of the GO thread gage used for acceptance of the bolt thread. To avoid this condition, an allowance should be provided in the tapped hole, the amount of which should be the diameter equivalent of the cumulative lead variation for the increased length of engagement, which is one-half the pitch diameter tolerance of the bolt thread allowed for the standard length of engagement. This requires the GO thread and GO plain gages to have a special length equal to the length of engagement.

EXAMPLE: 0.5000-13UNC-SE2B; $LE = 1$ in. (2 diameters); assembled with standard bolt thread.

Add allowance $EI = \frac{1}{2}Td_2$ for standard bolt thread. From Table 3, column 5, $\frac{1}{2}Td_2$ (standard) = 0.0025. Therefore, the thread is redesignated to indicate a nonstandard internal thread with the allowance of 0.0025 added to the basic size of 0.5000. New designation is 0.5025-13UNS-SE2B. Allowance is also added to the standard minor diameter size limits and to the adjusted pitch diameter size limits. See para. 6.6.1.

(c) Standard Internal Thread, Added Allowance on External Thread, es, Increases. In some cases where greater than standard length of engagement is required, it is desirable to use standard internally threaded parts with tolerances based on standard length of engagement. In these cases an allowance should be added to the mating external thread.

EXAMPLE: 0.3750-24UNF-SE2A; $LE = 0.88$ in. (2.35 diameters); assembled with standard internal thread.

Add allowance, equal to $\frac{1}{2}TD_2$ for standard internal thread. From Table 3, column 8, $\frac{1}{2}TD_2$ (standard) = 0.00245, which is rounded to 0.0025. Therefore, the thread is redesignated to indicate a nonstandard external thread with the allowance of 0.0025 subtracted from the basic size of 0.3750. New designation is 0.3725-24UNS-SE2A. The added allowance is also subtracted from the standard major diameter size limits and from the adjusted pitch diameter size limits. See para. 6.6.1.

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

		External			Internal		
Nominal Size and Threads/in.	Series Designation	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
0 – 80 or 0.060 – 80	UNF	2A	0.00052	0.00090	2B	0.00066	0.00115
		3A	0.00038	0.00065	3B	0.00048	0.00085
1 – 64 or 0.073 – 64	UNC	2A	0.00058	0.00100	2B	0.00075	0.00130
		3A	0.00043	0.00075	3B	0.00055	0.00095
1 – 72 or 0.073 – 72	UNF	2A	0.00055	0.00095	2B	0.00072	0.00125
		3A	0.00040	0.00070	3B	0.00055	0.00095
2 – 56 or 0.086 – 56	UNC	2A	0.00061	0.00105	2B	0.00081	0.00140
		3A	0.00046	0.00080	3B	0.00061	0.00105
2 – 64 or 0.086 – 64	UNF	2A	0.00058	0.00100	2B	0.00078	0.00135
		3A	0.00043	0.00075	3B	0.00058	0.00100
3 – 48 or 0.099 – 48	UNC	2A	0.00066	0.00115	2B	0.00087	0.00150
		3A	0.00049	0.00085	3B	0.00064	0.00110
3 – 56 or 0.099 – 56	UNF	2A	0.00064	0.00110	2B	0.00081	0.00140
		3A	0.00046	0.00080	3B	0.00061	0.00105
4 – 40 or 0.112 – 40	UNC	2A	0.00072	0.00125	2B	0.00095	0.00165
		3A	0.00055	0.00095	3B	0.00069	0.00120
4 – 48 or 0.112 – 48	UNF	2A	0.00069	0.00120	2B	0.00089	0.00155
		3A	0.00052	0.00090	3B	0.00066	0.00115
5 – 40 or 0.125 – 40	UNC	2A	0.00075	0.00130	2B	0.00095	0.00165
		3A	0.00055	0.00095	3B	0.00072	0.00125
5 – 44 or 0.125 – 44	UNF	2A	0.00072	0.00125	2B	0.00092	0.00160
		3A	0.00055	0.00095	3B	0.00069	0.00120
6 – 32 or 0.138 – 32	UNC	2A	0.00081	0.00140	2B	0.00107	0.00185
		3A	0.00061	0.00105	3B	0.00078	0.00135
6 – 40 or 0.138 – 40	UNF	2A	0.00075	0.00130	2B	0.00098	0.00170
		3A	0.00058	0.00100	3B	0.00072	0.00125
8 – 32 or 0.164 – 32	UNC	2A	0.00084	0.00145	2B	0.00110	0.00190
		3A	0.00064	0.00110	3B	0.00081	0.00140
8 – 36 or 0.164 – 36	UNF	2A	0.00081	0.00140	2B	0.00104	0.00180
		3A	0.00061	0.00105	3B	0.00078	0.00135
10 – 24 or 0.190 – 24	UNC	2A	0.00095	0.00165	2B	0.00124	0.00215
		3A	0.00072	0.00125	3B	0.00092	0.00160
10 – 32 or 0.190 – 32	UNF	2A	0.00087	0.00150	2B	0.00113	0.00195
		3A	0.00066	0.00115	3B	0.00084	0.00145
12 – 24 or 0.216 – 24	UNC	2A	0.00098	0.00170	2B	0.00127	0.00220
		3A	0.00075	0.00130	3B	0.00095	0.00165
12 – 28 or 0.216 – 28	UNF	2A	0.00092	0.00160	2B	0.00121	0.00210
		3A	0.00069	0.00120	3B	0.00089	0.00155
12 – 32 or 0.216 – 32	UNEF	2A	0.00089	0.00155	2B	0.00118	0.00205
		3A	0.00069	0.00120	3B	0.00089	0.00155
$\frac{1}{4}$ – 20 or 0.250 – 20	UNC	1A	0.00162	0.00280	1B	0.00211	0.00365
		2A	0.00107	0.00185	2B	0.00141	0.00245
		3A	0.00081	0.00140	3B	0.00104	0.00180

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
1/4 – 28 or 0.250 – 28	UNF	1A	0.00144	0.00250	1B	0.00188	0.00325
		2A	0.00095	0.00165	2B	0.00124	0.00215
		3A	0.00072	0.00125	3B	0.00092	0.00160
1/4 – 32 or 0.250 – 32	UNEF	2A	0.00092	0.00160	2B	0.00121	0.00210
		3A	0.00069	0.00120	3B	0.00089	0.00155
5/16 – 18 or 0.3125 – 18	UNC	1A	0.00176	0.00305	1B	0.00223	0.00395
		2A	0.00115	0.00200	2B	0.00153	0.00265
		3A	0.00087	0.00150	3B	0.00113	0.00195
5/16 – 20 or 0.3125 – 20	UN	2A	0.00115	0.00200	2B	0.00150	0.00260
		3A	0.00087	0.00150	3B	0.00113	0.00195
5/16 – 24 or 0.3125 – 24	UNF	1A	0.00159	0.00275	1B	0.00205	0.00355
		2A	0.00107	0.00185	2B	0.00139	0.00240
		3A	0.00078	0.00135	3B	0.00104	0.00180
5/16 – 28 or 0.3125 – 28	UN	2A	0.00098	0.00170	2B	0.00127	0.00220
		3A	0.00075	0.00130	3B	0.00095	0.00165
5/16 – 32 or 0.3125 – 32	UNEF	2A	0.00092	0.00160	2B	0.00121	0.00210
		3A	0.00069	0.00120	3B	0.00089	0.00155
3/8 – 16 or 0.375 – 16	UNC	1A	0.00188	0.00325	1B	0.00245	0.00425
		2A	0.00127	0.00220	2B	0.00165	0.00285
		3A	0.00095	0.00165	3B	0.00124	0.00215
3/8 – 20 or 0.375 – 20	UN	2A	0.00118	0.00205	2B	0.00156	0.00270
		3A	0.00089	0.00155	3B	0.00115	0.00200
3/8 – 24 or 0.375 – 24	UNF	1A	0.00165	0.00285	1B	0.00214	0.00370
		2A	0.00110	0.00190	2B	0.00141	0.00245
		3A	0.00084	0.00145	3B	0.00107	0.00185
3/8 – 28 or 0.375 – 28	UN	2A	0.00104	0.00180	2B	0.00133	0.00230
		3A	0.00078	0.00135	3B	0.00101	0.00175
3/8 – 32 or 0.375 – 32	UNEF	2A	0.00098	0.00170	2B	0.00127	0.00220
		3A	0.00072	0.00125	3B	0.00095	0.00165
7/16 – 14 or 0.4375 – 14	UNC	1A	0.00205	0.00355	1B	0.00266	0.00460
		2A	0.00136	0.00235	2B	0.00176	0.00305
		3A	0.00101	0.00175	3B	0.00133	0.00230
7/16 – 16 or 0.4375 – 16	UN	2A	0.00133	0.00230	2B	0.00170	0.00295
		3A	0.00098	0.00170	3B	0.00130	0.00225
7/16 – 20 or 0.4375 – 20	UNF	1A	0.00182	0.00315	1B	0.00234	0.00405
		2A	0.00121	0.00210	2B	0.00156	0.00270
		3A	0.00089	0.00155	3B	0.00118	0.00205
7/16 – 28 or 0.4375 – 28	UNEF	2A	0.00104	0.00180	2B	0.00133	0.00230
		3A	0.00078	0.00135	3B	0.00101	0.00175
7/16 – 32 or 0.4375 – 32	UN	2A	0.00098	0.00170	2B	0.00127	0.00220
		3A	0.00072	0.00125	3B	0.00095	0.00165
1/2 – 13 or 0.500 – 13	UNC	1A	0.00214	0.00370	1B	0.00280	0.00485
		2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00107	0.00185	3B	0.00139	0.00240

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$\frac{1}{2}$ – 16 or 0.500 – 16	UN	2A	0.00136	0.00235	2B	0.00176	0.00305
		3A	0.00101	0.00175	3B	0.00133	0.00230
$\frac{1}{2}$ – 20 or 0.500 – 20	UNF	1A	0.00185	0.00320	1B	0.00242	0.00420
		2A	0.00124	0.00215	2B	0.00162	0.00280
		3A	0.00092	0.00160	3B	0.00121	0.00210
$\frac{1}{2}$ – 28 or 0.500 – 28	UNEF	2A	0.00107	0.00185	2B	0.00139	0.00240
		3A	0.00081	0.00140	3B	0.00104	0.00180
$\frac{1}{2}$ – 32 or 0.500 – 32	UN	2A	0.00101	0.00175	2B	0.00130	0.00225
		3A	0.00075	0.00130	3B	0.00098	0.00170
$\frac{9}{16}$ – 12 or 0.5625 – 12	UNC	1A	0.00225	0.00390	1B	0.00294	0.00510
		2A	0.00150	0.00260	2B	0.00196	0.00340
		3A	0.00113	0.00195	3B	0.00147	0.00255
$\frac{9}{16}$ – 16 or 0.5625 – 16	UN	2A	0.00136	0.00235	2B	0.00176	0.00305
		3A	0.00101	0.00175	3B	0.00133	0.00230
$\frac{9}{16}$ – 18 or 0.5625 – 18	UNF	1A	0.00196	0.00340	1B	0.00257	0.00445
		2A	0.00130	0.00225	2B	0.00170	0.00295
		3A	0.00098	0.00170	3B	0.00127	0.00220
$\frac{9}{16}$ – 20 or 0.5625 – 20	UN	2A	0.00121	0.00210	2B	0.00159	0.00275
		3A	0.00092	0.00160	3B	0.00118	0.00205
$\frac{9}{16}$ – 24 or 0.5625 – 24	UNEF	2A	0.00113	0.00195	2B	0.00147	0.00255
		3A	0.00084	0.00145	3B	0.00110	0.00190
$\frac{9}{16}$ – 28 or 0.5625 – 28	UN	2A	0.00107	0.00185	2B	0.00139	0.00240
		3A	0.00081	0.00140	3B	0.00104	0.00180
$\frac{9}{16}$ – 32 or 0.5625 – 32	UN	2A	0.00101	0.00175	2B	0.00130	0.00225
		3A	0.00075	0.00130	3B	0.00098	0.00170
$\frac{5}{8}$ – 11 or 0.625 – 11	UNC	1A	0.00240	0.00415	1B	0.00309	0.00535
		2A	0.00159	0.00275	2B	0.00208	0.00360
		3A	0.00118	0.00205	3B	0.00156	0.00270
$\frac{5}{8}$ – 12 or 0.625 – 12	UN	2A	0.00156	0.00270	2B	0.00205	0.00355
		3A	0.00118	0.00205	3B	0.00153	0.00265
$\frac{5}{8}$ – 16 or 0.625 – 16	UN	2A	0.00139	0.00240	2B	0.00179	0.00310
		3A	0.00104	0.00180	3B	0.00133	0.00230
$\frac{5}{8}$ – 18 or 0.625 – 18	UNF	1A	0.00202	0.00350	1B	0.00263	0.00455
		2A	0.00136	0.00235	2B	0.00173	0.00300
		3A	0.00101	0.00175	3B	0.00130	0.00255
$\frac{5}{8}$ – 20 or 0.625 – 20	UN	2A	0.00124	0.00215	2B	0.00162	0.00280
		3A	0.00092	0.00160	3B	0.00121	0.00210
$\frac{5}{8}$ – 24 or 0.625 – 24	UNEF	2A	0.00115	0.00200	2B	0.00150	0.00260
		3A	0.00087	0.00150	3B	0.00113	0.00195
$\frac{5}{8}$ – 28 or 0.625 – 28	UN	2A	0.00110	0.00190	2B	0.00141	0.00245
		3A	0.00081	0.00140	3B	0.00107	0.00185
$\frac{5}{8}$ – 32 or 0.625 – 32	UN	2A	0.00104	0.00180	2B	0.00133	0.00230
		3A	0.00078	0.00135	3B	0.00101	0.00175
$\frac{11}{16}$ – 12 or 0.6875 – 12	UN	2A	0.00156	0.00270	2B	0.00205	0.00355
		3A	0.00118	0.00205	3B	0.00153	0.00265

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$\frac{11}{16}$ – 16 or 0.6875 – 16	UN	2A	0.00139	0.00240	2B	0.00179	0.00310
		3A	0.00104	0.00130	3B	0.00133	0.00230
$\frac{11}{16}$ – 20 or 0.6875 – 20	UN	2A	0.00124	0.00215	2B	0.00162	0.00280
		3A	0.00092	0.00160	3B	0.00121	0.00210
$\frac{11}{16}$ – 24 or 0.6875 – 24	UNEF	2A	0.00115	0.00200	2B	0.00150	0.00260
		3A	0.00087	0.00150	3B	0.00113	0.00195
$\frac{11}{16}$ – 28 or 0.6875 – 28	UN	2A	0.00110	0.00190	2B	0.00141	0.00245
		3A	0.00081	0.00140	3B	0.00107	0.00185
$\frac{11}{16}$ – 32 or 0.6875 – 32	UN	2A	0.00104	0.00180	2B	0.00133	0.00230
		3A	0.00078	0.00135	3B	0.00101	0.00175
$\frac{3}{4}$ – 10 or 0.750 – 10	UNC	1A	0.00254	0.00440	1B	0.00332	0.00575
		2A	0.00170	0.00295	2B	0.00222	0.00385
		3A	0.00127	0.00220	3B	0.00165	0.00285
$\frac{3}{4}$ – 12 or 0.750 – 12	UN	2A	0.00159	0.00275	2B	0.00208	0.00360
		3A	0.00118	0.00205	3B	0.00156	0.00270
$\frac{3}{4}$ – 16 or 0.750 – 16	UNF	1A	0.00217	0.00375	1B	0.00283	0.00490
		2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00110	0.00190	3B	0.00141	0.00245
$\frac{3}{4}$ – 20 or 0.750 – 20	UNEF	2A	0.00127	0.00220	2B	0.00165	0.00285
		3A	0.00095	0.00165	3B	0.00124	0.00215
$\frac{3}{4}$ – 28 or 0.750 – 28	UN	2A	0.00110	0.00190	2B	0.00144	0.00250
		3A	0.00084	0.00145	3B	0.00107	0.00185
$\frac{3}{4}$ – 32 or 0.750 – 32	UN	2A	0.00104	0.00180	2B	0.00136	0.00235
		3A	0.00078	0.00135	3B	0.00104	0.00180
$\frac{13}{16}$ – 12 or 0.8125 – 12	UN	2A	0.00159	0.00275	2B	0.00208	0.00360
		3A	0.00118	0.00205	3B	0.00156	0.00270
$\frac{13}{16}$ – 16 or 0.8125 – 16	UN	2A	0.00141	0.00245	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235
$\frac{13}{16}$ – 20 or 0.8125 – 20	UNEF	2A	0.00127	0.00220	2B	0.00165	0.00285
		3A	0.00095	0.00165	3B	0.00124	0.00215
$\frac{13}{16}$ – 28 or 0.8125 – 28	UN	2A	0.00110	0.00190	2B	0.00144	0.00250
		3A	0.00084	0.00145	3B	0.00107	0.00185
$\frac{13}{16}$ – 32 or 0.8125 – 32	UN	2A	0.00104	0.00180	2B	0.00136	0.00235
		3A	0.00078	0.00135	3B	0.00104	0.00180
$\frac{7}{8}$ – 9 or 0.875 – 9	UNC	1A	0.00274	0.00475	1B	0.00355	0.00615
		2A	0.00182	0.00315	2B	0.00237	0.00410
		3A	0.00136	0.00235	3B	0.00176	0.00305
$\frac{7}{8}$ – 12 or 0.875 – 12	UN	2A	0.00159	0.00275	2B	0.00208	0.00360
		3A	0.00118	0.00205	3B	0.00156	0.00270
$\frac{7}{8}$ – 14 or 0.875 – 14	UNF	1A	0.00234	0.00405	1B	0.00306	0.00530
		2A	0.00156	0.00270	2B	0.00202	0.00350
		3A	0.00118	0.00205	3B	0.00153	0.00265
$\frac{7}{8}$ – 16 or 0.875 – 16	UN	2A	0.00141	0.00245	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$\frac{7}{8}$ – 20 or 0.875 – 20	UNEF	2A	0.00127	0.00220	2B	0.00165	0.00285
		3A	0.00095	0.00165	3B	0.00124	0.00215
$\frac{7}{8}$ – 28 or 0.875 – 28	UN	2A	0.00110	0.00190	2B	0.00144	0.00250
		3A	0.00084	0.00145	3B	0.00107	0.00185
$\frac{7}{8}$ – 32 or 0.875 – 32	UN	2A	0.00104	0.00180	2B	0.00136	0.00235
		3A	0.00078	0.00135	3B	0.00104	0.00180
$\frac{15}{16}$ – 12 or 0.9375 – 12	UN	2A	0.00165	0.00255	2B	0.00214	0.00370
		3A	0.00121	0.00210	3B	0.00159	0.00275
$\frac{15}{16}$ – 16 or 0.9375 – 16	UN	2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00107	0.00185	3B	0.00141	0.00245
$\frac{15}{16}$ – 20 or 0.9375 – 20	UNEF	2A	0.00130	0.00225	2B	0.00170	0.00295
		3A	0.00098	0.00170	3B	0.00127	0.00220
$\frac{15}{16}$ – 28 or 0.9375 – 28	UN	2A	0.00115	0.00200	2B	0.00150	0.00260
		3A	0.00087	0.00150	3B	0.00113	0.00195
$\frac{15}{16}$ – 32 or 0.9375 – 32	UN	2A	0.00110	0.00190	2B	0.00141	0.00245
		3A	0.00081	0.00140	3B	0.00107	0.00185
1 – 8 or 1.000 – 8	UNC	1A	0.00292	0.00505	1B	0.00381	0.00660
		2A	0.00196	0.00340	2B	0.00254	0.00440
		3A	0.00147	0.00255	3B	0.00191	0.00330
1 – 12 or 1.000 – 12	UNF	1A	0.00254	0.00440	1B	0.00329	0.00570
		2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285
1 – 14 or 1.000 – 14	UNS	1A	0.00242	0.00420	1B	0.00315	0.00545
		2A	0.00162	0.00280	2B	0.00211	0.00365
		3A	0.00121	0.00210	3B	0.00156	0.00270
1 – 16 or 1.000 – 16	UN	2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00107	0.00185	3B	0.00141	0.00245
1 – 20 or 1.000 – 20	UNEF	2A	0.00130	0.00225	2B	0.00170	0.00295
		3A	0.00098	0.00170	3B	0.00127	0.00220
1 – 28 or 1.000 – 28	UN	2A	0.00115	0.00200	2B	0.00150	0.00260
		3A	0.00087	0.00150	3B	0.00113	0.00195
1 – 32 or 1.000 – 32	UN	2A	0.00110	0.00190	2B	0.00141	0.00245
		3A	0.00081	0.00140	3B	0.00107	0.00185
$1\frac{1}{16}$ – 8 or 1.0625 – 8	UN	2A	0.00196	0.00340	2B	0.00257	0.00445
		3A	0.00147	0.00255	3B	0.00193	0.00335
$1\frac{1}{16}$ – 12 or 1.0625 – 12	UN	2A	0.00165	0.00285	2B	0.00214	0.00370
		3A	0.00121	0.00210	3B	0.00159	0.00275
$1\frac{1}{16}$ – 16 or 1.0625 – 16	UN	2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00107	0.00185	3B	0.00141	0.00245
$1\frac{1}{16}$ – 18 or 1.0625 – 18	UNEF	2A	0.00136	0.00235	2B	0.00179	0.00310
		3A	0.00104	0.00180	3B	0.00133	0.00230
$1\frac{1}{16}$ – 20 or 1.0625 – 20	UN	2A	0.00130	0.00225	2B	0.00170	0.00295
		3A	0.00098	0.00170	3B	0.00127	0.00220

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$1\frac{1}{16}$ – 28 or 1.0625 – 28	UN	2A	0.00115	0.00200	2B	0.00150	0.00260
		3A	0.00087	0.00150	3B	0.00113	0.00195
$1\frac{1}{8}$ – 7 or 1.125 – 7	UNC	1A	0.00315	0.00545	1B	0.00407	0.00705
		2A	0.00208	0.00360	2B	0.00271	0.00470
		3A	0.00156	0.00270	3B	0.00205	0.00355
$1\frac{1}{8}$ – 8 or 1.125 – 8	UN	2A	0.00199	0.00345	2B	0.00260	0.00450
		3A	0.00150	0.00260	3B	0.00193	0.00335
$1\frac{1}{8}$ – 12 or 1.125 – 12	UNF	1A	0.00260	0.00450	1B	0.00338	0.00585
		2A	0.00173	0.00300	2B	0.00225	0.00390
		3A	0.00130	0.00225	3B	0.00170	0.00295
$1\frac{1}{8}$ – 16 or 1.125 – 16	UN	2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00107	0.00185	3B	0.00141	0.00245
$1\frac{1}{8}$ – 18 or 1.125 – 18	UNEF	2A	0.00136	0.00235	2B	0.00179	0.00310
		3A	0.00104	0.00180	3B	0.00133	0.00230
$1\frac{1}{8}$ – 20 or 1.125 – 20	UN	2A	0.00130	0.00225	2B	0.00170	0.00295
		3A	0.00098	0.00170	3B	0.00127	0.00220
$1\frac{1}{8}$ – 28 or 1.125 – 28	UN	2A	0.00115	0.00200	2B	0.00150	0.00260
		3A	0.00087	0.00150	3B	0.00113	0.00195
$1\frac{3}{16}$ – 8 or 1.1875 – 8	UN	2A	0.00202	0.00350	2B	0.00263	0.00455
		3A	0.00150	0.00260	3B	0.00196	0.00340
$1\frac{3}{16}$ – 12 or 1.1875 – 12	UN	2A	0.00167	0.00290	2B	0.00217	0.00375
		3A	0.00124	0.00215	3B	0.00162	0.00280
$1\frac{3}{16}$ – 16 or 1.1875 – 16	UN	2A	0.00147	0.00255	2B	0.00191	0.00330
		3A	0.00110	0.00190	3B	0.00144	0.00250
$1\frac{3}{16}$ – 18 or 1.1875 – 18	UNEF	2A	0.00141	0.00245	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235
$1\frac{3}{16}$ – 20 or 1.1875 – 20	UN	2A	0.00136	0.00235	2B	0.00176	0.00305
		3A	0.00101	0.00175	3B	0.00130	0.00225
$1\frac{3}{16}$ – 28 or 1.1875 – 28	UN	2A	0.00118	0.00205	2B	0.00153	0.00265
		3A	0.00089	0.00155	3B	0.00115	0.00200
$1\frac{1}{4}$ – 7 or 1.250 – 7	UNC	1A	0.00320	0.00555	1B	0.00416	0.00720
		2A	0.00214	0.00370	2B	0.00277	0.00480
		3A	0.00159	0.00275	3B	0.00208	0.00360
$1\frac{1}{4}$ – 8 or 1.250 – 8	UN	2A	0.00202	0.00350	2B	0.00266	0.00460
		3A	0.00153	0.00265	3B	0.00199	0.00345
$1\frac{1}{4}$ – 12 or 1.250 – 12	UNF	1A	0.00266	0.00460	1B	0.00346	0.00600
		2A	0.00179	0.00310	2B	0.00231	0.00400
		3A	0.00133	0.00230	3B	0.00173	0.00300
$1\frac{1}{4}$ – 16 or 1.250 – 16	UN	2A	0.00147	0.00255	2B	0.00191	0.00330
		3A	0.00100	0.00190	3B	0.00144	0.00250
$1\frac{1}{4}$ – 18 or 1.250 – 18	UNEF	2A	0.00141	0.00245	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235
$1\frac{1}{4}$ – 20 or 1.250 – 20	UN	2A	0.00136	0.00235	2B	0.00176	0.00305
		3A	0.00101	0.00175	3B	0.00130	0.00225

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$1\frac{1}{4}$ – 28 or 1.250 – 28	UN	2A	0.00118	0.00205	2B	0.00153	0.00265
		3A	0.00089	0.00155	3B	0.00115	0.00200
$1\frac{5}{16}$ – 8 or 1.3125 – 8	UN	2A	0.00205	0.00355	2B	0.00266	0.00460
		3A	0.00153	0.00265	3B	0.00199	0.00345
$1\frac{5}{16}$ – 12 or 1.3125 – 12	UN	2A	0.00167	0.00290	2B	0.00217	0.00375
		3A	0.00124	0.00215	3B	0.00162	0.00280
$1\frac{5}{16}$ – 16 or 1.3125 – 16	UN	2A	0.00147	0.00255	2B	0.00191	0.00330
		3A	0.00110	0.00190	3B	0.00144	0.00250
$1\frac{5}{16}$ – 18 or 1.3125 – 18	UNEF	2A	0.00141	0.00245	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235
$1\frac{5}{16}$ – 20 or 1.3125 – 20	UN	2A	0.00136	0.00235	2B	0.00176	0.00305
		3A	0.00101	0.00175	3B	0.00130	0.00225
$1\frac{5}{16}$ – 28 or 1.3125 – 28	UN	2A	0.00118	0.00205	2B	0.00153	0.00265
		3A	0.00089	0.00155	3B	0.00115	0.00200
$1\frac{3}{8}$ – 6 or 1.375 – 6	UNC	1A	0.00346	0.00600	1B	0.00447	0.00775
		2A	0.00231	0.00400	2B	0.00300	0.00520
		3A	0.00173	0.00300	3B	0.00225	0.00390
$1\frac{3}{8}$ – 8 or 1.375 – 8	UN	2A	0.00208	0.00360	2B	0.00268	0.00465
		3A	0.00156	0.00270	3B	0.00202	0.00350
$1\frac{3}{8}$ – 12 or 1.375 – 12	UNF	1A	0.00271	0.00470	1B	0.00355	0.00615
		2A	0.00182	0.00315	2B	0.00237	0.00410
		3A	0.00136	0.00235	3B	0.00176	0.00305
$1\frac{3}{8}$ – 16 or 1.375 – 16	UN	2A	0.00147	0.00255	2B	0.00191	0.00330
		3A	0.00110	0.00190	3B	0.00144	0.00250
$1\frac{3}{8}$ – 18 or 1.375 – 18	UNEF	2A	0.00141	0.00245	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235
$1\frac{3}{8}$ – 20 or 1.375 – 20	UN	2A	0.00136	0.00235	2B	0.00176	0.00305
		3A	0.00101	0.00175	3B	0.00130	0.00225
$1\frac{3}{8}$ – 28 or 1.375 – 28	UN	2A	0.00118	0.00205	2B	0.00153	0.00265
		3A	0.00089	0.00155	3B	0.00115	0.00200
$1\frac{7}{16}$ – 6 or 1.4375 – 6	UN	2A	0.00231	0.00400	2B	0.00300	0.00520
		3A	0.00173	0.00300	3B	0.00225	0.00390
$1\frac{7}{16}$ – 8 or 1.4375 – 8	UN	2A	0.00208	0.00360	2B	0.00271	0.00470
		3A	0.00156	0.00270	3B	0.00205	0.00355
$1\frac{7}{16}$ – 12 or 1.4375 – 12	UN	2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285
$1\frac{7}{16}$ – 16 or 1.4375 – 16	UN	2A	0.00150	0.00260	2B	0.00196	0.00340
		3A	0.00113	0.00195	3B	0.00147	0.00255
$1\frac{7}{16}$ – 18 or 1.4375 – 18	UNEF	2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00107	0.00185	3B	0.00139	0.00240
$1\frac{7}{16}$ – 20 or 1.4375 – 20	UN	2A	0.00139	0.00240	2B	0.00179	0.00310
		3A	0.00104	0.00180	3B	0.00133	0.00230
$1\frac{7}{16}$ – 28 or 1.4375 – 28	UN	2A	0.00121	0.00210	2B	0.00159	0.00275
		3A	0.00089	0.00155	3B	0.00118	0.00205

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$1\frac{1}{2}$ – 6 or 1.500 – 6	UNC	1A	0.00349	0.00605	1B	0.00456	0.00790
		2A	0.00234	0.00405	2B	0.00303	0.00525
		3A	0.00176	0.00305	3B	0.00228	0.00305
$1\frac{1}{2}$ – 8 or 1.500 – 8	UN	2A	0.00211	0.00365	2B	0.00274	0.00475
		3A	0.00159	0.00275	3B	0.00205	0.00355
$1\frac{1}{2}$ – 12 or 1.500 – 12	UNF	1A	0.00277	0.00480	1B	0.00361	0.00625
		2A	0.00185	0.00320	2B	0.00240	0.00415
		3A	0.00139	0.00240	3B	0.00182	0.00315
$1\frac{1}{2}$ – 16 or 1.500 – 16	UN	2A	0.00150	0.00260	2B	0.00196	0.00340
		3A	0.00113	0.00195	3B	0.00147	0.00255
$1\frac{1}{2}$ – 18 or 1.500 – 18	UNEF	2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00107	0.00185	3B	0.00139	0.00240
$1\frac{1}{2}$ – 20 or 1.500 – 20	UN	2A	0.00139	0.00240	2B	0.00179	0.00310
		3A	0.00104	0.00180	3B	0.00133	0.00230
$1\frac{1}{2}$ – 28 or 1.500 – 28	UN	2A	0.00121	0.00210	2B	0.00159	0.00275
		3A	0.00089	0.00155	3B	0.00118	0.00205
$1\frac{9}{16}$ – 6 or 1.5625 – 6	UN	2A	0.00237	0.00410	2B	0.00306	0.00530
		3A	0.00176	0.00305	3B	0.00231	0.00400
$1\frac{9}{16}$ – 8 or 1.5625 – 8	UN	2A	0.00214	0.00370	2B	0.00277	0.00480
		3A	0.00159	0.00275	3B	0.00208	0.00360
$1\frac{9}{16}$ – 12 or 1.5625 – 12	UN	2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285
$1\frac{9}{16}$ – 16 or 1.5625 – 16	UN	2A	0.00150	0.00260	2B	0.00196	0.00340
		3A	0.00113	0.00195	3B	0.00147	0.00255
$1\frac{9}{16}$ – 18 or 1.5625 – 18	UNEF	2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00107	0.00185	3B	0.00139	0.00240
$1\frac{9}{16}$ – 20 or 1.5625 – 20	UN	2A	0.00139	0.00240	2B	0.00179	0.00310
		3A	0.00104	0.00180	3B	0.00133	0.00230
$1\frac{5}{8}$ – 6 or 1.625 – 6	UN	2A	0.00237	0.00410	2B	0.00309	0.00535
		3A	0.00179	0.00310	3B	0.00231	0.00400
$1\frac{5}{8}$ – 8 or 1.625 – 8	UN	2A	0.00214	0.00370	2B	0.00280	0.00485
		3A	0.00162	0.00280	3B	0.00208	0.00360
$1\frac{5}{8}$ – 12 or 1.625 – 12	UN	2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285
$1\frac{5}{8}$ – 16 or 1.625 – 16	UN	2A	0.00150	0.00260	2B	0.00196	0.00340
		3A	0.00113	0.00195	3B	0.00147	0.00255
$1\frac{5}{8}$ – 18 or 1.625 – 18	UNEF	2A	0.00144	0.00250	2B	0.00188	0.00325
		3A	0.00107	0.00185	3B	0.00130	0.00240
$1\frac{5}{8}$ – 20 or 1.625 – 20	UN	2A	0.00139	0.00240	2B	0.00179	0.00310
		3A	0.00104	0.00180	3B	0.00133	0.00230
$1\frac{11}{16}$ – 6 or 1.6875 – 6	UN	2A	0.00240	0.00415	2B	0.00312	0.00540
		3A	0.00179	0.00310	3B	0.00234	0.00405
$1\frac{11}{16}$ – 8 or 1.6875 – 8	UN	2A	0.00217	0.00375	2B	0.00280	0.00485
		3A	0.00162	0.00280	3B	0.00211	0.00365

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$1\frac{11}{16}$ – 12 or 1.6875 – 12	UN	2A	0.00173	0.00300	2B	0.00225	0.00390
		3A	0.00130	0.00225	3B	0.00167	0.00290
$1\frac{11}{16}$ – 16 or 1.6875 – 16	UN	2A	0.00153	0.00265	2B	0.00199	0.00345
		3A	0.00115	0.00200	3B	0.00150	0.00260
$1\frac{11}{16}$ – 18 or 1.6875 – 18	UNEF	2A	0.00147	0.00255	2B	0.00191	0.00330
		3A	0.00110	0.00190	3B	0.00141	0.00245
$1\frac{11}{16}$ – 20 or 1.6875 – 20	UN	2A	0.00139	0.00240	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235
$1\frac{3}{4}$ – 5 or 1.750 – 5	UNC	1A	0.00387	0.00670	1B	0.00502	0.00870
		2A	0.00257	0.00445	2B	0.00335	0.00580
		3A	0.00193	0.00335	3B	0.00251	0.00435
$1\frac{3}{4}$ – 6 or 1.750 – 6	UN	2A	0.00240	0.00415	2B	0.00312	0.00540
		3A	0.00182	0.00315	3B	0.00234	0.00405
$1\frac{3}{4}$ – 8 or 1.750 – 8	UN	2A	0.00217	0.00375	2B	0.00283	0.00490
		3A	0.00165	0.00285	3B	0.00214	0.00370
$1\frac{3}{4}$ – 12 or 1.750 – 12	UN	2A	0.00173	0.00300	2B	0.00225	0.00390
		3A	0.00130	0.00225	3B	0.00167	0.00290
$1\frac{3}{4}$ – 16 or 1.750 – 16	UN	2A	0.00153	0.00265	2B	0.00199	0.00345
		3A	0.00115	0.00200	3B	0.00150	0.00260
$1\frac{3}{4}$ – 20 or 1.750 – 20	UN	2A	0.00139	0.00240	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235
$1\frac{13}{16}$ – 6 or 1.8125 – 6	UN	2A	0.00242	0.00420	2B	0.00315	0.00545
		3A	0.00182	0.00315	3B	0.00237	0.00410
$1\frac{13}{16}$ – 8 or 1.8125 – 8	UN	2A	0.00219	0.00380	2B	0.00286	0.00495
		3A	0.00165	0.00285	3B	0.00214	0.00370
$1\frac{13}{16}$ – 12 or 1.8125 – 12	UN	2A	0.00173	0.00300	2B	0.00225	0.00390
		3A	0.00130	0.00225	3B	0.00167	0.00290
$1\frac{13}{16}$ – 16 or 1.8125 – 16	UN	2A	0.00153	0.00265	2B	0.00199	0.00345
		3A	0.00115	0.00200	3B	0.00150	0.00260
$1\frac{13}{16}$ – 20 or 1.8125 – 20	UN	2A	0.00139	0.00240	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235
$1\frac{7}{8}$ – 6 or 1.875 – 6	UN	2A	0.00242	0.00420	2B	0.00318	0.00550
		3A	0.00182	0.00315	3B	0.00237	0.00410
$1\frac{7}{8}$ – 8 or 1.875 – 8	UN	2A	0.00222	0.00385	2B	0.00289	0.00500
		3A	0.00165	0.00285	3B	0.00217	0.00375
$1\frac{7}{8}$ – 12 or 1.875 – 12	UN	2A	0.00173	0.00300	2B	0.00225	0.00390
		3A	0.00130	0.00225	3B	0.00167	0.00290
$1\frac{7}{8}$ – 16 or 1.875 – 16	UN	2A	0.00153	0.00265	2B	0.00199	0.00345
		3A	0.00115	0.00200	3B	0.00150	0.00260
$1\frac{7}{8}$ – 20 or 1.875 – 20	UN	2A	0.00139	0.00240	2B	0.00182	0.00315
		3A	0.00104	0.00180	3B	0.00136	0.00235
$1\frac{15}{16}$ – 6 or 1.9375 – 6	UN	2A	0.00245	0.00425	2B	0.00320	0.00555
		3A	0.00185	0.00320	3B	0.00240	0.00415

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

		External			Internal		
Nominal Size and Threads/in.	Series Designation	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$1\frac{15}{16}$ – 8 or 1.9375 – 8	UN	2A	0.00222	0.00385	2B	0.00289	0.00500
		3A	0.00167	0.00290	3B	0.00217	0.00375
$1\frac{15}{16}$ – 12 or 1.9375 – 12	UN	2A	0.00176	0.00305	2B	0.00228	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
$1\frac{15}{16}$ – 16 or 1.9375 – 16	UN	2A	0.00156	0.00270	2B	0.00202	0.00350
		3A	0.00115	0.00200	3B	0.00150	0.00260
$1\frac{15}{16}$ – 20 or 1.9375 – 20	UN	2A	0.00141	0.00245	2B	0.00185	0.00320
		3A	0.00107	0.00185	3B	0.00139	0.00240
2 – $4\frac{1}{2}$ or 2.000 – 4.5	UNC	1A	0.00413	0.00715	1B	0.00537	0.00930
		2A	0.00274	0.00475	2B	0.00358	0.00620
		3A	0.00205	0.00355	3B	0.00268	0.00465
2 – 6 or 2.000 – 6	UN	2A	0.00248	0.00430	2B	0.00320	0.00555
		3A	0.00185	0.00320	3B	0.00240	0.00415
2 – 8 or 2.000 – 8	UN	2A	0.00225	0.00390	2B	0.00292	0.00505
		3A	0.00167	0.00290	3B	0.00219	0.00380
2 – 12 or 2.000 – 12	UN	2A	0.00176	0.00305	2B	0.00223	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
2 – 16 or 2.000 – 16	UN	2A	0.00156	0.00270	2B	0.00202	0.00350
		3A	0.00115	0.00200	3B	0.00150	0.00260
2 – 20 or 2.000 – 20	UN	2A	0.00141	0.00245	2B	0.00185	0.00320
		3A	0.00107	0.00185	3B	0.00139	0.00240
$2\frac{1}{8}$ – 6 or 2.125 – 6	UN	2A	0.00251	0.00435	2B	0.00326	0.00565
		3A	0.00188	0.00325	3B	0.00242	0.00420
$2\frac{1}{8}$ – 8 or 2.125 – 8	UN	2A	0.00228	0.00395	2B	0.00294	0.00510
		3A	0.00170	0.00295	3B	0.00212	0.00385
$2\frac{1}{8}$ – 12 or 2.125 – 12	UN	2A	0.00176	0.00305	2B	0.00228	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
$2\frac{1}{8}$ – 16 or 2.125 – 16	UN	2A	0.00156	0.00270	2B	0.00202	0.00350
		3A	0.00115	0.00200	3B	0.00150	0.00260
$2\frac{1}{8}$ – 20 or 2.125 – 20	UN	2A	0.00141	0.00245	2B	0.00185	0.00320
		3A	0.00107	0.00185	3B	0.00139	0.00240
$2\frac{1}{4}$ – $4\frac{1}{2}$ or 2.250 – 4.5	UNC	1A	0.00421	0.00730	1B	0.00548	0.00950
		2A	0.00280	0.00485	2B	0.00364	0.00630
		3A	0.00211	0.00365	3B	0.00274	0.00475
$2\frac{1}{4}$ – 6 or 2.250 – 6	UN	2A	0.00254	0.00440	2B	0.00329	0.00570
		3A	0.00191	0.00330	3B	0.00214	0.00425
$2\frac{1}{4}$ – 8 or 2.250 – 8	UN	2A	0.00231	0.00400	2B	0.00300	0.00520
		3A	0.00173	0.00300	3B	0.00225	0.00390
$2\frac{1}{4}$ – 12 or 2.250 – 12	UN	2A	0.00176	0.00305	2B	0.00228	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
$2\frac{1}{4}$ – 16 or 2.250 – 16	UN	2A	0.00156	0.00270	2B	0.00202	0.00350
		3A	0.00115	0.00200	3B	0.00150	0.00260
$2\frac{1}{4}$ – 20 or 2.250 – 20	UN	2A	0.00141	0.00245	2B	0.00185	0.00320
		3A	0.00107	0.00185	3B	0.00139	0.00240

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$2\frac{3}{8}$ – 6 or 2.375 – 6	UN	2A	0.00257	0.00445	2B	0.00332	0.00575
		3A	0.00191	0.00330	3B	0.00248	0.00430
$2\frac{3}{8}$ – 8 or 2.375 – 8	UN	2A	0.00234	0.00405	2B	0.00303	0.00525
		3A	0.00173	0.00300	3B	0.00228	0.00395
$2\frac{3}{8}$ – 12 or 2.375 – 12	UN	2A	0.00179	0.00310	2B	0.00234	0.00405
		3A	0.00133	0.00230	3B	0.00173	0.00300
$2\frac{3}{8}$ – 16 or 2.375 – 16	UN	2A	0.00159	0.00275	2B	0.00208	0.00360
		3A	0.00118	0.00205	3B	0.00155	0.00270
$2\frac{3}{8}$ – 20 or 2.375 – 20	UN	2A	0.00147	0.00255	2B	0.00191	0.00330
		3A	0.00110	0.00190	3B	0.00144	0.00250
$2\frac{1}{2}$ – 4 or 2.500 – 4	UNC	1A	0.00447	0.00775	1B	0.00583	0.01010
		2A	0.00300	0.00520	2B	0.00390	0.00675
		3A	0.00225	0.00390	3B	0.00292	0.00505
$2\frac{1}{2}$ – 6 or 2.500 – 6	UN	2A	0.00260	0.00450	2B	0.00335	0.00580
		3A	0.00193	0.00335	3B	0.00251	0.00435
$2\frac{1}{2}$ – 8 or 2.500 – 8	UN	2A	0.00237	0.00410	2B	0.00306	0.00530
		3A	0.00176	0.00305	3B	0.00231	0.00400
$2\frac{1}{2}$ – 12 or 2.500 – 12	UN	2A	0.00179	0.00310	2B	0.00234	0.00405
		3A	0.00133	0.00230	3B	0.00173	0.00300
$2\frac{1}{2}$ – 16 or 2.500 – 16	UN	2A	0.00159	0.00275	2B	0.00208	0.00360
		3A	0.00118	0.00205	3B	0.00156	0.00270
$2\frac{1}{2}$ – 20 or 2.500 – 20	UN	2A	0.00147	0.00255	2B	0.00191	0.00330
		3A	0.00110	0.00190	3B	0.00144	0.00250
$2\frac{5}{8}$ – 6 or 2.625 – 6	UN	2A	0.00260	0.00450	2B	0.00341	0.00590
		3A	0.00196	0.00340	3B	0.00254	0.00440
$2\frac{5}{8}$ – 8 or 2.625 – 8	UN	2A	0.00237	0.00410	2B	0.00309	0.00535
		3A	0.00179	0.00310	3B	0.00231	0.00400
$2\frac{5}{8}$ – 12 or 2.625 – 12	UN	2A	0.00179	0.00310	2B	0.00234	0.00405
		3A	0.00133	0.00230	3B	0.00173	0.00300
$2\frac{5}{8}$ – 16 or 2.625 – 16	UN	2A	0.00159	0.00275	2B	0.00208	0.00360
		3A	0.00118	0.00205	3B	0.00156	0.00270
$2\frac{5}{8}$ – 20 or 2.625 – 20	UN	2A	0.00147	0.00255	2B	0.00191	0.00330
		3A	0.00110	0.00190	3B	0.00144	0.00250
$2\frac{3}{4}$ – 4 or 2.750 – 4	UNC	1A	0.00456	0.00790	1B	0.00595	0.01030
		2A	0.00303	0.00525	2B	0.00395	0.00685
		3A	0.00228	0.00395	3B	0.00297	0.00515
$2\frac{3}{4}$ – 6 or 2.750 – 6	UN	2A	0.00263	0.00455	2B	0.00344	0.00595
		3A	0.00196	0.00340	3B	0.00257	0.00445
$2\frac{3}{4}$ – 8 or 2.750 – 8	UN	2A	0.00240	0.00415	2B	0.00312	0.00540
		3A	0.00182	0.00315	3B	0.00234	0.00405
$2\frac{3}{4}$ – 12 or 2.750 – 12	UN	2A	0.00179	0.00310	2B	0.00234	0.00405
		3A	0.00133	0.00230	3B	0.00173	0.00300

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$(+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$2\frac{3}{4}$ – 16 or 2.750 – 16	UN	2A	0.00159	0.00275	2B	0.00208	0.00360
		3A	0.00118	0.00205	3B	0.00156	0.00270
$2\frac{3}{4}$ – 20 or 2.750 – 20	UN	2A	0.00147	0.00255	2B	0.00191	0.00330
		3A	0.00110	0.00190	3B	0.00144	0.00250
$2\frac{7}{8}$ – 6 or 2.875 – 6	UN	2A	0.00266	0.00460	2B	0.00346	0.00600
		3A	0.00199	0.00345	3B	0.00280	0.00450
$2\frac{7}{8}$ – 8 or 2.875 – 8	UN	2A	0.00242	0.00420	2B	0.00318	0.00550
		3A	0.00182	0.00315	3B	0.00237	0.00410
$2\frac{7}{8}$ – 12 or 2.875 – 12	UN	2A	0.00182	0.00315	2B	0.00237	0.00410
		3A	0.00136	0.00235	3B	0.00179	0.00310
$2\frac{7}{8}$ – 16 or 2.875 – 16	UN	2A	0.00162	0.00280	2B	0.00211	0.00365
		3A	0.00121	0.00210	3B	0.00159	0.00275
$2\frac{7}{8}$ – 20 or 2.875 – 20	UN	2A	0.00150	0.00260	2B	0.00196	0.00340
		3A	0.00113	0.00195	3B	0.00147	0.00255
3 – 4 or 3.000 – 4	UNC	1A	0.00465	0.00805	1B	0.00603	0.01045
		2A	0.00309	0.00535	2B	0.00401	0.00695
		3A	0.00231	0.00400	3B	0.00300	0.00520
3 – 6 or 3.000 – 6	UN	2A	0.00268	0.00465	2B	0.00349	0.00605
		3A	0.00202	0.00350	3B	0.00263	0.00455
3 – 8 or 3.000 – 8	UN	2A	0.00245	0.00425	2B	0.00320	0.00555
		3A	0.00185	0.00320	3B	0.00240	0.00415
3 – 12 or 3.000 – 12	UN	2A	0.00182	0.00315	2B	0.00237	0.00410
		3A	0.00136	0.00235	3B	0.00179	0.00310
3 – 16 or 3.000 – 16	UN	2A	0.00162	0.00280	2B	0.00211	0.00365
		3A	0.00121	0.00210	3B	0.00159	0.00275
3 – 20 or 3.000 – 20	UN	2A	0.00150	0.00260	2B	0.00196	0.00340
		3A	0.00113	0.00195	3B	0.00147	0.00255
$3\frac{1}{8}$ – 6 or 3.125 – 6	UN	2A	0.00271	0.00470	2B	0.00352	0.00610
		3A	0.00202	0.00350	3B	0.00266	0.00460
$3\frac{1}{8}$ – 8 or 3.125 – 8	UN	2A	0.00248	0.00430	2B	0.00323	0.00560
		3A	0.00185	0.00320	3B	0.00242	0.00420
$3\frac{1}{8}$ – 12 or 3.125 – 12	UN	2A	0.00182	0.00315	2B	0.00237	0.00410
		3A	0.00136	0.00235	3B	0.00179	0.00310
$3\frac{1}{8}$ – 16 or 3.125 – 16	UN	2A	0.00162	0.00280	2B	0.00211	0.00365
		3A	0.00121	0.00210	3B	0.00159	0.00275
$3\frac{1}{4}$ – 4 or 3.250 – 4	UNC	1A	0.00471	0.00815	1B	0.00612	0.01060
		2A	0.00315	0.00545	2B	0.00407	0.00705
		3A	0.00237	0.00410	3B	0.00306	0.00530
$3\frac{1}{4}$ – 6 or 3.250 – 6	UN	2A	0.00274	0.00475	2B	0.00355	0.00615
		3A	0.00205	0.00355	3B	0.00266	0.00460
$3\frac{1}{4}$ – 8 or 3.250 – 8	UN	2A	0.00251	0.00435	2B	0.00326	0.00565
		3A	0.00188	0.00325	3B	0.00245	0.00425
$3\frac{1}{4}$ – 12 or 3.250 – 12	UN	2A	0.00182	0.00315	2B	0.00237	0.00410
		3A	0.00136	0.00235	3B	0.00179	0.00310

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$3\frac{1}{4}$ – 16 or 3.250 – 16	UN	2A	0.00162	0.00280	2B	0.00211	0.00365
		3A	0.00121	0.00210	3B	0.00159	0.00275
$3\frac{3}{8}$ – 6 or 3.375 – 6	UN	2A	0.00274	0.00475	2B	0.00358	0.00620
		3A	0.00208	0.00360	3B	0.00258	0.00465
$3\frac{3}{8}$ – 8 or 3.375 – 8	UN	2A	0.00254	0.00440	2B	0.00329	0.00570
		3A	0.00191	0.00330	3B	0.00245	0.00425
$3\frac{3}{8}$ – 12 or 3.375 – 12	UN	2A	0.00185	0.00320	2B	0.00242	0.00420
		3A	0.00139	0.00242	3B	0.00182	0.00315
$3\frac{3}{8}$ – 16 or 3.375 – 16	UN	2A	0.00167	0.00290	2B	0.00217	0.00375
		3A	0.00124	0.00215	3B	0.00162	0.00280
$3\frac{1}{2}$ – 4 or 3.500 – 4	UNC	1A	0.00479	0.00830	1B	0.00621	0.01075
		2A	0.00318	0.00550	2B	0.00413	0.00715
		3A	0.00240	0.00415	3B	0.00312	0.00540
$3\frac{1}{2}$ – 6 or 3.500 – 6	UN	2A	0.00277	0.00480	2B	0.00361	0.00625
		3A	0.00208	0.00360	3B	0.00271	0.00470
$3\frac{1}{2}$ – 8 or 3.500 – 8	UN	2A	0.00254	0.00440	2B	0.00332	0.00575
		3A	0.00191	0.00330	3B	0.00248	0.00430
$3\frac{1}{2}$ – 12 or 3.500 – 12	UN	2A	0.00185	0.00320	2B	0.00242	0.00420
		3A	0.00139	0.00240	3B	0.00182	0.00315
$3\frac{1}{2}$ – 16 or 3.500 – 16	UN	2A	0.00167	0.00290	2B	0.00217	0.00375
		3A	0.00124	0.00215	3B	0.00162	0.00280
$3\frac{5}{8}$ – 6 or 3.625 – 6	UN	2A	0.00280	0.00485	2B	0.00364	0.00630
		3A	0.00211	0.00365	3B	0.00274	0.00475
$3\frac{5}{8}$ – 8 or 3.625 – 8	UN	2A	0.00257	0.00445	2B	0.00335	0.00580
		3A	0.00193	0.00335	3B	0.00251	0.00435
$3\frac{5}{8}$ – 12 or 3.625 – 12	UN	2A	0.00185	0.00320	2B	0.00242	0.00420
		3A	0.00139	0.00240	3B	0.00182	0.00315
$3\frac{5}{8}$ – 16 or 3.625 – 16	UN	2A	0.00167	0.00290	2B	0.00217	0.00375
		3A	0.00214	0.00215	3B	0.00162	0.00280
$3\frac{3}{4}$ – 4 or 3.750 – 4	UNC	1A	0.00485	0.00840	1B	0.00629	0.01090
		2A	0.00323	0.00560	2B	0.00419	0.00725
		3A	0.00242	0.00420	3B	0.00315	0.00545
$3\frac{3}{4}$ – 6 or 3.750 – 6	UN	2A	0.00283	0.00490	2B	0.00367	0.00635
		3A	0.00211	0.00365	3B	0.00274	0.00475
$3\frac{3}{4}$ – 8 or 3.750 – 8	UN	2A	0.00260	0.00450	2B	0.00338	0.00585
		3A	0.00193	0.00335	3B	0.00254	0.00440
$3\frac{3}{4}$ – 12 or 3.750 – 12	UN	2A	0.00185	0.00320	2B	0.00242	0.00420
		3A	0.00139	0.00240	3B	0.00182	0.00315
$3\frac{3}{4}$ – 16 or 3.750 – 16	UN	2A	0.00167	0.00290	2B	0.00217	0.00375
		3A	0.00124	0.00215	3B	0.00162	0.00280
$3\frac{7}{8}$ – 6 or 3.875 – 6	UN	2A	0.00286	0.00495	2B	0.00369	0.00640
		3A	0.00214	0.00370	3B	0.00277	0.00480

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$3\frac{7}{8}$ – 8 or 3.875 – 8	UN	2A	0.00263	0.00455	2B	0.00341	0.00590
		3A	0.00196	0.00340	3B	0.00254	0.00440
$3\frac{7}{8}$ – 12 or 3.875 – 12	UN	2A	0.00188	0.00325	2B	0.00245	0.00425
		3A	0.00141	0.00245	3B	0.00185	0.00320
$3\frac{7}{8}$ – 16 or 3.875 – 16	UN	2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285
4 – 4 or 4.000 – 4	UNC	1A	0.00491	0.00850	1B	0.00638	0.01105
		2A	0.00326	0.00565	2B	0.00424	0.00735
		3A	0.00245	0.00425	3B	0.00320	0.00555
4 – 6 or 4.000 – 6	UN	2A	0.00286	0.00495	2B	0.00372	0.00645
		3A	0.00214	0.00370	3B	0.00280	0.00485
4 – 8 or 4.000 – 8	UN	2A	0.00263	0.00455	2B	0.00344	0.00595
		3A	0.00196	0.00340	3B	0.00257	0.00445
4 – 12 or 4.000 – 12	UN	2A	0.00188	0.00325	2B	0.00245	0.00425
		3A	0.00141	0.00245	3B	0.00185	0.00320
4 – 16 or 4.000 – 16	UN	2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285
$4\frac{1}{8}$ – 6 or 4.125 – 6	UN	2A	0.00289	0.00500	2B	0.00375	0.00650
		3A	0.00217	0.00375	3B	0.00280	0.00485
$4\frac{1}{8}$ – 8 or 4.125 – 8	UN	2A	0.00266	0.00460	2B	0.00346	0.00600
		3A	0.00199	0.00345	3B	0.00260	0.00450
$4\frac{1}{8}$ – 12 or 4.125 – 12	UN	2A	0.00188	0.00325	2B	0.00245	0.00425
		3A	0.00141	0.00245	3B	0.00185	0.00320
$4\frac{1}{8}$ – 16 or 4.125 – 16	UN	2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285
$4\frac{1}{4}$ – 4 or 4.250 – 4	UN	2A	0.00332	0.00575	2B	0.00430	0.00745
		3A	0.00248	0.00430	3B	0.00323	0.00560
$4\frac{1}{4}$ – 6 or 4.250 – 6	UN	2A	0.00292	0.00505	2B	0.00378	0.00655
		3A	0.00217	0.00375	3B	0.00283	0.00490
$4\frac{1}{4}$ – 8 or 4.250 – 8	UN	2A	0.00268	0.00465	2B	0.00346	0.00600
		3A	0.00202	0.00350	3B	0.00263	0.00455
$4\frac{1}{4}$ – 12 or 4.250 – 12	UN	2A	0.00188	0.00325	2B	0.00245	0.00425
		3A	0.00141	0.00245	3B	0.00185	0.00320
$4\frac{1}{4}$ – 16 or 4.250 – 16	UN	2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285
$4\frac{3}{8}$ – 6 or 4.375 – 6	UN	2A	0.00292	0.00505	2B	0.00381	0.00660
		3A	0.00219	0.00380	3B	0.00286	0.00495
$4\frac{3}{8}$ – 8 or 4.375 – 8	UN	2A	0.00268	0.00465	2B	0.00346	0.00600
		3A	0.00202	0.00350	3B	0.00263	0.00455
$4\frac{3}{8}$ – 12 or 4.375 – 12	UN	2A	0.00188	0.00325	2B	0.00245	0.00425
		3A	0.00141	0.00245	3B	0.00185	0.00320
$4\frac{3}{8}$ – 16 or 4.375 – 16	UN	2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$4\frac{1}{2}$ – 4 or 4.500 – 4	UN	2A	0.00335	0.00580	2B	0.00436	0.00755
		3A	0.00251	0.00435	3B	0.00326	0.00565
$4\frac{1}{2}$ – 6 or 4.500 – 6	UN	2A	0.00294	0.00510	2B	0.00384	0.00665
		3A	0.00222	0.00385	3B	0.00286	0.00495
$4\frac{1}{2}$ – 8 or 4.500 – 8	UN	2A	0.00271	0.00470	2B	0.00352	0.00610
		3A	0.00205	0.00355	3B	0.00266	0.00460
$4\frac{1}{2}$ – 12 or 4.500 – 12	UN	2A	0.00188	0.00325	2B	0.00245	0.00425
		3A	0.00141	0.00245	3B	0.00185	0.00320
$4\frac{1}{2}$ – 16 or 4.500 – 16	UN	2A	0.00170	0.00295	2B	0.00219	0.00380
		3A	0.00127	0.00220	3B	0.00165	0.00285
$4\frac{5}{8}$ – 6 or 4.625 – 6	UN	2A	0.00297	0.00515	2B	0.00384	0.00665
		3A	0.00222	0.00385	3B	0.00289	0.00500
$4\frac{5}{8}$ – 8 or 4.625 – 8	UN	2A	0.00274	0.00475	2B	0.00358	0.00620
		3A	0.00205	0.00355	3B	0.00268	0.00465
$4\frac{5}{8}$ – 12 or 4.625 – 12	UN	2A	0.00193	0.00335	2B	0.00251	0.00435
		3A	0.00144	0.00250	3B	0.00191	0.00330
$4\frac{5}{8}$ – 16 or 4.625 – 16	UN	2A	0.00176	0.00305	2B	0.00228	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
$4\frac{3}{4}$ – 4 or 4.750 – 4	UN	2A	0.00338	0.00585	2B	0.00442	0.00765
		3A	0.00254	0.00440	3B	0.00329	0.00570
$4\frac{3}{4}$ – 6 or 4.750 – 6	UN	2A	0.00297	0.00515	2B	0.00387	0.00670
		3A	0.00222	0.00385	3B	0.00292	0.00505
$4\frac{3}{4}$ – 8 or 4.750 – 8	UN	2A	0.00274	0.00475	2B	0.00358	0.00620
		3A	0.00205	0.00355	3B	0.00268	0.00465
$4\frac{3}{4}$ – 12 or 4.750 – 12	UN	2A	0.00193	0.00335	2B	0.00251	0.00435
		3A	0.00144	0.00250	3B	0.00191	0.00330
$4\frac{3}{4}$ – 16 or 4.750 – 16	UN	2A	0.00176	0.00305	2B	0.00228	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
$4\frac{7}{8}$ – 6 or 4.875 – 6	UN	2A	0.00300	0.00520	2B	0.00390	0.00675
		3A	0.00225	0.00390	3B	0.00292	0.00505
$4\frac{7}{8}$ – 8 or 4.875 – 8	UN	2A	0.00277	0.00480	2B	0.00361	0.00625
		3A	0.00208	0.00360	3B	0.00271	0.00470
$4\frac{7}{8}$ – 12 or 4.875 – 12	UN	2A	0.00193	0.00335	2B	0.00251	0.00435
		3A	0.00144	0.00250	3B	0.00101	0.00330
$4\frac{7}{8}$ – 16 or 4.875 – 16	UN	2A	0.00176	0.00305	2B	0.00228	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
5 – 4 or 5.000 – 4	UN	2A	0.00344	0.00595	2B	0.00445	0.00770
		3A	0.00257	0.00445	3B	0.00335	0.00580
5 – 6 or 5.000 – 6	UN	2A	0.00303	0.00525	2B	0.00393	0.00680
		3A	0.00225	0.00390	3B	0.00294	0.00510

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Nominal Size and Threads/in.	Series Designation	External			Internal		
		Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in., $\frac{1}{2}Td_2$ (+)	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
5 – 8 or 5.000 – 8	UN	2A	0.00280	0.00485	2B	0.00364	0.00630
		3A	0.00211	0.00365	3B	0.00274	0.00475
5 – 12 or 5.000 – 12	UN	2A	0.00193	0.00335	2B	0.00251	0.00435
		3A	0.00144	0.00250	3B	0.00191	0.00330
5 – 16 or 5.000 – 16	UN	2A	0.00176	0.00305	2B	0.00228	0.00305
		3A	0.00130	0.00225	3B	0.00170	0.00295
$5\frac{1}{8}$ – 8 or 5.125 – 8	UN	2A	0.00280	0.00485	2B	0.00364	0.00630
		3A	0.00211	0.00365	3B	0.00274	0.00475
$5\frac{1}{8}$ – 12 or 5.125 – 12	UN	2A	0.00193	0.00335	2B	0.00251	0.00435
		3A	0.00144	0.00250	3B	0.00191	0.00330
$5\frac{1}{8}$ – 16 or 5.125 – 16	UN	2A	0.00176	0.00305	2B	0.00228	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
$5\frac{1}{4}$ – 4 or 5.250 – 4	UN	2A	0.00346	0.00600	2B	0.00450	0.00780
		3A	0.00260	0.00450	3B	0.00385	0.00585
$5\frac{1}{4}$ – 8 or 5.250 – 8	UN	2A	0.00283	0.00490	2B	0.00367	0.00635
		3A	0.00214	0.00370	3B	0.00277	0.00480
$5\frac{1}{4}$ – 12 or 5.250 – 12	UN	2A	0.00193	0.00335	2B	0.00251	0.00435
		3A	0.00144	0.00250	3B	0.00191	0.00330
$5\frac{1}{4}$ – 16 or 5.250 – 16	UN	2A	0.00176	0.00305	2B	0.00228	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
$5\frac{3}{8}$ – 8 or 5.375 – 8	UN	2A	0.00286	0.00495	2B	0.00372	0.00645
		3A	0.00214	0.00370	3B	0.00280	0.00485
$5\frac{3}{8}$ – 12 or 5.375 – 12	UN	2A	0.00193	0.00335	2B	0.00251	0.00435
		3A	0.00144	0.00250	3B	0.00191	0.00330
$5\frac{3}{8}$ – 16 or 5.375 – 16	UN	2A	0.00176	0.00305	2B	0.00231	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
$5\frac{1}{2}$ – 4 or 5.500 – 4	UN	2A	0.00349	0.00605	2B	0.00456	0.00790
		3A	0.00263	0.00455	3B	0.00341	0.00500
$5\frac{1}{2}$ – 8 or 5.500 – 8	UN	2A	0.00286	0.00495	2B	0.00372	0.00645
		3A	0.00214	0.00370	3B	0.00280	0.00485
$5\frac{1}{2}$ – 12 or 5.500 – 12	UN	2A	0.00193	0.00335	2B	0.00251	0.00435
		3A	0.00144	0.00250	3B	0.00191	0.00330
$5\frac{1}{2}$ – 16 or 5.500 – 16	UN	2A	0.00176	0.00305	2B	0.00228	0.00395
		3A	0.00130	0.00225	3B	0.00170	0.00295
$5\frac{5}{8}$ – 8 or 5.625 – 8	UN	2A	0.00289	0.00500	2B	0.00375	0.00650
		3A	0.00217	0.00375	3B	0.00283	0.00490
$5\frac{5}{8}$ – 12 or 5.625 – 12	UN	2A	0.00199	0.00345	2B	0.00260	0.00450
		3A	0.00150	0.00260	3B	0.00193	0.00335
$5\frac{5}{8}$ – 16 or 5.625 – 16	UN	2A	0.00179	0.00310	2B	0.00234	0.00405
		3A	0.00136	0.00235	3B	0.00176	0.00305
$5\frac{3}{4}$ – 4 or 5.750 – 4	UN	2A	0.00352	0.00610	2B	0.00459	0.00795
		3A	0.00266	0.00460	3B	0.00344	0.00595

Table 3 Allowable Variations in Lead and Equivalent Change in Functional Diameter (Cont'd)

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

		External			Internal		
Nominal Size and Threads/in.	Series Designation	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, $\frac{1}{2}Td_2$	Class	Allowable Variation in Lead, in. (±)	Equivalent Change in Functional Diameter, in. $\frac{1}{2}TD_2$ (–)
1	2	3	4	5	6	7	8
$5\frac{3}{4}$ – 8 or 5.750 – 8	UN	2A	0.00289	0.00500	2B	0.00375	0.00650
		3A	0.00217	0.00375	3B	0.00283	0.00490
$5\frac{3}{4}$ – 12 or 5.750 – 12	UN	2A	0.00199	0.00345	2B	0.00260	0.00450
		3A	0.00150	0.00260	3B	0.00193	0.00335
$5\frac{3}{4}$ – 16 or 5.750 – 16	UN	2A	0.00179	0.00310	2B	0.00234	0.00405
		3A	0.00136	0.00235	3B	0.00176	0.00305
$5\frac{7}{8}$ – 8 or 5.875 – 8	UN	2A	0.00292	0.00505	2B	0.00378	0.00655
		3A	0.00219	0.00380	3B	0.00283	0.00490
$5\frac{7}{8}$ – 12 or 5.875 – 12	UN	2A	0.00199	0.00345	2B	0.00260	0.00450
		3A	0.00150	0.00260	3B	0.00193	0.00335
$5\frac{7}{8}$ – 16 or 5.875 – 16	UN	2A	0.00179	0.00310	2B	0.00234	0.00405
		3A	0.00136	0.00235	3B	0.00176	0.00305
6 – 4 or 6.000 – 4	UN	2A	0.00358	0.00620	2B	0.00455	0.00805
		3A	0.00268	0.00465	3B	0.00346	0.00600
6 – 8 or 6.000 – 8	UN	2A	0.00294	0.00510	2B	0.00384	0.00665
		3A	0.00222	0.00385	3B	0.00286	0.00495
6 – 12 or 6.000 – 12	UN	2A	0.00199	0.00315	2B	0.00260	0.00450
		3A	0.00150	0.00260	3B	0.00193	0.00335
6 – 16 or 6.000 – 16	UN	2A	0.00179	0.00310	2B	0.00234	0.00405
		3A	0.00136	0.00235	3B	0.00176	0.00305

5.3.2 Long Length of Engagement Using Standard Thread Gage Limits. ASME B1.2 recommends that the length of the GO gage should approximate the length of engagement. However, it is sometimes more economical to accept these threads with GO thread gages made from standard gage blanks (refer to ASME B47.1), which have length approximating the standard lengths of engagement.

NOTE: When this is done, additional precautions are necessary to determine the effect of cumulative variation of lead and straightness of thread axis due to a long length of engagement.

If applicable, an additional allowance should be provided, preferably on the external thread, the amount of which should be the diameter equivalent of the cumulative lead variation for the increased length of engagement, equal to the sum of one-half the pitch diameter tolerances of the external and internal threads allowed for the standard length of engagement.

EXAMPLE: 0.3750-24UNF-2A; $LE = 0.88$ in. (2.35 diameters); with external and internal thread gages of standard length.

Add allowance equal to $\frac{1}{2}Td_2 + \frac{1}{2}TD_2$ for standard mating threads. From Table 3, column 5, $\frac{1}{2}Td_2$ (standard) = 0.0019.

From Table 3, column 8, $\frac{1}{2}TD_2$ (standard) = 0.00245.

The sum of these, after rounding, is equal to 0.0044, which is the added allowance. Therefore, the thread is redesignated to indicate a nonstandard external thread, with the allowance of 0.0044 subtracted from the basic size of 0.3750. New designation is 0.3706-24UNS-2A. The added allowance is also subtracted from the standard major diameter and pitch diameter size limits. See para. 6.6.2.

5.4 Minor Diameter Tolerance and Allowance for External Threads

The tolerance for minor diameter is for reference only. In dimensioning external threads, the minimum minor diameter is not specified, being established by the crest of an unworn tool. In practice, the minor diameter of an external thread is satisfactory when accepted by a gage or gaging method that represents the maximum-material condition of the internal thread less the allowance, *es*, if any. A formula for the minor diameter tolerance of external threads is given in para. 5.8.1(d).

5.5 Major Diameter Tolerance for Internal Threads

The tolerance for major diameter is for reference only. In dimensioning internal threads, the maximum major diameter is not specified, being established by the crest of an unworn tool. In practice, the major diameter of an internal thread is satisfactory when accepted by a

gage or gaging method that represents the maximum-material condition of an external thread which has no allowance. A formula for the major diameter tolerance of internal threads is given in para. 5.8.2(a).

5.6 Minor Diameter Tolerance and Length of Engagement for Internal Threads

Formulas for the minor diameter tolerance for internal threads are given in para. 5.8.2(c).

Internal thread minor diameter tolerances are suitable for lengths of engagement up to 1.5 diameters. For applications having shorter or longer lengths of engagement, it may be advantageous to decrease or increase the tolerance as explained in para. 5.6.1.

5.6.1 The principal practical factors that govern minor diameter tolerance are ease of tapping, standard drill sizes, and height of engagement.

NOTE: Height of engagement is measured in a radial direction, while length of engagement is measured in an axial direction.

Height of engagement correlates with the stripping strength of the thread assembly and, therefore, also with the length of engagement. It also correlates with the tendency toward disengagement of the threads on one side when assembly is eccentric. The amount of possible eccentricity is one-half of the sum of the allowance and pitch diameter tolerances on both mating threads. For a given pitch, or height of thread, this sum increases with the diameter, and accordingly, this factor would require a decrease in minor diameter tolerance with an increase in thread diameter. However, such a decrease in tolerance often is not feasible without requiring special drill sizes; therefore, to be able to use as many as possible of the available standard drill sizes listed in ASME B94.11M, the minor diameter tolerance for Classes 1B and 2B of a given pitch for $\frac{1}{4}$ in. diameter and larger is constant.

There may be applications where the lengths of engagement of the mating threads or the combination of materials used for mating threads are such that the maximum tolerance may not provide the desired strength of the fastening. Experience has shown that for lengths of engagement less than 0.67D (the minimum thickness of standard nuts), the minor diameter tolerance may be reduced without causing tapping difficulties.

In other applications, the length of engagement of mating threads may be long because of design considerations or the combination of materials used for mating threads. As the threads engaged increase in number, their height of engagement may be shallower and still develop stripping strength greater than the external thread breaking strength. In these cases, the maximum tolerance should be increased to reduce the possibility of tapping difficulties.

It is particularly important to reduce the number of minor diameter tolerances to a practical minimum. This reduction is usually obvious to the producer of longer internally threaded components, but sometimes is not understood by the user.

The tolerances for lengths of engagement less than 0.33D are 0.50 times the formula values in para. 5.8.2 (c). For lengths of engagement from 0.33D to 0.67D, the tolerances are 0.75 times the formula values; for lengths of engagement from 0.67D to 1.5D, the tolerances are equal to the formula values; and for lengths of engagement over 1.5D, the tolerances are 1.25 times the formula values. Where the tolerance value so computed is more than 0.394P, the value is adjusted to equal 0.394P.

5.7 Disposition of Allowance and Tolerance

The disposition of allowance, tolerance, and crest clearances for the various thread classes is shown in Figs. 2 and 3.

5.8 Formulas for Allowance and Tolerance

The following formulas for allowance and tolerance are used for unified formulation and apply to standard and special series screw threads.

The following symbols are used in the equations:

D_{bsc} = basic major (nominal) diameter
LE = length of engagement, in.
P = pitch, in. = $1/n$
H = height of fundamental triangle = 0.86602540P
n = threads per inch

5.8.1 External Thread

(a) Allowance (External Threads)

(1) Classes 1A and 2A = 0.300 Class 2A pitch diameter tolerance[1]

(2) Class 3A = no allowance

(b) Major Diameter Tolerance (External Threads)

(1) Class 1A = $0.090\sqrt[3]{P^2}$

(2) Classes 2A and 3A = $0.060\sqrt[3]{P^2}$

The tolerance for Class 2A coarse and the 8-thread series threads of unfinished, hot-rolled material is $0.090\sqrt[3]{P^2}$. This does not apply to standard fasteners with rolled threads.

(c) Pitch Diameter Tolerance (External Threads)

(1) Class 1A = 1.500 Class 2A pitch diameter tolerance[1]

(2) Class 2A = $0.0015\sqrt[3]{D} + 0.0015\sqrt{LE} + 0.015\sqrt[3]{P^2}$

NOTE: See Table 4 for the values of these terms corresponding to given values of diameter, length of engagement.[1]

(3) Class 3A = 0.750 Class 2A pitch diameter tolerance[1]

[1] Calculations shall use Class 2A pitch diameter tolerance with six decimal places. Final values shall be rounded to four decimal places.

Table 4 Increments in Pitch Diameter Tolerance — Class 2A

$$(PD \text{ Tolerance} = 0.0015\sqrt[3]{D} + 0.0015\sqrt{LE} + 0.015\sqrt[3]{P^2})$$

Diameter, *D*				Length of Engagement, *LE*														Pitch, *P*	
				Based on Note (1)					Based on Note (1)					Based on Note (1)					
D	$0.0015\sqrt[3]{D}$	*D*	$0.0015\sqrt[3]{D}$	1 *D* for Sizes	9*P* for TPI	20*P* for TPI	*LE*	$0.0015\sqrt{LE}$	1 *D* for Sizes	9*P* for TPI	20*P* for TPI	*LE*	$0.0015\sqrt{LE}$	1 *D* for Sizes	20*P* for TPI	*LE*	$0.0015\sqrt{LE}$	Threads/ in.	$0.015\sqrt[3]{P^2}$
0.0600	0.000587	1.9375	0.001870	#0	...	...	0.0600	0.000367	1/2	18	40	0.5000	0.001061	2 3/8	...	2.3750	0.002312	80	0.000808
0.0625	0.000595	2.0000	0.001890	1/16	...	...	0.0625	0.000375	...	...	36	0.5556	0.001118	2 1/2	8	2.5000	0.002372	72	0.000867
0.0730	0.000627	2.1250	0.001928	#1	...	...	0.0730	0.000405	9/16	16	...	0.5625	0.001125	2 5/8	...	2.6250	0.002430	64	0.000938
0.0860	0.000662	2.2500	0.001966	3/64	...	...	0.0781	0.000419	5/8	...	32	0.6250	0.001186	2 3/4	...	2.7500	0.002487	60	0.000979
0.0938	0.000682	2.3750	0.002001	#2	...	...	0.0860	0.000440	...	14	...	0.6429	0.001203	...	7	2.8571	0.002535	56	0.001025
0.0990	0.000694	2.5000	0.002036	3/32	...	...	0.0938	0.000459	11/16	...	...	0.6875	0.001244	2 7/8	...	2.8750	0.002543	50	0.001105
0.1120	0.000723	2.6250	0.002069	#3	...	...	0.0990	0.000472	...	13	...	0.6923	0.001248	3	...	3.0000	0.002598	48	0.001136
0.1250	0.000750	2.7500	0.002102	7/64	...	...	0.1094	0.000496	...	...	28	0.7143	0.001268	3 1/8	...	3.1250	0.002652	44	0.001204
0.1380	0.000775	2.8750	0.002133	#4	...	...	0.1120	0.000502	...	...	27	0.7407	0.001291	3 1/4	...	3.2500	0.002704	42	0.001241
0.1640	0.000821	3.0000	0.002163	...	80	...	0.1125	0.000503	3/4	12	...	0.7500	0.001299	...	6	3.3333	0.002739	40	0.001282
0.1875	0.000859	3.1250	0.002193	#5	72	...	0.1250	0.000530	...	11 1/2	...	0.7826	0.001327	3 3/8	...	3.3750	0.002756	36	0.001376
0.1900	0.000862	3.2500	0.002222	#6	...	..	0.1380	0.000557	13/16	...	...	0.8125	0.001352	3 1/2	...	3.5000	0.002806	34	0.001429
0.2160	0.000900	3.3750	0.002250	...	64	...	0.1406	0.000562	...	11	...	0.8182	0.001357	3 5/8	...	3.6250	0.002856	32	0.001488
0.2500	0.000945	3.5000	0.002277	5/32	...	...	0.1562	0.000593	...	...	24	0.8333	0.001369	3 3/4	...	3.7500	0.002905	30	0.001554
0.3125	0.001018	3.6250	0.002304	...	56	...	0.1607	0.000601	7/8	...	...	0.8750	0.001403	3 7/8	...	3.8750	0.002953	28	0.001627
0.3750	0.001082	3.7500	0.002330	#8	...	...	0.1640	0.000607	...	10	...	0.9000	0.001423	4	5	4.0000	0.003000	27	0.001667
0.4375	0.001139	3.8750	0.002356	11/64	...	...	0.1719	0.000622	15/16	...	...	0.9375	0.001452	4 1/8	...	4.1250	0.003047	26	0.001709
0.5000	0.001191	4.0000	0.002381	3/16	48	...	0.1875	0.000650	1	9	20	1.0000	0.001500	4 1/4	...	4.2500	0.003092	24	0.001803
0.5625	0.001238	4.1250	0.002406	#10	...	...	0.1900	0.000654	1 1/16	...	...	1.0625	0.001546	4 3/8	...	4.3750	0.003137	22	0.001910
0.6250	0.001282	4.2500	0.002430	13/64	...	...	0.2031	0.000676	...	...	18	1.1111	0.001581	...	4 1/2	4.4444	0.003162	20	0.002036
0.6875	0.001324	4.3750	0.002453	...	44	...	0.2045	0.000678	1 1/8	8	...	1.1250	0.001591	4 1/2	...	4.5000	0.003182	18	0.002184
0.7500	0.001363	4.5000	0.002476	#12	...	...	0.2160	0.000697	1 3/16	...	...	1.1875	0.001635	4 5/8	...	4.6250	0.003226	16	0.002362
0.8125	0.001400	4.6250	0.002499	7/32	...	...	0.2188	0.000702	1 1/4	...	16	1.2500	0.001677	4 3/4	...	4.7500	0.003269	14	0.002582
0.8750	0.001435	4.7500	0.002521	...	40	...	0.2250	0.000712	...	7	...	1.2857	0.001701	4 7/8	...	4.8750	0.003312	13	0.002713
0.9375	0.001468	4.8750	0.002543	15/64	...	...	0.2344	0.000726	1 5/16	...	...	1.3125	0.001718	5	4	5.0000	0.003354	12	0.002862
1.0000	0.001500	5.0000	0.002565	1/4	36	80	0.2500	0.000750	1 3/8	...	...	1.3750	0.001759	5 1/8	...	5.1250	0.003396	11 1/2	0.002944
1.0625	0.001531	5.1250	0.002586	17/64	...	...	0.2656	0.000773	...	...	14	1.4286	0.001793	5 1/4	...	5.2500	0.003437	11	0.003033
1.1250	0.001560	5.2500	0.002607	...	...	72	0.2778	0.000791	1 7/16	...	...	1.4375	0.001798	5 3/8	...	5.3750	0.003478	10	0.003232
1.1875	0.001588	5.3750	0.002628	...	32	...	0.2812	0.000795	1 1/2	6	...	1.5000	0.001837	5 1/2	...	5.5000	0.003518	9	0.003467
1.2500	0.001616	5.5000	0.002648	19/64	...	...	0.2969	0.000817	...	...	13	1.5385	0.001861	5 5/8	...	5.6250	0.003558	8	0.003750

Table 4 Increments in Pitch Diameter Tolerance — Class 2A (Cont'd)

$$(PD \text{ Tolerance} = 0.0015\sqrt[3]{D} + 0.0015\sqrt{LE} + 0.015\sqrt[3]{P^2})$$

Diameter, *D*				Length of Engagement, *LE*														Pitch, *P*	
				Based on Note (1)					Based on Note (1)					Based on Note (1)					
D	$0.0015\sqrt[3]{D}$	*D*	$0.0015\sqrt[3]{D}$	1 *D* for Sizes	9*P* for TPI	20*P* for TPI	*LE*	$0.0015\sqrt{LE}$	1 *D* for Sizes	9*P* for TPI	20*P* for TPI	*LE*	$0.0015\sqrt{LE}$	1 *D* for Sizes	20*P* for TPI	*LE*	$0.0015\sqrt{LE}$	Threads/ in.	$0.015\sqrt[3]{P^2}$
1.3125	0.001642	5.6250	0.002668	5/16	...	64	0.3125	0.000839	1 9/16	...	...	1.5625	0.001875	5 3/4	...	5.7500	0.003597	7	0.004099
1.3750	0.001668	5.7500	0.002687	...	28	...	0.3214	0.000850	1 5/8	...	...	1.6250	0.001912	5 7/8	...	5.8750	0.003636	6	0.004543
1.4375	0.001693	5.8750	0.002707	21/64	...	...	0.3281	0.000859	...	...	12	1.6667	0.001936	6	...	6.0000	0.003674	5 1/2	0.004814
1.5000	0.001717	6.0000	0.002726	...	27	60	0.3333	0.000866	1 11/16	...	...	1.6875	0.001949	6 1/2	...	6.5000	0.003824	5	0.005130
1.5625	0.001741	7.0000	0.002869	11/32	...	...	0.3438	0.000880	...	...	11 1/2	1.7391	0.001978	7	...	7.0000	0.003969	4 1/2	0.005503
1.6250	0.001764	8.0000	0.003000	...	...	56	0.3571	0.000896	1 3/4	...	...	1.7500	0.001984	7 1/2	...	7.5000	0.004108	4	0.005953
1.6875	0.001786	9.0000	0.003120	23/64	...	...	0.3594	0.000899	...	5	...	1.8000	0.002012	8	...	8.0000	0.004243	...	...
1.7500	0.001808	10.0000	0.003232	3/8	24	...	0.3750	0.000919	1 13/16	...	...	1.8125	0.002019	8 1/2	...	8.5000	0.004373	...	...
1.8125	0.001829	12.0000	0.003434	25/64	...	...	0.3906	0.000937	...	...	11	1.8182	0.002023	9	...	9.0000	0.004500	...	...
1.8750	0.001850	14.0000	0.003615	13/32	...	...	0.4063	0.000956	1 7/8	...	...	1.8750	0.002054	9 1/2	...	9.5000	0.004623	...	...
...	...	16.0000	0.003780	...	...	48	0.4167	0.000968	1 15/16	...	...	1.9375	0.002088	10	...	10.0000	0.004743	...	...
...	...	18.0000	0.003931	27/64	...	...	0.4219	0.000974	2	4 1/2	10	2.0000	0.002121	10 1/2	...	10.5000	0.004861	...	...
...	...	20.0000	0.004072	7/16	...	...	0.4375	0.000992	2 1/8	...	...	2.1250	0.002187	11	...	11.0000	0.004975	...	...
...	...	24.0000	0.004327	...	20	...	0.4500	0.001006	...	...	9	2.2222	0.002236	11 1/2	...	11.5000	0.005087	...	...
...	...	...	...	...	...	44	0.4545	0.001011	2 1/4	4	...	2.2500	0.002250	12	...	12.0000	0.005196	...	...

GENERAL NOTE: Class 2A tolerances are the bases for the tolerances for Classes 1A, 3A, 1B, 2B, and 3B.

NOTE:

(1) For example: *LE* = 0.5000 is equivalent to one diameter for the 1/2 in. size, 9 pitches for 18 threads per inch, or 20 pitches for 40 threads per inch.

(d) Minor Diameter Tolerance (External Threads)

(1) UNR Classes. To intersection of rounded root with its centerline (see Figs. 2 and 3), equals pitch diameter tolerance for class of thread specified, plus 0.10825318P (see Table 5).

(2) UN Classes 1A, 2A, and 3A. To intersection of flat root with flanks of threads (see Figs. 2 and 3), equals pitch diameter tolerance for class of thread specified, plus 0.21650635P (see Table 5).

5.8.2 Internal Thread

(a) Major Diameter Tolerance (Internal Threads)

(1) For Classes 1B, 2B, and 3B, equals 0.14433757P (see Table 5) plus the pitch diameter tolerance of the class of thread under consideration.

(b) Pitch Diameter Tolerance (Internal Threads)

(1) Class 1B = 1.950 Class 2A pitch diameter tolerance (nominally equal to 1.5 Class 2B)[1] (see page 55 for footnote)

(2) Class 2B = 1.300 Class 2A pitch diameter tolerance[1]

(3) Class 3B = 0.975 Class 2A pitch diameter tolerance (nominally equal to 0.750 Class 2B)[1]

(c) Minor Diameter Tolerance (Internal Threads)

(1) Classes 1B and 2B. For all thread series and special threads in sizes less than $\frac{1}{4}$ in., equals $[0.0500\sqrt[3]{P^2} + 0.03\ P/D] - 0.002$ in., within the following limitations:

(a) Tolerances shall not be greater than 0.39400P.

(b) Tolerances shall not be less than $0.2500P - 0.400P^2$

The formulas are suitable for general applications having lengths of engagement up to 1.5 diameters.

For all thread series and special threads $\frac{1}{4}$ in. and larger, 80 to 4 threads per inch, inclusive, equals $0.25P - 0.4P^2$. For all thread series and special threads $\frac{1}{4}$ in. and larger with less than 4 threads per inch, equals 0.15P.

(2) Class 3B. For all thread series, equals $[0.05\sqrt[3]{P^2} + 0.03\ P/D] - 0.002$ in., within the following limitations:

(a) Tolerance shall be not greater than 0.394P.

(b) Tolerance shall be not less than

(1) for 80 to 13 threads per inch, inclusive, $0.23P - 1.5P^2$

(2) for 12 threads per inch and coarser, 0.120P

The formulas are suitable for general applications having lengths of engagement up to 1.5 diameters.

5.9 Lead and Flank Angle Tolerances

See para. 9.

5.10 Coated or Plated Threads

See para. 7 for dimensional accommodation and limits for coated threads.

5.11 Circular Runout

5.11.1 Circular Runout Is the Full Indicator Movement (FIM) (See ASME Y14.5). Runout of the crest (minor diameter of internal thread or major diameter of external thread) relative to the functional diameter cylinder shall not be so great that the basic profile is transgressed.

5.11.2 Internal Thread. Maximum runout, which will maintain the crest inside the basic thread profile, is the difference between the measured minor diameter and the basic minor diameter. An out-of-round functional diameter cylinder may reduce the available runout.

5.11.3 External Thread. Maximum runout, which will maintain the crest inside the basic thread profile, is the difference between the measured major diameter and the basic major diameter. An out-of-round functional diameter cylinder may reduce the available runout.

6 SCREW THREAD DESIGNATION

6.1 Basic Method of Designating

The designation specifies in sequence the nominal size, number of threads per inch, thread series symbol, thread class symbol, and gaging system per ASME B1.3 (see screw thread designations listed at the end of this paragraph). The nominal size is the basic major diameter and is specified as the fractional diameter, screw number, or their decimal equivalent. Where decimal equivalents are used for size callout, they shall be shown in four place decimals (omitting the cipher in the fourth place) for fractional sizes, and in three place decimals for number sizes. They shall be interpreted as being nominal size designations only and shall have no dimensional significance beyond the fractional size or number designation. The thread series symbol indicates the thread form (see para. 2), series, and tolerance formulation (see para. 3). The thread series symbols for the UN thread form are UNC, UNF, UNEF, or UN for only those sizes of the various series shown in Table 1 and UNS for any other intermediate and larger size diameter-pitch combination having tolerances to unified formulation. The corresponding thread series symbols for the UNR thread form are UNRC, UNRF, UNREF, or UNR. The symbol UNRS corresponds to UNS. The thread class symbols are 1A, 1B, 2A, 2B, 3A, or 3B, where the suffixes A and B relate to external and internal threads, respectively.

The basic method of designating a screw thread is used where the standard tolerances or limits of size based on the standard length of engagement are applicable, as indicated in para. 5.

UNS threads and threads having special length of engagement require certain additional information as shown in paras. 6.4 and 6.6.

Table 5 Thread Form Data

Threads/ in.	Pitch, P	Basic Flat at Internal Thread Crest, and External UN Thread Root, $F_{rs} = F_{cn} = P/4 = 0.25000000P$	Flat at Internal Thread Root and External Thread Crest, $F_{rn} = F_{cs} = P/8 = 0.12500000P$	H [Note (1)] Height of Sharp V-Thread $= 0.86602540P$	$0.1250H$ [Note (1)] Truncation of Internal Thread Root and External Thread Crest, $f_{rn} = f_{es} = 0.10825318P$ [Note (2)]	$0.1667H$ [Note (1)] External Thread Root Full Radius, Max., $r_{rs} = 0.14433757P$	$0.1875H$ [Note (1)] Truncation of UNR Design Profile External Thread Root and Half Addendum of External Thread, $S_{rs} = 0.16237976P$	$0.2500H$ [Note (1)] External Thread Root and Truncation of Internal Thread Crest, $f_{rs} = f_{cn} = 0.21650635P$ [Note (3)]
1	2	3	4	5	6	7	8	9
80	0.01250000	0.003125	0.001563	0.010825	0.001353	0.001804	0.002030	0.002706
72	0.01388889	0.003472	0.001736	0.012028	0.001504	0.002005	0.002255	0.003007
64	0.01562500	0.003906	0.001953	0.013532	0.001691	0.002255	0.002537	0.003383
56	0.01785714	0.004464	0.002232	0.015465	0.001933	0.002577	0.002900	0.003866
48	0.02083333	0.005208	0.002604	0.018042	0.002255	0.003007	0.003383	0.004511
44	0.02272727	0.005682	0.002841	0.019682	0.002460	0.003280	0.003690	0.004921
40	0.02500000	0.006250	0.003125	0.021651	0.002706	0.003608	0.004059	0.005413
36	0.02777778	0.006944	0.003472	0.024056	0.003007	0.004009	0.004511	0.006014
32	0.03125000	0.007813	0.003906	0.027063	0.003383	0.004511	0.005074	0.006766
28	0.03571429	0.008929	0.004464	0.030929	0.003866	0.005155	0.005799	0.007732
27	0.03703704	0.009259	0.004630	0.032075	0.004009	0.005346	0.006014	0.008019
24	0.04166667	0.010417	0.005208	0.036084	0.004511	0.006014	0.006766	0.009021
20	0.05000000	0.012500	0.006250	0.043301	0.005413	0.007217	0.008119	0.010825
18	0.05555556	0.013889	0.006944	0.048113	0.006014	0.008019	0.009021	0.012028
16	0.06250000	0.015625	0.007813	0.054127	0.006766	0.009021	0.010149	0.013532
14	0.07142857	0.017857	0.008929	0.061859	0.007732	0.010310	0.011599	0.015465
13	0.07692308	0.019231	0.009615	0.066617	0.008327	0.011103	0.012491	0.016654
12	0.08333333	0.020833	0.010417	0.072169	0.009021	0.012028	0.013532	0.018042
11.5	0.08695652	0.021739	0.010870	0.075307	0.009413	0.012551	0.014120	0.018827
11	0.09090909	0.022727	0.011364	0.078730	0.009841	0.013122	0.014762	0.019682
10	0.10000000	0.025000	0.012500	0.086603	0.010825	0.014434	0.016238	0.021651
9	0.11111111	0.027778	0.013889	0.096225	0.012028	0.016038	0.018042	0.024056
8	0.12500000	0.031250	0.015625	0.108253	0.013532	0.018042	0.020297	0.027063
7	0.14285714	0.035714	0.017857	0.123718	0.015465	0.020620	0.023197	0.030929
6	0.16666667	0.041667	0.020833	0.144338	0.018042	0.024056	0.027063	0.036084
5	0.20000000	0.050000	0.025000	0.173205	0.021651	0.028868	0.032476	0.043301
4.5	0.22222222	0.055556	0.027778	0.192450	0.024056	0.032075	0.036084	0.048113
4	0.25000000	0.062500	0.031250	0.216506	0.027063	0.036084	0.040595	0.054127

Table 5 Thread Form Data (Cont'd)

Threads/ in.	0.375*H* [Note (1)] Addendum of External Thread, h_{as} = 0.32475953*P* [Note (4)]	0.625*H* [Note (1)] Height of Internal Thread, UN External Thread, and Depth of Thread Engagement, $h_s = h_n = h_e$ = 0.54126588*P*	0.6875*H* [Note (1)] Height of UNR External Thread, h_s = 0.59539247*P*	0.7500*H* [Note (1)] Twice the External Thread Addendum, $h_b = 2h_{as}$ = 0.64951905*P*	0.9167*H* [Note (1)] Difference Between Max. Major and Pitch Diameters of Internal Thread = 0.79385662*P*	1.2500*H* [Note (1)] Double Height of Internal Thread and External UN Thread, $2h_n$ = 1.08253175*P*	1.3750*H* [Note (1)] Double Height of External UNR Thread, $2h_s$ = 1.19078493*P*	0.5000*H* [Note (1)] 0.43301270*P*
1	10	11	12	13	14	15	16	17
80	0.004059	0.006766	0.007442	0.008119	0.009923	0.013532	0.014885	0.005413
72	0.004511	0.007518	0.008269	0.009021	0.011026	0.015035	0.016539	0.006014
64	0.005074	0.008457	0.009303	0.010149	0.012404	0.016915	0.018606	0.006766
56	0.005799	0.009665	0.010632	0.011599	0.014176	0.019331	0.021264	0.007732
48	0.006766	0.011276	0.012404	0.013532	0.016539	0.022553	0.024808	0.009021
44	0.007381	0.012301	0.013532	0.014762	0.018042	0.024603	0.027063	0.009841
40	0.008119	0.013532	0.014885	0.016238	0.019846	0.027063	0.029770	0.010825
36	0.009021	0.015035	0.016539	0.018042	0.022052	0.030070	0.033077	0.012028
32	0.010149	0.016915	0.018606	0.020297	0.024808	0.033829	0.037212	0.013532
28	0.011599	0.019331	0.021264	0.023197	0.028352	0.038662	0.042528	0.015465
27	0.012028	0.020047	0.022052	0.024056	0.029402	0.040094	0.044103	0.016038
24	0.013532	0.022553	0.024808	0.027063	0.033077	0.045105	0.049616	0.018042
20	0.016238	0.027063	0.029770	0.032476	0.039693	0.054127	0.059539	0.021651
18	0.018042	0.030070	0.033077	0.036084	0.044103	0.060141	0.066155	0.024056
16	0.020297	0.033829	0.037212	0.040595	0.049616	0.067658	0.074424	0.027063
14	0.023197	0.038662	0.042528	0.046394	0.056704	0.077324	0.085056	0.030929
13	0.024982	0.041636	0.045799	0.049963	0.061066	0.083272	0.091599	0.033309
12	0.027063	0.045105	0.049616	0.054127	0.066155	0.090211	0.099232	0.036084
11.5	0.028240	0.047067	0.051773	0.056480	0.069031	0.094133	0.103547	0.037653
11	0.029524	0.049206	0.054127	0.059047	0.072169	0.098412	0.108253	0.039365
10	0.032476	0.054127	0.059539	0.064952	0.079386	0.108253	0.119078	0.043301
9	0.036084	0.060141	0.066155	0.072169	0.088206	0.120281	0.132309	0.048113
8	0.040595	0.067658	0.074424	0.081190	0.099232	0.135316	0.148848	0.054127
7	0.046394	0.077324	0.085056	0.092788	0.113408	0.154647	0.170112	0.061859
6	0.054127	0.090211	0.099232	0.108253	0.132309	0.180422	0.198464	0.072169
5	0.064952	0.108253	0.119078	0.129904	0.158771	0.216506	0.238157	0.086603
4.5	0.072169	0.120281	0.132309	0.144338	0.176413	0.240563	0.264619	0.096225
4	0.081190	0.135316	0.148848	0.162380	0.198464	0.270633	0.297696	0.108253

GENERAL NOTES:

(a) All dimensions are in inches.

(b) All thread calculations are to be performed using a function of pitch (*P*); the use of thread height (*H*) is for reference only as stated in ASME B1.30.

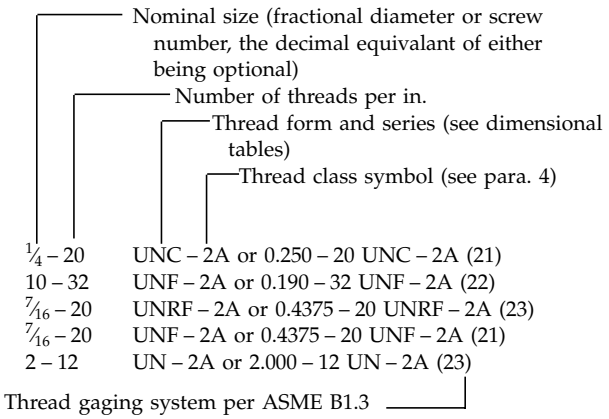
NOTES:

(1) The thread values based on a function of height "*H*" are used for reference only.

(2) The values tabulated in column 6 also pertain to the minimum root radius of UNR screw threads. See paras. 2.3.1 and 2.3.1(a).

(3) $h_{an} = f_{cn} = 0.25H = 0.21650635P$

(4) $h_{dn} = h_{as} = 0.375H = 0.32475953P$



NOTE: Thread acceptability gaging system requirement of ASME B1.3 may be added to the thread size designation as noted above or as specified in pertinent documentation, such as drawing or procurement document.

6.2 Method of Designating Coated Threads

Specification on drawings of the before and after coating dimensions for screw threads is sometimes dictated by an engineering or production consideration that the size before and after coating be controlled. This results from coated screw threads having two stages of design, the before coating stage and the after coating stage. The threaded product may be produced by a supplier and coated by a user. In this case, it is necessary that a clear understanding of the coating requirements and the allowance for coating buildup be agreed upon by both supplier and user (see para. 7).

The before coating (plating) dimensions have a definite bearing on the strength of the screw threads. The before coating stage is, therefore, decidedly an engineering consideration; it is also a production consideration in requiring that proper allowance be made for the specified coating thickness. The finished parts should be of a size after coating that will allow them to be assembled with their coating components as intended.

Recommended methods for designating coated thread under various conditions are described in para. 6.2.1.

6.2.1 For coated (or plated) Class 2A external threads, the basic (max.) major and basic (max.) pitch diameters shall be given, preceded by the words AFTER COATING. The major and pitch diameter limits of size before coating shall also be given, preceded by the words BEFORE COATING.

EXAMPLE:

3/4 – 10 UNC – 2A (21)

After Coating

Max. major diameter 0.7500
Max. *PD* 0.6850
} *Values shown from Table 2 for Class 3A*

Before Coating

Major diameter 0.7482 – 0.7353
PD 0.6832 – 0.6773
} *Values shown from Table 2 for Class 2A*

Threads accepted to Class 2A limits before coating are accepted after coating by basic size Class 3A GO thread gages. The allowance given in the dimensional tables for Class 2A thread is sufficient to allow for a limited amount of coating as described in para. 7. However, if a greater coating thickness is required, it will be necessary to calculate the before coating limits in accordance with para. 7.

6.2.2 For coated (or plated) Class 3A external threads, the maximum major and maximum pitch diameters may optionally be given, preceded by the words AFTER COATING, thereby indicating that the thread before coating must have special provisions to allow for coating thickness. The major and pitch diameter limits of size before coating (calculated in accordance with para. 7 shall be given, followed by the letters SPL (special) and preceded by the words BEFORE COATING.

EXAMPLE: Thickness of coating 0.0002 in. to 0.0003 in.

1/4 – 28 UNF-3A (21)

After Coating

Max. major diameter 0.2500
Max. *PD* 0.2268
} *Optional Information*

Before Coating

Major diameter 0.2494 – 0.2431 SPL
PD 0.2256 – 0.2235 SPL

6.2.3 For coated (or plated) Class 1A external threads, the maximum major and maximum pitch diameters may optionally be given, preceded by the words AFTER COATING, thereby indicating that the thread before coating must have special provisions to allow for coating thickness. The major and pitch diameter limits of size before coating (calculated in accordance with para. 7 shall be given, followed by the letters SPL (special) and preceded by the words BEFORE COATING.

EXAMPLE: Thickness of coating 0.0002 in. to 0.0003 in.

1/4 – 20 UNC-1A (21)

After Coating

Max. major diameter 0.2489
Max. *PD* 0.2164
} *Optional Information*

Before Coating

Major diameter 0.2483 – 0.2363 SPL
PD 0.2152 – 0.2100 SPL

6.2.4 Where an allowance is required to accommodate coating (or plating) on Class 1B, 2B, or 3B internal threads, the minimum minor and minimum pitch diameters may optionally be given, preceded by the words AFTER COATING. The minor and pitch diameter limits of size before coating (calculated in accordance with para. 7 shall be given, followed by the letters SPL (special) and preceded by the words BEFORE COATING.

EXAMPLES: Thickness of coating 0.0002 in. to 0.0003 in.

(a) $\frac{1}{4}$ – 20 UNC-1B (21)

After Coating

Min. minor diameter 0.196 } *Optional Information*
Min. *PD* 0.2175 }

Before Coating

Minor diameter 0.197 – 0.207 SPL
PD 0.2187 – 0.2256 SPL

(b) $\frac{3}{4}$ – 10 UNC-2B (22)

After Coating

Min. minor diameter 0.642 } *Optional Information*
Min. *PD* 0.6850 }

Before Coating

Minor diameter 0.643 – 0.663 SPL
PD 0.6862 – 0.6935 SPL

(c) $\frac{1}{4}$ – 28 UNF-3B (23)

After Coating

Min. minor diameter 0.2110 } *Optional Information*
Min. *PD* 0.2268 }

Before Coating

Minor diameter 0.2116 – 0.2194 SPL
PD 0.2280 – 0.2308 SPL

NOTE: The after coating limits for all of the examples above are the minor and *PD* values in Table 2 for the respective class of thread.

6.3 Method of Designating Left-Hand Threads

Unless otherwise specified, threads are right hand; a left-hand thread shall be designated LH as follows:

EXAMPLE: $\frac{1}{4}$ – 20 UNC-3A-LH (21)

6.4 Method of Designating UNS Threads

UNS threads are special combinations of diameter and pitch with tolerance to unified formulation.

UNS threads have the basic form of designation set out above, supplemented always by the limits of size.

EXAMPLES:

(a) $\frac{1}{4}$ – 24 UNS-3A (21)
Major diameter 0.2500 – 0.2428
PD 0.2229 – 0.2201
Max. Minor diameter 0.205

(b) 0.495 – 20 UNS-3A (21)
Major diameter 0.4950 – 0.4869
PD 0.4625 – 0.4593
Max. Minor diameter 0.441

(c) 1.200 – 10 UNS-2B (21)
Minor diameter 1.092 – 1.113
PD 1.1350 – 1.1432
Min. Major diameter 1.200

6.5 Designations for Other Threads

Threads having tolerances that do not conform to unified formulation and threads having multiple start or lead, or special form, also require additional considerations in the thread designation. The recommended methods of designating these threads are described in paras. 6.5.1 through 6.5.3.

6.5.1 Method of Designating Threads Having Tolerances Not to Unified Formulation. If a standard series thread is altered in any respect other than revised pitch diameter limits for a special length of engagement, the modification of crests, or the adjustment of the limits of size to accommodate coating, as shown above, it is designated in accordance with the following:

EXAMPLES:

(a) $\frac{7}{16}$ – 24 Unified Form SPL-EXT (22)
Major diameter 0.4340 – 0.4280 SPL
PD 0.4065 – 0.4025 SPL
Max. Minor diameter 0.3889
LE 0.38

(b) $\frac{1}{2}$ – 13 Unified Form SPL-INT (22)
Minor diameter 0.424 – 0.434 SPL
PD 0.4500 – 0.4580 SPL
Min. Major diameter 0.5000
LE 0.50

6.5.2 Method of Designating Multiple Start Threads. If a thread is required with a multiple start or lead, it is designated by specifying in sequence the nominal size, pitch (in decimals or threads per inch), and lead (in decimals or fractions), number of starts in parenthesis, thread series, class, and gaging system in parenthesis if required to the following examples:

EXAMPLES:

(a) $\frac{3}{4}$ – 0.0625*P* – 0.1875*L* (3 STARTS) UNF SPL-EXT (23)
Major diameter 0.7485 – 0.7391
PD 0.7079 – 0.7003 SPL
Max. Minor diameter 0.6808
LE 0.75

(b) $\frac{3}{4}$ – 16 – 0.1875*L* (3 STARTS) UNF-2A (21)

6.5.3 Method of Designating Special Form Threads. If a thread for design consideration requires a variation from unified standard thread contour and is not covered by another recognized standard, such as when the detail of the root differs from that for the standard thread form, the designation shall not include either the letters "UN" or the word "UNIFIED", but shall be as follows:

EXAMPLE:
$\frac{7}{8}$ – 18 SPL 60 deg Form-EXT (22)
Major diameter 0.8750 – 0.8668
PD 0.8384 – 0.8343
Max. Minor diameter 0.8068
LE 0.69

6.6 Method of Designating Threads Having Special Length of Engagement

In the assembly of threads in mating parts, the length of engagement varies according to the design requirements. It should be noted that the length of engagement is not necessarily the same as the full thread length provided on the part, but is the length of assembled thread in the mating parts.

Where a standard series thread has a special length of engagement differing from that for which the standard pitch diameter tolerances are applicable as indicated in para. 5, the thread class symbol is qualified by the addition of the letters SE (special engagement) preceding the class symbol. The specification of the special pitch diameter limits of size and the length of engagement *LE*, rounded to a two place decimal, are a requirement.

EXAMPLES:

(a) $\frac{1}{2}$ – 13 UNC-SE2A (23)
PD 0.4485 – 0.4423
LE 1.00

(b) $\frac{1}{4}$ – 24 UNS-SE3A (23)
Major diameter 0.2500 – 0.2428
PD 0.2229 – 0.2194
LE 0.88

6.6.1 In some cases where greater than standard length of engagement is required, it is desirable to use standard externally threaded parts with tolerances based on standard length of engagement. For example, in the case of a standard bolt assembled into a tapped hole in aluminum, the designation of the bolt thread will conform to that of a thread for a standard length of engagement.

The designation for the tapped hole thread should include the allowance in the basic size, the pitch diameter limits of size, and the length of gage, in addition to the information normally given. See para. 5.3.1(b).

EXAMPLE: Requiring use of 1.00 long GO thread and GO plain gages.
0.5025 – 13 UNS-SE2B (21)
Minor diameter 0.420 – 0.437
PD 0.4525 – 0.4606
LG 1.00

Similarly, where greater than standard length of engagement is required, it is desirable to use standard internally threaded parts with tolerances based on standard length of engagement. Therefore, the external thread is provided with an added allowance. See para. 5.3.1(c).

The designation for the external thread should include the added allowance in the basic size, the pitch diameter limits of size, and the length of gage, in addition to the information normally given.

EXAMPLE: Requiring use of 0.88 long GO thread and GO plain gages.
0.3725 – 24 UNS-SE2A (21)
Major diameter 0.3714 – 0.3642
PD 0.3443 – 0.3396
LG 0.88

6.6.2 When a long length of engagement is required and standard length GO thread and GO plain gages are to be used, the thread designation should indicate the thread modifications and a standard gage length, *LG* Std. See para. 5.3.2.

EXAMPLES: With additional allowance indicating use of standard length GO thread and GO plain gages.

(a) 0.5058 – 13 UNS-2B (22)
Minor diameter 0.423 – 0.440
PD 0.4558 – 0.4623
LG Std.

(b) 0.3706 – 24 UNS-2A (22)
Major diameter 0.3695 – 0.3623
PD 0.3424 – 0.3386
LG Std.

6.6.3 For applications of long length of engagement of mating parts involving very high strength materials, increases in tolerances based on standard length of engagement may be detrimental. In these cases, the tolerances based on the standard length of engagement may be applied to increased length of engagement threads. This requires the GO thread gages to have a special length equal to the length of engagement as specified.

The designations for restricted applications should be qualified with the abbreviation SPL (special) as shown in the examples below. See para. 5.3.1(a)

EXAMPLES: Requiring use of 1.00 long GO thread and GO plain gages

(a) 0.500 – 20 UNF-3A SPL (21)
LG 1.00 SPL

(b) 0.500 – 20 UNF-3B SPL (21)
LG 1.00 SPL

NOTE: In drawings, tolerances tabulated for the standard length of engagement in ASME B1.1 shall apply over the full length of engagement.

6.7 Method of Designating Threads Having Modified Crests

It is occasionally necessary to modify the limits of size of the major diameter of an external thread or the minor diameter of an internal thread within the maximum-material limits established for standard series and special threads in order to fit a specific purpose, but without change in class of thread or pitch diameter limits. (It should be noted that standard pitch diameter gages may be used to accept such threads.) Such threads shall be specified with the established thread designation, followed by a statement of the modified diameter limits and the designation MOD. This practice also applies to modifications of internal thread minor diameters described in para. 5.6.1.

EXAMPLES:
(a) $\frac{3}{8}$ – 24 UNF-3A MOD (21)
Major diameter 0.3720 – 0.3648 MOD
(b) $1\frac{1}{2}$ – 10 UNS-3B MOD (21)
Minor diameter 1.398 – 1.409 MOD
PD 1.4350 – 1.4412
Min. major diameter 1.500

7 DIMENSIONAL ACCOMMODATION OF COATING OR PLATING FOR 60-deg THREADS

7.1 Introduction

It is not within the scope of this Standard to make recommendations for thickness of, or to specify limits for, coatings. However, it will aid mechanical interchangeability if certain principles are followed wherever conditions permit. The guidelines in paras. 7.4, 7.5, and 7.6 should be helpful in determining the amount and direction of the alterations to establish applicable limits of size before coating threads with a 60 deg included angle. Some commonly used and firmly established processes for heavy coatings, such as hot dip galvanizing, do not fall within the scope of this paragraph. Heavy coating, for purposes of this standard, is defined as a coating thickness greater than 0.25 times the thread's allowance.

NOTE: The term *coating* refers to one or more applications of additive material to threads, including, but not limited to, electroplated deposits, dip-spin applied materials, and mechanically applied platings. It does not include soft or liquid lubricants that are readily displaced in assembly and gaging.

This Standard specifies limits of size that pertain whether threads are coated or uncoated. Only in Class 2A threads is the allowance available to accommodate coatings. Thus, in all classes of internal threads and in all Classes 1A and 3A external threads, limits of size must be adjusted before plating to provide suitable provision for the desired coating.

7.2 Material Limits for Coated Threads

Unless otherwise specified, size limits for standard external thread Class 2A apply prior to coating. The external thread allowance may thus be used to accommodate the coating thickness on coated parts, provided that the maximum coating thickness is no more than one-fourth of the allowance (see Fig. 4). Thus, the thread after coating is subject to acceptance using a basic Class 3A GO thread gage and a Class 2A thread gage for either minimum material or NOT GO. Where external thread has no allowance, or allowance must be maintained after coating, and for standard internal threads, sufficient allowance must be provided prior to coating to ensure that finished product threads do not exceed the maximum-material limits specified. For thread Class 3A, Class 2A allowances should be applied whenever possible in accordance with calculations in para. 5.

7.3 Dimensional Effects of Coating

7.3.1 On a cylindrical surface, the effect of coating is to change the diameter by twice the coating thickness, one coating thickness on each side of the cylinder. On a screw thread, this would apply to the major and minor diameter.

7.3.2 Because the coating thickness is measured perpendicular to the coated surface, while the pitch diameter is measured perpendicular to the thread axis, the effect of a uniformly coated thread flank on the pitch diameter is a change of four times the thickness of coating on the flank (see Fig. 4). The diameters of external threads before coating will be smaller, while the diameters of internal threads before coating will be larger, than the coated diameters.

7.3.3 Most coatings and platings do not apply uniformly on threads (see Fig. 5). Different coating materials and processes have different application characteristics. The threaded part's overall length and other configuration characteristics also affect the way the coatings build up on the threads. Paragraphs 7.4, 7.5, and 7.6 provide general guidelines for calculating precoating thread size to allow for coating buildup while preventing interference in assembly. The exact precoating thread size for a given part with a given type of coating will frequently have to be developed by the producer experimentally.

7.4 External Thread With Allowance Available for Coating

7.4.1 Maximum and Minimum Coating Thickness Specified. The amount of the allowance on the pitch diameter is sufficient if 4 times the maximum coating thickness is equal to or less than the allowance tabulated in Table 2 or calculated per formula in para. 5.8.1(a).

7.4.2 Only Nominal or Minimum Coating Thickness Specified. If no thickness tolerance is given, it is recommended that a tolerance of plus 50% of the nominal or minimum thickness be assumed. Then the amount of the allowance on the pitch diameter is sufficient if 6 times the specified coating thickness is equal to or less than the allowance tabulated in Table 2 or calculated per formula in para. 5.8.1(a).

7.5 External Thread With No Allowance for Coating

7.5.1 Maximum and Minimum Coating Thickness Specified. To determine before coating gaging limits decrease

(a) the maximum pitch diameter by 4 times the maximum coating thickness

(b) the minimum pitch diameter by 4 times the minimum coating thickness

(c) the maximum major diameter by 2 times the maximum coating

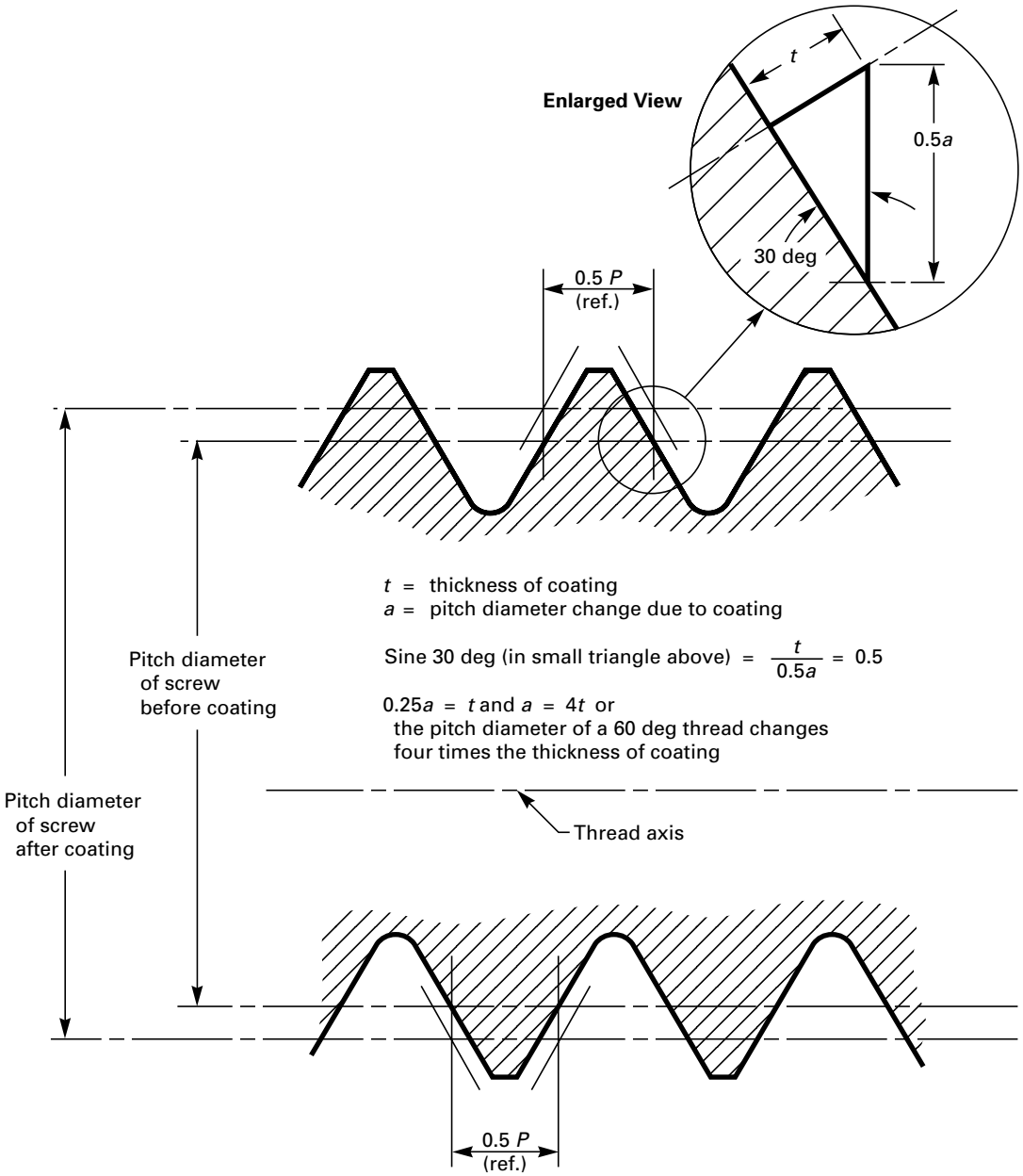


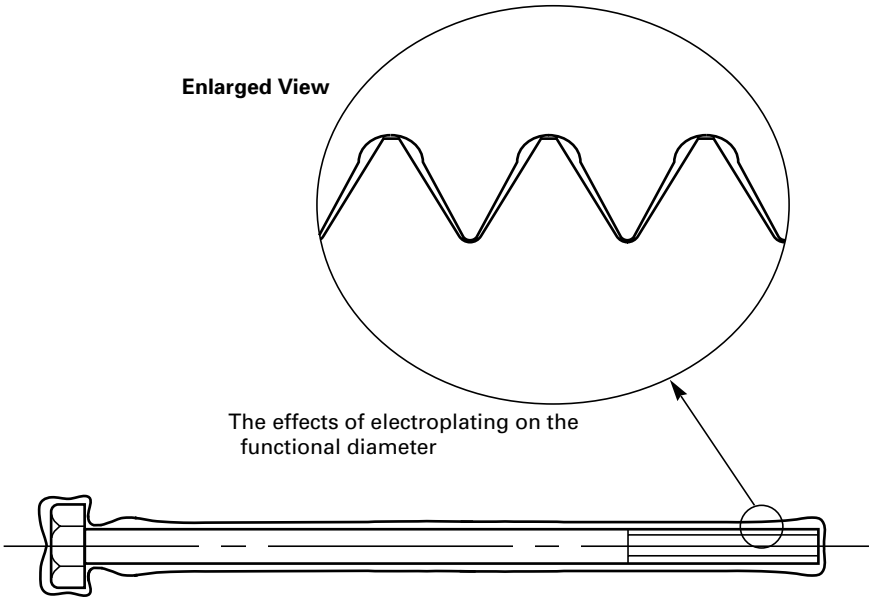
Fig. 4 Ratio of Pitch Diameter Change to Thickness of Coating on 60-deg Threads

(d) the minimum major diameter by 2 times the minimum coating thickness

EXAMPLE: $\frac{3}{8}$ – 16 UNC-2A (21) AFTER COATING
Coating thickness 0.0002 – 0.0003 in.

To determine the before coating maximum material sizes, decrease the maximum pitch diameter of 0.3331 in. by 0.0012 in. (4 × 0.0003) to 0.3319 in., and the maximum major diameter of 0.3737 in. by 0.0006 in. (2 × 0.0003) to 0.3731 in. For the before coating minimum sizes, decrease the minimum pitch diameter of 0.3287 in. by 0.0008 in. (4 × 0.0002) to 0.3279 in., and the minimum major diameter of 0.3643 in. by 0.0004 in. (2 × 0.0002) to 0.3639 in. The before coating sizes should be included in the thread designation (see para. 6.2.1).

7.5.2 Only Nominal or Minimum Coating Thickness Specified. If no coating thickness tolerance is given, it is recommended that a tolerance of plus 50% of the nominal or minimum thickness be assumed. Then, to determine before coating gaging limits for a coated thread, decrease



GENERAL NOTE: Electrodeposited coatings build up more heavily at sharp corners; is greater at the extreme ends and edges; and is least in the center and recessed areas.

Fig. 5 Effect of Electrodeposited Coatings on 60-deg External Threads

(a) the maximum pitch diameter by 6 times the coating thickness

(b) the minimum pitch diameter by 4 times the coating thickness

(c) the maximum major diameter by 3 times the coating thickness

(d) the minimum major diameter by 2 times the coating thickness

EXAMPLE: $\frac{1}{2}$ – 13 UNC-3A (22)
Coating thickness 0.0004 in.

Since the allowance for Class 2A thread is 0.0015 in., the nominal or minimum coating thickness that may be applied is equal to 0.0015 in. divided by 6, or 0.00025 in. (the maximum thickness of coating that may be applied is equal to 0.0015 divided by 4 or 0.0038 in.). This is not sufficient for the required nominal or minimum coating of 0.0004 in. specified, so additional adjustments to the before coating pitch and major diameters must be made.

To determine the before coating maximum material sizes, decrease the maximum pitch diameter of 0.4500 in. by 0.0024 in. (6 × 0.0004) to 0.4476 in., and the maximum major diameter of 0.5000 in. by 0.0012 in. (3 × 0.0004) to 0.4988 in. For the before coating minimum sizes, decrease the minimum pitch diameter of 0.4463 in. by 0.0016 in. (4 × 0.0004) to 0.4447 in., and the minimum major diameter of 0.4891 in. by 0.0008 in. (2 × 0.0004) to 0.4883 in. The before coating sizes should be included in the thread designation (see para. 6.2.1).

7.5.3 Adjusted Size Limits. It should be noted in the preceding examples that the before coating material limit tolerances are less than the tolerances after coating. This is because the coating tolerance consumes some of the product tolerance. In some instances, there may be insufficient pitch diameter tolerance available in the before coating condition, so that additional adjustments and controls will be necessary.

7.5.4 Strength. On small thread sizes (0.190 in. and smaller) there is a possibility that coating thickness adjustments will cause base material (minimum) conditions that may significantly affect strength of externally threaded parts. Limitations on coating thickness, or part redesign, may be necessary.

7.6 Internal Threads

Standard internal threads provide no allowance for coating thickness. To determine before coating gaging limits for a coated thread, increase

(a) the minimum pitch diameter by 4 times the maximum coating thickness, if specified, or by 6 times the minimum or nominal coating thickness, if not specified

(b) the maximum pitch diameter by 4 times the minimum or nominal coating thickness

(c) the minimum minor diameter by 2 times the maximum coating thickness, if specified, or by 3 times the minimum or nominal coating thickness, if not specified

(d) the maximum minor diameter by 2 times the minimum or nominal coating thickness

7.7 Electrodeposited Coatings

Electroplated coatings do not cover threads uniformly. Deposits build up more on thread crests than on thread flanks and coating thickness is greater on lead end of a thread than on threads in the center of a part. The guidelines for calculating precoating thread sizes for uniformly coated threads can be used as a starting place in determining the precoating thread sizes on a given part, but the exact sizes for any given part may have to be determined by trial and error experimentation.

One of the effects of electrodeposited coatings not applying uniformly is that the functional diameter of an external thread will generally increase by a greater magnitude than the increase of the pitch diameter on a given part. Depending on an externally threaded part's configuration an electrodeposited coating of 0.0001 in. on a thread flank will probably result in a growth of the pitch diameter of approximately 0.0004 in., but the functional diameter may change by as much as 0.0006 in. or more. In the case of internally threaded parts, electrodeposited coatings cause the pitch diameter and functional diameter to decrease in size, with the pitch diameter decreasing less than the functional diameter on a given part.

Another effect of the nonuniform buildup of electrodeposited coatings is that the coating thickness on the lead end of a thread is commonly greater than the thickness on the threads in the center of the part. This results in the pitch diameter and functional diameter of a thread to be considerably larger on the end of the part than their comparable measurements away from the end. The longer the part, in the case of external threads, or the thicker the part, in the case of internal threads, the greater these differences tend to be. The part producer and the plater can not control this phenomenon. It is the nature of electrodeposited coatings on threaded parts. It is conceivable that a part's dimensions can measure within limits on the lead threads and be beyond their limits on the threads away from the lead threads.

7.8 Other Considerations

It is essential to adequately review all possibilities and consider limitations in the threading and coating production processes before finalizing the coating process and the allowance required to accommodate the coating. A no allowance thread after coating shall not transgress the basic profile, and is therefore subject to acceptance using a basic Class 3A, 1B, 2B, or 3B size GO thread gage.

8 STANDARD SERIES THREADS (UN/UNR) AND LIMITS OF SIZE FOR STANDARD SERIES AND UNS/UNRS SERIES THREADS

8.1 Standard Series

The standard series for unified inch screw threads is listed in Table 1. Although the designations shown are for the UN thread form, UNR designations may be used in all cases.

8.2 Limits of Size

The limits of size are defined by the design profile at its maximum-material condition and the minimum profile at the minimum-material condition. The limits are specified as diameters (major diameter, minor diameter, pitch diameter), and the practical interpretation of these limits on a three-dimensional threaded product depends on the method of inspection/evaluation. These dimensions serve as a basis for measurement and gaging of the thread, but the methods, techniques, and equipment used for thread evaluation establish the degree of thread conformance to the tabulated dimensions. Current techniques for measuring and gaging do not verify exact conformance of a thread to its specified maximum and minimum envelope. See ASME B1.3 for gaging systems for dimensional acceptability.

8.2.1 Limits of size for the majority of the standard series are shown in Tables 2 and E-1. Until this Standard is revised to require the calculated and rounded values per ASME B1.30 shown in Table 2, both these and the values in Table E-1 will be equally acceptable. It is recommended that all users prepare for the eventual adoption of only the values in Table 2.

Omissions are the secondary size range in the 4-UN series, and all sizes over 6 in. refer to Table 1 for a list of secondary sizes.

8.2.2 Limits of size not given may be calculated from the formulas given in the following paragraphs. Formulas and symbols for thread form are given in para. 10.

8.3 Formulas for Limits of Size

These formulas were used to calculate the values shown in Table 2 for standard series. The following symbols are used in the equations. (See Figs. 1 and 6.)

D bsc = basic major (nominal) diameter
D_1 bsc = basic minor diameter ($D - 2h_n$) (see Tables 6 through 16)
D_2 bsc = basic pitch diameter ($D - h_b$) (see Tables 6 through 16)
d_3 = UNR series design minor diameter [$d_1 - (H/8)$] (see Tables 6 through 16)
h_{as} = screw addendum height (see Table 5)
h_b = $2h_{as}$ (see Table 5)
h_n = height of internal thread (see Table 5)
h_s = height of external thread (see Table 5)
P = pitch, in.

To obtain limits of size using the formulas, see Table 5 for basic thread form data, para. 11 for basic dimensions, and para. 5 for formulas of allowance and tolerance. For easy reference, outline guides for determining

limits of size of external and internal threads are given in Tables 17A and 17B.

8.3.1 External Thread

(a) Maximum Major Diameter (External Threads)

(1) For Classes 1A and 2A, d = basic major diameter, D bsc, minus allowance.

(2) For Class 3A, d = basic major diameter, D bsc.

(b) Minimum Major Diameter (External Threads). For all classes, equals maximum major diameter, minus major diameter tolerance for respective class of thread.

(c) Maximum Pitch Diameter (External Threads)

(1) For Classes 1A and 2A, d_2 = basic pitch diameter D_2 bsc, minus allowance.

(2) For Class 3A, d_2 = basic pitch diameter D_2 bsc.

(d) Minimum Pitch Diameter (External Threads). For all classes, equals maximum pitch diameter, minus pitch diameter tolerance for respective class of thread.

(e) Maximum Minor Diameter (External Threads). In dimensioning UN series external threads, the minor diameter is not specified. In practice, the minor diameter is satisfactory when accepted by a standard GO thread gage in accordance with ASME B1.2. When it is desirable to obtain minor diameter values for reference purposes and for UNR threads, they can be calculated as follows:

(1) For UN series threads, the formulas are:

(a) for Classes 1A and 2A, d_1 = basic minor diameter D_1 bsc, minus allowance

(b) for Class 3A, d_1 = basic minor diameter D_1 bsc

(2) For UNR series threads, the formulas are:

(a) for Classes 1A and 2A, d_3 = basic minor diameter D_1 bsc, minus allowance, minus $H/8$

(b) or Class 3A, d_3 = basic minor diameter D_1 bsc, minus $H/8$

(f) Minimum Minor Diameter (External Threads). When it is desirable for design purposes to calculate the minimum diameter, it can be obtained for all classes by the formula: minimum pitch diameter minus $0.64951905P$.

8.3.2 Internal Thread

(a) Maximum Major Diameter (Internal Threads). In dimensioning internal threads, the maximum major diameter is not specified, being established by the crest of an unworn tool. In practice, the major diameter of an internal thread is satisfactory when accepted by a gage or gaging method that represents the maximum-material condition of an external thread that has no allowance.

(b) Minimum Major Diameter (Internal Threads), D bsc. For all classes, equals basic diameter D bsc.

(c) Minimum Pitch Diameter. For all classes, D_2 bsc equals basic pitch diameter D_2 minimum.

(d) Maximum Pitch Diameter (Internal Threads). For all classes, equals minimum pitch diameter D_2 bsc, plus pitch diameter tolerance for respective class of thread.

(e) Minimum Minor Diameter (Internal Threads). For all classes, D_1 bsc equals minimum pitch diameter D_2 minimum minus $0.43301122P$, then rounded off to the nearest 0.001 in. for sizes 0.138 in. and larger. For Class 3B, a cipher is added to yield four decimal places.

(f) Maximum Minor Diameter (Internal Threads). All classes are calculated before rounding, then rounded for Classes 1B and 2B to the nearest 0.001 in. for sizes 0.138 in. and larger. Class 3B values are rounded to four decimal places.

8.4 Example of Calculations From Formulas

Tables 18A and 18B are based on the practices for calculating and rounding screw thread dimensions as specified in ASME B1.30.

9 LEAD AND ANGLE TOLERANCES

9.1 Lead and Flank Angle Acceptance

Acceptance of lead and flank angles of product screw threads shall be in accordance with the following. Also, these are factors contributing to visual identification of gross defects in thread profile.

9.1.1 When Thread Gaging System 21 of ASME B1.3 is specified, product thread lead (including helix) and flank angle variations are not considered as separate elements.

9.1.2 When Thread Gaging System 22 of ASME B1.3 is specified, with the pitch diameter or thread-groove diameter inspection/evaluation required, the product thread lead (including helix) and flank angles shall be considered acceptable when the minimum-material characteristic (pitch diameter or thread-groove diameter in Tables 1 and 2, columns C and D of ASME B1.3) and the maximum-material characteristic (GO in Tables 1 and 2, column A of ASME B1.3) are accepted by the gages specified for System 22, over the standard GO thread gage length.

When Thread Gaging System 22 is specified with NOT GO functional diameter combined with inspection/evaluation of lead and flank option, agreements must be reached between the purchaser and the supplier on lead and flank angle limits and method of evaluation.

9.1.3 When Thread Gaging System 23 of ASME B1.3 is specified, product thread lead and flank angles shall be acceptable if within the allowable variations specified in Tables 3 and 19, respectively. Also, the minimum-material characteristic (pitch diameter or thread-groove diameter in Tables 1 and 2, columns C and D of ASME B1.3) and the maximum-material characteristic (GO in Tables 1 and 2, column A of ASME B1.3) must be accepted by the gages specified for System 23, over the standard GO thread gage length.

Allowable variations in lead and flank angles are maximum values. Maximum variation in these and pitch

diameter tolerance cannot be taken simultaneously (see paras. 9.1.5 and 9.1.6).

9.1.4 When individual inspection/evaluation of lead (including helix) and flank angle variations are required in addition to thread gaging System 21 or 22 of ASME B1.3, the allowable variations for these characteristics shall be as specified in Tables 3 and 19.

9.1.5 For sizes not included in Tables 3 and 19, the allowable lead variation is equal to 0.57735 times one-half the pitch diameter tolerance. This is the lead variation that causes a change in functional diameter equal to one-half the pitch diameter tolerance. The allowable flank half-angle variation in minutes of arc is equal to 30 plus 1.875 times the number of threads per inch, rounded to the nearest 5 min.

9.1.6 For the requirements of paras. 9.1.4 and 9.1.5, lead variation values tabulated or calculated are the maximum variations from specified lead between any two points not farther apart than the length of the standard GO thread gage. Flank angle variation values are maximum variations from the basic 30 deg angle between thread flanks and perpendiculars to the thread axis.

10 FORMULAS AND SYMBOLS FOR THREAD FORM

10.1 Thread Form Formulas and Symbols

Formulas are given below; data are tabulated in Table 5.

The general symbols used are defined in Table 20 and application of the symbols is shown in Fig. 6.

(a) Included Angle of Thread

$$2\alpha = 60 \text{ deg}$$

(b) Half angle of thread

$$\alpha = 30 \text{ deg}$$

(c) Number of threads per inch (TPI) is $1/P$ Pitch of thread.

$$P = 1/\text{TPI}$$

(d) Height of sharp V-thread (fundamental triangle)

$$H = 0.86602540P$$

(e) Height of UNR external thread, design form

$$h_s = 0.59539247P = (11/16H)$$

(f) Height of internal thread and UN external thread

$$h_s = h_n = 0.54126588P = (5/8H)$$

(g) Height of thread engagement

$$h_s = 0.54126588P = (5/8H)$$

(h) Flat at crest of external thread

$$F_{cs} = 0.12500000P = P/8$$

(i) Truncation of UN external thread crest

$$f_{cs} = 0.10825318P = (H/8)$$

(j) Truncation of UNR external thread (for calculating minor diameter values in tables)

$$S_{rs} = 0.16237976P = (3/16H)$$

(k) Basic flat at crest of internal thread and root of external thread

$$F_{rs} = F_{cn} = 0.25000000P = P/4$$

(l) Truncation of internal thread crest

$$f_{cn} = 0.21650635P = (H/4)$$

(m) Flat at root of internal thread

$$F_{rn} = 0.12500000P = P/8$$

(n) Truncation of internal thread root

$$f_{rn} = 0.10825318P = (H/8)$$

(o) Addendum of external thread

$$h_{as} = 0.32475953P = (3/8H)$$

(p) Major diameter of external thread is d. Pitch diameter of external thread

$$d_2 = d - 2h_{as} = d - 0.64951905P$$

(q) Minor diameter of UNR external thread

$$d_3 = d - 2h_s = 1.19078493P$$

(r) Minor diameter of UN external thread

$$d_1 = d - 2h_s = d - 1.08253175P$$

(s) Major diameter of internal thread is D. Pitch diameter of internal thread is D_2. Minor diameter of internal thread:

$$D_1 = D - 2h_n = D - 1.08253175P$$

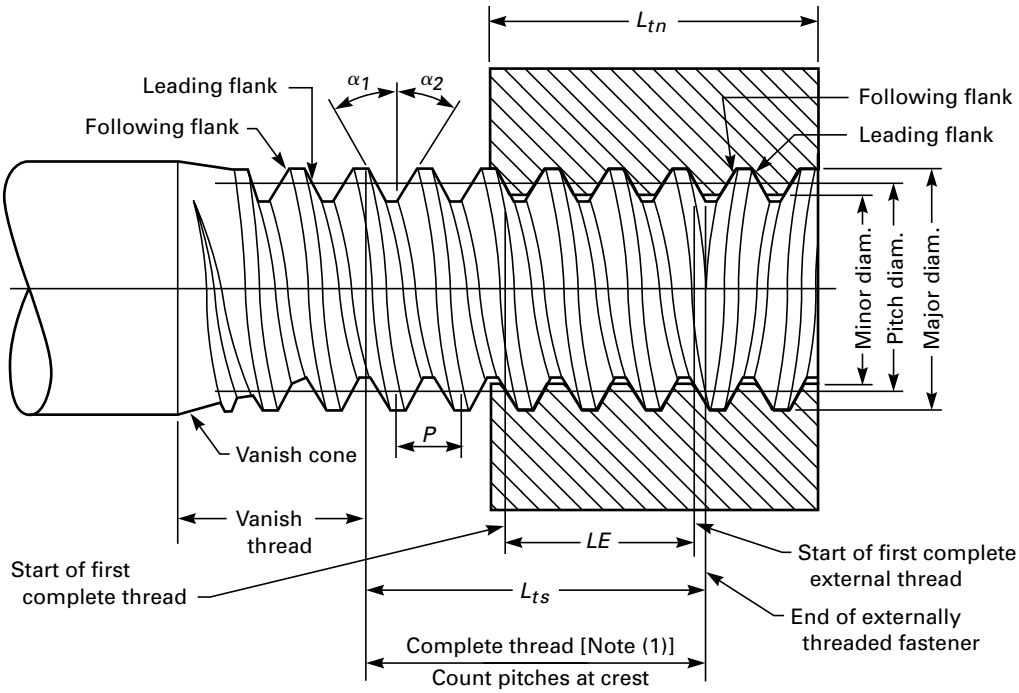
11 TABLES OF BASIC DIMENSIONS

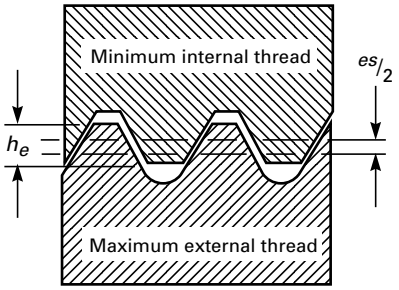
11.1 Table Content

The basic dimensions tabulated in Tables 6 through 16 include major diameter, pitch diameter, minor diameter of external threads, minor diameter of internal threads, lead angle, cross-sectional area at the minor diameter, and the tensile stress area.

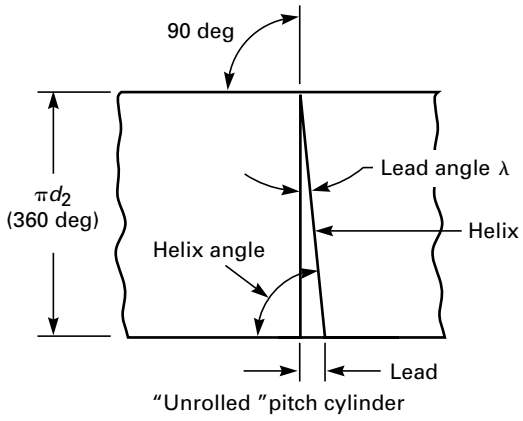
11.2 Thread Series

Basic dimensions are given for each of the standard series threads.





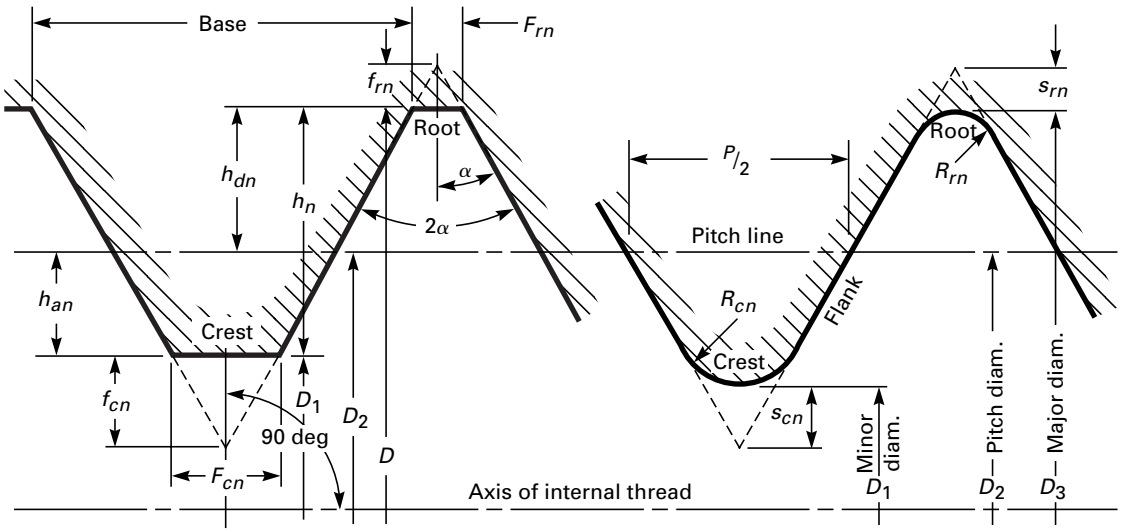
Thread With an Allowance



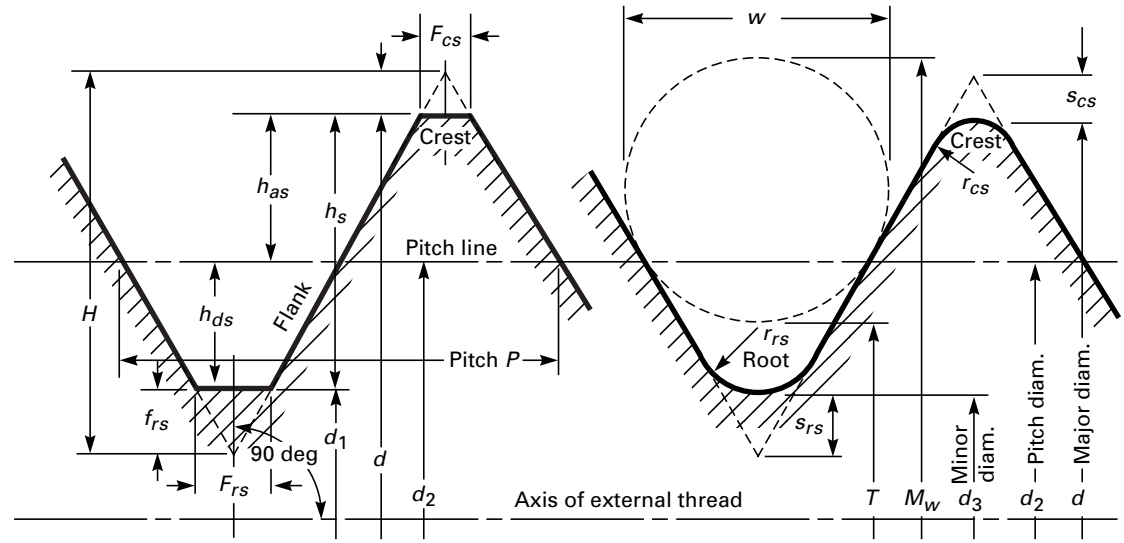
Lead and Helix Angles

NOTE:
(1) Portion of thread fully formed at crest and root.

Fig. 6 Application of General Thread Symbols (See Table 5)



Internal Thread



External Thread

GENERAL NOTE: These diagrams are not intended to show standard thread forms, but only to illustrate the application of symbols.

Fig. 6 Application of General Thread Symbols (See Table 5) (Cont'd)

Table 6 Basic Dimensions for Coarse-Thread Series (UNC/UNRC)

Nominal Size, in.	Basic Major Diameter, D, in.	Threads/ in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ deg	Lead Angle at Basic Pitch Diameter, λ Min.	Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
1 (0.073) [Note (3)]	0.0730	64	0.0629	0.0544	0.0561	4	31	0.00218	0.00263
2 (0.086)	0.0860	56	0.0744	0.0648	0.0667	4	22	0.00310	0.00370
3 (0.099) [Note (3)]	0.0990	48	0.0855	0.0741	0.0764	4	26	0.00406	0.00487
4 (0.112)	0.1120	40	0.0958	0.0822	0.0849	4	45	0.00496	0.00604
5 (0.125)	0.1250	40	0.1088	0.0952	0.0979	4	11	0.00672	0.00796
6 (0.138)	0.1380	32	0.1177	0.1008	0.1042	4	50	0.00745	0.00909
8 (0.164)	0.1640	32	0.1437	0.1268	0.1302	3	58	0.01196	0.0140
10 (0.190)	0.1900	24	0.1629	0.1404	0.1449	4	39	0.01450	0.0175
12 (0.216) [Note (3)]	0.2160	24	0.1889	0.1664	0.1709	4	1	0.0206	0.0242
1/4	0.2500	20	0.2175	0.1905	0.1959	4	11	0.0269	0.0318
5/16	0.3125	18	0.2764	0.2464	0.2524	3	40	0.0454	0.0524
3/8	0.3750	16	0.3344	0.3005	0.3073	3	24	0.0678	0.0775
7/16	0.4375	14	0.3911	0.3525	0.3602	3	20	0.0933	0.1063
1/2	0.5000	13	0.4500	0.4084	0.4167	3	7	0.1257	0.1419
9/16	0.5625	12	0.5084	0.4633	0.4723	2	59	0.162	0.182
5/8	0.6250	11	0.5660	0.5168	0.5266	2	56	0.202	0.226
3/4	0.7500	10	0.6850	0.6309	0.6417	2	40	0.302	0.334
7/8	0.8750	9	0.8028	0.7427	0.7547	2	31	0.419	0.462
1	1.0000	8	0.9188	0.8512	0.8647	2	29	0.551	0.606
1 1/8	1.1250	7	1.0322	0.9549	0.9704	2	31	0.693	0.763
1 1/4	1.2500	7	1.1572	1.0799	1.0954	2	15	0.890	0.969
1 3/8	1.3750	6	1.2667	1.1766	1.1946	2	24	1.054	1.155
1 1/2	1.5000	6	1.3917	1.3016	1.3196	2	11	1.294	1.405
1 3/4	1.7500	5	1.6201	1.5119	1.5335	2	15	1.74	1.90
2	2.0000	4 1/2	1.8557	1.7353	1.7594	2	11	2.30	2.50
2 1/4	2.2500	4 1/2	2.1057	1.9853	2.0094	1	55	3.02	3.25
2 1/2	2.5000	4	2.3376	2.2023	2.2294	1	57	3.72	4.00
2 3/4	2.7500	4	2.5876	2.4523	2.4794	1	46	4.62	4.93
3	3.0000	4	2.8376	2.7023	2.7294	1	36	5.62	5.97
3 1/4	3.2500	4	3.0876	2.9523	2.9794	1	29	6.72	7.10
3 1/2	3.5000	4	3.3376	3.2023	3.2294	1	22	7.92	8.33
3 3/4	3.7500	4	3.5876	3.4523	3.4794	1	16	9.21	9.66
4	4.0000	4	3.8376	3.7023	3.7294	1	11	10.61	11.08

NOTES:

(1) For information only.

(2) See formulas in Nonmandatory Appendix B, para. B-1.

(3) Secondary sizes.

Table 7 Basic Dimensions for Fine-Thread Series (UNF/UNRF)

Nominal Size, in.	Basic Major Diameter, D, in.	Threads/ in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
						deg	Min.		
0 (0.060)	0.0600	80	0.0519	0.0451	0.0465	4	23	0.00151	0.00180
1 (0.073) [Note (3)]	0.0730	72	0.0640	0.0565	0.0580	3	57	0.00237	0.00278
2 (0.086)	0.0860	64	0.0759	0.0674	0.0691	3	45	0.00339	0.00394
3 (0.099) [Note (3)]	0.0990	56	0.0874	0.0778	0.0797	3	43	0.00451	0.00523
4 (0.112)	0.1120	48	0.0985	0.0871	0.0894	3	51	0.00566	0.00661
5 (0.125)	0.1250	44	0.1102	0.0979	0.1004	3	45	0.00716	0.00830
6 (0.138)	0.1380	40	0.1218	0.1082	0.1109	3	44	0.00874	0.01015
8 (0.164)	0.1640	36	0.1460	0.1309	0.1339	3	28	0.01285	0.01474
10 (0.190)	0.1900	32	0.1697	0.1528	0.1562	3	21	0.0175	0.0200
12 (0.216) [Note (3)]	0.2160	28	0.1928	0.1734	0.1773	3	22	0.0226	0.0258
1/4	0.2500	28	0.2268	0.2074	0.2113	2	52	0.0326	0.0364
5/16	0.3125	24	0.2854	0.2629	0.2674	2	40	0.0524	0.0580
3/8	0.3750	24	0.3479	0.3254	0.3299	2	11	0.0809	0.0878
7/16	0.4375	20	0.4050	0.3780	0.3834	2	15	0.1090	0.1187
1/2	0.5000	20	0.4675	0.4405	0.4459	1	57	0.1486	0.1599
9/16	0.5625	18	0.5264	0.4964	0.5024	1	55	0.189	0.203
5/8	0.6250	18	0.5889	0.5589	0.5649	1	43	0.240	0.256
3/4	0.7500	16	0.7094	0.6763	0.6823	1	36	0.351	0.373
7/8	0.8750	14	0.8286	0.7900	0.7977	1	34	0.480	0.509
1	1.0000	12	0.9459	0.9001	0.9098	1	36	0.625	0.663
1 1/8	1.1250	12	1.0709	1.0258	1.0348	1	25	0.812	0.856
1 1/4	1.2500	12	1.1959	1.1508	1.1598	1	16	1.024	1.073
1 3/8	1.3750	12	1.3209	1.2758	1.2848	1	9	1.260	1.315
1 1/2	1.5000	12	1.4459	1.4008	1.4098	1	3	1.521	1.581

NOTES:
(1) For information only.
(2) See formulas in Nonmandatory Appendix B, para. B-1.
(3) Secondary sizes.

Table 8 Basic Dimensions for Extra-Fine-Thread Series (UNEF/UNREF)

Nominal Size, in.		Basic Major Diameter, D, in.	Threads/ in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary						deg	Min.		
...	12 (0.216)	0.2160	32	0.1957	0.1788	0.1822	2	55	0.0242	0.0270
1/4	...	0.2500	32	0.2297	0.2128	0.2162	2	29	0.0344	0.0379
5/16	...	0.3125	32	0.2922	0.2753	0.2787	1	57	0.0581	0.0625
3/8	...	0.3750	32	0.3547	0.3378	0.3412	1	36	0.0878	0.0932
7/16	...	0.4375	28	0.4143	0.3949	0.3988	1	34	0.1201	0.1274
1/2	...	0.5000	28	0.4768	0.4574	0.4613	1	22	0.162	0.170
9/16	...	0.5625	24	0.5354	0.5129	0.5174	1	25	0.203	0.214
5/8	...	0.6250	24	0.5879	0.5754	0.5799	1	16	0.256	0.268
...	11/16	0.6875	24	0.6604	0.6379	0.6424	1	9	0.315	0.329
3/4	...	0.7500	20	0.7175	0.6905	0.6959	1	16	0.369	0.386
...	13/16	0.8125	20	0.7800	0.7530	0.7584	1	10	0.439	0.458
7/8	...	0.8750	20	0.8425	0.8155	0.8209	1	5	0.515	0.536
...	15/16	0.9375	20	0.9050	0.8780	0.8834	1	0	0.598	0.620
1	...	1.0000	20	0.9675	0.9405	0.9459	0	57	0.687	0.711
...	1 1/16	1.0625	18	1.0264	0.9964	1.0024	0	59	0.770	0.799
1 1/8	...	1.1250	18	1.0889	1.0589	1.0649	0	56	0.871	0.901
...	1 3/16	1.1875	18	1.1514	1.1214	1.1274	0	53	0.977	1.009
1 1/4	...	1.2500	18	1.2139	1.1839	1.1899	0	50	1.090	1.123
...	1 5/16	1.3125	18	1.2764	1.2464	1.2524	0	48	1.208	1.244
1 3/8	...	1.3750	18	1.3389	1.3089	1.3149	0	45	1.333	1.370
...	1 7/16	1.4375	18	1.4014	1.3714	1.3774	0	43	1.464	1.503
1 1/2	...	1.5000	18	1.4639	1.4339	1.4399	0	42	1.60	1.64
...	1 9/16	1.5625	18	1.5264	1.4964	1.5024	0	40	1.74	1.79
1 5/8	...	1.6250	18	1.5889	1.5589	1.5649	0	38	1.89	1.94
...	1 11/16	1.6875	18	1.6514	1.6214	1.6274	0	37	2.05	2.10

NOTES:

(1) For information only.

(2) See formulas in Nonmandatory Appendix B, para. B-1.

Table 9 Basic Dimensions for 4-Thread Series (4-UN/4-UNR)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
2 1/2 [Note (3)]	...	2.5000	2.3376	2.2023	2.2294	1	57	3.72	4.00
...	2 5/8	2.6250	2.4626	2.3273	2.3544	1	51	4.16	4.45
2 3/4 [Note (3)]	...	2.7500	2.5876	2.4523	2.4794	1	46	4.62	4.93
...	2 7/8	2.8750	2.7126	2.5773	2.6044	1	41	5.11	5.44
3 [Note (3)]	...	3.0000	2.8376	2.7023	2.7294	1	36	5.62	5.97
...	3 1/8	3.1250	2.9626	2.8273	2.8544	1	32	6.16	6.52
3 1/4 [Note (3)]	...	3.2500	3.0876	2.9523	2.9794	1	29	6.72	7.10
...	3 3/8	3.3750	3.2126	3.0773	3.1044	1	25	7.31	7.70
3 1/2 [Note (3)]	...	3.5000	3.3376	3.2023	3.2294	1	22	7.92	8.33
...	3 5/8	3.6250	3.4626	3.3273	3.3544	1	19	8.55	9.00
3 3/4 [Note (3)]	...	3.7500	3.5876	3.4523	3.4794	1	16	9.21	9.66
...	3 7/8	3.8750	3.7126	3.5773	3.6044	1	14	9.90	10.36
4 [Note (3)]	...	4.0000	3.8376	3.7023	3.7294	1	11	10.61	11.08
...	4 1/8	4.1250	3.9626	3.8273	3.8544	1	9	11.34	11.83
4 1/4	...	4.2500	4.0876	3.9523	3.9794	1	7	12.10	12.61
...	4 3/8	4.3750	4.2126	4.0773	4.1044	1	5	12.88	13.41
4 1/2	...	4.5000	4.3376	4.2023	4.2294	1	3	13.69	14.23
...	4 5/8	4.6250	4.4626	4.3273	4.3544	1	1	14.52	15.1
4 3/4	...	4.7500	4.5876	4.4523	4.4794	1	0	15.4	15.9
...	4 7/8	4.8750	4.7126	4.5773	4.6044	0	58	16.3	16.8
5	...	5.0000	4.8376	4.7023	4.7294	0	57	17.2	17.8
...	5 1/8	5.1250	4.9626	4.8273	4.8544	0	55	18.1	18.7
5 1/4	...	5.2500	5.0876	4.9523	4.9794	0	54	19.1	19.7
...	5 3/8	5.3750	5.2126	5.0773	5.1044	0	52	20.0	20.7
5 1/2	...	5.5000	5.3376	5.2023	5.2294	0	51	21.0	21.7
...	5 5/8	5.6250	5.4626	5.3273	5.3544	0	50	22.1	22.7
5 3/4	...	5.7500	5.5876	5.4523	5.4794	0	49	23.1	23.8
...	5 7/8	5.8750	5.7126	5.5773	5.6044	0	48	24.2	24.9
6	...	6.0000	5.8376	5.7023	5.7294	0	47	25.3	26.0

NOTES:
(1) For information only.
(2) See formulas in Nonmandatory Appendix B, para. B-1.
(3) Standard sizes of the UNC series.

Table 10 Basic Dimensions for 6-Thread Series (6-UN/6-UNR)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
1 3/8 [Note (3)]	...	1.3750	1.2667	1.1766	1.1946	2	24	1.054	1.155
...	1 7/16	1.4375	1.3292	1.2391	1.2571	2	17	1.171	1.277
1 1/2 [Note (3)]	...	1.5000	1.3917	1.3016	1.3196	2	11	1.294	1.405
...	1 9/16	1.5625	1.4542	1.3641	1.3821	2	5	1.423	1.54
1 5/8	...	1.6250	1.5167	1.4271	1.4446	2	0	1.56	1.68
...	1 11/16	1.6875	1.5792	1.4891	1.5071	1	55	1.70	1.83
1 3/4	...	1.7500	1.6417	1.5516	1.5696	1	51	1.85	1.98
...	1 13/16	1.8125	1.7042	1.6141	1.6321	1	47	2.00	2.14
1 7/8	...	1.8750	1.7667	1.6766	1.6946	1	43	2.16	2.30
...	1 15/16	1.9375	1.8292	1.7391	1.7571	1	40	2.33	2.47
2	...	2.0000	1.8917	1.8016	1.8196	1	36	2.50	2.65
...	2 1/8	2.1250	2.0167	1.9266	1.9446	1	30	2.86	3.03
2 1/4	...	2.2500	2.1417	2.0516	2.0696	1	25	3.25	3.42
...	2 3/8	2.3750	2.2667	2.1766	2.1946	1	20	3.66	3.85
2 1/2	...	2.5000	2.3917	2.3016	2.3196	1	16	4.10	4.29
...	2 5/8	2.6250	2.5167	2.4266	2.4446	1	12	4.56	4.76
2 3/4	...	2.7500	2.6417	2.5516	2.5696	1	9	5.04	5.26
...	2 7/8	2.8750	2.7667	2.6766	2.6946	1	6	5.55	5.78
3	...	3.0000	2.8917	2.8016	2.8196	1	3	6.09	6.33
...	3 1/8	3.1250	3.0167	2.9266	2.9446	1	0	6.64	6.89
3 1/4	...	3.2500	3.1417	3.0516	3.0696	0	58	7.23	7.49
...	3 3/8	3.3750	3.2667	3.1766	3.1946	0	56	7.84	8.11
3 1/2	...	3.5000	3.3917	3.3016	3.3196	0	54	8.47	8.75
...	3 5/8	3.6250	3.5167	3.4266	3.4446	0	52	9.12	9.42
3 3/4	...	3.7500	3.6417	3.5516	3.5696	0	50	9.81	10.11
...	3 7/8	3.8750	3.7667	3.6766	3.6946	0	48	10.51	10.83
4	...	4.0000	3.8917	3.8016	3.8196	0	47	11.24	11.57
...	4 1/8	4.1250	4.0167	3.9266	3.9446	0	45	12.00	12.33
4 1/4	...	4.2500	4.1417	4.0516	4.0696	0	44	12.78	13.12
...	4 3/8	4.3750	4.2667	4.1766	4.1946	0	43	13.58	13.94
4 1/2	...	4.5000	4.3917	4.3016	4.3196	0	42	14.41	14.78
...	4 5/8	4.6250	4.5167	4.4266	4.4446	0	40	15.3	15.6
4 3/4	...	4.7500	4.6417	4.5516	4.5696	0	39	16.1	16.5
...	4 7/8	4.8750	4.7667	4.6766	4.6946	0	38	17.0	17.5
5	...	5.0000	4.8917	4.8016	4.8196	0	37	18.0	18.4
...	5 1/8	5.1250	5.0167	4.9266	4.9446	0	36	18.9	19.3
5 1/4	...	5.2500	5.1417	5.0516	5.0696	0	35	19.9	20.3
...	5 3/8	5.3750	5.2667	5.1766	5.1946	0	35	20.9	21.3
5 1/2	...	5.5000	5.3917	5.3016	5.3196	0	34	21.9	22.4
...	5 5/8	5.6250	5.5167	5.4266	5.4446	0	33	23.0	23.4
5 3/4	...	5.7500	5.6417	5.5516	5.5696	0	32	24.0	24.5
...	5 7/8	5.8750	5.7667	5.6766	5.6946	0	32	25.1	25.6
6	...	6.0000	5.8917	5.8016	5.8196	0	31	26.3	26.8

NOTES:
(1) For information only.
(2) See formulas in Nonmandatory Appendix B, para. B-1.
(3) Standard sizes of the UNC series.

Table 11 Basic Dimensions for 8-Thread Series (8-UN/8-UNR)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
1 [Note (3)]	...	1.0000	0.9188	0.8512	0.8647	2	29	0.551	0.606
...	1 1/16	1.0625	0.9813	0.9137	0.9272	2	19	0.636	0.695
1 1/8	...	1.1250	1.0438	0.9792	0.9897	2	11	0.728	0.790
...	1 3/16	1.1875	1.1063	1.0387	1.0522	2	4	0.825	0.892
1 1/4	...	1.2500	1.1688	1.1012	1.1147	1	57	0.929	1.000
...	1 5/16	1.3125	1.2313	1.1637	1.1772	1	51	1.039	1.114
1 3/8	...	1.3750	1.2938	1.2262	1.2397	1	46	1.155	1.233
...	1 7/16	1.4375	1.3563	1.2887	1.3022	1	41	1.277	1.360
1 1/2	...	1.5000	1.4188	1.3512	1.3647	1	36	1.405	1.492
...	1 9/16	1.5625	1.4813	1.4137	1.4272	1	32	1.54	1.63
1 5/8	...	1.6250	1.5438	1.4806	1.4897	1	29	1.68	1.78
...	1 11/16	1.6875	1.6063	1.5387	1.5522	1	25	1.83	1.93
1 3/4	...	1.7500	1.6688	1.6012	1.6147	1	22	1.98	2.08
...	1 13/16	1.8125	1.7313	1.6637	1.6772	1	19	2.14	2.25
1 7/8	...	1.8750	1.7938	1.7262	1.7397	1	16	2.30	2.41
...	1 15/16	1.9375	1.8563	1.7887	1.8022	1	14	2.47	2.59
2	...	2.0000	1.9188	1.8512	1.8647	1	11	2.65	2.77
...	2 1/8	2.1250	2.0438	1.9762	1.9897	1	7	3.03	3.15
2 1/4	...	2.2500	2.1688	2.1012	2.1147	1	3	3.42	3.56
...	2 3/8	2.3750	2.2938	2.2262	2.2397	1	0	3.85	3.99
2 1/2	...	2.5000	2.4188	2.3512	2.3647	0	57	4.29	4.44
...	2 5/8	2.6250	2.5438	2.4762	2.4897	0	54	4.76	4.92
2 3/4	...	2.7500	2.6688	2.6012	2.6147	0	51	5.26	5.43
...	2 7/8	2.8750	2.7938	2.7262	2.7397	0	49	5.78	5.95
3	...	3.0000	2.9188	2.8512	2.8647	0	47	6.32	6.51
...	3 1/8	3.1250	3.0438	2.9762	2.9897	0	45	6.89	7.08
3 1/4	...	3.2500	3.1688	3.1012	3.1147	0	43	7.49	7.69
...	3 3/8	3.3750	3.2938	3.2262	3.2397	0	42	8.11	8.31
3 1/2	...	3.5000	3.4188	3.3512	3.3647	0	40	8.75	8.96
...	3 5/8	3.6250	3.5438	3.4762	3.4897	0	39	9.42	9.64
3 3/4	...	3.7500	3.6688	3.6012	3.6147	0	37	10.11	10.34
...	3 7/8	3.8750	3.7938	3.7262	3.7397	0	36	10.83	11.06
4	...	4.0000	3.9188	3.8512	3.8647	0	35	11.57	11.81
...	4 1/8	4.1250	4.0438	3.9762	3.9897	0	34	12.34	12.59
4 1/4	...	4.2500	4.1688	4.1012	4.1147	0	33	13.12	13.38
...	4 3/8	4.3750	4.2938	4.2262	4.2397	0	32	13.94	14.21
4 1/2	...	4.5000	4.4188	4.3512	4.3647	0	31	14.78	15.1
...	4 5/8	4.6250	4.5438	4.4762	4.4897	0	30	15.6	15.9
4 3/4	...	4.7500	4.6688	4.6012	4.6147	0	29	16.5	16.8
...	4 7/8	4.8750	4.7938	4.7262	4.7397	0	29	17.4	17.7
5	...	5.0000	4.9188	4.8512	4.8647	0	28	18.4	18.7
...	5 1/8	5.1250	5.0438	4.9762	4.9897	0	27	19.3	19.7
5 1/4	...	5.2500	5.1688	5.1012	5.1147	0	26	20.3	20.7
...	5 3/8	5.3750	5.2938	5.2262	5.2397	0	26	21.3	21.7

Table 11 Basic Dimensions for 8-Thread Series (8-UN/8-UNR) (Cont'd)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
$5\frac{1}{2}$	...	5.5000	5.4188	5.3512	5.3647	0	25	22.4	22.7
...	$5\frac{5}{8}$	5.6250	5.5438	5.4762	5.4897	0	25	23.4	23.8
$5\frac{3}{4}$	...	5.7500	5.6688	5.6012	5.6147	0	24	24.5	24.9
...	$5\frac{7}{8}$	5.8750	5.7938	5.7262	5.7397	0	24	25.6	26.0
6	...	6.0000	5.9188	5.8512	5.8647	0	23	26.8	27.1

NOTES:
(1) For information only.
(2) See formulas in Nonmandatoray Appendix B, para. B-1.
(3) Standard size of the UNC series.

Table 12 Basic Dimensions for 12-Thread Series (12-UN/12-UNR)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
9/16 [Note (3)]	...	0.5625	0.5084	0.4633	0.4723	2	59	0.162	0.182
5/8	...	0.6250	0.5709	0.5258	0.5348	2	40	0.210	0.232
...	11/16	0.6875	0.6334	0.5883	0.5973	2	24	0.264	0.289
3/4	...	0.7500	0.6959	0.6508	0.6598	2	11	0.323	0.351
...	13/16	0.8125	0.7584	0.7133	0.7223	2	0	0.390	0.420
7/8	...	0.8750	0.8209	0.7758	0.7848	1	51	0.462	0.495
...	15/16	0.9375	0.8834	0.8383	0.8473	1	43	0.540	0.576
1 [Note (3)]	...	1.0000	0.9459	0.9008	0.9098	1	36	0.625	0.663
...	1 1/16	1.0625	1.0084	0.9633	0.9723	1	30	0.715	0.756
1 1/8 [Note (3)]	...	1.1250	1.0709	1.0258	1.0348	1	25	0.812	0.856
...	1 3/16	1.1875	1.1334	1.0883	1.0973	1	20	0.915	0.961
1 1/4 [Note (3)]	...	1.2500	1.1959	1.1508	1.1598	1	16	1.024	1.073
...	1 5/16	1.3125	1.2584	1.2133	1.2223	1	12	1.139	1.191
1 3/8 [Note (3)]	...	1.3750	1.3209	1.2758	1.2848	1	9	1.260	1.315
...	1 7/16	1.4375	1.3834	1.3383	1.3473	1	6	1.388	1.445
1 1/2 [Note (3)]	...	1.5000	1.4459	1.4008	1.4098	1	3	1.52	1.58
...	1 9/16	1.5625	1.5084	1.4633	1.4723	1	0	1.66	1.72
1 5/8	...	1.6250	1.5709	1.5258	1.5348	0	58	1.81	1.87
...	1 11/16	1.6875	1.6334	1.5883	1.5973	0	56	1.96	2.03
1 3/4	...	1.7500	1.6959	1.6508	1.6598	0	54	2.12	2.19
...	1 13/16	1.8125	1.7584	1.7133	1.7223	0	52	2.28	2.35
1 7/8	...	1.8750	1.8209	1.7758	1.7848	0	50	2.45	2.53
...	1 15/16	1.9375	1.8834	1.8383	1.8473	0	48	2.63	2.71
2	...	2.0000	1.9459	1.9008	1.9098	0	47	2.81	2.89
...	2 1/8	2.1250	2.0709	2.0258	2.0348	0	44	3.19	3.28
2 1/4	...	2.2500	2.1959	2.1508	2.1598	0	42	3.60	3.69
...	2 3/8	2.3750	2.3209	2.2758	2.2848	0	39	4.04	4.13
2 1/2	...	2.5000	2.4459	2.4008	2.4098	0	37	4.49	4.60
...	2 5/8	2.6250	2.5709	2.5258	2.5348	0	35	4.97	5.08
2 3/4	...	2.7500	2.6959	2.6508	2.6598	0	34	5.48	5.59
...	2 7/8	2.8750	2.8209	2.7758	2.7848	0	32	6.01	6.13
3	...	3.0000	2.9459	2.9008	2.9098	0	31	6.57	6.69
...	3 1/8	3.1250	3.0709	3.0258	3.0348	0	30	7.15	7.28
3 1/4	...	3.2500	3.1959	3.1508	3.1598	0	29	7.75	7.89
...	3 3/8	3.3750	3.3209	3.2758	3.2848	0	27	8.38	8.52
3 1/2	...	3.5000	3.4459	3.4008	3.4098	0	26	9.03	9.18
...	3 5/8	3.6250	3.5709	3.5258	3.5348	0	26	9.71	9.86
3 3/4	...	3.7500	3.6959	3.6508	3.6598	0	25	10.42	10.57
...	3 7/8	3.8750	3.8209	3.7758	3.7848	0	24	11.14	11.30
4	...	4.0000	3.9459	3.9008	3.9098	0	23	11.90	12.06
...	4 1/8	4.1250	4.0709	4.0258	4.0348	0	22	12.67	12.84
4 1/4	...	4.2500	4.1959	4.1508	4.1598	0	22	13.47	13.65
...	4 3/8	4.3750	4.3209	4.2758	4.2848	0	21	14.30	14.48

Table 12 Basic Dimensions for 12-Thread Series (12-UN/12-UNR) (Cont'd)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
$4\frac{1}{2}$	...	4.5000	4.4459	4.4008	4.4098	0	21	15.1	15.3
...	$4\frac{5}{8}$	4.6250	4.5709	4.5258	4.5348	0	20	16.0	16.2
$4\frac{3}{4}$	...	4.7500	4.6959	4.6508	4.6598	0	19	16.9	17.1
...	$4\frac{7}{8}$	4.8750	4.8209	4.7758	4.7848	0	19	17.8	18.0
5	...	5.0000	4.9459	4.9008	4.9098	0	18	18.8	19.0
...	$5\frac{1}{8}$	5.1250	5.0709	5.0258	5.0348	0	18	19.8	20.0
$5\frac{1}{4}$	...	5.2500	5.1959	5.1508	5.1598	0	18	20.8	21.0
...	$5\frac{3}{8}$	5.3750	5.3209	5.2758	5.2848	0	17	21.8	22.0
$5\frac{1}{2}$	...	5.5000	5.4459	5.4008	5.4098	0	17	22.8	23.1
...	$5\frac{5}{8}$	5.6250	5.5709	5.5258	5.5348	0	16	23.9	24.1
$5\frac{3}{4}$	...	5.7500	5.6959	5.6508	5.6598	0	16	25.0	25.2
...	$5\frac{7}{8}$	5.8750	5.8209	5.7758	5.7848	0	16	26.1	26.4
6	...	6.0000	5.9459	5.9008	5.9098	0	15	27.3	27.5

NOTES:
(1) For information only.
(2) See formulas in Nonmandatory Appendix B, para. B-1.
(3) Standard sizes of the UNC or UNF series.

Table 13 Basic Dimensions for 16-Thread Series (16-UN/16-UNR)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
3/8 [Note (3)]	...	0.3750	0.3344	0.3005	0.3073	3	24	00678	0.0775
7/16	...	0.4375	0.3969	0.3630	0.3698	2	52	0.0997	0.1114
1/2	...	0.5000	0.4594	0.4255	0.4323	2	29	0.1378	0.151
9/16	...	0.5625	0.5219	0.4880	0.4948	2	11	0.182	0.198
5/8	...	0.6250	0.5844	0.5505	0.5573	1	57	0.232	0.250
...	11/16	0.6875	0.6469	0.6130	0.6198	1	46	0.289	0.308
3/4 [Note (3)]	...	0.7500	0.7094	0.6755	0.6823	1	36	0.351	0.373
...	13/16	0.8125	0.7719	0.7380	0.7448	1	29	0.420	0.444
7/8	...	0.8750	0.8344	0.8005	0.8073	1	22	0.495	0.521
...	15/16	0.9375	0.8969	0.8630	0.8698	1	16	0.576	0.604
1	...	1.0000	0.9594	0.9255	0.9323	1	11	0.663	0.693
...	1 1/16	1.0625	1.0219	0.9880	0.9948	1	7	0.756	0.788
1 1/8	...	1.1250	1.0844	1.0505	1.0573	1	3	0.856	0.889
...	1 3/16	1.1875	1.1469	1.1130	1.1198	1	0	0.961	0.997
1 1/4	...	1.2500	1.2094	1.1755	1.1823	0	57	1.073	1.111
...	1 5/16	1.3125	1.2719	1.2380	1.2448	0	54	1.191	1.230
1 3/8	...	1.3750	1.3344	1.3005	1.3073	0	51	1.315	1.356
...	1 7/16	1.4375	1.3969	1.3630	1.3698	0	49	1.445	1.488
1 1/2	...	1.5000	1.4594	1.4255	1.4323	0	47	1.58	1.63
...	1 9/16	1.5625	1.5219	1.4880	1.4948	0	45	1.72	1.77
1 5/8	...	1.6250	1.5844	1.5505	1.5573	0	43	1.87	1.92
...	1 11/16	1.6875	1.6469	1.6130	1.6198	0	42	2.03	2.08
1 3/4	...	1.7500	1.7094	1.6755	1.6823	0	40	2.19	2.24
...	1 13/16	1.8125	1.7719	1.7380	1.7448	0	39	2.35	2.41
1 7/8	...	1.8750	1.8344	1.8005	1.8073	0	37	2.53	2.58
...	1 15/16	1.9375	1.8969	1.8630	1.8698	0	36	2.71	2.77
2	...	2.0000	1.9594	1.9255	1.9323	0	35	2.89	2.95
...	2 1/8	2.1250	2.0844	2.0505	2.0573	0	33	3.28	3.35
2 1/4	...	2.2500	2.2094	2.1755	2.1823	0	31	3.69	3.76
...	2 3/8	2.3750	2.3344	2.3005	2.3073	0	29	4.13	4.21
2 1/2	...	2.5000	2.4594	2.4255	2.4323	0	28	4.60	4.67
...	2 5/8	2.6250	2.5844	2.5505	2.5573	0	26	5.08	5.16
2 3/4	...	2.7500	2.7094	2.6755	2.6823	0	25	5.59	5.68
...	2 7/8	2.8750	2.8344	2.8005	2.8073	0	24	6.13	6.22
3	...	3.0000	2.9594	2.9255	2.9323	0	23	6.69	6.78
...	3 1/8	3.1250	3.0844	3.0505	3.0573	0	22	7.28	7.37
3 1/4	...	3.2500	3.2094	3.1755	3.1823	0	21	7.89	7.99
...	3 3/8	3.3750	3.3344	3.3005	3.3073	0	21	8.52	8.63
3 1/2	...	3.5000	3.4594	3.4255	3.4323	0	20	9.18	9.29
...	3 5/8	3.6250	3.5844	3.5505	3.5573	0	19	9.86	9.98
3 3/4	...	3.7500	3.7094	3.6755	3.6823	0	18	10.57	10.69
...	3 7/8	3.8750	3.8344	3.8005	3.8073	0	18	11.30	11.43

Table 13 Basic Dimensions for 16-Thread Series (16-UN/16-UNR) (Cont'd)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
4	...	4.0000	3.9594	3.9255	3.9323	0	17	12.06	12.19
...	4 1/8	4.1250	4.0844	4.0505	4.0573	0	17	12.84	12.97
4 1/4	...	4.2500	4.2094	4.1755	4.1823	0	16	13.65	13.78
...	4 3/8	4.3750	4.3344	4.3005	4.3073	0	16	14.48	14.62
4 1/2	...	4.5000	4.4594	4.4255	4.4323	0	15	15.34	15.5
...	4 5/8	4.6250	4.5844	4.5505	4.5573	0	15	16.2	16.4
4 3/4	...	4.7500	4.7094	4.6755	4.6823	0	15	17.1	17.3
...	4 7/8	4.8750	4.8344	4.8005	4.8073	0	14	18.0	18.2
5	...	5.0000	4.9594	4.9255	4.9323	0	14	19.0	19.2
...	5 1/8	5.1250	5.0844	5.0505	5.0573	0	13	20.0	20.1
5 1/4	...	5.2500	5.2094	5.1755	5.1823	0	13	21.0	21.1
...	5 3/8	5.3750	5.3344	5.3005	5.3073	0	13	22.0	22.2
5 1/2	...	5.5000	5.4594	5.4255	5.4323	0	13	23.1	23.2
...	5 5/8	5.6250	5.5844	5.5505	5.5573	0	12	24.1	24.3
5 3/4	...	5.7500	5.7094	5.6755	5.6823	0	12	25.2	25.4
...	5 7/8	5.8750	5.8344	5.8005	5.8073	0	12	26.4	26.5
6	...	6.0000	5.9594	5.9255	5.9323	0	11	27.5	27.7

NOTES:
(1) For information only.
(2) See formulas in Nonmandatory Appendix B, para. B-1.
(3) Standard sizes of the UNC or UNF series.

Table 14 Basic Dimensions for 20-Thread Series (20-UN/20-UNR)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
1/4 [Note (3)]	...	0.2500	0.2175	0.1905	0.1959	4	11	0.0269	0.0318
5/16	...	0.3125	0.2800	0.2530	0.2584	3	15	0.0481	0.0547
3/8	...	0.3750	0.3425	0.3155	0.3209	2	40	0.0755	0.0836
7/16 [Note (3)]	...	0.4375	0.4050	0.3780	0.3834	2	15	0.1090	0.1187
1/2 [Note (3)]	...	0.5000	0.4675	0.4405	0.4459	1	57	0.1486	0.160
9/16	...	0.5625	0.5300	0.5030	0.5084	1	43	0.194	0.207
5/8	...	0.6250	0.5925	0.5655	0.5709	1	32	0.246	0.261
...	11/16	0.6875	0.6550	0.6280	0.6334	1	24	0.304	0.320
3/4 [Note (3)]	...	0.7500	0.7175	0.6905	0.6959	1	16	0.369	0.386
...	13/16 [Note (3)]	0.8125	0.7800	0.7530	0.7584	1	10	0.439	0.458
7/8 [Note (3)]	...	0.8750	0.8425	0.8155	0.8209	1	5	0.515	0.536
...	15/16 [Note (3)]	0.9375	0.9050	0.8780	0.8834	1	0	0.598	0.620
1 [Note (3)]	...	1.0000	0.9675	0.9405	0.9459	0	57	0.687	0.711
...	1 1/16	1.0625	1.0300	1.0030	1.0084	0	53	0.782	0.807
1 1/8	...	1.1250	1.0925	1.0655	1.0709	0	50	0.882	0.910
...	1 3/16	1.1875	1.1550	1.1280	1.1334	0	47	0.990	1.018
1 1/4	...	1.2500	1.2175	1.1905	1.1959	0	45	1.103	1.133
...	1 5/16	1.3125	1.2800	1.2530	1.2584	0	43	1.222	1.254
1 3/8	...	1.3750	1.3425	1.3155	1.3209	0	41	1.348	1.382
...	7/16	1.4375	1.4050	1.3780	1.3834	0	39	1.479	1.51
1 1/2	...	1.5000	1.4675	1.4405	1.4459	0	37	1.62	1.65
...	1 9/16	1.5625	1.5300	1.5030	1.5084	0	36	1.76	1.80
1 5/8	...	1.6250	1.5925	1.5655	1.5709	0	34	1.91	1.95
...	1 11/16	1.6875	1.6550	1.6280	1.6334	0	33	2.07	2.11
1 3/4	...	1.7500	1.7175	1.6905	1.6959	0	32	2.23	2.27
...	1 13/16	1.8125	1.7800	1.7530	1.7584	0	31	2.40	2.44
1 7/8	...	1.8750	1.8425	1.8155	1.8209	0	30	2.57	2.62
...	1 15/16	1.9375	1.9050	1.8780	1.8834	0	29	2.75	2.80
2	...	2.0000	1.9675	1.9405	1.9459	0	28	2.94	2.99
...	2 1/8	2.1250	2.0925	2.0655	2.0709	0	26	3.33	3.39
2 1/4	...	2.2500	2.2175	2.1905	2.1959	0	25	3.75	3.81
...	2 3/8	2.3750	2.3425	2.3155	2.3209	0	23	4.19	4.25
2 1/2	...	2.5000	2.4675	2.4405	2.4459	0	22	4.66	4.72
...	2 5/8	2.6250	2.5925	2.5655	2.5709	0	21	5.15	5.21
2 3/4	...	2.7500	2.7175	2.6905	2.6959.	0	20	5.66	5.73
...	2 7/8	2.8750	2.8425	2.8155	2.8209	0	19	6.20	6.27
3	...	3.0000	2.9675	2.9405	2.9459	0	18	6.77	6.84

NOTES:
(1) For information only.
(2) See formulas in Nonmandatory Appendix B, para. B-1.
(3) Standard sizes of the UNC, UNF, or UNEF series.

Table 15 Basic Dimensions for 28-Thread Series (28-UN/28-UNR)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
...	12 (0.216) [Note (3)]	0.2160	0.1928	0.1734	0.1773	3	22	0.0226	0.0258
1/4 [Note (3)]	...	0.2500	0.2268	0.2074	0.2113	2	52	0.0326	0.0364
5/16	...	0.3125	0.2893	0.2699	0.2738	2	15	0.0556	0.0606
3/8	...	0.3750	0.3518	0.3324	0.3363	1	51	0.0848	0.0909
7/16 [Note (3)]	...	0.4375	0.4143	0.3949	0.3988	1	34	0.1201	0.1274
1/2 [Note (3)]	...	0.5000	0.4768	0.4574	0.4613	1	22	0.162	0.170
9/16	...	0.5625	0.5393	0.5199	0.5238	1	12	0.209	0.219
5/8	...	0.6250	0.6018	0.5824	0.5863	1	5	0.263	0.274
...	11/16	0.6875	0.6643	0.6449	0.6488	0	59	0.323	0.335
3/4	...	0.7500	0.7268	0.7074	0.7113	0	54	0.389	0.402
...	13/16	0.8125	0.7893	0.7699	0.7738	0	50	0.461	0.475
7/8	...	0.8750	0.8518	0.8324	0.8363	O	46	0.539	0.554
...	15/16	0.9375	0.9143	0.8949	0.8988	O	43	0.624	0.640
1	. , .	1.0000	0.9768	0.9574	0.9613	O	40	0.714	0.732
...	1 1/16	1.0625	1.0393	1.0199	1.0238	O	38	0.811	0.830
1 1/8	...	1.1250	1.1018	1.0824	1.0863	O	35	0.914	0.933
...	1 3/16	1.1875	1.1643	1.1449	1.1488	O	34	1.023	1.044
1 1/4	...	1.2500	1.2268	1.2074	1.2113	O	32	1.138	1.160
...	1 5/16	1.3125	1.2893	1.2699	1.2738	O	30	1.259	1.282
1 3/8	...	1.3750	1.3518	1.3324	1.3363	O	29	1.386	1.411
...	1 7/16	1.4375	1.4143	1.3949	1.3988	O	28	1.52	1.55
1 1/2	...	1.5000	1.4768	1.4574	1.4613	0	26	1.66	1.69

NOTES:
(1) For information only.
(2) See formulas in Nonmandatory Appendix B, para. B-1.
(3) Standard sizes of the UNF or UNEF series.

Table 16 Basic Dimensions for 32-Thread Series (32-UN/32-UNR)

Nominal Size, in.		Basic Major Diameter, D, in.	Basic Pitch Diameter, D_2, in.	UNR Design Minor Diameter External, d_3, in. (Ref.)	Basic Minor Diameter Internal, D_1, in.	Lead Angle at Basic Pitch Diameter, λ		Section at Minor Diameter at $D - 2h_b$, sq in. [Note (1)]	Tensile Stress Area, sq in. [Notes (1), (2)]
Primary	Secondary					deg	Min.		
6 (0.138) [Note (3)]	...	0.1380	0.1177	0.1008	0.1042	4	50	0.00745	0.00909
8 (0.164) [Note (3)]	...	0.1640	0.1437	0.1268	0.1302	3	58	0.01196	0.0140
10 (0.190) [Note (3)]	...	0.1900	0.1697	0.1528	0.1562	3	21	0.01750	0.0200
...	12 (0.216) [Note (3)]	0.2160	0.1957	0.1788	0.1822	2	55	0.0242	0.0270
1/4 [Note (3)]	...	0.2500	0.2297	0.2128	0.2162	2	29	0.0344	0.0379
5/16 [Note (3)]	...	0.3125	0.2922	0.2753	0.2787	1	57	0.0581	0.0625
3/8 [Note (3)]	...	0.3750	0.3547	0.3378	0.3412	1	36	0.0878	0.0932
7/16	...	0.4375	0.4172	0.4003	0.4037	1	22	0.1237	0.1301
1/2	...	0.5000	0.4797	0.4628	0.4662	1	11	0.166	0.173
9/16	...	0.5625	0.5422	0.5253	0.5287	1	3	0.214	0.222
5/8	...	0.6250	0.6047	0.5878	0.5912	0	57	0.268	0.278
...	11/16	0.6875	0.6672	0.6503	0.6537	0	51	0.329	0.339
3/4	...	0.7500	0.7297	0.7128	0.7162	0	47	0.395	0.407
...	13/16	0.8125	0.7922	0.7753	0.7787	0	43	0.468	0.480
7/8	...	0.8750	0.8547	0.8378	0.8412	0	40	0.547	0.560
...	15/16	0.9375	0.9172	0.9003	0.9037	0	37	0.632	0.646
1	...	1.0000	0.9797	0.9628	0.9662	0	35	0.723	0.738

NOTES:
(1) For information only.
(2) See formulas in Nonmandatory Appendix B, para. B-1.
(3) Standard sizes of the UNC, UNF, or UNEF series.

Table 17A Outline Guide for Determining Limits of Size of External Threads

Thread Class	Major Diameter, d		Pitch Diameter, d_2		Minor Diameter, d_1
	Max.	Min.	Max.	Min.	
1A	Nominal size minus allowance	Maximum, minus tolerance	Maximum major diameter minus h_b (Table 5, col. 13)	Maximum, minus tolerance	See paras. 8.3.1(e) and (f). Established by crest of new tool and minimum minor diameter of GO thread gage.
2A	Nominal size minus allowance	Maximum, minus tolerance	Maximum major diameter minus h_b (Table 5, col. 13)	Maximum, minus tolerance	See paras. 8.3.1(e) and (f). Established by crest of new tool and minimum minor diameter of GO thread gage.
3A	Nominal size	Maximum, minus tolerance	Maximum major diameter minus h_b (Table 5, col. 13)	Maximum, minus tolerance	See paras. 8.3.1(e) and (f). Established by crest of new tool and minimum minor diameter of GO thread gage.

Table 17B Outline Guide for Determining Limits of Size of Internal Threads

Thread Class	Minor Diameter, D_1		Pitch Diameter, D_2		Major Diameter, D
	Min.	Max.	Min.	Max.	
1B	Nominal size minus $2h_n$ (Table 5, col. 15)	Minimum, plus tolerance	Nominal size minus h_b (Table 5, col. 13)	Minimum, plus tolerance	See paras. 8.3.2(a) and (b). Established by crest of new tool and maximum major diameter of GO thread gage.
2B	Nominal size minus $2h_n$ (Table 5, col. 15)	Minimum, plus tolerance	Nominal size minus h_b (Table 5, col. 13)	Minimum, plus tolerance	See paras. 8.3.2(a) and (b). Established by crest of new tool and maximum major diameter of GO thread gage.
3B	Nominal size minus $2h_n$ (Table 5, col. 15)	Minimum, plus tolerance	Nominal size minus h_b (Table 5, col. 13)	Minimum, plus tolerance	See paras. 8.3.2(a) and (b). Established by crest of new tool and maximum major diameter of GO thread gage.

Table 18A Examples of External Screw Threads

Thread Size = $\frac{1}{2}$ – 28 or 0.5000 – 28 UNEF-2A		
Characteristic Description	**Example of Size Calculation**	**Additional Information**
(1) Maximum external major diameter (d max.) = Basic major diameter (d bsc) – allowance (es)	d max. = d bsc – es	. . .
	d bsc = 0.5000	This is the final value of the basic major diameter which is rounded to four decimal places.
	es = 0.300 (Td_2 for Class 2A)	For the Class 2A pitch diameter tolerance, see Table 18A, (4).
	es = 0.300 (0.003668)	The six decimal place value for Class 2A pitch diameter tolerance (Td_2) is used in this calculation.
	es = 0.001100	This figure is rounded to four decimal places to obtain the final value of es.
	es = 0.0011	. . .
	d max. = 0.5000 – 0.0011	. . .
	d max. = 0.4989	. . .
(2) Minimum external major diameter (d min.) = Maximum external major diameter (d max.) – major diameter tolerance (Td)	d min. = d max. – Td	. . .
	$Td = 0.060\sqrt[3]{P^2}$	. . .
	$Td = 0.060\sqrt[3]{(0.03571429)^2}$	All thread calculations are to be performed using (P) rounded to eight decimal places.
	$Td = 0.060\sqrt[3]{0.001276}$	. . .
	Td = 0.060 (0.108463)	. . .
	Td = 0.006508	This figure is rounded to four decimal places to obtain the final value of Td.
	Td = 0.0065	. . .
	d min. = 0.4989 – 0.0065	. . .
	d min. = 0.4924	. . .

Table 18A Examples of External Screw Threads (Cont'd)

Thread Size = 1/2 – 28 or 0.5000 – 28 UNEF-2A

Characteristic Description	Example of Size Calculation	Additional Information
(3) Maximum external pitch diameter (d_2 max.) = Maximum external major diameter (d max.) – twice the external thread addendum ($2h_{as}$)	d_2 max. = d max. – $2h_{as}$	. . .
	$2h_{as} = 0.64951905P$	. . .
	$2h_{as} = 0.64951905\ (0.03571429)$	All thread calculations are to be performed using (P) rounded to eight decimal places.
	$2h_{as} = 0.023197$	. . .
	d_2 max. = 0.4989 – 0.023197	. . .
	d_2 max. = 0.475703	This figure is rounded to four decimal places to obtain the final value of d_2 max.
	d_2 max. = 0.4757	. . .
(4) Minimum external pitch diameter (d_2 min.) = Maximum external pitch diameter (d_2 max.) – external pitch diameter tolerance (Td_2)	d_2 min. = d_2 max. – Td_2	. . .
	$Td_2 = 0.0015\sqrt[3]{d\ \text{bsc}} + 0.0015\sqrt{LE} + 0.015\sqrt[3]{P^2}$	LE (length of engagement) required in this example, is equal to $9P$. See para. 5.2 for LE applications for other thread series.
	$Td_2 = 0.0015\sqrt[3]{0.5000} + 0.0015\sqrt{9\ (0.03571429)} + 0.015\sqrt[3]{(0.03571429)^2}$	. . .
	$Td_2 = 0.0015\sqrt[3]{0.5000} + 0.0015\sqrt{0.321429} + 0.015\sqrt[3]{0.001276}$	. . .
	$Td_2 = (0.0015)\ (0.793701) + (0.0015)\ (0.566947) + (0.015)\ (0.108463)$	. . .
	$Td_2 = 0.001191 + 0.000850 + 0.001627$	. . .
	$Td_2 = 0.003668$	This figure is rounded to six decimal places to obtain the final value of the external pitch diameter tolerance Td_2.
	d_2 min. = 0.4757 – 0.003668	. . .
	d_2 min. = 0.472032	This figure is rounded to four decimal places to obtain the final value of d_2 min.
	d_2 min. = 0.4720	. . .

Table 18A Examples of External Inch Screw Threads, (Cont'd)

Thread Size = ½ – 28 or 0.5000 – 28 UNEF-2A		
Characteristic Description	**Example of Size Calculation**	**Additional Information**
(5) Maximum external UNR minor diameter (d_3 max.) = Maximum external major diameter (d max.) – double height of external UNR thread ($2h_s$)	d_3 max. = d max. – $2h_s$	. . .
	$2h_s = 1.19078493P$	. . .
	$2h_s = 1.19078493\ (0.03571429)$	All thread calculations are to be performed using (P) rounded to eight decimal places.
	$2h_s = 0.042528$	. . .
	d_3 max. = 0.4989 – 0.042528	. . .
	d_3 max. = 0.456372	This figure is rounded to four decimal places to obtain the final value of d_3 max.
	d_3 max. = 0.4564	. . .
(6) Maximum external UN minor diameter (d_1 max.) = Maximum external major diameter (d max.) – double height of external UN thread ($2h_s$)	d_1 max. = d max. – $2h_s$	. . .
	$2h_s = 1.08253175P$	For UN threads, $2h_s = 2h_n$
	$2h_s = 1.08253175\ (0.03571429)$	All thread calculations are to be performed using (P) rounded to eight decimal places.
	$2h_s = 0.038662$	. . .
	d_1 max. = 0.4989 – 0.038662	. . .
	d_1 max. = 0.460238	This figure is rounded to four decimal places to obtain the final value of d_1 max.
	d_1 max. = 0.4602	. . .

GENERAL NOTES:
(a) All dimensions expressed in inches for calculations in this table.
(b) $P = 1/n = 1/28 = 0.03571429$.

Table 18B Examples of Internal Screw Threads

Thread Size = $\frac{1}{2}$ – 28 or 0.5000 – 28 UNEF-2B

Characteristic Description	Example of Size Calculation	Additional Information
(1) Minimum internal minor diameter (D_1 min.) = Basic major diameter (D bsc) – double height of internal thread ($2h_n$)	D_1 min. = D bsc – $2h_n$	. . .
	$2h_n = 1.08253175P$	. . .
	$2h_n = 1.08253175\ (0.03571429)$	All thread calculations are to be performed using (P) rounded to eight decimal places.
	$2h_n = 0.038662$	. . .
	D_1 min. = 0.5000 – 0.038662	. . .
	D_1 min. = 0.461338	For the Class 2B thread used in this example, this figure is rounded to three decimal places to obtain the final value of D_1 min. Other sizes and classes are expressed in a four place decimal. See para. 8.3.2(e).
	D_1 min. = 0.461	. . .
(2) Maximum internal minor diameter (D_1 max.) = Minimum internal minor diameter (D_1 min.) rounded to six decimal places + internal minor diameter tolerance (TD_1)	D_1 max. = D_1 min. (to six decimal places) + TD_1	See para. 5.8.2(c) for limitations on use of this formula.
	$TD_1 = 0.25P - 0.4P^2$	
	$TD_1 = 0.25\ (0.03571429) - 0.4\ (0.03571429)^2$	All thread calculations are to be performed using (P) rounded to eight decimal places.
	$TD_1 = 0.25\ (0.03571429) - 0.4\ (0.001276)$	. . .
	$TD_1 = 0.008929 - 0.000510$	. . .
	$TD_1 = 0.008419$	. . .
	$TD_1 = 0.0084$	This figure is rounded to four decimal places to obtain the final value of TD_1.
	D_1 max. = 0.461338 + 0.0084	. . .
	D_1 max. = 0.469757	For the Class 2B thread used in this example, this figure is rounded to three decimal places to obtain the final value of D_1 max. Other sizes and classes are expressed in a four place decimal. See para. 8.3.2(e).
	D_1 max. = 0.470	. . .

Table 18B Examples of Internal Screw Threads (Cont'd)

Thread Size = $\frac{1}{2}$ – 28 or 0.5000 – 28 UNEF-2B		
Characteristic Description	**Example of Size Calculation**	**Additional Information**
(3) Minimum internal pitch diameter (D_2 min.) = Basic major diameter (D bsc) – twice the external thread addendum (h_b)	D_2 min. = D bsc – h_b	. . .
	h_b = 0.64951905P	. . .
	h_b = 0.64951905 (0.03571429)	All thread calculations are to be performed using (P) rounded to eight decimal places.
	h_b = 0.023197	. . .
	D_2 min. = 0.5000 – 0.023197	. . .
	D_2 min. = 0.476803	This figure is rounded to four decimal places to obtain the final value of D_2 min.
	D_2 min. = 0.4768	. . .
(4) Maximum internal pitch diameter (D_2 max.) = Minimum internal pitch diameter (D_2 min.) + internal pitch diameter tolerance (TD_2)	D_2 max. = D_2 min. + TD_2	. . .
	TD_2 = 1.300 (Td_2 for Class 2A)	The constant 1.300 is for this Class 2B example and will be different for Classes 1B and 3B. See para. 5.8.2.
	TD_2 = 1.300 (0.003668)	For the Td_2 Class 2A pitch diameter tolerance, see Table 18A, (4). The six place decimal place value is used.
	TD_2 = 0.004768	. . .
	TD_2 = 0.0048	This figure is rounded to four decimal places to obtain the final value of TD_2.
	D_2 max. = 0.4768 + 0.0048	. . .
	D_2 max. = 0.4816	. . .
(5) Minimum internal major diameter (D min.) = Basic major diameter (D bsc)	D min. = D bsc	. . .
	D bsc = 0.5000	. . .
	D min. = 0.5000	. . .

GENERAL NOTES:
(a) All dimensions expressed in inches for calculations in this table.
(b) $P = 1/n = 1/28 = 0.03571429$.

Table 19 Allowable Variation in 30 deg Basic Half Angle of External and Internal Screw Threads

	Allowable Variation in Half Angle of Thread	
Threads/in.	±deg	Min.
80	3	00
72	2	45
64	2	30
56	2	15
48	2	00
44	1	50
40	1	45
36	1	35
32	1	30
28	1	20
27	1	20
24	1	15
20	1	10
18	1	05
16	1	00
14	0	55
13	0	55
12	0	50
$11\frac{1}{2}$	0	50
11	0	50
10	0	50
9	0	50
8	0	45
7	0	45
6	0	40
5	0	40
$4\frac{1}{2}$	0	40
4	0	40

GENERAL NOTE: See paras. 9.1.3 through 9.1.6 for applicability.

Table 20 General Symbols (See Fig. 6)

Symbol	Dimension	Remarks
d	Major diameter, external thread	
D	Major diameter, internal thread	
D_3	Major diameter, rounded root, internal thread	
d_2	Pitch diameter, external thread	
D_2	Pitch diameter, internal thread	
d_1	Minor diameter, external thread	
d_3	Minor diameter, rounded root, external thread	
D_1	Minor diameter, internal thread	
P	Pitch	
$n = {}^1/_P$	Number of threads per unit of length (per inch)	
$N = {}^1/_L$	Number of turns per unit of length (per inch)	
H	Height of fundamental triangle	
h	Thread height (or depth)	
h_a	Addendum	
h_d	Dedendum	
h_e	Depth of thread engagement	
h_s	Height of UN or UNR external thread	
h_n	Height of UN internal thread	
h_{as}	Addendum of external thread	
H_b	Twice the external thread addendum	
α	Half angle of symmetrical thread	
α_1	Angle between leading flank of thread and normal to axis of thread	
α_2	Angle between following flank of thread and normal to axis of thread	
λ	Lead angle	$\tan \lambda = \frac{L}{\pi(d_2 \text{ or } D_2)}$
	Radius of rounding at:	
r_{cs}	crest of external thread	
r_{rs}	root of external thread	
R_{cn}	crest of internal thread	
R_{rn}	root of internal thread	
	Radial distance from apex of fundamental triangle to:	
s_{cs}	rounded crest of external thread	
s_{rs}	rounded root of external thread	
s_{cn}	rounded crest of internal thread	
s_{rn}	rounded root of internal thread	
	Distance from apex of fundamental triangle to:	
f_{cs}	flat at crest of external thread	
f_{rs}	flat at root of external thread	
f_{cn}	flat at crest of internal thread	
f_{rn}	flat at root of internal thread	
	Width of:	
F	flat (general)	
F_{cs}	flat at crest of external thread	
F_{rs}	flat at root of external thread	
F_{cn}	flat at crest of internal thread	
F_{rn}	flat at root of internal thread	
es	Allowance at major, pitch, and minor diameters of external thread	
EI	Allowance at major, pitch, and minor diameters of internal thread	
L_{ts}	Length of complete external thread	
L_{tn}	Length of complete internal thread, including chamfer	
LE	Length of thread engagement	
W	Diameter of measuring wires	
M_w	Measurement over wires	
C	Correction to measurement over best size wires to give pitch diameter	d_2 or $D_2 = M_w - C - c$ $C = W(1 + \text{cosec } \alpha) - (\cot \alpha)/2n$
λ'	Wire angle	
c	Wire angle correction for large lead angles	See FED-STD-H28/6
Prefix Symbol with Δ	Variation in any dimension	Examples: Variation in pitch ΔPi variation in half angle, $\Delta\ \alpha_1$ or $\Delta\alpha_2$
$\Delta d_2\alpha$, $\Delta D_2\alpha$	Pitch diameter equivalent of variation in flank angles	
$\Delta d_2\lambda$, $\Delta D_2\lambda$	Pitch diameter equivalent of variation in pitch (lead)	

GENERAL NOTE: Refer to ASME B1.7 for latest symbol identification. Greek alphabet is below.

A, α	= Alpha	N, ν	= Nu
B, β	= Beta	Ξ, ξ	= Xi
Γ, γ	= Gamma	O, o	= Omicron
Δ, δ	= Delta	Π, π	= Pi
E, ϵ	= Epsilon	P, ρ	= Rho
Z, ζ	= Zeta	Σ, σ	= Sigma
H, η	= Eta	T, τ	= Tau
Θ, θ	= Theta	Y, υ	= Upsilon
I, ι	= Iota	Φ, ϕ	= Phi
K, κ	= Kappa	X, χ	= Chi
Λ, λ	= Lambda	Ψ, ψ	= Psi
M, μ	= Mu	Ω, ω	= Omega

NONMANDATORY APPENDIX A
TERMINOLOGY AND IDENTIFICATION OF UNIFIED INCH SCREW THREADS

A-1 TERMINOLOGY

All terms relating to screw threads used in this Standard are defined in ASME B1.7.

A-2 IDENTIFICATION

The various unified screw threads covered in B1 standards are compared in Fig. A-1 and Table A-1.

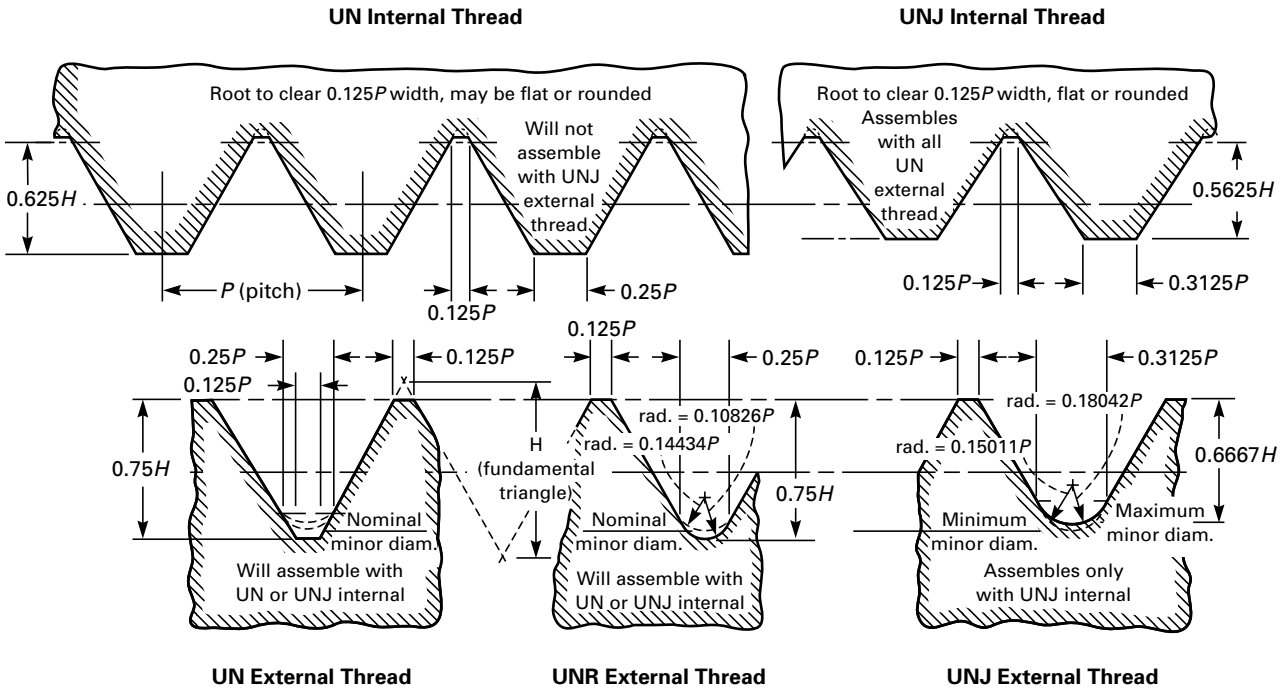


Fig. A-1 Identification of 60-deg Inch Screw Threads Within the Scope of ASME B1 Committee

Table A-1 Identification of 60-deg Inch Screw Threads Within the Scope of ASME B1 Committee

Thread Identification	UN Threads, Internal and External	UNR Threads, External Only	UNJ Threads, Internal and External
ASME standards documents	B1.1, Unified Inch Screw Threads; B1.2, Gages and Gaging for Unified Inch Screw Threads	B1.1, Unified Inch Screw Threads; B1.2, Gages and Gaging for Unified Inch Screw Threads	B1.15, Unified Inch Screw Threads — UNJ Thread Form; draft of B1.2, Gages and Gaging for Unified Inch Screw Threads
External root	External thread root may be flat or rounded	Rounded root specified	Rounded root specified
External minor diameter	External thread minor diameter is not toleranced	External thread minor diameter is not toleranced	External thread minor diameter is toleranced
External threads	UN Classes 1A, 2A, and 3A	UNR Classes 1A, 2A, and 3A	UNJ Classes 2A and 3A mate only with UNJ internal threads
Internal threads	UN Classes 1B, 2B, and 3B	No internal threads designated UNR; UNR mates with UN internal threads	UNJ Classes 2B and 3B (no rounding required on internal thread root)

GENERAL NOTES:

(a) The above cannot be used as a working sheet. Refer to the appropriate standards, as listed, for complete thread details and conformance data.

(b) The appropriate current standard is the authoritative document for complete details and data and takes precedence over this sheet.

(c) These standards may be purchased from the ASME Order Department, 22 Law Drive, Box 2300, Fairfield, NJ 07007-2300: telephone (201) 882-1167 or 1-800-THE-ASME.

NONMANDATORY APPENDIX B
THREAD STRENGTH DESIGN FORMULAS

B-1 THREAD TENSILE STRESS AREA

The following thread tensile stress area formulas are used for the purpose of product acceptance computations. Tensile stress area:

$$A_s = 3.1416 \left[\frac{D_2}{2} - \frac{3H}{16}\right]^2$$

or

$$A_s = 0.7854 \left[D - \frac{0.9743}{1/P}\right]^2$$

where

D = basic major diameter
D_2 = basic pitch diameter
$1/P$ = number of threads per inch

For $3H/16$, see Table 5.

B-2 THREAD SHEAR DATA

The following formulas for thread shear areas are geometric minimum values. Shear (thread stripping) strengths of screw threads under load are dependent, in addition, on mating component relative material strengths, nut geometry, and coefficient of friction between thread bearing surfaces. Effective shear areas are therefore somewhat less than the geometric values. Thread geometric shear areas:

$$AS_n = 3.1416\ (1/P)(LE)(d\ \text{min.}) \times \left[\frac{1}{2(1/P)} + 0.57735\ (d\ \text{min.} - D_2\ \text{max.})\right]$$

$$AS_s = 3.1416\ (1/P)(LE)(D_1\ \text{max.}) \times \left[\frac{1}{2(1/P)} + 0.57735\ (d_2\ \text{min.} - D_1\ \text{max.})\right]$$

where

AS_n = minimum thread shear area for internal threads
AS_s = minimum thread shear area for external threads
$1/P$ = number of threads per inch
LE = length of engagement
d min. = minimum major diameter of external thread
d_2 min. = minimum pitch diamter of external thread
D_1 max. = maximum minor diameter of internal thread
D_2 max. = maximum pitch diameter of internal thread

B-3 LENGTH OF THREAD ENGAGEMENT

In general, the length of engagement of mating threads is selected to utilize full tensile strength of a bolt prior to shearing of nut threads. Other applications may require internal thread shear prior to failure of the externally threaded part. For noncritical design, the following formulas are often used for approximation:

$$\text{tensile strength of externally threaded part} = S_t A_s$$

$$\text{shear strength of threads} = 0.5 S_t\ (AS_n \text{ or } AS_s)$$

where

S_t = ultimate tensile strength of material, psi

An internationally accepted study on the subject was published in the 1977 Transactions of the Society of Automotive Engineers as paper number 770420, *Analysis and Design of Threaded Assemblies,* by E. M. Alexander.

NONMANDATORY APPENDIX C
UNIFIED INCH SCREW THREADS — METRIC TRANSLATION

C-1 BACKGROUND

This Appendix presents a translation of unified inch screw threads into metric units of measurement. It is very important to recognize that this translation is not ISO metric screw threads. The tables of limiting dimensions of standard and UNS/UNRS series threads and the table of thread form data translated from inches to millimeters presented in this Appendix implement the decision of the B1 Committee that there should be official metric translations of inch screw thread standards to better fill communication needs in international exchange of technical data. This philosophy originated at the May 4, 1964, meeting of the Committee and was approved by a letter ballot of the Committee on November 2, 1966.

The tables in this Appendix were originally published as USAS B1.1a-1968 Supplement to USAS B1.1-1960, in the interest of meeting urgent needs of industry.

C-2 DIMENSIONS

All dimensions in this Appendix are given in millimeters unless otherwise specified. Metric values in the limiting dimension tables are translations of the inch values tabulated in ASME B1.1.

The values in Table C-1 are a direct soft conversion of Table 2 in this Standard. All inch values were multiplied by 25.4 and rounded to four decimal places, per the rounding policy stated in ASME B1.30. Similarly, Tables C-2 and C-3 are soft conversions of Tables D-1 and 5, respectively.

Where it is necessary to use metric values of threads for which the metric limiting dimensions are not tabulated herein, the inch values should be determined in accordance with para. 8 of ASME B1.1 before translating to metric values and rounding by the method prescribed in the foregoing paragraph.

C-3 DESIGNATIONS

Designation of unified inch screw threads expressed in metric dimensions shall be as prescribed in paras. C-3.1 and C-3.2.

C-3.1 Metric Drawings or Documents

On metric drawings or documents, the designation shall specify, in sequence, the nominal size (expressed in decimal inches), the number of threads per inch, thread series symbol, and thread class symbol. All supplemental dimensions shall be as shown in metric units. The equivalent inch dimensions, as indicated and enclosed in parentheses, may be included if desired.

EXAMPLE (on metric drawing or metric document):
0.250 – 28 UNF-2A (22)
PD 5.7353 – 5.6515
(0.2258 – 0.2225 in.) (optional)

C-3.2 Inch Drawings or Documents

On inch drawings or documents, the designation and supplemental dimensions expressed in inches may be further supplemented by inclusion of the equivalent metric dimensions, so indicated and enclosed in parentheses.

EXAMPLE:
0.250 – 28 UNF-2A (22)
PD 0.2258 – 0.2225
(5.7353 – 5.6515 mm) (optional)

C-4 TABLES

Tables C-1, C-2, and C-3 give limits of size for standard series and UNS/UNRS series threads and thread form data.

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
0–80 or 0.060–80	UNF	1.5240	0.3175	2A	0.0127	1.5113	1.4300	...	1.3056	1.2598	0.0457	1.1328	2B	1.1811	1.3056	1.3183	1.3767	0.0584	1.5240
				3A	0.0000	1.5240	1.4427	...	1.3183	1.2852	0.0330	1.1455	3B	1.1811	1.3056	1.3183	1.3614	0.0432	1.5240
1–64 or 0.073–64	UNC	1.8542	0.3969	2A	0.0152	1.8390	1.7424	...	1.5824	1.5316	0.0508	1.3665	2B	1.4249	1.5799	1.5977	1.6637	0.0660	1.8542
				3A	0.0000	1.8542	1.7577	...	1.5977	1.5596	0.0381	1.3818	3B	1.4249	1.5799	1.5977	1.6459	0.0483	1.8542
1–72 or 0.073–72	UNF	1.8542	0.3528	2A	0.0152	1.8390	1.7501	...	1.6104	1.5621	0.0483	1.4199	2B	1.4732	1.6104	1.6256	1.6891	0.0635	1.8542
				3A	0.0000	1.8542	1.7653	...	1.6256	1.5900	0.0356	1.4351	3B	1.4732	1.6104	1.6256	1.6739	0.0483	1.8542
2–56 or 0.086–56	UNC	2.1844	0.4536	2A	0.0152	2.1692	2.0650	...	1.8745	1.8212	0.0533	1.6281	2B	1.6942	1.8720	1.8898	1.9609	0.0711	2.1844
				3A	0.0000	2.1844	2.0803	...	1.8898	1.8491	0.0406	1.6434	3B	1.6942	1.8720	1.8898	1.9431	0.0533	2.1844
2–64 or 0.086–64	UNF	2.1844	0.3969	2A	0.0152	2.1692	2.0726	...	1.9126	1.8618	0.0508	1.6967	2B	1.7551	1.9101	1.9279	1.9964	0.0686	2.1844
				3A	0.0000	2.1844	2.0879	...	1.9279	1.8898	0.0381	1.7120	3B	1.7551	1.9101	1.9279	1.9787	0.0508	2.1844
3–48 or 0.099–48	UNC	2.5146	0.5292	2A	0.0178	2.4968	2.3825	...	2.1539	2.0955	0.0584	1.8669	2B	1.9406	2.1463	2.1717	2.2479	0.0762	2.5146
				3A	0.0000	2.5146	2.4003	...	2.1717	2.1285	0.0432	1.8847	3B	1.9406	2.1463	2.1717	2.2276	0.0559	2.5146
3–56 or 0.099–56	UNF	2.5146	0.4536	2A	0.0178	2.4968	2.3927	...	2.2022	2.1463	0.0559	1.9558	2B	2.0244	2.1971	2.2200	2.2911	0.0711	2.5146
				3A	0.0000	2.5146	2.4105	...	2.2200	2.1793	0.0406	1.9736	3B	2.0244	2.1971	2.2200	2.2733	0.0533	2.5146
4–40 or 0.112–40	UNC	2.8448	0.6350	2A	0.0203	2.8245	2.6949	...	2.4130	2.3495	0.0635	2.0676	2B	2.1565	2.3851	2.4333	2.5171	0.0838	2.8448
				3A	0.0000	2.8448	2.7153	...	2.4333	2.3851	0.0483	2.0879	3B	2.1565	2.3851	2.4333	2.4943	0.0610	2.8448
4–48 or 0.112–48	UNF	2.8448	0.5292	2A	0.0178	2.8270	2.7127	...	2.4841	2.4232	0.0610	2.1971	2B	2.2708	2.4587	2.5019	2.5806	0.0787	2.8448
				3A	0.0000	2.8448	2.7305	...	2.5019	2.4562	0.0457	2.2149	3B	2.2708	2.4587	2.5019	2.5603	0.0584	2.8448
5–40 or 0.125–40	UNC	3.1750	0.6350	2A	0.0203	3.1547	3.0251	...	2.7432	2.6772	0.0660	2.3978	2B	2.4867	2.6975	2.7635	2.8473	0.0838	3.1750
				3A	0.0000	3.1750	3.0455	...	2.7635	2.7153	0.0483	2.4181	3B	2.4867	2.6975	2.7635	2.8270	0.0635	3.1750
5–44 or 0.125–44	UNF	3.1750	0.5773	2A	0.0178	3.1572	3.0353	...	2.7813	2.7178	0.0635	2.4689	2B	2.5502	2.7407	2.7991	2.8804	0.0813	3.1750
				3A	0.0000	3.1750	3.0531	...	2.7991	2.7508	0.0483	2.4867	3B	2.5502	2.7407	2.7991	2.8600	0.0610	3.1750
6–32 or 0.138–32	UNC	3.5052	0.7938	2A	0.0203	3.4849	3.3325	...	2.9693	2.8981	0.0711	2.5400	2B	2.6416	2.8956	2.9896	3.0836	0.0940	3.5052
				3A	0.0000	3.5052	3.3528	...	2.9896	2.9362	0.0533	2.5603	3B	2.6416	2.8931	2.9896	3.0582	0.0686	3.5052
6–40 or 0.138–40	UNF	3.5052	0.6350	2A	0.0203	3.4849	3.3553	...	3.0734	3.0074	0.0660	2.7280	2B	2.8194	3.0226	3.0937	3.1801	0.0864	3.5052
				3A	0.0000	3.5052	3.3757	...	3.0937	3.0429	0.0508	2.7483	3B	2.8194	3.0124	3.0937	3.1572	0.0635	3.5052
8–32 or 0.164–32	UNC	4.1656	0.7938	2A	0.0229	4.1427	3.9903	...	3.6271	3.5535	0.0737	3.1979	2B	3.3020	3.5306	3.6500	3.7465	0.0965	4.1656
				3A	0.0000	4.1656	4.0132	...	3.6500	3.5941	0.0559	3.2207	3B	3.3020	3.5255	3.6500	3.7211	0.0711	4.1656

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)]		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance	(Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Diameter, Min.
8–36 or 0.164–36	UNF	4.1656	0.7056	2A	0.0203	4.1453	4.0056	...	3.6881	3.6170	0.0711	3.3045	2B	3.4036	3.6068	3.7084	3.7998	0.0914	4.1656
				3A	0.0000	4.1656	4.0259	...	3.7084	3.6551	0.0533	3.3249	3B	3.4036	3.5966	3.7084	3.7770	0.0686	4.1656
10–24 or 0.190–24	UNC	4.8260	1.0583	2A	0.0254	4.8006	4.6177	...	4.1123	4.0284	0.0838	3.5408	2B	3.6830	3.9370	4.1377	4.2469	0.1092	4.8260
				3A	0.0000	4.8260	4.6431	...	4.1377	4.0742	0.0635	3.5662	3B	3.6830	3.9497	4.1377	4.2189	0.0813	4.8260
10–32 or 0.190–32	UNF	4.8260	0.7938	2A	0.0229	4.8031	4.6507	...	4.2875	4.2113	0.0762	3.8583	2B	3.9624	4.1656	4.3104	4.4094	0.0991	4.8260
				3A	0.0000	4.8260	4.6736	...	4.3104	4.2520	0.0584	3.8811	3B	3.9624	4.1681	4.3104	4.3840	0.0737	4.8260
12–24 or 0.216–24	UNC	5.4864	1.0583	2A	0.0254	5.4610	5.2781	...	4.7727	4.6863	0.0864	4.2012	2B	4.3434	4.5974	4.7981	4.9098	0.1118	5.4864
				3A	0.0000	5.4864	5.3035	...	4.7981	4.7320	0.0660	4.2266	3B	4.3434	4.5898	4.7981	4.8819	0.0838	5.4864
12–28 or 0.216–28	UNF	5.4864	0.9071	2A	0.0254	5.4610	5.2959	...	4.8717	4.7904	0.0813	4.3815	2B	4.4958	4.7244	4.8971	5.0038	0.1067	5.4864
				3A	0.0000	5.4864	5.3213	...	4.8971	4.8362	0.0610	4.4069	3B	4.4958	4.7168	4.8971	4.9759	0.0787	5.4864
12–32 or0.216–32	UNEF	5.4864	0.7938	2A	0.0254	5.4610	5.3086	...	4.9454	4.8641	0.0813	4.5161	2B	4.6228	4.8260	4.9708	5.0749	0.1041	5.4864
				3A	0.0000	5.4864	5.3340	...	4.9708	4.9098	0.0610	4.5415	3B	4.6228	4.8133	4.9708	5.0495	0.0787	5.4864
1/4–20 or 0.2500–20	UNC	6.3500	1.2700	1A	0.0279	6.3221	6.0122	...	5.4966	5.3543	0.1422	4.8108	1B	4.9784	5.2578	5.5245	5.7099	0.1854	6.3500
				2A	0.0279	6.3221	6.1163	6.0122	5.4966	5.4026	0.0940	4.8108	2B	4.9784	5.2578	5.5245	5.6490	0.1245	6.3500
				3A	0.0000	6.3500	6.1443	...	5.5245	5.4534	0.0711	4.8387	3B	4.9784	5.2502	5.5245	5.6159	0.0914	6.3500
1/4–28 or 0.2500–28	UNF	6.3500	0.9071	1A	0.0254	6.3246	6.0757	...	5.7353	5.6083	0.1270	5.2451	1B	5.3594	5.5880	5.7607	5.9258	0.1651	6.3500
				2A	0.0254	6.3246	6.1595	...	5.7353	5.6515	0.0838	5.2451	2B	5.3594	5.5880	5.7607	5.8699	0.1092	6.3500
				3A	0.0000	6.3500	6.1849	...	5.7607	5.6972	0.0635	5.2705	3B	5.3594	5.5626	5.7607	5.8420	0.0813	6.3500
1/4–32 or 0.2500–32	UNEF	6.3500	0.7938	2A	0.0254	6.3246	6.1722	...	5.8090	5.7277	0.0813	5.3797	2B	5.4864	5.6896	5.8344	5.9411	0.1067	6.3500
				3A	0.0000	6.3500	6.1976	...	5.8344	5.7734	0.0610	5.4051	3B	5.4864	5.6617	5.8344	5.9131	0.0787	6.3500
5/16–18 or 0.3125–18	UNC	7.9375	1.4111	1A	0.0305	7.9070	7.5743	...	6.9901	6.8351	0.1549	6.2255	1B	6.4008	6.7310	7.0206	7.2212	0.2007	7.9375
				2A	0.0305	7.9070	7.6860	7.5743	6.9901	6.8885	0.1016	6.2255	2B	6.4008	6.7310	7.0206	7.1552	0.1346	7.9375
				3A	0.0000	7.9375	7.7165	...	7.0206	6.9444	0.0762	6.2560	3B	6.4008	6.6802	7.0206	7.1196	0.0991	7.9375
5/16–20 or 0.3125–20	UN	7.9375	1.2700	2A	0.0305	7.9070	7.7013	...	7.0815	6.9774	0.1041	6.3957	2B	6.5532	6.8580	7.1120	7.2466	0.1346	7.9375
				3A	0.0000	7.9375	7.7318	...	7.1120	7.0358	0.0762	6.4262	3B	6.5532	6.8072	7.1120	7.2136	0.1016	7.9375
5/16–24 or 0.3125–24	UNF	7.9375	1.0583	1A	0.0279	7.9096	7.6352	...	7.2212	7.0815	0.1397	6.6497	1B	6.7818	7.0358	7.2492	7.4295	0.1803	7.9375
				2A	0.0279	7.9096	7.7267	...	7.2212	7.1272	0.0940	6.6497	2B	6.7818	7.0358	7.2492	7.3711	0.1219	7.9375
				3A	0.0000	7.9375	7.7546	...	7.2492	7.1806	0.0686	6.6777	3B	6.7818	6.9952	7.2492	7.3406	0.0914	7.9375

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
5/16–28 or 0.3125–28	UN	7.9375	0.9071	2A	0.0254	7.9121	7.7470	...	7.3228	7.2339	0.0889	6.8326	2B	6.9596	7.1628	7.3482	7.4625	0.1143	7.9375
				3A	0.0000	7.9375	7.7724	...	7.3482	7.2822	0.0660	6.8580	3B	6.9596	7.1298	7.3482	7.4346	0.0864	7.9375
5/16–32 or 0.3125–32	UNEF	7.9375	0.7938	2A	0.0254	7.9121	7.7597	...	7.3965	7.3127	0.0838	6.9672	2B	7.0866	7.2644	7.4219	7.5311	0.1092	7.9375
				3A	0.0000	7.9375	7.7851	...	7.4219	7.3584	0.0635	6.9926	3B	7.0866	7.2288	7.4219	7.5032	0.0813	7.9375
3/8–16 or 0.3750–16	UNC	9.5250	1.5875	1A	0.0330	9.4920	9.1313	...	8.4607	8.2956	0.1651	7.6022	1B	7.7978	8.1534	8.4938	8.7097	0.2159	9.5250
				2A	0.0330	9.4920	9.2532	9.1313	8.4607	8.3490	0.1118	7.6022	2B	7.7978	8.1534	8.4938	8.6385	0.1448	9.5250
				3A	0.0000	9.5250	9.2862	...	8.4938	8.4099	0.0838	7.6352	3B	7.7978	8.0823	8.4938	8.6030	0.1092	9.5250
3/8–20 or 0.3750–20	UN	9.5250	1.2700	2A	0.0305	9.4945	9.2888	...	8.6690	8.5649	0.1041	7.9832	2B	8.1534	8.4328	8.6995	8.8367	0.1372	9.5250
				3A	0.0000	9.5250	9.3193	...	8.6995	8.6208	0.0787	8.0137	3B	8.1534	8.3744	8.6995	8.8011	0.1016	9.5250
3/8–24 or 0.3750–24	UNF	9.5250	1.0583	1A	0.0279	9.4971	9.2227	...	8.8087	8.6639	0.1448	8.2372	1B	8.3820	8.6360	8.8367	9.0246	0.1880	9.5250
				2A	0.0279	9.4971	9.3142	...	8.8087	8.7122	0.0965	8.2372	2B	8.3820	8.6360	8.8367	8.9611	0.1245	9.5250
				3A	0.0000	9.5250	9.3421	...	8.8367	8.7630	0.0737	8.2652	3B	8.3820	8.5649	8.8367	8.9306	0.0940	9.5250
3/8–28 or 0.3750–28	UN	9.5250	0.9071	2A	0.0279	9.4971	9.3320	...	8.9078	8.8163	0.0914	8.4176	2B	8.5344	8.7630	8.9357	9.0526	0.1168	9.5250
				3A	0.0000	9.5250	9.3599	...	8.9357	8.8671	0.0686	8.4455	3B	8.5344	8.7020	8.9357	9.0246	0.0889	9.5250
3/8–32 or 0.3750–32	UNEF	9.5250	0.7938	2A	0.0254	9.4996	9.3472	...	8.9840	8.8976	0.0864	8.5547	2B	8.6614	8.8646	9.0094	9.1211	0.1118	9.5250
				3A	0.0000	9.5250	9.3726	...	9.0094	8.9459	0.0635	8.5801	3B	8.6614	8.8113	9.0094	9.0932	0.0838	9.5250
7/16–14 or 0.4375–14	UNC	11.1125	1.8143	1A	0.0356	11.0769	10.6832	...	9.8984	9.7180	0.1803	8.9154	1B	9.1440	9.5504	9.9339	10.1676	0.2337	11.1125
				2A	0.0356	11.0769	10.8153	10.6832	9.8984	9.7790	0.1194	8.9154	2B	9.1440	9.5504	9.9339	10.0889	0.1549	11.1125
				3A	0.0000	11.1125	10.8509	...	9.9339	9.8450	0.0889	8.9510	3B	9.1440	9.4412	9.9339	10.0508	0.1168	11.1125
7/16–16 or 0.4375–16	UN	11.1125	1.5875	2A	0.0356	11.0769	10.8382	...	10.0457	9.9289	0.1168	9.1872	2B	9.3980	9.7536	10.0813	10.2337	0.1524	11.1125
				3A	0.0000	11.1125	10.8737	...	10.0813	9.9924	0.0889	9.2227	3B	9.3980	9.6520	10.0813	10.1956	0.1143	11.1125
7/16–20 or 0.4375–20	UNF	11.1125	1.2700	1A	0.0330	11.0795	10.7696	...	10.2540	10.0940	0.1600	9.5682	1B	9.7282	10.0330	10.2870	10.4927	0.2057	11.1125
				2A	0.0330	11.0795	10.8737	...	10.2540	10.1473	0.1067	9.5682	2B	9.7282	10.0330	10.2870	10.4242	0.1372	11.1125
				3A	0.0000	11.1125	10.9068	...	10.2870	10.2083	0.0787	9.6012	3B	9.7282	9.9466	10.2870	10.3911	0.1041	11.1125
7/16–28 or 0.4375–28	UNEF	11.1125	0.9071	2A	0.0279	11.0846	10.9195	...	10.4953	10.4038	0.0914	10.0051	2B	10.1346	10.3378	10.5232	10.6426	0.1194	11.1125
				3A	0.0000	11.1125	10.9474	...	10.5232	10.4546	0.0686	10.0330	3B	10.1346	10.2895	10.5232	10.6121	0.0889	11.1125
7/16–32 or 0.4375–32	UN	11.1125	0.7938	2A	0.0254	11.0871	10.9347	...	10.5715	10.4851	0.0864	10.1422	2B	10.2616	10.4394	10.5969	10.7086	0.1118	11.1125
				3A	0.0000	11.1125	10.9601	...	10.5969	10.5308	0.0660	10.1676	3B	10.2616	10.3988	10.5969	10.6807	0.0838	11.1125

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)]		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance	(Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Diameter, Min.
1/2–13 or 0.5000–13	UNC	12.7000	1.9538	1A	0.0381	12.6619	12.2479	...	11.3919	11.2039	0.1880	10.3353	1B	10.5918	11.0236	11.4300	11.6764	0.2464	12.7000
				2A	0.0381	12.6619	12.3850	12.2479	11.3919	11.2649	0.1270	10.3353	2B	10.5918	11.0236	11.4300	11.5951	0.1651	12.7000
				3A	0.0000	12.7000	12.4231	...	11.4300	11.3360	0.0940	10.3734	3B	10.5918	10.8814	11.4300	11.5519	0.1219	12.7000
1/2–16 or 0.5000–16	UN	12.7000	1.5875	2A	0.0356	12.6644	12.4257	...	11.6332	11.5138	0.1194	10.7747	2B	10.9728	11.3284	11.6688	11.8237	0.1549	12.7000
				3A	0.0000	12.7000	12.4612	...	11.6688	11.5799	0.0889	10.8102	3B	10.9728	11.2268	11.6688	11.7856	0.1168	12.7000
1/2–20 or 0.5000–20	UNF	12.7000	1.2700	1A	0.0330	12.6670	12.3571	...	11.8415	11.6789	0.1626	11.1557	1B	11.3284	11.6078	11.8745	12.0879	0.2134	12.7000
				2A	0.0330	12.6670	12.4612	...	11.8415	11.7323	0.1092	11.1557	2B	11.3284	11.6078	11.8745	12.0167	0.1422	12.7000
				3A	0.0000	12.7000	12.4943	...	11.8745	11.7932	0.0813	11.1887	3B	11.3284	11.5240	11.8745	11.9812	0.1067	12.7000
1/2–28 or 0.5000–28	UNEF	12.7000	0.9071	2A	0.0279	12.6721	12.5070	...	12.0828	11.9888	0.0940	11.5926	2B	11.7094	11.9380	12.1107	12.2326	0.1219	12.7000
				3A	0.0000	12.7000	12.5349	...	12.1107	12.0396	0.0711	11.6205	3B	11.7094	11.8770	12.1107	12.2022	0.0914	12.7000
1/2–32 or 0.5000–32	UN	12.7000	0.7938	2A	0.0254	12.6746	12.5222	...	12.1590	12.0701	0.0889	11.7297	2B	11.8364	12.0396	12.1844	12.2987	0.1143	12.7000
				3A	0.0000	12.7000	12.5476	...	12.1844	12.1183	0.0660	11.7551	3B	11.8364	11.9863	12.1844	12.2707	0.0864	12.7000
9/16–12 or 0.5625–12	UNC	14.2875	2.1167	1A	0.0406	14.2469	13.8100	...	12.8727	12.6746	0.1981	11.7272	1B	11.9888	12.4460	12.9134	13.1724	0.2591	14.2875
				2A	0.0406	14.2469	13.9573	13.8100	12.8727	12.7406	0.1321	11.7272	2B	11.9888	12.4460	12.9134	13.0861	0.1727	14.2875
				3A	0.0000	14.2875	13.9979	...	12.9134	12.8143	0.0991	11.7678	3B	11.9888	12.3012	12.9134	13.0429	0.1295	14.2875
9/16–16 or 0.5625–16	UN	14.2875	1.5875	2A	0.0356	14.2519	14.0132	...	13.2207	13.1013	0.1194	12.3622	2B	12.5730	12.9286	13.2563	13.4112	0.1549	14.2875
				3A	0.0000	14.2875	14.0487	...	13.2563	13.1674	0.0889	12.3977	3B	12.5730	12.8041	13.2563	13.3731	0.1168	14.2875
9/16–18 or 0.5625–18	UNF	14.2875	1.4111	1A	0.0356	14.2519	13.9192	...	13.3350	13.1623	0.1727	12.5705	1B	12.7508	13.0810	13.3706	13.5966	0.2261	14.2875
				2A	0.0356	14.2519	14.0310	...	13.3350	13.2207	0.1143	12.5705	2B	12.7508	13.0810	13.3706	13.5204	0.1499	14.2875
				3A	0.0000	14.2875	14.0665	...	13.3706	13.2842	0.0864	12.6060	3B	12.7508	12.9692	13.3706	13.4823	0.1118	14.2875
9/16–20 or 0.5625–20	UN	14.2875	1.2700	2A	0.0330	14.2545	14.0487	...	13.4290	13.3198	0.1092	12.7432	2B	12.9032	13.2080	13.4620	13.6042	0.1422	14.2875
				3A	0.0000	14.2875	14.0818	...	13.4620	13.3807	0.0813	12.7762	3B	12.9032	13.1089	13.4620	13.5687	0.1067	14.2875
9/16–24 or 0.5625–24	UNEF	14.2875	1.0583	2A	0.0305	14.2570	14.0741	...	13.5687	13.4671	0.1016	12.9972	2B	13.1318	13.3858	13.5992	13.7287	0.1295	14.2875
				3A	0.0000	14.2875	14.1046	...	13.5992	13.5230	0.0762	13.0277	3B	13.1318	13.3198	13.5992	13.6982	0.0991	14.2875
9/16–28 or 0.5625–28	UN	14.2875	0.9071	2A	0.0279	14.2596	14.0945	...	13.6703	13.5763	0.0940	13.1801	2B	13.3096	13.5128	13.6982	13.8201	0.1219	14.2875
				3A	0.0000	14.2875	14.1224	...	13.6982	13.6271	0.0711	13.2080	3B	13.3096	13.4645	13.6982	13.7897	0.0914	14.2875
9/16–32 or 0.5625–32	UN	14.2875	0.7938	2A	0.0279	14.2596	14.1072	...	13.7439	13.6550	0.0889	13.3147	2B	13.4366	13.6144	13.7719	13.8887	0.1168	14.2875
				3A	0.0000	14.2875	14.1351	...	13.7719	13.7058	0.0660	13.3426	3B	13.4366	13.5738	13.7719	13.8582	0.0864	14.2875

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
5/8–11 or 0.6250–11	UNC	15.8750	2.3091	1A	0.0432	15.8318	15.3695	...	14.3332	14.1224	0.2108	13.0810	1B	13.3858	13.8684	14.3764	14.6482	0.2718	15.8750
				2A	0.0432	15.8318	15.5245	15.3721	14.3332	14.1935	0.1397	13.0810	2B	13.3858	13.8684	14.3764	14.5593	0.1829	15.8750
				3A	0.0000	15.8750	15.5677	...	14.3764	14.2723	0.1041	13.1242	3B	13.3858	13.6931	14.3764	14.5136	0.1372	15.8750
5/8–12 or 0.6250–12	UN	15.8750	2.1167	2A	0.0406	15.8344	15.5448	...	14.4602	14.3231	0.1372	13.3147	2B	13.5890	14.0462	14.5009	14.6812	0.1803	15.8750
				3A	0.0000	15.8750	15.5854	...	14.5009	14.3967	0.1041	13.3553	3B	13.5890	13.8760	14.5009	14.6355	0.1346	15.8750
5/8–16 or 0.6250–16	UN	15.8750	1.5875	2A	0.0356	15.8394	15.6007	...	14.8082	14.6863	0.1219	13.9497	2B	14.1478	14.5034	14.8438	15.0012	0.1575	15.8750
				3A	0.0000	15.8750	15.6362	...	14.8438	14.7523	0.0914	13.9852	3B	14.1478	14.3815	14.8438	14.9606	0.1168	15.8750
5/8–18 or 0.6250–18	UNF	15.8750	1.4111	1A	0.0356	15.8394	15.5067	...	14.9225	14.7447	0.1778	14.1580	1B	14.3510	14.6812	14.9581	15.1892	0.2311	15.8750
				2A	0.0356	15.8394	15.6185	...	14.9225	14.8031	0.1194	14.1580	2B	14.3510	14.6812	14.9581	15.1105	0.1524	15.8750
				3A	0.0000	15.8750	15.6540	...	14.9581	14.8692	0.0889	14.1935	3B	14.3510	14.5542	14.9581	15.0724	0.1143	15.8750
5/8–20 or 0.6250–20	UN	15.8750	1.2700	2A	0.0330	15.8420	15.6362	...	15.0165	14.9073	0.1092	14.3307	2B	14.5034	14.7828	15.0495	15.1917	0.1422	15.8750
				3A	0.0000	15.8750	15.6693	...	15.0495	14.9682	0.0813	14.3637	3B	14.5034	14.6964	15.0495	15.1562	0.1067	15.8750
5/8–24 or 0.6250–24	UNEF	15.8750	1.0583	2A	0.0305	15.8445	15.6616	...	15.1562	15.0546	0.1016	14.5847	2B	14.7320	14.9860	15.1867	15.3187	0.1321	15.8750
				3A	0.0000	15.8750	15.6921	...	15.1867	15.1105	0.0762	14.6152	3B	14.7320	14.9073	15.1867	15.2857	0.0991	15.8750
5/8–28 or 0.6250–28	UN	15.8750	0.9071	2A	0.0279	15.8471	15.6820	...	15.2578	15.1613	0.0965	14.7676	2B	14.8844	15.1130	15.2857	15.4102	0.1245	15.8750
				3A	0.0000	15.8750	15.7099	...	15.2857	15.2146	0.0711	14.7955	3B	14.8844	15.0520	15.2857	15.3797	0.0940	15.8750
5/8–32 or 0.6250–32	UN	15.8750	0.7938	2A	0.0279	15.8471	15.6947	...	15.3314	15.2400	0.0914	14.9022	2B	15.0114	15.2146	15.3594	15.4762	0.1168	15.8750
				3A	0.0000	15.8750	15.7226	...	15.3594	15.2908	0.0686	14.9301	3B	15.0114	15.1613	15.3594	15.4483	0.0889	15.8750
11/16–12 or 0.6875–12	UN	17.4625	2.1167	2A	0.0406	17.4219	17.1323	...	16.0477	15.9080	0.1397	14.9022	2B	15.1638	15.6210	16.0884	16.2687	0.1803	17.4625
				3A	0.0000	17.4625	17.1729	...	16.0884	15.9842	0.1041	14.9428	3B	15.1638	15.4559	16.0884	16.2230	0.1346	17.4625
11/16–16 or 0.6875–16	UN	17.4625	1.5875	2A	0.0356	17.4269	17.1882	...	16.3957	16.2738	0.1219	15.5372	2B	15.7480	16.1036	16.4313	16.5913	0.1600	17.4625
				3A	0.0000	17.4625	17.2237	...	16.4313	16.3398	0.0914	15.5727	3B	15.7480	15.9614	16.4313	16.5506	0.1194	17.4625
11/16–20 or 0.6875–20	UN	17.4625	1.2700	2A	0.0330	17.4295	17.2237	...	16.6040	16.4922	0.1118	15.9182	2B	16.0782	16.3830	16.6370	16.7818	0.1448	17.4625
				3A	0.0000	17.4625	17.2568	...	16.6370	16.5532	0.0838	15.9512	3B	16.0782	16.2839	16.6370	16.7462	0.1092	17.4625
11/16–24 or 0.6875–24	UNEF	17.4625	1.0583	2A	0.0305	17.4320	17.2491	...	16.7437	16.6421	0.1016	16.1722	2B	16.3068	16.5608	16.7742	16.9088	0.1346	17.4625
				3A	0.0000	17.4625	17.2796	...	16.7742	16.6980	0.0762	16.2027	3B	16.3068	16.4948	16.7742	16.8732	0.0991	17.4625
11/16–28 or 0.6875–28	UN	17.4625	0.9071	2A	0.0279	17.4346	17.2695	...	16.8453	16.7488	0.0965	16.3551	2B	16.4846	16.6878	16.8732	16.9977	0.1245	17.4625
				3A	0.0000	17.4625	17.2974	...	16.8732	16.7996	0.0737	16.3830	3B	16.4846	16.6395	16.8732	16.9672	0.0940	17.4625

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$^{11}/_{16}$–32 or 0.6875–32	UN	17.4625	0.7938	2A	0.0279	17.4346	17.2822	...	16.9189	16.8275	0.0914	16.4897	2B	16.6116	16.7894	16.9469	17.0663	0.1194	17.4625
				3A	0.0000	17.4625	17.3101	...	16.9469	16.8783	0.0686	16.5176	3B	16.6116	16.7488	16.9469	17.0358	0.0889	17.4625
$^{3}/_{4}$–10 or 0.7500–10	UNC	19.0500	2.5400	1A	0.0457	19.0043	18.5115	...	17.3533	17.1298	0.2235	15.9791	1B	16.3068	16.8402	17.3990	17.6911	0.2921	19.0500
				2A	0.0457	19.0043	18.6766	18.5115	17.3533	17.2034	0.1499	15.9791	2B	16.3068	16.8402	17.3990	17.5946	0.1956	19.0500
				3A	0.0000	19.0500	18.7223	...	17.3990	17.2872	0.1118	16.0249	3B	16.3068	16.6243	17.3990	17.5438	0.1448	19.0500
$^{3}/_{4}$–12 or 0.7500–12	UN	19.0500	2.1167	2A	0.0432	19.0068	18.7173	...	17.6327	17.4930	0.1397	16.4871	2B	16.7640	17.2212	17.6759	17.8587	0.1829	19.0500
				3A	0.0000	19.0500	18.7604	...	17.6759	17.5717	0.1041	16.5303	3B	16.7640	17.0358	17.6759	17.8130	0.1372	19.0500
$^{3}/_{4}$–16 or 0.7500–16	UNF	19.0500	1.5875	1A	0.0381	19.0119	18.6512	...	17.9807	17.7902	0.1905	17.1221	1B	17.3228	17.6784	18.0188	18.2677	0.2489	19.0500
				2A	0.0381	19.0119	18.7731	...	17.9807	17.8537	0.1270	17.1221	2B	17.3228	17.6784	18.0188	18.1839	0.1651	19.0500
				3A	0.0000	19.0500	18.8112	...	18.0188	17.9222	0.0965	17.1602	3B	17.3228	17.5489	18.0188	18.1432	0.1245	19.0500
$^{3}/_{4}$–20 or 0.7500–20	UNEF	19.0500	1.2700	2A	0.0330	19.0170	18.8112	...	18.1915	18.0797	0.1118	17.5057	2B	17.6784	17.9578	18.2245	18.3693	0.1448	19.0500
				3A	0.0000	19.0500	18.8443	...	18.2245	18.1407	0.0838	17.5387	3B	17.6784	17.8714	18.2245	18.3337	0.1092	19.0500
$^{3}/_{4}$–28 or 0.7500–28	UN	19.0500	0.9071	2A	0.0305	19.0195	18.8544	...	18.4302	18.3337	0.0965	17.9400	2B	18.0594	18.2880	18.4607	18.5877	0.1270	19.0500
				3A	0.0000	19.0500	18.8849	...	18.4607	18.3871	0.0737	17.9705	3B	18.0594	18.2270	18.4607	18.5547	0.0940	19.0500
$^{3}/_{4}$–32 or 0.7500–32	UN	19.0500	0.7938	2A	0.0279	19.0221	18.8697	...	18.5064	18.4150	0.0914	18.0772	2B	18.1864	18.3896	18.5344	18.6538	0.1194	19.0500
				3A	0.0000	19.0500	18.8976	...	18.5344	18.4658	0.0686	18.1051	3B	18.1864	18.3363	18.5344	18.6258	0.0914	19.0500
$^{13}/_{16}$–12 or 0.8125–12	UN	20.6375	2.1167	2A	0.0432	20.5943	20.3048	...	19.2202	19.0779	0.1422	18.0746	2B	18.3388	18.7960	19.2634	19.4462	0.1829	20.6375
				3A	0.0000	20.6375	20.3479	...	19.2634	19.1567	0.1067	18.1178	3B	18.3388	18.6157	19.2634	19.4005	0.1372	20.6375
$^{13}/_{16}$–16 or 0.8125–16	UN	20.6375	1.5875	2A	0.0381	20.5994	20.3606	...	19.5682	19.4437	0.1245	18.7096	2B	18.9230	19.2786	19.6063	19.7688	0.1626	20.6375
				3A	0.0000	20.6375	20.3987	...	19.6063	19.5123	0.0940	18.7477	3B	18.9230	19.1364	19.6063	19.7282	0.1219	20.6375
$^{13}/_{16}$–20 or 0.8125–20	UNEF	20.6375	1.2700	2A	0.0330	20.6045	20.3987	...	19.7790	19.6672	0.1118	19.0932	2B	19.2532	19.5580	19.8120	19.9593	0.1473	20.6375
				3A	0.0000	20.6375	20.4318	...	19.8120	19.7282	0.0838	19.1262	3B	19.2532	19.4589	19.8120	19.9212	0.1092	20.6375
$^{13}/_{16}$–28 or 0.8125–28	UN	20.6375	0.9071	2A	0.0305	20.6070	20.4419	...	20.0177	19.9187	0.0991	19.5275	2B	19.6596	19.8628	20.0482	20.1752	0.1270	20.6375
				3A	0.0000	20.6375	20.4724	...	20.0482	19.9746	0.0737	19.5580	3B	19.6596	19.8145	20.0482	20.1447	0.0965	20.6375
$^{13}/_{16}$–32 or 0.8125–32	UN	20.6375	0.7938	2A	0.0279	20.6096	20.4572	...	20.0939	20.0000	0.0940	19.6647	2B	19.7866	19.9644	20.1219	20.2438	0.1219	20.6375
				3A	0.0000	20.6375	20.4851	...	20.1219	20.0508	0.0711	19.6926	3B	19.7866	19.9238	20.1219	20.2133	0.0914	20.6375

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
7/8–9 or 0.8750–9	UNC	22.2250	2.8222	1A	0.0483	22.1767	21.6484	...	20.3429	20.1016	0.2413	18.8163	1B	19.1770	19.7612	20.3911	20.7035	0.3124	22.2250
				2A	0.0483	22.1767	21.8237	21.6484	20.3429	20.1828	0.1600	18.8163	2B	19.1770	19.7612	20.3911	20.5994	0.2083	22.2250
				3A	0.0000	22.2250	21.8719	...	20.3911	20.2717	0.1194	18.8646	3B	19.1770	19.5097	20.3911	20.5461	0.1549	22.2250
7/8–12 or 0.8750–12	UN	22.2250	2.1167	2A	0.0432	22.1818	21.8923	...	20.8077	20.6654	0.1422	19.6621	2B	19.9390	20.3962	20.8509	21.0363	0.1854	22.2250
				3A	0.0000	22.2250	21.9354	...	20.8509	20.7442	0.1067	19.7053	3B	19.9390	20.1981	20.8509	20.9906	0.1397	22.2250
7/8–14 or 0.8750–14	UNF	22.2250	1.8143	1A	0.0406	22.1844	21.7907	...	21.0058	20.8001	0.2057	20.0228	1B	20.2692	20.6502	21.0464	21.3157	0.2692	22.2250
				2A	0.0406	22.1844	21.9227	...	21.0058	20.8686	0.1372	20.0228	2B	20.2692	20.6502	21.0464	21.2242	0.1778	22.2250
				3A	0.0000	22.2250	21.9634	...	21.0464	20.9423	0.1041	20.0635	3B	20.2692	20.4902	21.0464	21.1811	0.1346	22.2250
7/8–16 or 0.8750–16	UN	22.2250	1.5875	2A	0.0381	22.1869	21.9481	...	21.1557	21.0312	0.1245	20.2971	2B	20.4978	20.8534	21.1938	21.3563	0.1626	22.2250
				3A	0.0000	22.2250	21.9862	...	21.1938	21.0998	0.0940	20.3352	3B	20.4978	20.7239	21.1938	21.3157	0.1219	22.2250
7/8–20 or 0.8750–20	UNEF	22.2250	1.2700	2A	0.0330	22.1920	21.9862	...	21.3665	21.2522	0.1143	20.6807	2B	20.8534	21.1328	21.3995	21.5468	0.1473	22.2250
				3A	0.0000	22.2250	22.0193	...	21.3995	21.3131	0.0864	20.7137	3B	20.8534	21.0464	21.3995	21.5113	0.1118	22.2250
7/8–28 or 0.8750–28	UN	22.2250	0.9071	2A	0.0305	22.1945	22.0294	...	21.6052	21.5062	0.0991	21.1150	2B	21.2344	21.4630	21.6357	21.7653	0.1295	22.2250
				3A	0.0000	22.2250	22.0599	...	21.6357	21.5621	0.0737	21.1455	3B	21.2344	21.4020	21.6357	21.7322	0.0965	22.2250
7/8–32 or 0.8750–32	UN	22.2250	0.7938	2A	0.0279	22.1971	22.0447	...	21.6814	21.5875	0.0940	21.2522	2B	21.3614	21.5646	21.7094	21.8313	0.1219	22.2250
				3A	0.0000	22.2250	22.0726	...	21.7094	21.6383	0.0711	21.2801	3B	21.3614	21.5113	21.7094	21.8008	0.0914	22.2250
15/16–12 or 0.9375–12	UN	23.8125	2.1167	2A	0.0432	23.7693	23.4798	...	22.3952	22.2529	0.1422	21.2496	2B	21.5138	21.9710	22.4384	22.6238	0.1854	23.8125
				3A	0.0000	23.8125	23.5229	...	22.4384	22.3317	0.1067	21.2928	3B	21.5138	21.7805	22.4384	22.5781	0.1397	23.8125
15/16–16 or 0.9375–16	UN	23.8125	1.5875	2A	0.0381	23.7744	23.5356	...	22.7432	22.6162	0.1270	21.8846	2B	22.0980	22.4536	22.7813	22.9438	0.1626	23.8125
				3A	0.0000	23.8125	23.5737	...	22.7813	22.6873	0.0940	21.9227	3B	22.0980	22.3114	22.7813	22.9032	0.1219	23.8125
15/16–20 or 0.9375–20	UNEF	23.8125	1.2700	2A	0.0356	23.7769	23.5712	...	22.9514	22.8371	0.1143	22.2656	2B	22.4282	22.7330	22.9870	23.1369	0.1499	23.8125
				3A	0.0000	23.8125	23.6068	...	22.9870	22.9006	0.0864	22.3012	3B	22.4282	22.6339	22.9870	23.0988	0.1118	23.8125
15/16–28 or 0.9375–28	UN	23.8125	0.9071	2A	0.0305	23.7820	23.6169	...	23.1927	23.0937	0.0991	22.7025	2B	22.8346	23.0378	23.2232	23.3528	0.1295	23.8125
				3A	0.0000	23.8125	23.6474	...	23.2232	23.1470	0.0762	22.7330	3B	22.8346	22.9895	23.2232	23.3197	0.0965	23.8125
15/16–32 or 0.9375–32	UN	23.8125	0.7938	2A	0.0279	23.7846	23.6322	...	23.2689	23.1724	0.0965	22.8397	2B	22.9616	23.1394	23.2969	23.4213	0.1245	23.8125
				3A	0.0000	23.8125	23.6601	...	23.2969	23.2258	0.0711	22.8676	3B	22.9616	23.0988	23.2969	23.3909	0.0940	23.8125

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
1–8 or 1.0000–8	UNC	25.4000	3.1750	1A	0.0508	25.3492	24.7777	...	23.2867	23.0302	0.2565	21.5697	1B	21.9710	22.6060	23.3375	23.6728	0.3353	25.4000
				2A	0.0508	25.3492	24.9682	24.7777	23.2867	23.1140	0.1727	21.5697	2B	21.9710	22.6060	23.3375	23.5610	0.2235	25.4000
				3A	0.0000	25.4000	25.0190	...	23.3375	23.2080	0.1295	21.6205	3B	21.9710	22.3444	23.3375	23.5052	0.1676	25.4000
1–12 or 1.0000–12	UNF	25.4000	2.1167	1A	0.0457	25.3543	24.9174	...	23.9801	23.7566	0.2235	22.8346	1B	23.1140	23.5712	24.0259	24.3154	0.2896	25.4000
				2A	0.0457	25.3543	25.0647	...	23.9801	23.8303	0.1499	22.8346	2B	23.1140	23.5712	24.0259	24.2189	0.1930	25.4000
				3A	0.0000	25.4000	25.1104	...	24.0259	23.9141	0.1118	22.8803	3B	23.1140	23.3629	24.0259	24.1706	0.1448	25.4000
1–14 or 1.0000–14	UNS	25.4000	1.8143	2A	0.0406	25.3594	25.0977	...	24.1808	24.0462	0.1346	23.1978	2B	23.4442	23.8252	24.2214	24.3967	0.1753	25.4000
	(7)	...	...	3A	0.0000	25.4000	25.1384	...	24.2214	24.1198	0.1016	23.2385	3B	23.4442	23.6601	24.2214	24.3535	0.1321	25.4000
1–16 or 1.0000–16	UN	25.4000	1.5875	2A	0.0381	25.3619	25.1231	...	24.3307	24.2037	0.1270	23.4721	2B	23.6728	24.0284	24.3688	24.5339	0.1651	25.4000
				3A	0.0000	25.4000	25.1612	...	24.3688	24.2748	0.0940	23.5102	3B	23.6728	23.8989	24.3688	24.4932	0.1245	25.4000
1–20 or 1.0000–20	UNEF	25.4000	1.2700	2A	0.0356	25.3644	25.1587	...	24.5389	24.4246	0.1143	23.8531	2B	24.0284	24.3078	24.5745	24.7244	0.1499	25.4000
				3A	0.0000	25.4000	25.1943	...	24.5745	24.4881	0.0864	23.8887	3B	24.0284	24.2214	24.5745	24.6863	0.1118	25.4000
1–28 or 1.0000–28	UN	25.4000	0.9071	2A	0.0305	25.3695	25.2044	...	24.7802	24.6786	0.1016	24.2900	2B	24.4094	24.6380	24.8107	24.9428	0.1321	25.4000
				3A	0.0000	25.4000	25.2349	...	24.8107	24.7345	0.0762	24.3205	3B	24.4094	24.5770	24.8107	24.9098	0.0991	25.4000
1–32 or 1.0000–32	UN	25.4000	0.7938	2A	0.0279	25.3721	25.2197	...	24.8564	24.7599	0.0965	24.4272	2B	24.5364	24.7396	24.8844	25.0088	0.1245	25.4000
				3A	0.0000	25.4000	25.2476	...	24.8844	24.8133	0.0711	24.4551	3B	24.5364	24.6863	24.8844	24.9784	0.0940	25.4000
$1\frac{1}{16}$–8 or 1.0625–8	UN	26.9875	3.1750	2A	0.0508	26.9367	26.5557	...	24.8742	24.7015	0.1727	23.1572	2B	23.5458	24.1808	24.9250	25.1511	0.2261	26.9875
				3A	0.0000	26.9875	26.6065	...	24.9250	24.7955	0.1295	23.2080	3B	23.5458	23.9319	24.9250	25.0952	0.1702	26.9875
$1\frac{1}{16}$–12 or 1.0625–12	UN	26.9875	2.1167	2A	0.0432	26.9443	26.6548	...	25.5702	25.4254	0.1448	24.4246	2B	24.6888	25.1460	25.6134	25.8013	0.1880	26.9875
				3A	0.0000	26.9875	26.6979	...	25.6134	25.5041	0.1092	24.4678	3B	24.6888	24.9504	25.6134	25.7531	0.1397	26.9875
$1\frac{1}{16}$–16 or 1.0625–16	UN	26.9875	1.5875	2A	0.0381	26.9494	26.7106	...	25.9182	25.7912	0.1270	25.0596	2B	25.2730	25.6286	25.9563	26.1214	0.1651	26.9875
				3A	0.0000	26.9875	26.7487	...	25.9563	25.8597	0.0965	25.0977	3B	25.2730	25.4864	25.9563	26.0807	0.1245	26.9875
$1\frac{1}{16}$–18 or 1.0625–18	UNEF	26.9875	1.4111	2A	0.0356	26.9519	26.7310	...	26.0350	25.9131	0.1219	25.2705	2B	25.4508	25.7810	26.0706	26.2280	0.1575	26.9875
				3A	0.0000	26.9875	26.7665	...	26.0706	25.9791	0.0914	25.3060	3B	25.4508	25.6667	26.0706	26.1899	0.1194	26.9875
$1\frac{1}{16}$–20 or 1.0625–20	UN	26.9875	1.2700	2A	0.0356	26.9519	26.7462	...	26.1264	26.0096	0.1168	25.4406	2B	25.6032	25.9080	26.1620	26.3119	0.1499	26.9875
				3A	0.0000	26.9875	26.7818	...	26.1620	26.0756	0.0864	25.4762	3B	25.6032	25.8089	26.1620	26.2763	0.1143	26.9875

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{1}{16}$–28 or 1.0625–28	UN	26.9875	0.9071	2A	0.0305	26.9570	26.7919	...	26.3677	26.2661	0.1016	25.8775	2B	26.0096	26.2128	26.3982	26.5303	0.1321	26.9875
				3A	0.0000	26.9875	26.8224	...	26.3982	26.3220	0.0762	25.9080	3B	26.0096	26.1645	26.3982	26.4973	0.0991	26.9875
$1\frac{1}{8}$–7 or 1.1250–7	UNC	28.5750	3.6286	1A	0.0559	28.5191	27.8943	...	26.1620	25.8851	0.2769	24.1986	1B	24.6380	25.3492	26.2179	26.5760	0.3581	28.5750
				2A	0.0559	28.5191	28.1026	27.8943	26.1620	25.9766	0.1854	24.1986	2B	24.6380	25.3492	26.2179	26.4566	0.2388	28.5750
				3A	0.0000	28.5750	28.1584	...	26.2179	26.0807	0.1372	24.2545	3B	24.6380	25.0825	26.2179	26.3982	0.1803	28.5750
$1\frac{1}{8}$–8 or 1.1250–8	UN	28.5750	3.1750	2A	0.0533	28.5217	28.1407	27.9502	26.4592	26.2839	0.1753	24.7421	2B	25.1460	25.7810	26.5125	26.7411	0.2286	28.5750
				3A	0.0000	28.5750	28.1940	...	26.5125	26.3804	0.1321	24.7955	3B	25.1460	25.5194	26.5125	26.6827	0.1702	28.5750
$1\frac{1}{8}$–12 or 1.1250–12	UNF	28.5750	2.1167	1A	0.0457	28.5293	28.0924	...	27.1551	26.9265	0.2286	26.0096	1B	26.2890	26.7462	27.2009	27.4980	0.2972	28.5750
				2A	0.0457	28.5293	28.2397	...	27.1551	27.0027	0.1524	26.0096	2B	26.2890	26.7462	27.2009	27.3990	0.1981	28.5750
				3A	0.0000	28.5750	28.2854	...	27.2009	27.0866	0.1143	26.0553	3B	26.2890	26.5379	27.2009	27.3507	0.1499	28.5750
$1\frac{1}{8}$–16 or 1.1250–16	UN	28.5750	1.5875	2A	0.0381	28.5369	28.2981	...	27.5057	27.3787	0.1270	26.6471	2B	26.8478	27.2034	27.5438	27.7114	0.1676	28.5750
				3A	0.0000	28.5750	28.3362	...	27.5438	27.4472	0.0965	26.6852	3B	26.8478	27.0739	27.5438	27.6682	0.1245	28.5750
$1\frac{1}{8}$–18 or 1.1250–18	UNEF	28.5750	1.4111	2A	0.0356	28.5394	28.3185	...	27.6225	27.5006	0.1219	26.8580	2B	27.0510	27.3812	27.6581	27.8155	0.1575	28.5750
				3A	0.0000	28.5750	28.3540	...	27.6581	27.5666	0.0914	26.8935	3B	27.0510	27.2542	27.6581	27.7774	0.1194	28.5750
$1\frac{1}{8}$–20 or 1.1250–20	UN	28.5750	1.2700	2A	0.0356	28.5394	28.3337	...	27.7139	27.5971	0.1168	27.0281	2B	27.2034	27.4828	27.7495	27.9019	0.1524	28.5750
				3A	0.0000	28.5750	28.3693	...	27.7495	27.6606	0.0889	27.0637	3B	27.2034	27.3964	27.7495	27.8638	0.1143	28.5750
$1\frac{1}{8}$–28 or 1.1250–28	UN	28.5750	0.9071	2A	0.0305	28.5445	28.3794	...	27.9552	27.8536	0.1016	27.4650	2B	27.5844	27.8130	27.9857	28.1178	0.1321	28.5750
				3A	0.0000	28.5750	28.4099	...	27.9857	27.9095	0.0762	27.4955	3B	27.5844	27.7520	27.9857	28.0848	0.0991	28.5750
$1\frac{3}{16}$–8 or 1.1875–8	UN	30.1625	3.1750	2A	0.0533	30.1092	29.7282	...	28.0467	27.8689	0.1778	26.3296	2B	26.7208	27.3558	28.1000	28.3312	0.2311	30.1625
				3A	0.0000	30.1625	29.7815	...	28.1000	27.9679	0.1321	26.3830	3B	26.7208	27.1069	28.1000	28.2727	0.1727	30.1625
$1\frac{3}{16}$–12 or 1.1875–12	UN	30.1625	2.1167	2A	0.0432	30.1193	29.8298	...	28.7452	28.6004	0.1448	27.5996	2B	27.8638	28.3210	28.7884	28.9789	0.1905	30.1625
				3A	0.0000	30.1625	29.8729	...	28.7884	28.6791	0.1092	27.6428	3B	27.8638	28.1254	28.7884	28.9306	0.1422	30.1625
$1\frac{3}{16}$–16 or 1.1875–16	UN	30.1625	1.5875	2A	0.0381	30.1244	29.8856	...	29.0932	28.9636	0.1295	28.2346	2B	28.4480	28.8036	29.1313	29.2989	0.1676	30.1625
				3A	0.0000	30.1625	29.9237	...	29.1313	29.0347	0.0965	28.2727	3B	28.4480	28.6614	29.1313	29.2557	0.1245	30.1625
$1\frac{3}{16}$–18 or 1.1875–18	UNEF	30.1625	1.4111	2A	0.0356	30.1269	29.9060	...	29.2100	29.0881	0.1219	28.4455	2B	28.6258	28.9560	29.2456	29.4056	0.1600	30.1625
				3A	0.0000	30.1625	29.9415	...	29.2456	29.1541	0.0914	28.4810	3B	28.6258	28.8417	29.2456	29.3649	0.1194	30.1625
$1\frac{3}{16}$–20 or 1.1875–20	UN	30.1625	1.2700	2A	0.0356	30.1269	29.9212	...	29.3014	29.1846	0.1168	28.6156	2B	28.7782	29.0830	29.3370	29.4894	0.1524	30.1625
				3A	0.0000	30.1625	29.9568	...	29.3370	29.2481	0.0889	28.6512	3B	28.7782	28.9839	29.3370	29.4513	0.1143	30.1625

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{3}{16}$–28 or 1.1875–28	UN	30.1625	0.9071	2A	0.0305	30.1320	29.9669	...	29.5427	29.4386	0.1041	29.0525	2B	29.1846	29.3878	29.5732	29.7078	0.1346	30.1625
				3A	0.0000	30.1625	29.9974	...	29.5732	29.4945	0.0787	29.0830	3B	29.1846	29.3395	29.5732	29.6748	0.1016	30.1625
$1\frac{1}{4}$–7 or 1.2500–7	UNC	31.7500	3.6286	1A	0.0559	31.6941	31.0693	...	29.3370	29.0551	0.2819	27.3736	1B	27.8130	28.5242	29.3929	29.7586	0.3658	31.7500
				2A	0.0559	31.6941	31.2776	31.0693	29.3370	29.1490	0.1880	27.3736	2B	27.8130	28.5242	29.3929	29.6367	0.2438	31.7500
				3A	0.0000	31.7500	31.3334	...	29.3929	29.2532	0.1397	27.4295	3B	27.8130	28.2575	29.3929	29.5758	0.1829	31.7500
$1\frac{1}{4}$–8 or 1.2500–8	UN	31.7500	3.1750	2A	0.0533	31.6967	31.3157	31.1252	29.6342	29.4564	0.1778	27.9171	2B	28.3210	28.9560	29.6875	29.9212	0.2337	31.7500
				3A	0.0000	31.7500	31.3690	...	29.6875	29.5529	0.1346	27.9705	3B	28.3210	28.6944	29.6875	29.8628	0.1753	31.7500
$1\frac{1}{4}$–12 or 1.2500–12	UNF	31.7500	2.1167	1A	0.0457	31.7043	31.2674	...	30.3301	30.0965	0.2337	29.1846	1B	29.4640	29.9212	30.3759	30.6807	0.3048	31.7500
				2A	0.0457	31.7043	31.4147	...	30.3301	30.1727	0.1575	29.1846	2B	29.4640	29.9212	30.3759	30.5791	0.2032	31.7500
				3A	0.0000	31.7500	31.4604	...	30.3759	30.2590	0.1168	29.2303	3B	29.4640	29.7129	30.3759	30.5283	0.1524	31.7500
$1\frac{1}{4}$–16 or 1.2500–16	UN	31.7500	1.5875	2A	0.0381	31.7119	31.4731	...	30.6807	30.5511	0.1295	29.8221	2B	30.0228	30.3784	30.7188	30.8864	0.1676	31.7500
				3A	0.0000	31.7500	31.5112	...	30.7188	30.6222	0.0965	29.8602	3B	30.0228	30.2489	30.7188	30.8458	0.1270	31.7500
$1\frac{1}{4}$–18 or 1.2500–18	UNEF	31.7500	1.4111	2A	0.0381	31.7119	31.4909	...	30.7950	30.6705	0.1245	30.0304	2B	30.2260	30.5562	30.8331	30.9931	0.1600	31.7500
				3A	0.0000	31.7500	31.5290	...	30.8331	30.7416	0.0914	30.0685	3B	30.2260	30.4292	30.8331	30.9524	0.1194	31.7500
$1\frac{1}{4}$–20 or 1.2500–20	UN	31.7500	1.2700	2A	0.0356	31.7144	31.5087	...	30.8889	30.7696	0.1194	30.2031	2B	30.3784	30.6578	30.9245	31.0794	0.1549	31.7500
				3A	0.0000	31.7500	31.5443	...	30.9245	30.8356	0.0889	30.2387	3B	30.3784	30.5714	30.9245	31.0388	0.1143	31.7500
$1\frac{1}{4}$–28 or 1.2500–28	UN	31.7500	0.9071	2A	0.0305	31.7195	31.5544	...	31.1302	31.0261	0.1041	30.6400	2B	30.7594	30.9880	31.1607	31.2953	0.1346	31.7500
				3A	0.0000	31.7500	31.5849	...	31.1607	31.0820	0.0787	30.6705	3B	30.7594	30.9270	31.1607	31.2623	0.1016	31.7500
$1\frac{5}{16}$–8 or 1.3125–8	UN	33.3375	3.1750	2A	0.0533	33.2842	32.9032	...	31.2217	31.0413	0.1803	29.5046	2B	29.8958	30.5308	31.2750	31.5087	0.2337	33.3375
				3A	0.0000	33.3375	32.9565	...	31.2750	31.1404	0.1346	29.5580	3B	29.8958	30.2819	31.2750	31.4503	0.1753	33.3375
$1\frac{5}{16}$–12 or 1.3125–12	UN	33.3375	2.1167	2A	0.0432	33.2943	33.0048	...	31.9202	31.7729	0.1473	30.7746	2B	31.0388	31.4960	31.9634	32.1539	0.1905	33.3375
				3A	0.0000	33.3375	33.0479	...	31.9634	31.8516	0.1118	30.8178	3B	31.0388	31.3004	31.9634	32.1081	0.1448	33.3375
$1\frac{5}{16}$–16 or 1.3125–16	UN	33.3375	1.5875	2A	0.0381	33.2994	33.0606	...	32.2682	32.1386	0.1295	31.4096	2B	31.6230	31.9786	32.3063	32.4764	0.1702	33.3375
				3A	0.0000	33.3375	33.0987	...	32.3063	32.2097	0.0965	31.4477	3B	31.6230	31.8364	32.3063	32.4333	0.1270	33.3375
$1\frac{5}{16}$–18 or 1.3125–18	UNEF	33.3375	1.4111	2A	0.0381	33.2994	33.0784	...	32.3825	32.2580	0.1245	31.6179	2B	31.8008	32.1310	32.4206	32.5831	0.1626	33.3375
				3A	0.0000	33.3375	33.1165	...	32.4206	32.3266	0.0940	31.6560	3B	31.8008	32.0167	32.4206	32.5425	0.1219	33.3375
$1\frac{5}{16}$–20 or 1.3125–20	UN	33.3375	1.2700	2A	0.0356	33.3019	33.0962	...	32.4764	32.3571	0.1194	31.7906	2B	31.9532	32.2580	32.5120	32.6669	0.1549	33.3375
				3A	0.0000	33.3375	33.1318	...	32.5120	32.4231	0.0889	31.8262	3B	31.9532	32.1589	32.5120	32.6288	0.1168	33.3375

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{5}{16}$–28 or 1.3125–28	UN	33.3375	0.9071	2A	0.0305	33.3070	33.1419	...	32.7177	32.6136	0.1041	32.2275	2B	32.3596	32.5628	32.7482	32.8854	0.1372	33.3375
				3A	0.0000	33.3375	33.1724	...	32.7482	32.6695	0.0787	32.2580	3B	32.3596	32.5145	32.7482	32.8498	0.1016	33.3375
$1\frac{3}{8}$–6 or 1.3750–6	UNC	34.9250	4.2333	1A	0.0610	34.8640	34.1706	...	32.1132	31.8084	0.3048	29.8221	1B	30.3530	31.1150	32.1742	32.5679	0.3937	34.9250
				2A	0.0610	34.8640	34.4018	34.1706	32.1132	31.9100	0.2032	29.8221	2B	30.3530	31.1150	32.1742	32.4383	0.2642	34.9250
				3A	0.0000	34.9250	34.4627	...	32.1742	32.0218	0.1524	29.8831	3B	30.3530	30.8508	32.1742	32.3723	0.1981	34.9250
$1\frac{3}{8}$–8 or 1.3750–8	UN	34.9250	3.1750	2A	0.0559	34.8691	34.4881	34.2976	32.8066	32.6238	0.1829	31.0896	2B	31.4960	32.1310	32.8625	33.0987	0.2362	34.9250
				3A	0.0000	34.9250	34.5440	...	32.8625	32.7254	0.1372	31.1455	3B	31.4960	31.8694	32.8625	33.0403	0.1778	34.9250
$1\frac{3}{8}$–12 or 1.3750–12	UNF	34.9250	2.1167	1A	0.0483	34.8767	34.4399	...	33.5026	33.2638	0.2388	32.3571	1B	32.6390	33.0962	33.5509	33.8633	0.3124	34.9250
				2A	0.0483	34.8767	34.5872	...	33.5026	33.3426	0.1600	32.3571	2B	32.6390	33.0962	33.5509	33.7591	0.2083	34.9250
				3A	0.0000	34.9250	34.6354	...	33.5509	33.4315	0.1194	32.4053	3B	32.6390	32.8879	33.5509	33.7058	0.1549	34.9250
$1\frac{3}{8}$–16 or 1.3750–16	UN	34.9250	1.5875	2A	0.0381	34.8869	34.6481	...	33.8557	33.7236	0.1321	32.9971	2B	33.1978	33.5534	33.8938	34.0639	0.1702	34.9250
				3A	0.0000	34.9250	34.6862	...	33.8938	33.7947	0.0991	33.0352	3B	33.1978	33.4239	33.8938	34.0208	0.1270	34.9250
$1\frac{3}{8}$–18 or 1.3750–18	UNEF	34.9250	1.4111	2A	0.0381	34.8869	34.6659	...	33.9700	33.8455	0.1245	33.2054	2B	33.4010	33.7312	34.0081	34.1706	0.1626	34.9250
				3A	0.0000	34.9250	34.7040	...	34.0081	33.9141	0.0940	33.2435	3B	33.4010	33.6042	34.0081	34.1300	0.1219	34.9250
$1\frac{3}{8}$–20 or 1.3750–20	UN	34.9250	1.2700	2A	0.0356	34.8894	34.6837	...	34.0639	33.9446	0.1194	33.3781	2B	33.5534	33.8328	34.0995	34.2544	0.1549	34.9250
				3A	0.0000	34.9250	34.7193	...	34.0995	34.0106	0.0889	33.4137	3B	33.5534	33.7464	34.0995	34.2163	0.1168	34.9250
$1\frac{3}{8}$–28 or 1.3750–28	UN	34.9250	0.9071	2A	0.0305	34.8945	34.7294	...	34.3052	34.2011	0.1041	33.8150	2B	33.9344	34.1630	34.3357	34.4729	0.1372	34.9250
				3A	0.0000	34.9250	34.7599	...	34.3357	34.2570	0.0787	33.8455	3B	33.9344	34.1020	34.3357	34.4373	0.1016	34.9250
$1\frac{7}{16}$–6 or 1.4375–6	UN	36.5125	4.2333	2A	0.0610	36.4515	35.9893	...	33.7007	33.4975	0.2032	31.4096	2B	31.9278	32.7152	33.7617	34.0258	0.2642	36.5125
				3A	0.0000	36.5125	36.0502	...	33.7617	33.6093	0.1524	31.4706	3B	31.9278	32.4383	33.7617	33.9598	0.1981	36.5125
$1\frac{7}{16}$–8 or 1.4375–8	UN	36.5125	3.1750	2A	0.0559	36.4566	36.0756	...	34.3941	34.2113	0.1829	32.6771	2B	33.0708	33.7058	34.4500	34.6888	0.2388	36.5125
				3A	0.0000	36.5125	36.1315	...	34.4500	34.3129	0.1372	32.7330	3B	33.0708	33.4569	34.4500	34.6304	0.1803	36.5125
$1\frac{7}{16}$–12 or 1.4375–12	UN	36.5125	2.1167	2A	0.0457	36.4668	36.1772	...	35.0926	34.9428	0.1499	33.9471	2B	34.2138	34.6710	35.1384	35.3314	0.1930	36.5125
				3A	0.0000	36.5125	36.2229	...	35.1384	35.0266	0.1118	33.9928	3B	34.2138	34.4754	35.1384	35.2831	0.1448	36.5125
$1\frac{7}{16}$–16 or 1.4375–16	UN	36.5125	1.5875	2A	0.0406	36.4719	36.2331	...	35.4406	35.3085	0.1321	34.5821	2B	34.7980	35.1536	35.4813	35.6514	0.1702	36.5125
				3A	0.0000	36.5125	36.2737	...	35.4813	35.3822	0.0991	34.6227	3B	34.7980	35.0114	35.4813	35.6108	0.1295	36.5125
$1\frac{7}{16}$–18 or 1.4375–18	UNEF	36.5125	1.4111	2A	0.0381	36.4744	36.2534	...	35.5575	35.4330	0.1245	34.7929	2B	34.9758	35.3060	35.5956	35.7581	0.1626	36.5125
				3A	0.0000	36.5125	36.2915	...	35.5956	35.5016	0.0940	34.8310	3B	34.9758	35.1917	35.5956	35.7175	0.1219	36.5125

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)]		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance	(Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Diameter, Min.
$1\frac{7}{16}$–20 or 1.4375–20	UN	36.5125	1.2700	2A	0.0356	36.4769	36.2712	...	35.6514	35.5321	0.1194	34.9656	2B	35.1282	35.4330	35.6870	35.8445	0.1575	36.5125
				3A	0.0000	36.5125	36.3068	...	35.6870	35.5956	0.0914	35.0012	3B	35.1282	35.3339	35.6870	35.8038	0.1168	36.5125
$1\frac{7}{16}$–28 or 1.4375–28	UN	36.5125	0.9071	2A	0.0330	36.4795	36.3144	...	35.8902	35.7835	0.1067	35.4000	2B	35.5346	35.7378	35.9232	36.0604	0.1372	36.5125
				3A	0.0000	36.5125	36.3474	...	35.9232	35.8445	0.0787	35.4330	3B	35.5346	35.6895	35.9232	36.0274	0.1041	36.5125
$1\frac{1}{2}$–6 or 1.5000–6	UNC	38.1000	4.2333	1A	0.0610	38.0390	37.3456	...	35.2882	34.9809	0.3073	32.9971	1B	33.5280	34.2900	35.3492	35.7505	0.4013	38.1000
				2A	0.0610	38.0390	37.5768	37.3456	35.2882	35.0825	0.2057	32.9971	2B	33.5280	34.2900	35.3492	35.6159	0.2667	38.1000
				3A	0.0000	38.1000	37.6377	...	35.3492	35.1942	0.1549	33.0581	3B	33.5280	34.0258	35.3492	35.5498	0.2007	38.1000
$1\frac{1}{2}$–8 or 1.5000–8	UN	38.1000	3.1750	2A	0.0559	38.0441	37.6631	37.4726	35.9816	35.7962	0.1854	34.2646	2B	34.6710	35.3060	36.0375	36.2788	0.2413	38.1000
				3A	0.0000	38.1000	37.7190	...	36.0375	35.8978	0.1397	34.3205	3B	34.6710	35.0444	36.0375	36.2179	0.1803	38.1000
$1\frac{1}{2}$–12 or 1.5000–12	UNF	38.1000	2.1167	1A	0.0483	38.0517	37.6149	...	36.6776	36.4338	0.2438	35.5321	1B	35.8140	36.2712	36.7259	37.0434	0.3175	38.1000
				2A	0.0483	38.0517	37.7622	...	36.6776	36.5150	0.1626	35.5321	2B	35.8140	36.2712	36.7259	36.9367	0.2108	38.1000
				3A	0.0000	38.1000	37.8104	...	36.7259	36.6039	0.1219	35.5803	3B	35.8140	36.0629	36.7259	36.8859	0.1600	38.1000
$1\frac{1}{2}$–16 or 1.5000–16	UN	38.1000	1.5875	2A	0.0406	38.0594	37.8206	...	37.0281	36.8960	0.1321	36.1696	2B	36.3728	36.7284	37.0688	37.2415	0.1727	38.1000
				3A	0.0000	38.1000	37.8612	...	37.0688	36.9697	0.0991	36.2102	3B	36.3728	36.5989	37.0688	37.1983	0.1295	38.1000
$1\frac{1}{2}$–18 or 1.5000–18	UNEF	38.1000	1.4111	2A	0.0381	38.0619	37.8409	...	37.1450	37.0180	0.1270	36.3804	2B	36.5760	36.9062	37.1831	37.3482	0.1651	38.1000
				3A	0.0000	38.1000	37.8790	...	37.1831	37.0891	0.0940	36.4185	3B	36.5760	36.7792	37.1831	37.3050	0.1219	38.1000
$1\frac{1}{2}$–20 or 1.5000–20	UN	38.1000	1.2700	2A	0.0356	38.0644	37.8587	...	37.2389	37.1170	0.1219	36.5531	2B	36.7284	37.0078	37.2745	37.4320	0.1575	38.1000
				3A	0.0000	38.1000	37.8943	...	37.2745	37.1831	0.0914	36.5887	3B	36.7284	36.9214	37.2745	37.3913	0.1168	38.1000
$1\frac{1}{2}$–28 or 1.5000–28	UN	38.1000	0.9071	2A	0.0330	38.0670	37.9019	...	37.4777	37.3710	0.1067	36.9875	2B	37.1094	37.3380	37.5107	37.6504	0.1397	38.1000
				3A	0.0000	38.1000	37.9349	...	37.5107	37.4320	0.0787	37.0205	3B	37.1094	37.2770	37.5107	37.6149	0.1041	38.1000
$1\frac{9}{16}$–6 or 1.5625–6	UN	39.6875	4.2333	2A	0.0610	39.6265	39.1643	...	36.8757	36.6674	0.2083	34.5846	2B	35.1028	35.8902	36.9367	37.2059	0.2692	39.6875
				3A	0.0000	39.6875	39.2252	...	36.9367	36.7817	0.1549	34.6456	3B	35.1028	35.6133	36.9367	37.1399	0.2032	39.6875
$1\frac{9}{16}$–8 or 1.5625–8	UN	39.6875	3.1750	2A	0.0559	39.6316	39.2506	...	37.5691	37.3812	0.1880	35.8521	2B	36.2458	36.8808	37.6250	37.8689	0.2438	39.6875
				3A	0.0000	39.6875	39.3065	...	37.6250	37.4853	0.1397	35.9080	3B	36.2458	36.6319	37.6250	37.8079	0.1829	39.6875
$1\frac{9}{16}$–12 or 1.5625–12	UN	39.6875	2.1167	2A	0.0457	39.6418	39.3522	...	38.2676	38.1178	0.1499	37.1221	2B	37.3888	37.8460	38.3134	38.5089	0.1956	39.6875
				3A	0.0000	39.6875	39.3979	...	38.3134	38.2016	0.1118	37.1678	3B	37.3888	37.6504	38.3134	38.4607	0.1473	39.6875
$1\frac{9}{16}$–16 or 1.5625–16	UN	39.6875	1.5875	2A	0.0406	39.6469	39.4081	...	38.6156	38.4835	0.1321	37.7571	2B	37.9730	38.3286	38.6563	38.8290	0.1727	39.6875
				3A	0.0000	39.6875	39.4487	...	38.6563	38.5572	0.0991	37.7977	3B	37.9730	38.1864	38.6563	38.7858	0.1295	39.6875

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{9}{16}$–18 or 1.5625–18	UNEF	39.6875	1.4111	2A	0.0381	39.6494	39.4284	...	38.7325	38.6055	0.1270	37.9679	2B	38.1508	38.4810	38.7706	38.9357	0.1651	39.6875
				3A	0.0000	39.6875	39.4665	...	38.7706	38.6766	0.0940	38.0060	3B	38.1508	38.3667	38.7706	38.8950	0.1245	39.6875
$1\frac{9}{16}$–20 or 1.5625–20	UN	39.6875	1.2700	2A	0.0356	39.6519	39.4462	...	38.8264	38.7045	0.1219	38.1406	2B	38.3032	38.6080	38.8620	39.0195	0.1575	39.6875
				3A	0.0000	39.6875	39.4818	...	38.8620	38.7706	0.0914	38.1762	3B	38.3032	38.5089	38.8620	38.9814	0.1194	39.6875
$1\frac{5}{8}$–6 or 1.6250–6	UN	41.2750	4.2333	2A	0.0635	41.2115	40.7492	...	38.4607	38.2524	0.2083	36.1696	2B	36.7030	37.4650	38.5242	38.7960	0.2718	41.2750
				3A	0.0000	41.2750	40.8127	...	38.5242	38.3667	0.1575	36.2331	3B	36.7030	37.2008	38.5242	38.7274	0.2032	41.2750
$1\frac{5}{8}$–8 or 1.6250–8	UN	41.2750	3.1750	2A	0.0559	41.2191	40.8381	40.6476	39.1566	38.9687	0.1880	37.4396	2B	37.8460	38.4810	39.2125	39.4589	0.2464	41.2750
				3A	0.0000	41.2750	40.8940	...	39.2125	39.0703	0.1422	37.4955	3B	37.8460	38.2194	39.2125	39.3954	0.1829	41.2750
$1\frac{5}{8}$–12 or 1.6250–12	UN	41.2750	2.1167	2A	0.0457	41.2293	40.9397	...	39.8551	39.7053	0.1499	38.7096	2B	38.9890	39.4462	39.9009	40.0964	0.1956	41.2750
				3A	0.0000	41.2750	40.9854	...	39.9009	39.7891	0.1118	38.7553	3B	38.9890	39.2379	39.9009	40.0482	0.1473	41.2750
$1\frac{5}{8}$–16 or 1.6250–16	UN	41.2750	1.5875	2A	0.0406	41.2344	40.9956	...	40.2031	40.0685	0.1346	39.3446	2B	39.5478	39.9034	40.2438	40.4165	0.1727	41.2750
				3A	0.0000	41.2750	41.0362	...	40.2438	40.1447	0.0991	39.3852	3B	39.5478	39.7739	40.2438	40.3733	0.1295	41.2750
$1\frac{5}{8}$–18 or 1.6250–18	UNEF	41.2750	1.4111	2A	0.0381	41.2369	41.0159	...	40.3200	40.1930	0.1270	39.5554	2B	39.7510	40.0812	40.3581	40.5232	0.1651	41.2750
				3A	0.0000	41.2750	41.0540	...	40.3581	40.2615	0.0965	39.5935	3B	39.7510	39.9542	40.3581	40.4825	0.1245	41.2750
$1\frac{5}{8}$–20 or 1.6250–20	UN	41.2750	1.2700	2A	0.0356	41.2394	41.0337	...	40.4139	40.2920	0.1219	39.7281	2B	39.9034	40.1828	40.4495	40.6070	0.1575	41.2750
				3A	0.0000	41.2750	41.0693	...	40.4495	40.3581	0.0914	39.7637	3B	39.9034	40.0964	40.4495	40.5689	0.1194	41.2750
$1\frac{11}{16}$–6 or 1.6875–6	UN	42.8625	4.2333	2A	0.0635	42.7990	42.3367	...	40.0482	39.8374	0.2108	37.7571	2B	38.2778	39.0652	40.1117	40.3860	0.2743	42.8625
				3A	0.0000	42.8625	42.4002	...	40.1117	39.9542	0.1575	37.8206	3B	38.2778	38.7883	40.1117	40.3174	0.2057	42.8625
$1\frac{11}{16}$–8 or 1.6875–8	UN	42.8625	3.1750	2A	0.0559	42.8066	42.4256	...	40.7441	40.5536	0.1905	39.0271	2B	39.4208	40.0558	40.8000	41.0464	0.2464	42.8625
				3A	0.0000	42.8625	42.4815	...	40.8000	40.6578	0.1422	39.0830	3B	39.4208	39.8069	40.8000	40.9854	0.1854	42.8625
$1\frac{11}{16}$–12 or 1.6875–12	UN	42.8625	2.1167	2A	0.0457	42.8168	42.5272	...	41.4426	41.2928	0.1499	40.2971	2B	40.5638	41.0210	41.4884	41.6839	0.1956	42.8625
				3A	0.0000	42.8625	42.5729	...	41.4884	41.3741	0.1143	40.3428	3B	40.5638	40.8254	41.4884	41.6357	0.1473	42.8625
$1\frac{11}{16}$–16 or 1.6875–16	UN	42.8625	1.5875	2A	0.0406	42.8219	42.5831	...	41.7906	41.6560	0.1346	40.9321	2B	41.1480	41.5036	41.8313	42.0065	0.1753	42.8625
				3A	0.0000	42.8625	42.6237	...	41.8313	41.7297	0.1016	40.9727	3B	41.1480	41.3614	41.8313	41.9608	0.1295	42.8625
$1\frac{11}{16}$–18 or 1.6875–18	UNEF	42.8625	1.4111	2A	0.0381	42.8244	42.6034	...	41.9075	41.7805	0.1270	41.1429	2B	41.3258	41.6560	41.9456	42.1107	0.1651	42.8625
				3A	0.0000	42.8625	42.6415	...	41.9456	41.8490	0.0965	41.1810	3B	41.3258	41.5417	41.9456	42.0700	0.1245	42.8625
$1\frac{11}{16}$–20 or 1.6875–20	UN	42.8625	1.2700	2A	0.0356	42.8269	42.6212	...	42.0014	41.8795	0.1219	41.3156	2B	41.4782	41.7830	42.0370	42.1970	0.1600	42.8625
				3A	0.0000	42.8625	42.6568	...	42.0370	41.9456	0.0914	41.3512	3B	41.4782	41.6839	42.0370	42.1564	0.1194	42.8625

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)]		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance	(Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Diameter, Min.
$1\frac{3}{4}$–5 or 1.7500–5	UNC	44.4500	5.0800	1A	0.0686	44.3814	43.5991	...	41.0820	40.7416	0.3404	38.3311	1B	38.9382	39.8018	41.1505	41.5925	0.4420	44.4500
				2A	0.0686	44.3814	43.8607	43.5991	41.0820	40.8559	0.2261	38.3311	2B	38.9382	39.8018	41.1505	41.4452	0.2946	44.4500
				3A	0.0000	44.4500	43.9293	...	41.1505	40.9804	0.1702	38.3997	3B	38.9382	39.5605	41.1505	41.3715	0.2210	44.4500
$1\frac{3}{4}$–6 or 1.7500–6	UN	44.4500	4.2333	2A	0.0635	44.3865	43.9242	...	41.6357	41.4249	0.2108	39.3446	2B	39.8780	40.6400	41.6992	41.9735	0.2743	44.4500
				3A	0.0000	44.4500	43.9877	...	41.6992	41.5392	0.1600	39.4081	3B	39.8780	40.3758	41.6992	41.9049	0.2057	44.4500
$1\frac{3}{4}$–8 or 1.7500–8	UN	44.4500	3.1750	2A	0.0584	44.3916	44.0106	43.8201	42.3291	42.1386	0.1905	40.6121	2B	41.0210	41.6560	42.3875	42.6364	0.2489	44.4500
				3A	0.0000	44.4500	44.0690	...	42.3875	42.2427	0.1448	40.6705	3B	41.0210	41.3944	42.3875	42.5755	0.1880	44.4500
$1\frac{3}{4}$–12 or 1.7500–12	UN	44.4500	2.1167	2A	0.0457	44.4043	44.1147	...	43.0301	42.8777	0.1524	41.8846	2B	42.1640	42.6212	43.0759	43.2740	0.1981	44.4500
				3A	0.0000	44.4500	44.1604	...	43.0759	42.9616	0.1143	41.9303	3B	42.1640	42.4129	43.0759	43.2232	0.1473	44.4500
$1\frac{3}{4}$–16 or 1.7500–16	UN	44.4500	1.5875	2A	0.0406	44.4094	44.1706	...	43.3781	43.2435	0.1346	42.5196	2B	42.7228	43.0784	43.4188	43.5940	0.1753	44.4500
				3A	0.0000	44.4500	44.2112	...	43.4188	43.3172	0.1016	42.5602	3B	42.7228	42.9489	43.4188	43.5508	0.1321	44.4500
$1\frac{3}{4}$–20 or 1.7500–20	UN	44.4500	1.2700	2A	0.0381	44.4119	44.2062	...	43.5864	43.4619	0.1245	42.9006	2B	43.0784	43.3578	43.6245	43.7845	0.1600	44.4500
				3A	0.0000	44.4500	44.2443	...	43.6245	43.5331	0.0914	42.9387	3B	43.0784	43.2714	43.6245	43.7439	0.1194	44.4500
$1\frac{13}{16}$–6 or 1.8125–6	UN	46.0375	4.2333	2A	0.0635	45.9740	45.5117	...	43.2232	43.0098	0.2134	40.9321	2B	41.4528	42.2402	43.2867	43.5635	0.2769	46.0375
				3A	0.0000	46.0375	45.5752	...	43.2867	43.1267	0.1600	40.9956	3B	41.4528	41.9633	43.2867	43.4950	0.2083	46.0375
$1\frac{13}{16}$–8 or 1.8125–8	UN	46.0375	3.1750	2A	0.0584	45.9791	45.5981	...	43.9166	43.7236	0.1930	42.1996	2B	42.5958	43.2308	43.9750	44.2265	0.2515	46.0375
				3A	0.0000	46.0375	45.6565	...	43.9750	43.8302	0.1448	42.2580	3B	42.5958	42.9819	43.9750	44.1630	0.1880	46.0375
$1\frac{13}{16}$–12 or 1.8125–12	UN	46.0375	2.1167	2A	0.0457	45.9918	45.7022	...	44.6176	44.4652	0.1524	43.4721	2B	43.7388	44.1960	44.6634	44.8615	0.1981	46.0375
				3A	0.0000	46.0375	45.7479	...	44.6634	44.5491	0.1143	43.5178	3B	43.7388	44.0004	44.6634	44.8107	0.1473	46.0375
$1\frac{13}{16}$–16 or 1.8125–16	UN	46.0375	1.5875	2A	0.0406	45.9969	45.7581	...	44.9656	44.8310	0.1346	44.1071	2B	44.3230	44.6786	45.0063	45.1815	0.1753	46.0375
				3A	0.0000	46.0375	45.7987	...	45.0063	44.9047	0.1016	44.1477	3B	44.3230	44.5364	45.0063	45.1383	0.1321	46.0375
$1\frac{13}{16}$–20 or 1.8125–20	UN	46.0375	1.2700	2A	0.0381	45.9994	45.7937	...	45.1739	45.0494	0.1245	44.4881	2B	44.6532	44.9580	45.2120	45.3720	0.1600	46.0375
				3A	0.0000	46.0375	45.8318	...	45.2120	45.1180	0.0940	44.5262	3B	44.6532	44.8589	45.2120	45.3314	0.1194	46.0375
$1\frac{7}{8}$–6 or 1.8750–6	UN	47.6250	4.2333	2A	0.0635	47.5615	47.0992	...	44.8107	44.5973	0.2134	42.5196	2B	43.0530	43.8150	44.8742	45.1536	0.2794	47.6250
				3A	0.0000	47.6250	47.1627	...	44.8742	44.7142	0.1600	42.5831	3B	43.0530	43.5508	44.8742	45.0825	0.2083	47.6250
$1\frac{7}{8}$–8 or 1.8750–8	UN	47.6250	3.1750	2A	0.0584	47.5666	47.1856	46.9951	45.5041	45.3085	0.1956	43.7871	2B	44.1960	44.8310	45.5625	45.8165	0.2540	47.6250
				3A	0.0000	47.6250	47.2440	...	45.5625	45.4177	0.1448	43.8455	3B	44.1960	44.5694	45.5625	45.7530	0.1905	47.6250

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{7}{8}$–12 or 1.8750–12	UN	47.6250	2.1167	2A	0.0457	47.5793	47.2897	...	46.2051	46.0527	0.1524	45.0596	2B	45.3390	45.7962	46.2509	46.4490	0.1981	47.6250
				3A	0.0000	47.6250	47.3354	...	46.2509	46.1366	0.1143	45.1053	3B	45.3390	45.5879	46.2509	46.4007	0.1499	47.6250
$1\frac{7}{8}$–16 or 1.8750–16	UN	47.6250	1.5875	2A	0.0406	47.5844	47.3456	...	46.5531	46.4185	0.1346	45.6946	2B	45.8978	46.2534	46.5938	46.7690	0.1753	47.6250
				3A	0.0000	47.6250	47.3862	...	46.5938	46.4922	0.1016	45.7352	3B	45.8978	46.1239	46.5938	46.7258	0.1321	47.6250
$1\frac{7}{8}$–20 or 1.8750–20	UN	47.6250	1.2700	2A	0.0381	47.5869	47.3812	...	46.7614	46.6369	0.1245	46.0756	2B	46.2534	46.5328	46.7995	46.9621	0.1626	47.6250
				3A	0.0000	47.6250	47.4193	...	46.7995	46.7055	0.0940	46.1137	3B	46.2534	46.4464	46.7995	46.9214	0.1219	47.6250
$1\frac{15}{16}$–6 or 1.9375–6	UN	49.2125	4.2333	2A	0.0660	49.1465	48.6842	...	46.3956	46.1797	0.2159	44.1046	2B	44.6278	45.4152	46.4617	46.7436	0.2819	49.2125
				3A	0.0000	49.2125	48.7502	...	46.4617	46.2991	0.1626	44.1706	3B	44.6278	45.1383	46.4617	46.6725	0.2108	49.2125
$1\frac{15}{16}$–8 or 1.9375–8	UN	49.2125	3.1750	2A	0.0584	49.1541	48.7731	...	47.0916	46.8960	0.1956	45.3746	2B	45.7708	46.4058	47.1500	47.4040	0.2540	49.2125
				3A	0.0000	49.2125	48.8315	...	47.1500	47.0027	0.1473	45.4330	3B	45.7708	46.1569	47.1500	47.3405	0.1905	49.2125
$1\frac{15}{16}$–12 or 1.9375–12	UN	49.2125	2.1167	2A	0.0457	49.1668	48.8772	...	47.7926	47.6402	0.1524	46.6471	2B	46.9138	47.3710	47.8384	48.0365	0.1981	49.2125
				3A	0.0000	49.2125	48.9229	...	47.8384	47.7241	0.1143	46.6928	3B	46.9138	47.1754	47.8384	47.9882	0.1499	49.2125
$1\frac{15}{16}$–16 or 1.9375–16	UN	49.2125	1.5875	2A	0.0406	49.1719	48.9331	...	48.1406	48.0035	0.1372	47.2821	2B	47.4980	47.8536	48.1813	48.3591	0.1778	49.2125
				3A	0.0000	49.2125	48.9737	...	48.1813	48.0797	0.1016	47.3227	3B	47.4980	47.7114	48.1813	48.3133	0.1321	49.2125
$1\frac{15}{16}$–20 or 1.9375–20	UN	49.2125	1.2700	2A	0.0381	49.1744	48.9687	...	48.3489	48.2244	0.1245	47.6631	2B	47.8282	48.1330	48.3870	48.5496	0.1626	49.2125
				3A	0.0000	49.2125	49.0068	...	48.3870	48.2930	0.0940	47.7012	3B	47.8282	48.0339	48.3870	48.5089	0.1219	49.2125
2–4.5 or 2.0000–4.5	UNC	50.8000	5.6444	1A	0.0737	50.7263	49.8881	...	47.0611	46.6979	0.3632	44.0055	1B	44.6786	45.5930	47.1348	47.6072	0.4724	50.8000
				2A	0.0737	50.7263	50.1675	49.8881	47.0611	46.8198	0.2413	44.0055	2B	44.6786	45.5930	47.1348	47.4497	0.3150	50.8000
				3A	0.0000	50.8000	50.2412	...	47.1348	46.9544	0.1803	44.0792	3B	44.6786	45.3669	47.1348	47.3710	0.2362	50.8000
2–6 or 2.0000–6	UN	50.8000	4.2333	2A	0.0660	50.7340	50.2717	...	47.9831	47.7647	0.2184	45.6921	2B	46.2280	46.9900	48.0492	48.3311	0.2819	50.8000
				3A	0.0000	50.8000	50.3377	...	48.0492	47.8866	0.1626	45.7581	3B	46.2280	46.7258	48.0492	48.2600	0.2108	50.8000
2–8 or 2.0000–8	UN	50.8000	3.1750	2A	0.0584	50.7416	50.3606	50.1701	48.6791	48.4810	0.1981	46.9621	2B	47.3710	48.0060	48.7375	48.9941	0.2565	50.8000
				3A	0.0000	50.8000	50.4190	...	48.7375	48.5902	0.1473	47.0205	3B	47.3710	47.7444	48.7375	48.9306	0.1930	50.8000
2–12 or 2.0000–12	UN	50.8000	2.1167	2A	0.0457	50.7543	50.4647	...	49.3801	49.2252	0.1549	48.2346	2B	48.5140	48.9712	49.4259	49.6265	0.2007	50.8000
				3A	0.0000	50.8000	50.5104	...	49.4259	49.3116	0.1143	48.2803	3B	48.5140	48.7629	49.4259	49.5757	0.1499	50.8000
2–16 or 2.0000–16	UN	50.8000	1.5875	2A	0.0406	50.7594	50.5206	...	49.7281	49.5910	0.1372	48.8696	2B	49.0728	49.4284	49.7688	49.9466	0.1778	50.8000
				3A	0.0000	50.8000	50.5612	...	49.7688	49.6672	0.1016	48.9102	3B	49.0728	49.2989	49.7688	49.9008	0.1321	50.8000

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
2–20 or 2.0000–20	UN	50.8000	1.2700	2A	0.0381	50.7619	50.5562	...	49.9364	49.8119	0.1245	49.2506	2B	49.4284	49.7078	49.9745	50.1371	0.1626	50.8000
				3A	0.0000	50.8000	50.5943	...	49.9745	49.8805	0.0940	49.2887	3B	49.4284	49.6214	49.9745	50.0964	0.1219	50.8000
$2\frac{1}{8}$–6 or 2.1250–6	UN	53.9750	4.2333	2A	0.0660	53.9090	53.4467	...	51.1581	50.9372	0.2210	48.8671	2B	49.4030	50.1650	51.2242	51.5112	0.2870	53.9750
				3A	0.0000	53.9750	53.5127	...	51.2242	51.0591	0.1651	48.9331	3B	49.4030	49.9008	51.2242	51.4375	0.2134	53.9750
$2\frac{1}{8}$–8 or 2.1250–8	UN	53.9750	3.1750	2A	0.0610	53.9140	53.5330	53.3425	51.8516	51.6509	0.2007	50.1345	2B	50.5460	51.1810	51.9125	52.1716	0.2591	53.9750
				3A	0.0000	53.9750	53.5940	...	51.9125	51.7627	0.1499	50.1955	3B	50.5460	50.9194	51.9125	52.1081	0.1956	53.9750
$2\frac{1}{8}$–12 or 2.1250–12	UN	53.9750	2.1167	2A	0.0457	53.9293	53.6397	...	52.5551	52.4002	0.1549	51.4096	2B	51.6890	52.1462	52.6009	52.8015	0.2007	53.9750
				3A	0.0000	53.9750	53.6854	...	52.6009	52.4840	0.1168	51.4553	3B	51.6890	51.9379	52.6009	52.7507	0.1499	53.9750
$2\frac{1}{8}$–16 or 2.1250–16	UN	53.9750	1.5875	2A	0.0406	53.9344	53.6956	...	52.9031	52.7660	0.1372	52.0446	2B	52.2478	52.6034	52.9438	53.1216	0.1778	53.9750
				3A	0.0000	53.9750	53.7362	...	52.9438	52.8396	0.1041	52.0852	3B	52.2478	52.4739	52.9438	53.0784	0.1346	53.9750
$2\frac{1}{8}$–20 or 2.1250–20	UN	53.9750	1.2700	2A	0.0381	53.9369	53.7312	...	53.1114	52.9844	0.1270	52.4256	2B	52.6034	52.8828	53.1495	53.3146	0.1651	53.9750
				3A	0.0000	53.9750	53.7693	...	53.1495	53.0555	0.0940	52.4637	3B	52.6034	52.7964	53.1495	53.2714	0.1219	53.9750
$2\frac{1}{4}$–4.5 or 2.2500–4.5	UNC	57.1500	5.6444	1A	0.0737	57.0763	56.2381	...	53.4111	53.0403	0.3708	50.3555	1B	51.0286	51.9430	53.4848	53.9674	0.4826	57.1500
				2A	0.0737	57.0763	56.5175	56.2381	53.4111	53.1647	0.2464	50.3555	2B	51.0286	51.9430	53.4848	53.8048	0.3200	57.1500
				3A	0.0000	57.1500	56.5912	...	53.4848	53.2994	0.1854	50.4292	3B	51.0286	51.7169	53.4848	53.7261	0.2413	57.1500
$2\frac{1}{4}$–6 or 2.2500–6	UN	57.1500	4.2333	2A	0.0660	57.0840	56.6217	...	54.3331	54.1096	0.2235	52.0421	2B	52.5780	53.3400	54.3992	54.6887	0.2896	57.1500
				3A	0.0000	57.1500	56.6877	...	54.3992	54.2315	0.1676	52.1081	3B	52.5780	53.0758	54.3992	54.6151	0.2159	57.1500
$2\frac{1}{4}$–8 or 2.2500–8	UN	57.1500	3.1750	2A	0.0610	57.0890	56.7080	56.5175	55.0266	54.8234	0.2032	53.3095	2B	53.7210	54.3560	55.0875	55.3517	0.2642	57.1500
				3A	0.0000	57.1500	56.7690	...	55.0875	54.9351	0.1524	53.3705	3B	53.7210	54.0944	55.0875	55.2856	0.1981	57.1500
$2\frac{1}{4}$–12 or 2.2500–12	UN	57.1500	2.1167	2A	0.0457	57.1043	56.8147	...	55.7301	55.5752	0.1549	54.5846	2B	54.8640	55.3212	55.7759	55.9791	0.2032	57.1500
				3A	0.0000	57.1500	56.8604	...	55.7759	55.6590	0.1168	54.6303	3B	54.8640	55.1129	55.7759	55.9283	0.1524	57.1500
$2\frac{1}{4}$–16 or 2.2500–16	UN	57.1500	1.5875	2A	0.0406	57.1094	56.8706	...	56.0781	55.9384	0.1397	55.2196	2B	55.4228	55.7784	56.1188	56.2991	0.1803	57.1500
				3A	0.0000	57.1500	56.9112	...	56.1188	56.0146	0.1041	55.2602	3B	55.4228	55.6489	56.1188	56.2534	0.1346	57.1500
$2\frac{1}{4}$–20 or 2.2500–20	UN	57.1500	1.2700	2A	0.0381	57.1119	56.9062	...	56.2864	56.1594	0.1270	55.6006	2B	55.7784	56.0578	56.3245	56.4896	0.1651	57.1500
				3A	0.0000	57.1500	56.9443	...	56.3245	56.2280	0.0965	55.6387	3B	55.7784	55.9714	56.3245	56.4490	0.1245	57.1500
$2\frac{3}{8}$–6 or 2.3750–6	UN	60.3250	4.2333	2A	0.0686	60.2564	59.7941	...	57.5056	57.2795	0.2261	55.2145	2B	55.7530	56.5150	57.5742	57.8663	0.2921	60.3250
				3A	0.0000	60.3250	59.8627	...	57.5742	57.4065	0.1676	55.2831	3B	55.7530	56.2508	57.5742	57.7926	0.2184	60.3250

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$2\frac{3}{8}$–8 or 2.3750–8	UN	60.3250	3.1750	2A	0.0610	60.2640	59.8830	...	58.2016	57.9958	0.2057	56.4845	2B	56.8960	57.5310	58.2625	58.5292	0.2667	60.3250
				3A	0.0000	60.3250	59.9440	...	58.2625	58.1101	0.1524	56.5455	3B	56.8960	57.2694	58.2625	58.4632	0.2007	60.3250
$2\frac{3}{8}$–12 or 2.3750–12	UN	60.3250	2.1167	2A	0.0457	60.2793	59.9897	...	58.9051	58.7477	0.1575	57.7596	2B	58.0390	58.4962	58.9509	59.1541	0.2032	60.3250
				3A	0.0000	60.3250	60.0354	...	58.9509	58.8340	0.1168	57.8053	3B	58.0390	58.2879	58.9509	59.1033	0.1524	60.3250
$2\frac{3}{8}$–16 or 2.3750–16	UN	60.3250	1.5875	2A	0.0406	60.2844	60.0456	...	59.2531	59.1134	0.1397	58.3946	2B	58.5978	58.9534	59.2938	59.4741	0.1803	60.3250
				3A	0.0000	60.3250	60.0862	...	59.2938	59.1896	0.1041	58.4352	3B	58.5978	58.8239	59.2938	59.4309	0.1372	60.3250
$2\frac{3}{8}$–20 or 2.3750–20	UN	60.3250	1.2700	2A	0.0381	60.2869	60.0812	...	59.4614	59.3344	0.1270	58.7756	2B	58.9534	59.2328	59.4995	59.6671	0.1676	60.3250
				3A	0.0000	60.3250	60.1193	...	59.4995	59.4030	0.0965	58.8137	3B	58.9534	59.1464	59.4995	59.6240	0.1245	60.3250
$2\frac{1}{2}$–4 or 2.5000–4	UNC	63.5000	6.3500	1A	0.0787	63.4213	62.5145	...	59.2963	58.9026	0.3937	55.8597	1B	56.6166	57.5818	59.3750	59.8881	0.5131	63.5000
				2A	0.0787	63.4213	62.8167	62.5145	59.2963	59.0321	0.2642	55.8597	2B	56.6166	57.5818	59.3750	59.7179	0.3429	63.5000
				3A	0.0000	63.5000	62.8955	...	59.3750	59.1769	0.1981	55.9384	3B	56.6166	57.3888	59.3750	59.6316	0.2565	63.5000
$2\frac{1}{2}$–6 or 2.5000–6	UN	63.5000	4.2333	2A	0.0686	63.4314	62.9691	...	60.6806	60.4520	0.2286	58.3895	2B	58.9280	59.6900	60.7492	61.0438	0.2946	63.5000
				3A	0.0000	63.5000	63.0377	...	60.7492	60.5790	0.1702	58.4581	3B	58.9280	59.4258	60.7492	60.9702	0.2210	63.5000
$2\frac{1}{2}$–8 or 2.5000–8	UN	63.5000	3.1750	2A	0.0610	63.4390	63.0580	62.8675	61.3766	61.1683	0.2083	59.6595	2B	60.0710	60.7060	61.4375	61.7068	0.2692	63.5000
				3A	0.0000	63.5000	63.1190	...	61.4375	61.2826	0.1549	59.7205	3B	60.0710	60.4444	61.4375	61.6407	0.2032	63.5000
$2\frac{1}{2}$–12 or 2.5000–12	UN	63.5000	2.1167	2A	0.0483	63.4517	63.1622	...	62.0776	61.9201	0.1575	60.9321	2B	61.2140	61.6712	62.1259	62.3316	0.2057	63.5000
				3A	0.0000	63.5000	63.2104	...	62.1259	62.0090	0.1168	60.9803	3B	61.2140	61.4629	62.1259	62.2783	0.1524	63.5000
$2\frac{1}{2}$–16 or 2.5000–16	UN	63.5000	1.5875	2A	0.0432	63.4568	63.2181	...	62.4256	62.2859	0.1397	61.5671	2B	61.7728	62.1284	62.4688	62.6516	0.1829	63.5000
				3A	0.0000	63.5000	63.2612	...	62.4688	62.3646	0.1041	61.6102	3B	61.7728	61.9989	62.4688	62.6059	0.1372	63.5000
$2\frac{1}{2}$–20 or 2.5000–20	UN	63.5000	1.2700	2A	0.0381	63.4619	63.2562	...	62.6364	62.5069	0.1295	61.9506	2B	62.1284	62.4078	62.6745	62.8421	0.1676	63.5000
				3A	0.0000	63.5000	63.2943	...	62.6745	62.5780	0.0965	61.9887	3B	62.1284	62.3214	62.6745	62.8015	0.1270	63.5000
$2\frac{5}{8}$–6 or 2.6250–6	UN	66.6750	4.2333	2A	0.0686	66.6064	66.1441	...	63.8556	63.6270	0.2286	61.5645	2B	62.1030	62.8650	63.9242	64.2239	0.2997	66.6750
				3A	0.0000	66.6750	66.2127	...	63.9242	63.7515	0.1727	61.6331	3B	62.1030	62.6008	63.9242	64.1477	0.2235	66.6750
$2\frac{5}{8}$–8 or 2.6250–8	UN	66.6750	3.1750	2A	0.0635	66.6115	66.2305	...	64.5490	64.3407	0.2083	62.8320	2B	63.2460	63.8810	64.6125	64.8843	0.2718	66.6750
				3A	0.0000	66.6750	66.2940	...	64.6125	64.4550	0.1575	62.8955	3B	63.2460	63.6194	64.6125	64.8157	0.2032	66.6750
$2\frac{5}{8}$–12 or 2.6250–12	UN	66.6750	2.1167	2A	0.0483	66.6267	66.3372	...	65.2526	65.0951	0.1575	64.1071	2B	64.3890	64.8462	65.3009	65.5066	0.2057	66.6750
				3A	0.0000	66.6750	66.3854	...	65.3009	65.1815	0.1194	64.1553	3B	64.3890	64.6379	65.3009	65.4558	0.1549	66.6750

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)]		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance	(Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Diameter, Min.
$2\frac{5}{8}$–16 or 2.6250–16	UN	66.6750	1.5875	2A	0.0432	66.6318	66.3931	...	65.6006	65.4583	0.1422	64.7421	2B	64.9478	65.3034	65.6438	65.8266	0.1829	66.6750
				3A	0.0000	66.6750	66.4362	...	65.6438	65.5371	0.1067	64.7852	3B	64.9478	65.1739	65.6438	65.7809	0.1372	66.6750
$2\frac{5}{8}$–20 or 2.6250–20	UN	66.6750	1.2700	2A	0.0381	66.6369	66.4312	...	65.8114	65.6819	0.1295	65.1256	2B	65.3034	65.5828	65.8495	66.0171	0.1676	66.6750
				3A	0.0000	66.6750	66.4693	...	65.8495	65.7530	0.0965	65.1637	3B	65.3034	65.4964	65.8495	65.9765	0.1270	66.6750
$2\frac{3}{4}$–4 or 2.7500–4	UNC	69.8500	6.3500	1A	0.0813	69.7687	68.8619	...	65.6438	65.2424	0.4013	62.2071	1B	62.9666	63.9318	65.7250	66.2483	0.5232	69.8500
				2A	0.0813	69.7687	69.1642	68.8619	65.6438	65.3771	0.2667	62.2071	2B	62.9666	63.9318	65.7250	66.0730	0.3480	69.8500
				3A	0.0000	69.8500	69.2455	...	65.7250	65.5244	0.2007	62.2884	3B	62.9666	63.7388	65.7250	65.9867	0.2616	69.8500
$2\frac{3}{4}$–6 or 2.7500–6	UN	69.8500	4.2333	2A	0.0686	69.7814	69.3191	...	67.0306	66.7995	0.2311	64.7395	2B	65.2780	66.0400	67.0992	67.4014	0.3023	69.8500
				3A	0.0000	69.8500	69.3877	...	67.0992	66.9265	0.1727	64.8081	3B	65.2780	65.7758	67.0992	67.3252	0.2261	69.8500
$2\frac{3}{4}$–8 or 2.7500–8	UN	69.8500	3.1750	2A	0.0635	69.7865	69.4055	69.2150	67.7240	67.5132	0.2108	66.0070	2B	66.4210	67.0560	67.7875	68.0618	0.2743	69.8500
				3A	0.0000	69.8500	69.4690	...	67.7875	67.6275	0.1600	66.0705	3B	66.4210	66.7944	67.7875	67.9933	0.2057	69.8500
$2\frac{3}{4}$–12 or 2.7500–12	UN	69.8500	2.1167	2A	0.0483	69.8017	69.5122	...	68.4276	68.2676	0.1600	67.2821	2B	67.5640	68.0212	68.4759	68.6816	0.2057	69.8500
				3A	0.0000	69.8500	69.5604	...	68.4759	68.3565	0.1194	67.3303	3B	67.5640	67.8129	68.4759	68.6308	0.1549	69.8500
$2\frac{3}{4}$–16 or 2.7500–16	UN	69.8500	1.5875	2A	0.0432	69.8068	69.5681	...	68.7756	68.6333	0.1422	67.9171	2B	68.1228	68.4784	68.8188	69.0042	0.1854	69.8500
				3A	0.0000	69.8500	69.6112	...	68.8188	68.7121	0.1067	67.9602	3B	68.1228	68.3489	68.8188	68.9559	0.1372	69.8500
$2\frac{3}{4}$–20 or 2.7500–20	UN	69.8500	1.2700	2A	0.0381	69.8119	69.6062	...	68.9864	68.8569	0.1295	68.3006	2B	68.4784	68.7578	69.0245	69.1947	0.1702	69.8500
				3A	0.0000	69.8500	69.6443	...	69.0245	68.9254	0.0991	68.3387	3B	68.4784	68.6714	69.0245	69.1515	0.1270	69.8500
$2\frac{7}{8}$–6 or 2.8750–6	UN	73.0250	4.2333	2A	0.0711	72.9539	72.4916	...	70.2031	69.9694	0.2337	67.9120	2B	68.4530	69.2150	70.2742	70.5790	0.3048	73.0250
				3A	0.0000	73.0250	72.5627	...	70.2742	70.0989	0.1753	67.9831	3B	68.4530	68.9508	70.2742	70.5028	0.2286	73.0250
$2\frac{7}{8}$–8 or 2.8750–8	UN	73.0250	3.1750	2A	0.0635	72.9615	72.5805	...	70.8990	70.6857	0.2134	69.1820	2B	69.5960	70.2310	70.9625	71.2419	0.2794	73.0250
				3A	0.0000	73.0250	72.6440	...	70.9625	70.8025	0.1600	69.2455	3B	69.5960	69.9694	70.9625	71.1708	0.2083	73.0250
$2\frac{7}{8}$–12 or 2.8750–12	UN	73.0250	2.1167	2A	0.0483	72.9767	72.6872	...	71.6026	71.4426	0.1600	70.4571	2B	70.7390	71.1962	71.6509	71.8591	0.2083	73.0250
				3A	0.0000	73.0250	72.7354	...	71.6509	71.5315	0.1194	70.5053	3B	70.7390	70.9879	71.6509	71.8058	0.1549	73.0250
$2\frac{7}{8}$–16 or 2.8750–16	UN	73.0250	1.5875	2A	0.0432	72.9818	72.7431	...	71.9506	71.8083	0.1422	71.0921	2B	71.2978	71.6534	71.9938	72.1792	0.1854	73.0250
				3A	0.0000	73.0250	72.7862	...	71.9938	71.8871	0.1067	71.1352	3B	71.2978	71.5239	71.9938	72.1335	0.1397	73.0250
$2\frac{7}{8}$–20 or 2.8750–20	UN	73.0250	1.2700	2A	0.0406	72.9844	72.7786	...	72.1589	72.0268	0.1321	71.4731	2B	71.6534	71.9328	72.1995	72.3697	0.1702	73.0250
				3A	0.0000	73.0250	72.8193	...	72.1995	72.1004	0.0991	71.5137	3B	71.6534	71.8464	72.1995	72.3265	0.1270	73.0250

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
3–4 or 3.0000–4	UNC	76.2000	6.3500	1A	0.0813	76.1187	75.2119	. . .	71.9938	71.5848	0.4089	68.5571	1B	69.3166	70.2818	72.0750	72.6059	0.5309	76.2000
				2A	0.0813	76.1187	75.5142	75.2119	71.9938	71.7220	0.2718	68.5571	2B	69.3166	70.2818	72.0750	72.4281	0.3531	76.2000
				3A	0.0000	76.2000	75.5955	. . .	72.0750	71.8718	0.2032	68.6384	3B	69.3166	70.0888	72.0750	72.3392	0.2642	76.2000
3–6 or 3.0000–6	UN	76.2000	4.2333	2A	0.0711	76.1289	75.6666	. . .	73.3781	73.1418	0.2362	71.0870	2B	71.6280	72.3900	73.4492	73.7565	0.3073	76.2000
				3A	0.0000	76.2000	75.7377	. . .	73.4492	73.2714	0.1778	71.1581	3B	71.6280	72.1258	73.4492	73.6803	0.2311	76.2000
3–8 or 3.0000–8	UN	76.2000	3.1750	2A	0.0660	76.1340	75.7530	75.5625	74.0715	73.8556	0.2159	72.3544	2B	72.7710	73.4060	74.1375	74.4195	0.2819	76.2000
				3A	0.0000	76.2000	75.8190	. . .	74.1375	73.9750	0.1626	72.4205	3B	72.7710	73.1444	74.1375	74.3483	0.2108	76.2000
3–12 or 3.0000–12	UN	76.2000	2.1167	2A	0.0483	76.1517	75.8622	. . .	74.7776	74.6176	0.1600	73.6321	2B	73.9140	74.3712	74.8259	75.0341	0.2083	76.2000
				3A	0.0000	76.2000	75.9104	. . .	74.8259	74.7065	0.1194	73.6803	3B	73.9140	74.1629	74.8259	74.9833	0.1575	76.2000
3–16 or 3.0000–16	UN	76.2000	1.5875	2A	0.0432	76.1568	75.9181	. . .	75.1256	74.9808	0.1448	74.2671	2B	74.4728	74.8284	75.1688	75.3542	0.1854	76.2000
				3A	0.0000	76.2000	75.9612	. . .	75.1688	75.0621	0.1067	74.3102	3B	74.4728	74.6989	75.1688	75.3085	0.1397	76.2000
3–20 or 3.0000–20	UN	76.2000	1.2700	2A	0.0406	76.1594	75.9536	. . .	75.3339	75.2018	0.1321	74.6481	2B	74.8284	75.1078	75.3745	75.5472	0.1727	76.2000
				3A	0.0000	76.2000	75.9943	. . .	75.3745	75.2754	0.0991	74.6887	3B	74.8284	75.0214	75.3745	75.5040	0.1295	76.2000
3⅛–6 or 3.1250–6	UN	79.3750	4.2333	2A	0.0711	79.3039	78.8416	. . .	76.5531	76.3143	0.2388	74.2620	2B	74.8030	75.5650	76.6242	76.9341	0.3099	79.3750
				3A	0.0000	79.3750	78.9127	. . .	76.6242	76.4464	0.1778	74.3331	3B	74.8030	75.3008	76.6242	76.8579	0.2337	79.3750
3⅛–8 or 3.1250–8	UN	79.3750	3.1750	2A	0.0660	79.3090	78.9280	. . .	77.2465	77.0280	0.2184	75.5294	2B	75.9460	76.5810	77.3125	77.5970	0.2845	79.3750
				3A	0.0000	79.3750	78.9940	. . .	77.3125	77.1500	0.1626	75.5955	3B	75.9460	76.3194	77.3125	77.5259	0.2134	79.3750
3⅛–12 or 3.1250–12	UN	79.3750	2.1167	2A	0.0483	79.3267	79.0372	. . .	77.9526	77.7900	0.1626	76.8071	2B	77.0890	77.5462	78.0009	78.2117	0.2108	79.3750
				3A	0.0000	79.3750	79.0854	. . .	78.0009	77.8789	0.1219	76.8553	3B	77.0890	77.3379	78.0009	78.1583	0.1575	79.3750
3⅛–16 or 3.1250–16	UN	79.3750	1.5875	2A	0.0432	79.3318	79.0931	. . .	78.3006	78.1558	0.1448	77.4421	2B	77.6478	78.0034	78.3438	78.5317	0.1880	79.3750
				3A	0.0000	79.3750	79.1362	. . .	78.3438	78.2345	0.1092	77.4852	3B	77.6478	77.8739	78.3438	78.4835	0.1397	79.3750
3¼–4 or 3.2500–4	UNC	82.5500	6.3500	1A	0.0838	82.4662	81.5594	. . .	78.3412	77.9272	0.4140	74.9046	1B	75.6666	76.6318	78.4250	78.9635	0.5385	82.5500
				2A	0.0838	82.4662	81.8617	81.5594	78.3412	78.0644	0.2769	74.9046	2B	75.6666	76.6318	78.4250	78.7832	0.3581	82.5500
				3A	0.0000	82.5500	81.9455	. . .	78.4250	78.2168	0.2083	74.9884	3B	75.6666	76.4388	78.4250	78.6943	0.2692	82.5500
3¼–6 or 3.2500–6	UN	82.5500	4.2333	2A	0.0711	82.4789	82.0166	. . .	79.7281	79.4868	0.2413	77.4370	2B	77.9780	78.7400	79.7992	80.1116	0.3124	82.5500
				3A	0.0000	82.5500	82.0877	. . .	79.7992	79.6188	0.1803	77.5081	3B	77.9780	78.4758	79.7992	80.0329	0.2337	82.5500
3¼–8 or 3.2500–8	UN	82.5500	3.1750	2A	0.0660	82.4840	82.1030	81.9125	80.4215	80.2005	0.2210	78.7044	2B	79.1210	79.7560	80.4875	80.7745	0.2870	82.5500
				3A	0.0000	82.5500	82.1690	. . .	80.4875	80.3224	0.1651	78.7705	3B	79.1210	79.4944	80.4875	80.7034	0.2159	82.5500

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)]		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance	(Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Diameter, Min.
$3\frac{1}{4}$–12 or 3.2500–12	UN	82.5500	2.1167	2A	0.0483	82.5017	82.2122	...	81.1276	80.9650	0.1626	79.9821	2B	80.2640	80.7212	81.1759	81.3867	0.2108	82.5500
				3A	0.0000	82.5500	82.2604	...	81.1759	81.0539	0.1219	80.0303	3B	80.2640	80.5129	81.1759	81.3333	0.1575	82.5500
$3\frac{1}{4}$–16 or 3.2500–16	UN	82.5500	1.5875	2A	0.0432	82.5068	82.2681	...	81.4756	81.3308	0.1448	80.6171	2B	80.8228	81.1784	81.5188	81.7067	0.1880	82.5500
				3A	0.0000	82.5500	82.3112	...	81.5188	81.4095	0.1092	80.6602	3B	80.8228	81.0489	81.5188	81.6610	0.1422	82.5500
$3\frac{3}{8}$–6 or 3.3750–6	UN	85.7250	4.2333	2A	0.0737	85.6513	85.1891	...	82.9005	82.6592	0.2413	80.6094	2B	81.1530	81.9150	82.9742	83.2891	0.3150	85.7250
				3A	0.0000	85.7250	85.2627	...	82.9742	82.7913	0.1829	80.6831	3B	81.1530	81.6508	82.9742	83.2104	0.2362	85.7250
$3\frac{3}{8}$–8 or 3.3750–8	UN	85.7250	3.1750	2A	0.0660	85.6590	85.2780	...	83.5965	83.3730	0.2235	81.8794	2B	82.2960	82.9310	83.6625	83.9521	0.2896	85.7250
				3A	0.0000	85.7250	85.3440	...	83.6625	83.4949	0.1676	81.9455	3B	82.2960	82.6694	83.6625	83.8784	0.2159	85.7250
$3\frac{3}{8}$–12 or 3.3750–12	UN	85.7250	2.1167	2A	0.0483	85.6767	85.3872	...	84.3026	84.1400	0.1626	83.1571	2B	83.4390	83.8962	84.3509	84.5617	0.2108	85.7250
				3A	0.0000	85.7250	85.4354	...	84.3509	84.2289	0.1219	83.2053	3B	83.4390	83.6879	84.3509	84.5109	0.1600	85.7250
$3\frac{3}{8}$–16 or 3.3750–16	UN	85.7250	1.5875	2A	0.0432	85.6818	85.4431	...	84.6506	84.5058	0.1448	83.7921	2B	83.9978	84.3534	84.6938	84.8843	0.1905	85.7250
				3A	0.0000	85.7250	85.4862	...	84.6938	84.5845	0.1092	83.8352	3B	83.9978	84.2239	84.6938	84.8360	0.1422	85.7250
$3\frac{1}{2}$–4 or 3.5000–4	UNC	88.9000	6.3500	1A	0.0838	88.8162	87.9094	...	84.6912	84.2696	0.4216	81.2546	1B	82.0166	82.9818	84.7750	85.3211	0.5461	88.9000
				2A	0.0838	88.8162	88.2117	87.9094	84.6912	84.4118	0.2794	81.2546	2B	82.0166	82.9818	84.7750	85.1383	0.3632	88.9000
				3A	0.0000	88.9000	88.2955	...	84.7750	84.5642	0.2108	81.3384	3B	82.0166	82.7888	84.7750	85.0494	0.2743	88.9000
$3\frac{1}{2}$–6 or 3.5000–6	UN	88.9000	4.2333	2A	0.0737	88.8263	88.3641	...	86.0755	85.8317	0.2438	83.7844	2B	84.3280	85.0900	86.1492	86.4667	0.3175	88.9000
				3A	0.0000	88.9000	88.4377	...	86.1492	85.9663	0.1829	83.8581	3B	84.3280	84.8258	86.1492	86.3879	0.2388	88.9000
$3\frac{1}{2}$–8 or 3.5000–8	UN	88.9000	3.1750	2A	0.0660	88.8340	88.4530	88.2625	86.7715	86.5480	0.2235	85.0544	2B	85.4710	86.1060	86.8375	87.1296	0.2921	88.9000
				3A	0.0000	88.9000	88.5190	...	86.8375	86.6699	0.1676	85.1205	3B	85.4710	85.8444	86.8375	87.0560	0.2184	88.9000
$3\frac{1}{2}$–12 or 3.5000–12	UN	88.9000	2.1167	2A	0.0483	88.8517	88.5622	...	87.4776	87.3150	0.1626	86.3321	2B	86.6140	87.0712	87.5259	87.7392	0.2134	88.9000
				3A	0.0000	88.9000	88.6104	...	87.5259	87.4039	0.1219	86.3803	3B	86.6140	86.8629	87.5259	87.6859	0.1600	88.9000
$3\frac{1}{2}$–16 or 3.5000–16	UN	88.9000	1.5875	2A	0.0432	88.8568	88.6181	...	87.8256	87.6783	0.1473	86.9671	2B	87.1728	87.5284	87.8688	88.0593	0.1905	88.9000
				3A	0.0000	88.9000	88.6612	...	87.8688	87.7595	0.1092	87.0102	3B	87.1728	87.3989	87.8688	88.0110	0.1422	88.9000
$3\frac{5}{8}$–6 or 3.6250–6	UN	92.0750	4.2333	2A	0.0737	92.0013	91.5391	...	89.2505	89.0041	0.2464	86.9594	2B	87.5030	88.2650	89.3242	89.6442	0.3200	92.0750
				3A	0.0000	92.0750	91.6127	...	89.3242	89.1388	0.1854	87.0331	3B	87.5030	88.0008	89.3242	89.5655	0.2413	92.0750
$3\frac{5}{8}$–8 or 3.6250–8	UN	92.0750	3.1750	2A	0.0686	92.0064	91.6254	...	89.9439	89.7179	0.2261	88.2269	2B	88.6460	89.2810	90.0125	90.3072	0.2946	92.0750
				3A	0.0000	92.0750	91.6940	...	90.0125	89.8423	0.1702	88.2955	3B	88.6460	89.0194	90.0125	90.2335	0.2210	92.0750

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]										Internal [Note (1)]							
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)			Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$3\frac{5}{8}$–12 or 3.6250–12	UN	92.0750	2.1167	2A	0.0483	92.0267	91.7372	...	90.6526	90.4875	0.1651	89.5071	2B	89.7890	90.2462	90.7009	90.9142	0.2134	92.0750
				3A	0.0000	92.0750	91.7854	...	90.7009	90.5789	0.1219	89.5553	3B	89.7890	90.0379	90.7009	90.8609	0.1600	92.0750
$3\frac{5}{8}$–16 or 3.6250–16	UN	92.0750	1.5875	2A	0.0432	92.0318	91.7931	...	91.0006	90.8533	0.1473	90.1421	2B	90.3478	90.7034	91.0438	91.2343	0.1905	92.0750
				3A	0.0000	92.0750	91.8362	...	91.0438	90.9345	0.1092	90.1852	3B	90.3478	90.5739	91.0438	91.1860	0.1422	92.0750
$3\frac{3}{4}$–4 or 3.7500–4	UNC	95.2500	6.3500	1A	0.0864	95.1636	94.2569	...	91.0387	90.6120	0.4267	87.6021	1B	88.3666	89.3318	91.1250	91.6788	0.5537	95.2500
				2A	0.0864	95.1636	94.5591	94.2569	91.0387	90.7542	0.2845	87.6021	2B	88.3666	89.3318	91.1250	91.4933	0.3683	95.2500
				3A	0.0000	95.2500	94.6455	...	91.1250	90.9117	0.2134	87.6884	3B	88.3666	89.1388	91.1250	91.4019	0.2769	95.2500
$3\frac{3}{4}$–6 or 3.7500–6	UN	95.2500	4.2333	2A	0.0737	95.1763	94.7141	...	92.4255	92.1766	0.2489	90.1344	2B	90.6780	91.4400	92.4992	92.8218	0.3226	95.2500
				3A	0.0000	95.2500	94.7877	...	92.4992	92.3138	0.1854	90.2081	3B	90.6780	91.1758	92.4992	92.7405	0.2413	95.2500
$3\frac{3}{4}$–8 or 3.7500–8	UN	95.2500	3.1750	2A	0.0686	95.1814	94.8004	94.6099	93.1189	92.8903	0.2286	91.4019	2B	91.8210	92.4560	93.1875	93.4847	0.2972	95.2500
				3A	0.0000	95.2500	94.8690	...	93.1875	93.0173	0.1702	91.4705	3B	91.8210	92.1944	93.1875	93.4110	0.2235	95.2500
$3\frac{3}{4}$–12 or 3.7500–12	UN	95.2500	2.1167	2A	0.0483	95.2017	94.9122	...	93.8276	93.6625	0.1651	92.6821	2B	92.9640	93.4212	93.8759	94.0892	0.2134	95.2500
				3A	0.0000	95.2500	94.9604	...	93.8759	93.7514	0.1245	92.7303	3B	92.9640	93.2129	93.8759	94.0359	0.1600	95.2500
$3\frac{3}{4}$–16 or 3.7500–16	UN	95.2500	1.5875	2A	0.0432	95.2068	94.9681	...	94.1756	94.0283	0.1473	93.3171	2B	93.5228	93.8784	94.2188	94.4118	0.1930	95.2500
				3A	0.0000	95.2500	95.0112	...	94.2188	94.1070	0.1118	93.3602	3B	93.5228	93.7489	94.2188	94.3635	0.1448	95.2500
$3\frac{7}{8}$–6 or 3.8750–6	UN	98.4250	4.2333	2A	0.0762	98.3488	97.8865	...	95.5980	95.3465	0.2515	93.3069	2B	93.8530	94.6150	95.6742	95.9993	0.3251	98.4250
				3A	0.0000	98.4250	97.9627	...	95.6742	95.4862	0.1880	93.3831	3B	93.8530	94.3508	95.6742	95.9180	0.2438	98.4250
$3\frac{7}{8}$–8 or 3.8750–8	UN	98.4250	3.1750	2A	0.0686	98.3564	97.9754	...	96.2939	96.0628	0.2311	94.5769	2B	94.9960	95.6310	96.3625	96.6622	0.2997	98.4250
				3A	0.0000	98.4250	98.0440	...	96.3625	96.1898	0.1727	94.6455	3B	94.9960	95.3694	96.3625	96.5860	0.2235	98.4250
$3\frac{7}{8}$–12 or 3.8750–12	UN	98.4250	2.1167	2A	0.0508	98.3742	98.0846	...	97.0001	96.8350	0.1651	95.8545	2B	96.1390	96.5962	97.0509	97.2668	0.2159	98.4250
				3A	0.0000	98.4250	98.1354	...	97.0509	96.9264	0.1245	95.9053	3B	96.1390	96.3879	97.0509	97.2134	0.1626	98.4250
$3\frac{7}{8}$–16 or 3.8750–16	UN	98.4250	1.5875	2A	0.0457	98.3793	98.1405	...	97.3480	97.2007	0.1473	96.4895	2B	96.6978	97.0534	97.3938	97.5868	0.1930	98.4250
				3A	0.0000	98.4250	98.1862	...	97.3938	97.2820	0.1118	96.5352	3B	96.6978	96.9239	97.3938	97.5385	0.1448	98.4250
4–4 or 4.0000–4	UNC	101.6000	6.3500	1A	0.0864	101.5136	100.6069	...	97.3887	96.9569	0.4318	93.9521	1B	94.7166	95.6818	97.4750	98.0364	0.5613	101.6000
				2A	0.0864	101.5136	100.9091	100.6069	97.3887	97.1017	0.2870	93.9521	2B	94.7166	95.6818	97.4750	97.8484	0.3734	101.6000
				3A	0.0000	101.6000	100.9955	...	97.4750	97.2591	0.2159	94.0384	3B	94.7166	95.4888	97.4750	97.7570	0.2819	101.6000
4–6 or 4.0000–6	UN	101.6000	4.2333	2A	0.0762	101.5238	101.0615	...	98.7730	98.5215	0.2515	96.4819	2B	97.0280	97.7900	98.8492	99.1768	0.3277	101.6000
				3A	0.0000	101.6000	101.1377	...	98.8492	98.6612	0.1880	96.5581	3B	97.0280	97.5258	98.8492	99.0956	0.2464	101.6000

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
4–8 or 4.0000–8	UN	101.6000	3.1750	2A	0.0686	101.5314	101.1504	100.9599	99.4689	99.2378	0.2311	97.7519	2B	98.1710	98.8060	99.5375	99.8398	0.3023	101.6000
				3A	0.0000	101.6000	101.2190	...	99.5375	99.3648	0.1727	97.8205	3B	98.1710	98.5444	99.5375	99.7636	0.2261	101.6000
4–12 or 4.0000–12	UN	101.6000	2.1167	2A	0.0508	101.5492	101.2596	...	100.1751	100.0100	0.1651	99.0295	2B	99.3140	99.7712	100.2259	100.4418	0.2159	101.6000
				3A	0.0000	101.6000	101.3104	...	100.2259	100.1014	0.1245	99.0803	3B	99.3140	99.5629	100.2259	100.3884	0.1626	101.6000
4–16 or 4.0000–16	UN	101.6000	1.5875	2A	0.0457	101.5543	101.3155	...	100.5230	100.3732	0.1499	99.6645	2B	99.8728	100.2284	100.5688	100.7618	0.1930	101.6000
				3A	0.0000	101.6000	101.3612	...	100.5688	100.4570	0.1118	99.7102	3B	99.8728	100.0989	100.5688	100.7135	0.1448	101.6000
$4\frac{1}{8}$–6 or 4.1250–6	UN	104.7750	4.2333	2A	0.0762	104.6988	104.2365	...	101.9480	101.6940	0.2540	99.6569	2B	100.2030	100.9650	102.0242	102.3544	0.3302	104.7750
				3A	0.0000	104.7750	104.3127	...	102.0242	101.8337	0.1905	99.7331	3B	100.2030	100.7008	102.0242	102.2706	0.2464	104.7750
$4\frac{1}{8}$–8 or 4.1250–8	UN	104.7750	3.1750	2A	0.0711	104.7039	104.3229	...	102.6414	102.4077	0.2337	100.9244	2B	101.3460	101.9810	102.7125	103.0173	0.3048	104.7750
				3A	0.0000	104.7750	104.3940	...	102.7125	102.5373	0.1753	100.9955	3B	101.3460	101.7194	102.7125	102.9411	0.2286	104.7750
$4\frac{1}{8}$–12 or 4.1250–12	UN	104.7750	2.1167	2A	0.0508	104.7242	104.4346	...	103.3501	103.1824	0.1676	102.2045	2B	102.4890	102.9462	103.4009	103.6168	0.2159	104.7750
				3A	0.0000	104.7750	104.4854	...	103.4009	103.2764	0.1245	102.2553	3B	102.4890	102.7379	103.4009	103.5634	0.1626	104.7750
$4\frac{1}{8}$–16 or 4.1250–16	UN	104.7750	1.5875	2A	0.0457	104.7293	104.4905	...	103.6980	103.5482	0.1499	102.8395	2B	103.0478	103.4034	103.7438	103.9393	0.1956	104.7750
				3A	0.0000	104.7750	104.5362	...	103.7438	103.6320	0.1118	102.8852	3B	103.0478	103.2739	103.7438	103.8885	0.1448	104.7750
$4\frac{1}{4}$–4 or 4.2500–4	UN	107.9500	6.3500	2A	0.0864	107.8636	107.2591	...	103.7387	103.4466	0.2921	100.3021	2B	101.0666	102.0318	103.8250	104.2035	0.3785	107.9500
				3A	0.0000	107.9500	107.3455	...	103.8250	103.6066	0.2184	100.3884	3B	101.0666	101.8388	103.8250	104.1095	0.2845	107.9500
$4\frac{1}{4}$–6 or 4.2500–6	UN	107.9500	4.2333	2A	0.0762	107.8738	107.4115	...	105.1230	104.8664	0.2565	102.8319	2B	103.3780	104.1400	105.1992	105.5319	0.3327	107.9500
				3A	0.0000	107.9500	107.4877	...	105.1992	105.0087	0.1905	102.9081	3B	103.3780	103.8758	105.1992	105.4481	0.2489	107.9500
$4\frac{1}{4}$–8 or 4.2500–8	UN	107.9500	3.1750	2A	0.0711	107.8789	107.4979	...	105.8164	105.5802	0.2362	104.0994	2B	104.5210	105.1560	105.8875	106.1949	0.3073	107.9500
				3A	0.0000	107.9500	107.5690	...	105.8875	105.7097	0.1778	104.1705	3B	104.5210	104.8944	105.8875	106.1161	0.2286	107.9500
$4\frac{1}{4}$–12 or 4.2500–12	UN	107.9500	2.1167	2A	0.0508	107.8992	107.6096	...	106.5251	106.3574	0.1676	105.3795	2B	105.6640	106.1212	106.5759	106.7943	0.2184	107.9500
				3A	0.0000	107.9500	107.6604	...	106.5759	106.4514	0.1245	105.4303	3B	105.6640	105.9129	106.5759	106.7384	0.1626	107.9500
$4\frac{1}{4}$–16 or 4.2500–16	UN	107.9500	1.5875	2A	0.0457	107.9043	107.6655	...	106.8730	106.7232	0.1499	106.0145	2B	106.2228	106.5784	106.9188	107.1143	0.1956	107.9500
				3A	0.0000	107.9500	107.7112	...	106.9188	106.8070	0.1118	106.0602	3B	106.2228	106.4489	106.9188	107.0661	0.1473	107.9500
$4\frac{3}{8}$–6 or 4.3750–6	UN	111.1250	4.2333	2A	0.0762	111.0488	110.5865	...	108.2980	108.0414	0.2565	106.0069	2B	106.5530	107.3150	108.3742	108.7095	0.3353	111.1250
				3A	0.0000	111.1250	110.6627	...	108.3742	108.1811	0.1930	106.0831	3B	106.5530	107.0508	108.3742	108.6256	0.2515	111.1250
$4\frac{3}{8}$–8 or 4.3750–8	UN	111.1250	3.1750	2A	0.0711	111.0539	110.6729	...	108.9914	108.7552	0.2362	107.2744	2B	107.6960	108.3310	109.0625	109.3699	0.3073	111.1250
				3A	0.0000	111.1250	110.7440	...	109.0625	108.8847	0.1778	107.3455	3B	107.6960	108.0694	109.0625	109.2937	0.2311	111.1250

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$4\frac{3}{8}$–12 or 4.3750–12	UN	111.1250	2.1167	2A	0.0508	111.0742	110.7846	...	109.7001	109.5324	0.1676	108.5545	2B	108.8390	109.2962	109.7509	109.9693	0.2184	111.1250
				3A	0.0000	111.1250	110.8354	...	109.7509	109.6239	0.1270	108.6053	3B	108.8390	109.0879	109.7509	109.9134	0.1626	111.1250
$4\frac{3}{8}$–16 or 4.3750–16	UN	111.1250	1.5875	2A	0.0457	111.0793	110.8405	...	110.0480	109.8982	0.1499	109.1895	2B	109.3978	109.7534	110.0938	110.2893	0.1956	111.1250
				3A	0.0000	111.1250	110.8862	...	110.0938	109.9795	0.1143	109.2352	3B	109.3978	109.6239	110.0938	110.2411	0.1473	111.1250
$4\frac{1}{2}$–4 or 4.5000–4	UN	114.3000	6.3500	2A	0.0889	114.2111	113.6066	...	110.0861	109.7915	0.2946	106.6495	2B	107.4166	108.3818	110.1750	110.5586	0.3835	114.3000
				3A	0.0000	114.3000	113.6955	...	110.1750	109.9541	0.2210	106.7384	3B	107.4166	108.1888	110.1750	110.4621	0.2870	114.3000
$4\frac{1}{2}$–6 or 4.5000–6	UN	114.3000	4.2333	2A	0.0787	114.2213	113.7590	...	111.4704	111.2114	0.2591	109.1794	2B	109.7280	110.4900	111.5492	111.8870	0.3378	114.3000
				3A	0.0000	114.3000	113.8377	...	111.5492	111.3536	0.1956	109.2581	3B	109.7280	110.2258	111.5492	111.8006	0.2515	114.3000
$4\frac{1}{2}$–8 or 4.5000–8	UN	114.3000	3.1750	2A	0.0711	114.2289	113.8479	...	112.1664	111.9276	0.2388	110.4494	2B	110.8710	111.5060	112.2375	112.5474	0.3099	114.3000
				3A	0.0000	114.3000	113.9190	...	112.2375	112.0572	0.1803	110.5205	3B	110.8710	111.2444	112.2375	112.4712	0.2337	114.3000
$4\frac{1}{2}$–12 or 4.5000–12	UN	114.3000	2.1167	2A	0.0508	114.2492	113.9596	...	112.8751	112.7074	0.1676	111.7295	2B	112.0140	112.4712	112.9259	113.1443	0.2184	114.3000
				3A	0.0000	114.3000	114.0104	...	112.9259	112.7989	0.1270	111.7803	3B	112.0140	112.2629	112.9259	113.0910	0.1651	114.3000
$4\frac{1}{2}$–16 or 4.5000–16	UN	114.3000	1.5875	2A	0.0457	114.2543	114.0155	...	113.2230	113.0706	0.1524	112.3645	2B	112.5728	112.9284	113.2688	113.4669	0.1981	114.3000
				3A	0.0000	114.3000	114.0612	...	113.2688	113.1545	0.1143	112.4102	3B	112.5728	112.7989	113.2688	113.4161	0.1473	114.3000
$4\frac{5}{8}$–6 or 4.6250–6	UN	117.4750	4.2333	2A	0.0787	117.3963	116.9340	...	114.6454	114.3838	0.2616	112.3544	2B	112.9030	113.6650	114.7242	115.0620	0.3378	117.4750
				3A	0.0000	117.4750	117.0127	...	114.7242	114.5286	0.1956	112.4331	3B	112.9030	113.4008	114.7242	114.9782	0.2540	117.4750
$4\frac{5}{8}$–8 or 4.6250–8	UN	117.4750	3.1750	2A	0.0711	117.4039	117.0229	...	115.3414	115.1001	0.2413	113.6244	2B	114.0460	114.6810	115.4125	115.7249	0.3124	117.4750
				3A	0.0000	117.4750	117.0940	...	115.4125	115.2322	0.1803	113.6955	3B	114.0460	114.4194	115.4125	115.6462	0.2337	117.4750
$4\frac{5}{8}$–12 or 4.6250–12	UN	117.4750	2.1167	2A	0.0508	117.4242	117.1346	...	116.0501	115.8799	0.1702	114.9045	2B	115.1890	115.6462	116.1009	116.3218	0.2210	117.4750
				3A	0.0000	117.4750	117.1854	...	116.1009	115.9739	0.1270	114.9553	3B	115.1890	115.4379	116.1009	116.2660	0.1651	117.4750
$4\frac{5}{8}$–16 or 4.6250–16	UN	117.4750	1.5875	2A	0.0457	117.4293	117.1905	...	116.3980	116.2456	0.1524	115.5395	2B	115.7478	116.1034	116.4438	116.6419	0.1981	117.4750
				3A	0.0000	117.4750	117.2362	...	116.4438	116.3295	0.1143	115.5852	3B	115.7478	115.9739	116.4438	116.5911	0.1473	117.4750
$4\frac{3}{4}$–4 or 4.7500–4	UN	120.6500	6.3500	2A	0.0889	120.5611	119.9566	...	116.4361	116.1390	0.2972	112.9995	2B	113.7666	114.7318	116.5250	116.9137	0.3886	120.6500
				3A	0.0000	120.6500	120.0455	...	116.5250	116.3015	0.2235	113.0884	3B	113.7666	114.5388	116.5250	116.8146	0.2896	120.6500
$4\frac{3}{4}$–6 or 4.7500–6	UN	120.6500	4.2333	2A	0.0787	120.5713	120.1090	...	117.8204	117.5588	0.2616	115.5294	2B	116.0780	116.8400	117.8992	118.2395	0.3404	120.6500
				3A	0.0000	120.6500	120.1877	...	117.8992	117.7036	0.1956	115.6081	3B	116.0780	116.5758	117.8992	118.1557	0.2565	120.6500
$4\frac{3}{4}$–8 or 4.7500–8	UN	120.6500	3.1750	2A	0.0737	120.5763	120.1953	...	118.5139	118.2726	0.2413	116.7968	2B	117.2210	117.8560	118.5875	118.9025	0.3150	120.6500
				3A	0.0000	120.6500	120.2690	...	118.5875	118.4046	0.1829	116.8705	3B	117.2210	117.5944	118.5875	118.8237	0.2362	120.6500

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)]		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance	(Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Diameter, Min.
$4\frac{3}{4}$–12 or 4.7500–12	UN	120.6500	2.1167	2A	0.0508	120.5992	120.3096	...	119.2251	119.0549	0.1702	118.0795	2B	118.3640	118.8212	119.2759	119.4968	0.2210	120.6500
				3A	0.0000	120.6500	120.3604	...	119.2759	119.1489	0.1270	118.1303	3B	118.3640	118.6129	119.2759	119.4410	0.1651	120.6500
$4\frac{3}{4}$–16 or 4.7500–16	UN	120.6500	1.5875	2A	0.0457	120.6043	120.3655	...	119.5730	119.4206	0.1524	118.7145	2B	118.9228	119.2784	119.6188	119.8169	0.1981	120.6500
				3A	0.0000	120.6500	120.4112	...	119.6188	119.5045	0.1143	118.7602	3B	118.9228	119.1489	119.6188	119.7686	0.1499	120.6500
$4\frac{7}{8}$–6 or 4.8750–6	UN	123.8250	4.2333	2A	0.0787	123.7463	123.2840	...	120.9954	120.7313	0.2642	118.7044	2B	119.2530	120.0150	121.0742	121.4171	0.3429	123.8250
				3A	0.0000	123.8250	123.3627	...	121.0742	120.8761	0.1981	118.7831	3B	119.2530	119.7508	121.0742	121.3307	0.2565	123.8250
$4\frac{7}{8}$–8 or 4.8750–8	UN	123.8250	3.1750	2A	0.0737	123.7513	123.3703	...	121.6889	121.4450	0.2438	119.9718	2B	120.3960	121.0310	121.7625	122.0800	0.3175	123.8250
				3A	0.0000	123.8250	123.4440	...	121.7625	121.5796	0.1829	120.0455	3B	120.3960	120.7694	121.7625	122.0013	0.2388	123.8250
$4\frac{7}{8}$–12 or 4.8750–12	UN	123.8250	2.1167	2A	0.0508	123.7742	123.4846	...	122.4001	122.2299	0.1702	121.2545	2B	121.5390	121.9962	122.4509	122.6718	0.2210	123.8250
				3A	0.0000	123.8250	123.5354	...	122.4509	122.3239	0.1270	121.3053	3B	121.5390	121.7879	122.4509	122.6160	0.1651	123.8250
$4\frac{7}{8}$–16 or 4.8750–16	UN	123.8250	1.5875	2A	0.0457	123.7793	123.5405	...	122.7480	122.5956	0.1524	121.8895	2B	122.0978	122.4534	122.7938	122.9919	0.1981	123.8250
				3A	0.0000	123.8250	123.5862	...	122.7938	122.6795	0.1143	121.9352	3B	122.0978	122.3239	122.7938	122.9436	0.1499	123.8250
5–4 or 5.0000–4	UN	127.0000	6.3500	2A	0.0914	126.9086	126.3040	...	122.7836	122.4813	0.3023	119.3470	2B	120.1166	121.0818	122.8750	123.2662	0.3912	127.0000
				3A	0.0000	127.0000	126.3955	...	122.8750	122.6490	0.2261	119.4384	3B	120.1166	120.8888	122.8750	123.1697	0.2946	127.0000
5–6 or 5.0000–6	UN	127.0000	4.2333	2A	0.0787	126.9213	126.4590	...	124.1704	123.9037	0.2667	121.8794	2B	122.4280	123.1900	124.2492	124.5946	0.3454	127.0000
				3A	0.0000	127.0000	126.5377	...	124.2492	124.0511	0.1981	121.9581	3B	122.4280	122.9258	124.2492	124.5083	0.2591	127.0000
5–8 or 5.0000–8	UN	127.0000	3.1750	2A	0.0737	126.9263	126.5453	...	124.8639	124.6175	0.2464	123.1468	2B	123.5710	124.2060	124.9375	125.2576	0.3200	127.0000
				3A	0.0000	127.0000	126.6190	...	124.9375	124.7521	0.1854	123.2205	3B	123.5710	123.9444	124.9375	125.1763	0.2388	127.0000
5–12 or 5.0000–12	UN	127.0000	2.1167	2A	0.0508	126.9492	126.6596	...	125.5751	125.4049	0.1702	124.4295	2B	124.7140	125.1712	125.6259	125.8468	0.2210	127.0000
				3A	0.0000	127.0000	126.7104	...	125.6259	125.4989	0.1270	124.4803	3B	124.7140	124.9629	125.6259	125.7935	0.1676	127.0000
5–16 or 5.0000–16	UN	127.0000	1.5875	2A	0.0457	126.9543	126.7155	...	125.9230	125.7681	0.1549	125.0645	2B	125.2728	125.6284	125.9688	126.1694	0.2007	127.0000
				3A	0.0000	127.0000	126.7612	...	125.9688	125.8545	0.1143	125.1102	3B	125.2728	125.4989	125.9688	126.1186	0.1499	127.0000
$5\frac{1}{8}$–6 or 5.1250–6	UN	130.1750	4.2333	2A	0.0813	130.0937	129.6314	...	127.3429	127.0762	0.2667	125.0518	2B	125.6030	126.3650	127.4242	127.7722	0.3480	130.1750
				3A	0.0000	130.1750	129.7127	...	127.4242	127.2235	0.2007	125.1331	3B	125.6030	126.1008	127.4242	127.6858	0.2616	130.1750
$5\frac{1}{8}$–8 or 5.1250–8	UN	130.1750	3.1750	2A	0.0737	130.1013	129.7203	...	128.0389	127.7925	0.2464	126.3218	2B	126.7460	127.3810	128.1125	128.4351	0.3226	130.1750
				3A	0.0000	130.1750	129.7940	...	128.1125	127.9271	0.1854	126.3955	3B	126.7460	127.1194	128.1125	128.3538	0.2413	130.1750
$5\frac{1}{8}$–12 or 5.1250–12	UN	130.1750	2.1167	2A	0.0508	130.1242	129.8346	...	128.7501	128.5799	0.1702	127.6045	2B	127.8890	128.3462	128.8009	129.0244	0.2235	130.1750
				3A	0.0000	130.1750	129.8854	...	128.8009	128.6713	0.1295	127.6553	3B	127.8890	128.1379	128.8009	128.9685	0.1676	130.1750

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$5\frac{1}{8}$–16 or 5.1250–16	UN	130.1750	1.5875	2A	0.0457	130.1293	129.8905	...	129.0980	128.9431	0.1549	128.2395	2B	128.4478	128.8034	129.1438	129.3444	0.2007	130.1750
				3A	0.0000	130.1750	129.9362	...	129.1438	129.0269	0.1168	128.2852	3B	128.4478	128.6739	129.1438	129.2936	0.1499	130.1750
$5\frac{1}{4}$–4 or 5.2500–4	UN	133.3500	6.3500	2A	0.0914	133.2586	132.6540	...	129.1336	128.8288	0.3048	125.6970	2B	126.4666	127.4318	129.2250	129.6213	0.3962	133.3500
				3A	0.0000	133.3500	132.7455	...	129.2250	128.9964	0.2286	125.7884	3B	126.4666	127.2388	129.2250	129.5222	0.2972	133.3500
$5\frac{1}{4}$–6 or 5.2500–6	UN	133.3500	4.2333	2A	0.0813	133.2687	132.8064	...	130.5179	130.2487	0.2692	128.2268	2B	128.7780	129.5400	130.5992	130.9497	0.3505	133.3500
				3A	0.0000	133.3500	132.8877	...	130.5992	130.3985	0.2007	128.3081	3B	128.7780	129.2758	130.5992	130.8608	0.2616	133.3500
$5\frac{1}{4}$–8 or 5.2500–8	UN	133.3500	3.1750	2A	0.0737	133.2763	132.8953	...	131.2139	130.9649	0.2489	129.4968	2B	129.9210	130.5560	131.2875	131.6101	0.3226	133.3500
				3A	0.0000	133.3500	132.9690	...	131.2875	131.1021	0.1854	129.5705	3B	129.9210	130.2944	131.2875	131.5288	0.2413	133.3500
$5\frac{1}{4}$–12 or 5.2500–12	UN	133.3500	2.1167	2A	0.0508	133.2992	133.0096	...	131.9251	131.7523	0.1727	130.7795	2B	131.0640	131.5212	131.9759	132.1994	0.2235	133.3500
				3A	0.0000	133.3500	133.0604	...	131.9759	131.8463	0.1295	130.8303	3B	131.0640	131.3129	131.9759	132.1435	0.1676	133.3500
$5\frac{1}{4}$–16 or 5.2500–16	UN	133.3500	1.5875	2A	0.0457	133.3043	133.0655	...	132.2730	132.1181	0.1549	131.4145	2B	131.6228	131.9784	132.3188	132.5194	0.2007	133.3500
				3A	0.0000	133.3500	133.1112	...	132.3188	132.2019	0.1168	131.4602	3B	131.6228	131.8489	132.3188	132.4686	0.1499	133.3500
$5\frac{3}{8}$–6 or 5.3750–6	UN	136.5250	4.2333	2A	0.0813	136.4437	135.9814	...	133.6929	133.4237	0.2692	131.4018	2B	131.9530	132.7150	133.7742	134.1247	0.3505	136.5250
				3A	0.0000	136.5250	136.0627	...	133.7742	133.5710	0.2032	131.4831	3B	131.9530	132.4508	133.7742	134.0383	0.2642	136.5250
$5\frac{3}{8}$–8 or 5.3750–8	UN	136.5250	3.1750	2A	0.0762	136.4488	136.0678	...	134.3863	134.1349	0.2515	132.6693	2B	133.0960	133.7310	134.4625	134.7876	0.3251	136.5250
				3A	0.0000	136.5250	136.1440	...	134.4625	134.2746	0.1880	132.7455	3B	133.0960	133.4694	134.4625	134.7064	0.2438	136.5250
$5\frac{3}{8}$–12 or 5.3750–12	UN	136.5250	2.1167	2A	0.0508	136.4742	136.1846	...	135.1001	134.9273	0.1727	133.9545	2B	134.2390	134.6962	135.1509	135.3744	0.2235	136.5250
				3A	0.0000	136.5250	136.2354	...	135.1509	135.0213	0.1295	134.0053	3B	134.2390	134.4879	135.1509	135.3185	0.1676	136.5250
$5\frac{3}{8}$–16 or 5.3750–16	UN	136.5250	1.5875	2A	0.0457	136.4793	136.2405	...	135.4480	135.2931	0.1549	134.5895	2B	134.7978	135.1534	135.4938	135.6944	0.2007	136.5250
				3A	0.0000	136.5250	136.2862	...	135.4938	135.3769	0.1168	134.6352	3B	134.7978	135.0239	135.4938	135.6462	0.1524	136.5250
$5\frac{1}{2}$–4 or 5.5000–4	UN	139.7000	6.3500	2A	0.0914	139.6086	139.0040	...	135.4836	135.1763	0.3073	132.0470	2B	132.8166	133.7818	135.5750	135.9764	0.4013	139.7000
				3A	0.0000	139.7000	139.0955	...	135.5750	135.3439	0.2311	132.1384	3B	132.8166	133.5888	135.5750	135.8748	0.2997	139.7000
$5\frac{1}{2}$–6 or 5.5000–6	UN	139.7000	4.2333	2A	0.0813	139.6187	139.1564	...	136.8679	136.5961	0.2718	134.5768	2B	135.1280	135.8900	136.9492	137.3022	0.3531	139.7000
				3A	0.0000	139.7000	139.2377	...	136.9492	136.7460	0.2032	134.6581	3B	135.1280	135.6258	136.9492	137.2133	0.2642	139.7000
$5\frac{1}{2}$–8 or 5.5000–8	UN	139.7000	3.1750	2A	0.0762	139.6238	139.2428	...	137.5613	137.3099	0.2515	135.8443	2B	136.2710	136.9060	137.6375	137.9652	0.3277	139.7000
				3A	0.0000	139.7000	139.3190	...	137.6375	137.4496	0.1880	135.9205	3B	136.2710	136.6444	137.6375	137.8839	0.2464	139.7000
$5\frac{1}{2}$–12 or 5.5000–12	UN	139.7000	2.1167	2A	0.0508	139.6492	139.3596	...	138.2751	138.1023	0.1727	137.1295	2B	137.4140	137.8712	138.3259	138.5519	0.2261	139.7000
				3A	0.0000	139.7000	139.4104	...	138.3259	138.1963	0.1295	137.1803	3B	137.4140	137.6629	138.3259	138.4935	0.1676	139.7000

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)]		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance	(Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Diameter, Min.
5½–16 or 5.5000–16	UN	139.7000	1.5875	2A	0.0457	139.6543	139.4155	...	138.6230	138.4681	0.1549	137.7645	2B	137.9728	138.3284	138.6688	138.8720	0.2032	139.7000
				3A	0.0000	139.7000	139.4612	...	138.6688	138.5519	0.1168	137.8102	3B	137.9728	138.1989	138.6688	138.8212	0.1524	139.7000
5⅝–6 or 5.6250–6	UN	142.8750	4.2333	2A	0.0813	142.7937	142.3314	...	140.0429	139.7686	0.2743	137.7518	2B	138.3030	139.0650	140.1242	140.4798	0.3556	142.8750
				3A	0.0000	142.8750	142.4127	...	140.1242	139.9184	0.2057	137.8331	3B	138.3030	138.8008	140.1242	140.3909	0.2667	142.8750
5⅝–8 or 5.6250–8	UN	142.8750	3.1750	2A	0.0762	142.7988	142.4178	...	140.7363	140.4823	0.2540	139.0193	2B	139.4460	140.0810	140.8125	141.1427	0.3302	142.8750
				3A	0.0000	142.8750	142.4940	...	140.8125	140.6220	0.1905	139.0955	3B	139.4460	139.8194	140.8125	141.0589	0.2464	142.8750
5⅝–12 or 5.6250–12	UN	142.8750	2.1167	2A	0.0508	142.8242	142.5346	...	141.4501	141.2773	0.1727	140.3045	2B	140.5890	141.0462	141.5009	141.7269	0.2261	142.8750
				3A	0.0000	142.8750	142.5854	...	141.5009	141.3713	0.1295	140.3553	3B	140.5890	140.8379	141.5009	141.6710	0.1702	142.8750
5⅝–16 or 5.6250–16	UN	142.8750	1.5875	2A	0.0457	142.8293	142.5905	...	141.7980	141.6406	0.1575	140.9395	2B	141.1478	141.5034	141.8438	142.0470	0.2032	142.8750
				3A	0.0000	142.8750	142.6362	...	141.8438	141.7269	0.1168	140.9852	3B	141.1478	141.3739	141.8438	141.9962	0.1524	142.8750
5¾–4 or 5.7500–4	UN	146.0500	6.3500	2A	0.0940	145.9560	145.3515	...	141.8311	141.5212	0.3099	138.3944	2B	139.1666	140.1318	141.9250	142.3289	0.4039	146.0500
				3A	0.0000	146.0500	145.4455	...	141.9250	141.6914	0.2337	138.4884	3B	139.1666	139.9388	141.9250	142.2273	0.3023	146.0500
5¾–6 or 5.7500–6	UN	146.0500	4.2333	2A	0.0813	145.9687	145.5064	...	143.2179	142.9436	0.2743	140.9268	2B	141.4780	142.2400	143.2992	143.6573	0.3581	146.0500
				3A	0.0000	146.0500	145.5877	...	143.2992	143.0934	0.2057	141.0081	3B	141.4780	141.9758	143.2992	143.5684	0.2692	146.0500
5¾–8 or 5.7500–8	UN	146.0500	3.1750	2A	0.0762	145.9738	145.5928	...	143.9113	143.6573	0.2540	142.1943	2B	142.6210	143.2560	143.9875	144.3177	0.3302	146.0500
				3A	0.0000	146.0500	145.6690	...	143.9875	143.7970	0.1905	142.2705	3B	142.6210	142.9944	143.9875	144.2364	0.2489	146.0500
5¾–12 or 5.7500–12	UN	146.0500	2.1167	2A	0.0533	145.9967	145.7071	...	144.6225	144.4498	0.1727	143.4770	2B	143.7640	144.2212	144.6759	144.9019	0.2261	146.0500
				3A	0.0000	146.0500	145.7604	...	144.6759	144.5463	0.1295	143.5303	3B	143.7640	144.0129	144.6759	144.8460	0.1702	146.0500
5¾–16 or 5.7500–16	UN	146.0500	1.5875	2A	0.0483	146.0017	145.7630	...	144.9705	144.8130	0.1575	144.1120	2B	144.3228	144.6784	145.0188	145.2220	0.2032	146.0500
				3A	0.0000	146.0500	145.8112	...	145.0188	144.9019	0.1168	144.1602	3B	144.3228	144.5489	145.0188	145.1712	0.1524	146.0500
5⅞–6 or 5.8750–6	UN	149.2250	4.2333	2A	0.0838	149.1412	148.6789	...	146.3904	146.1135	0.2769	144.0993	2B	144.6530	145.4150	146.4742	146.8349	0.3607	149.2250
				3A	0.0000	149.2250	148.7627	...	146.4742	146.2659	0.2083	144.1831	3B	144.6530	145.1508	146.4742	146.7434	0.2692	149.2250
5⅞–8 or 5.8750–8	UN	149.2250	3.1750	2A	0.0762	149.1488	148.7678	...	147.0863	146.8298	0.2565	145.3693	2B	145.7960	146.4310	147.1625	147.4953	0.3327	149.2250
				3A	0.0000	149.2250	148.8440	...	147.1625	146.9695	0.1930	145.4455	3B	145.7960	146.1694	147.1625	147.4114	0.2489	149.2250
5⅞–12 or 5.8750–12	UN	149.2250	2.1167	2A	0.0533	149.1717	148.8821	...	147.7975	147.6223	0.1753	146.6520	2B	146.9390	147.3962	147.8509	148.0769	0.2261	149.2250
				3A	0.0000	149.2250	148.9354	...	147.8509	147.7188	0.1321	146.7053	3B	146.9390	147.1879	147.8509	148.0210	0.1702	149.2250
5⅞–16 or 5.8750–16	UN	149.2250	1.5875	2A	0.0483	149.1767	148.9380	...	148.1455	147.9880	0.1575	147.2870	2B	147.4978	147.8534	148.1938	148.3995	0.2057	149.2250
				3A	0.0000	149.2250	148.9862	...	148.1938	148.0769	0.1168	147.3352	3B	147.4978	147.7239	148.1938	148.3462	0.1524	149.2250

Table C-1 Limits of Size for Standard Series (UN/UNR) Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]									Internal [Note (1)]						
						Major Diameter			Pitch Diameter and Functional Diameter [Notes (4), (5)]			UNR Minor Diameter, Max. [Note (6)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (4), (5)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Min. [Note (3)]	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
6–4 or 6.0000–4	UN	152.4000	6.3500	2A	0.0940	152.3060	151.7015	...	148.1811	147.8661	0.3150	144.7444	2B	145.5166	146.4818	148.2750	148.6840	0.4089	152.4000
				3A	0.0000	152.4000	151.7955	...	148.2750	148.0388	0.2362	144.8384	3B	145.5166	146.2888	148.2750	148.5798	0.3048	152.4000
6–6 or 6.0000–6	UN	152.4000	4.2333	2A	0.0838	152.3162	151.8539	...	149.5654	149.2885	0.2769	147.2743	2B	147.8280	148.5900	149.6492	150.0099	0.3607	152.4000
				3A	0.0000	152.4000	151.9377	...	149.6492	149.4409	0.2083	147.3581	3B	147.8280	148.3258	149.6492	149.9210	0.2718	152.4000
6–8 or 6.0000–8	UN	152.4000	3.1750	2A	0.0762	152.3238	151.9428	...	150.2613	150.0022	0.2591	148.5443	2B	148.9710	149.6060	150.3375	150.6728	0.3353	152.4000
				3A	0.0000	152.4000	152.0190	...	150.3375	150.1445	0.1930	148.6205	3B	148.9710	149.3444	150.3375	150.5890	0.2515	152.4000
6–12 or 6.0000–12	UN	152.4000	2.1167	2A	0.0533	152.3467	152.0571	...	150.9725	150.7973	0.1753	149.8270	2B	150.1140	150.5712	151.0259	151.2545	0.2286	152.4000
				3A	0.0000	152.4000	152.1104	...	151.0259	150.8938	0.1321	149.8803	3B	150.1140	150.3629	151.0259	151.1960	0.1702	152.4000
6–16 or 6.0000–16	UN	152.4000	1.5875	2A	0.0483	152.3517	152.1130	...	151.3205	151.1630	0.1575	150.4620	2B	150.6728	151.0284	151.3688	151.5745	0.2057	152.4000
				3A	0.0000	152.4000	152.1612	...	151.3688	151.2494	0.1194	150.5102	3B	150.6728	150.8989	151.3688	151.5237	0.1549	152.4000

GENERAL NOTES:

(a) Series designation shown indicates the UN thread form; however, the UNR thread form may be specified by substituting UNR in place of UN in all designations for external use only.

(b) Metric values are the rounded, direct soft conversion of the inch values and may not mathematically compute.

NOTES:

(1) Thread classes may be combined. See para. 4.2.

(2) For Class 2A threads having an additive finish, the maximum major and pitch diameters, after coating, may equal the basic sizes, whose values are the same as maximum values shown for Class 3A in these columns. See para. 4.1.2.

(3) For unfinished hot material, not including standard fasteners with rolled threads.

(4) See para. 5.2.1 for Functional Diameter.

(5) Since these tabulated tolerance values have been converted and then rounded, they may differ slightly from the difference between the tabulated maximum and minimum values.

(6) These values are for reference only. UN series external thread maximum minor diameter is basic (D_1 in para. 11) for Class 3A and basic minus allowance for Classes 1A and 2A.

(7) Formerly NF. Not a recommended standard size. Tolerances and allowances are based on one diameter length of engagement.

Table C-2 Limits of Size for Selected Combinations of UNS/UNRS Series Threads, mm

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]								Internal [Note (1)]						
						Major Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
10 – 28 or 0.190 – 28	UNS	4.8260	0.9071	2A	0.0254	4.8006	4.6355	4.2113	4.1275	0.0838	3.7211	2B	3.8354	4.0640	4.2367	4.3459	0.1092	4.8260
10 – 36 or 0.190 – 36	UNS	4.8260	0.7056	2A	0.0229	4.8031	4.6634	4.3459	4.2697	0.0762	3.9624	2B	4.0640	4.2418	4.3688	4.4679	0.0991	4.8260
10 – 40 or 0.190 – 40	UNS	4.8260	0.6350	2A	0.0279	4.7981	4.6152	4.1097	4.0183	0.0914	3.5382	2B	3.6830	3.9370	4.1377	4.2570	0.1194	4.8260
10 – 48 or 0.190 – 48	UNS	4.8260	0.5292	2A	0.0203	4.8057	4.6914	4.4628	4.3967	0.0660	4.1758	2B	4.2418	4.3688	4.4831	4.5695	0.0864	4.8260
10 – 56 or 0.190 – 56	UNS	4.8260	0.4536	2A	0.0178	4.8082	4.7041	4.5136	4.4501	0.0635	4.2672	2B	4.3434	4.4450	4.5314	4.6126	0.0813	4.8260
12 – 36 or 0.216 – 36	UNS	5.4864	0.7056	2A	0.0229	5.4635	5.3238	5.0063	4.9301	0.0762	4.6228	2B	4.7244	4.9022	5.0292	5.1283	0.0991	5.4864
12 – 40 or 0.216 – 40	UNS	5.4864	0.6350	2A	0.0229	5.4635	5.3340	5.0521	4.9784	0.0737	4.7066	2B	4.8006	4.9530	5.0749	5.1714	0.0965	5.4864
12 – 48 or 0.216 – 48	UNS	5.4864	0.5292	2A	0.0203	5.4661	5.3518	5.1232	5.0546	0.0686	4.8362	2B	4.9022	5.0292	5.1435	5.2324	0.0889	5.4864
12 – 56 or 0.216 – 56	UNS	5.4864	0.4536	2A	0.0203	5.4661	5.3619	5.1714	5.1079	0.0635	4.9251	2B	5.0038	5.1054	5.1918	5.2756	0.0838	5.4864
1/4 – 24 or 0.250 – 24	UNS	6.3500	1.0583	2A	0.0279	6.3221	6.1392	5.6337	5.5397	0.0940	5.0622	2B	5.2070	5.4610	5.6617	5.7836	0.1219	6.3500
1/4 – 27 or 0.250 – 27	UNS	6.3500	0.9407	2A	0.0254	6.3246	6.1544	5.7125	5.6236	0.0889	5.2045	2B	5.3340	5.5626	5.7379	5.8522	0.1143	6.3500
1/4 – 36 or 0.250 – 36	UNS	6.3500	0.7056	2A	0.0229	6.3271	6.1874	5.8699	5.7912	0.0787	5.4864	2B	5.5880	5.7658	5.8928	5.9944	0.1016	6.3500
1/4 – 40 or 0.250 – 40	UNS	6.3500	0.6350	2A	0.0229	6.3271	6.1976	5.9157	5.8420	0.0737	5.5702	2B	5.6642	5.8166	5.9385	6.0350	0.0965	6.3500
1/4 – 48 or 0.250 – 48	UNS	6.3500	0.5292	2A	0.0203	6.3297	6.2154	5.9868	5.9182	0.0686	5.6998	2B	5.7658	5.8928	6.0071	6.0985	0.0914	6.3500
1/4 – 56 or 0.250 – 56	UNS	6.3500	0.4536	2A	0.0203	6.3297	6.2255	6.0350	5.9690	0.0660	5.7887	2B	5.8674	5.9690	6.0554	6.1392	0.0838	6.3500
5/16 – 27 or 0.3125 – 27	UNS	7.9375	0.9407	2A	0.0279	7.9096	7.7394	7.2974	7.2060	0.0914	6.7894	2B	6.9088	7.1374	7.3254	7.4422	0.1168	7.9375
5/16 – 36 or 0.3125 – 36	UNS	7.9375	0.7056	2A	0.0229	7.9146	7.7749	7.4574	7.3787	0.0787	7.0739	2B	7.1628	7.3406	7.4803	7.5844	0.1041	7.9375
5/16 – 40 or 0.3125 – 40	UNS	7.9375	0.6350	2A	0.0229	7.9146	7.7851	7.5032	7.4270	0.0762	7.1577	2B	7.2390	7.3914	7.5260	7.6251	0.0991	7.9375
5/16 – 48 or 0.3125 – 48	UNS	7.9375	0.5292	2A	0.0203	7.9172	7.8029	7.5743	7.5032	0.0711	7.2873	2B	7.3660	7.4930	7.5946	7.6860	0.0914	7.9375
3/8 – 18 or 0.375 – 18	UNS	9.5250	1.4111	2A	0.0330	9.4920	9.2710	8.5750	8.4658	0.1092	7.8105	2B	8.0010	8.3312	8.6081	8.7503	0.1422	9.5250
3/8 – 27 or 0.375 – 27	UNS	9.5250	0.9407	2A	0.0279	9.4971	9.3269	8.8849	8.7935	0.0914	8.3769	2B	8.5090	8.7376	8.9129	9.0322	0.1194	9.5250

Table C-2 Limits of Size for Selected Combinations of UNS/UNRS Series Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]								Internal [Note (1)]						
						Major Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
3/8 – 36 or 0.375 – 36	UNS	9.5250	0.7056	2A	0.0254	9.4996	9.3599	9.0424	8.9611	0.0813	8.6589	2B	8.7630	8.9408	9.0678	9.1745	0.1067	9.5250
3/8 – 40 or 0.375 – 40	UNS	9.5250	0.6350	2A	0.0229	9.5021	9.3726	9.0907	9.0119	0.0787	8.7452	2B	8.8392	8.9916	9.1135	9.2151	0.1016	9.5250
0.390 – 27 or 0.390 – 27	UNS	9.9060	0.9407	2A	0.0279	9.8781	9.7079	9.2659	9.1745	0.0914	8.7579	2B	8.8900	9.1186	9.2939	9.4132	0.1194	9.9060
7/16 – 18 or 0.4375 – 18	UNS	11.1125	1.4111	2A	0.0330	11.0795	10.8585	10.1625	10.0508	0.1118	9.3980	2B	9.5758	9.9060	10.1956	10.3403	0.1448	11.1125
7/16 – 24 or 0.4375 – 24	UNS	11.1125	1.0583	2A	0.0305	11.0820	10.8991	10.3937	10.2946	0.0991	9.8222	2B	9.9568	10.2108	10.4242	10.5512	0.1270	11.1125
7/16 – 27 or 0.4375 – 27	UNS	11.1125	0.9407	2A	0.0279	11.0846	10.9144	10.4724	10.3784	0.0940	9.9644	2B	10.0838	10.3124	10.5004	10.6223	0.1219	11.1125
1/2 – 12 or 0.500 – 12	UNS	12.7000	2.1167	2A	0.0406	12.6594	12.3698	11.2852	11.1481	0.1372	10.1397	2B	10.4140	10.8712	11.3259	11.5037	0.1778	12.7000
				3A	0.0000	12.7000	12.4104	11.3259	11.2243	0.1016	10.1803	3B	10.4140	10.6299	11.3259	11.4579	0.1321	12.7000
1/2 – 14 or 0.500 – 14	UNS	12.7000	1.8143	2A	0.0381	12.6619	12.4003	11.4833	11.3563	0.1270	10.5004	2B	10.7442	11.1252	11.5214	11.6865	0.1651	12.7000
1/2 – 18 or 0.500 – 18	UNS	12.7000	1.4111	2A	0.0330	12.6670	12.4460	11.7500	11.6383	0.1118	10.9855	2B	11.1760	11.5062	11.7831	11.9304	0.1473	12.7000
1/2 – 24 or 0.500 – 24	UNS	12.7000	1.0583	2A	0.0305	12.6695	12.4866	11.9812	11.8821	0.0991	11.4097	2B	11.5570	11.8110	12.0117	12.1412	0.1295	12.7000
1/2 – 27 or 0.500 – 27	UNS	12.7000	0.9407	2A	0.0279	12.6721	12.5019	12.0599	11.9659	0.0940	11.5519	2B	11.6840	11.9126	12.0879	12.2098	0.1219	12.7000
9/16 – 14 or 0.5625 – 14	UNS	14.2875	1.8143	2A	0.0381	14.2494	13.9878	13.0708	12.9438	0.1270	12.0879	2B	12.3190	12.7254	13.1089	13.2740	0.1651	14.2875
9/16 – 27 or 0.5625 – 27	UNS	14.2875	0.9407	2A	0.0279	14.2596	14.0894	13.6474	13.5509	0.0965	13.1394	2B	13.2588	13.4874	13.6754	13.7998	0.1245	14.2875
5/8 – 14 or 0.625 – 14	UNS	15.8750	1.8143	2A	0.0381	15.8369	15.5753	14.6583	14.5288	0.1295	13.6754	2B	13.9192	14.3002	14.6964	14.8641	0.1676	15.8750
5/8 – 27 or 0.625 – 27	UNS	15.8750	0.9407	2A	0.0279	15.8471	15.6769	15.2349	15.1384	0.0965	14.7269	2B	14.8590	15.0876	15.2629	15.3899	0.1270	15.8750
3/4 – 14 or 0.750 – 14	UNS	19.0500	1.8143	2A	0.0381	19.0119	18.7503	17.8333	17.7038	0.1295	16.8504	2B	17.0942	17.4752	17.8714	18.0416	0.1702	19.0500
3/4 – 18 or 0.750 – 18	UNS	19.0500	1.4111	2A	0.0356	19.0144	18.7935	18.0975	17.9807	0.1168	17.3330	2B	17.5260	17.8562	18.1331	18.2855	0.1524	19.0500
3/4 – 24 or 0.750 – 24	UNS	19.0500	1.0583	2A	0.0305	19.0195	18.8366	18.3312	18.2270	0.1041	17.7597	2B	17.9070	18.1610	18.3617	18.4963	0.1346	19.0500
3/4 – 27 or 0.750 – 27	UNS	19.0500	0.9407	2A	0.0305	19.0195	18.8493	18.4074	18.3083	0.0991	17.8994	2B	18.0340	18.2626	18.4379	18.5674	0.1295	19.0500
7/8 – 10 or 0.875 – 10	UNS	22.2250	2.5400	2A	0.0457	22.1793	21.8516	20.5283	20.3733	0.1549	19.1541	2B	19.4818	20.0152	20.5740	20.7747	0.2007	22.2250

Table C-2 Limits of Size for Selected Combinations of UNS/UNRS Series Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]								Internal [Note (1)]						
						Major Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
7/8 – 18 or 0.875 – 18	UNS	22.2250	1.4111	2A	0.0356	22.1894	21.9685	21.2725	21.1531	0.1194	20.5080	2B	20.7010	21.0312	21.3081	21.4630	0.1549	22.2250
7/8 – 24 or 0.875 – 24	UNS	22.2250	1.0583	2A	0.0305	22.1945	22.0116	21.5062	21.3995	0.1067	20.9347	2B	21.0820	21.3360	21.5367	21.6738	0.1372	22.2250
7/8 – 27 or 0.875 – 27	UNS	22.2250	0.9407	2A	0.0305	22.1945	22.0243	21.5824	21.4808	0.1016	21.0744	2B	21.2090	21.4376	21.6129	21.7449	0.1321	22.2250
1 – 10 or 1.000 – 10	UNS	25.4000	2.5400	2A	0.0457	25.3543	25.0266	23.7033	23.5458	0.1575	22.3291	2B	22.6568	23.1902	23.7490	23.9522	0.2032	25.4000
1 – 18 or 1.000 – 18	UNS	25.4000	1.4111	2A	0.0356	25.3644	25.1435	24.4475	24.3281	0.1194	23.6830	2B	23.8760	24.2062	24.4831	24.6405	0.1575	25.4000
1 – 24 or 1.000 – 24	UNS	25.4000	1.0583	2A	0.0330	25.3670	25.1841	24.6786	24.5720	0.1067	24.1071	2B	24.2570	24.5110	24.7117	24.8514	0.1397	25.4000
1 – 27 or 1.000 – 27	UNS	25.4000	0.9407	2A	0.0305	25.3695	25.1993	24.7574	24.6558	0.1016	24.2494	2B	24.3840	24.6126	24.7879	24.9199	0.1321	25.4000
1 1/8 – 10 or 1.125 – 10	UNS	28.5750	2.5400	2A	0.0483	28.5267	28.1991	26.8757	26.7183	0.1575	25.5016	2B	25.8318	26.3652	26.9240	27.1297	0.2057	28.5750
1 1/8 – 14 or 1.125 – 14	UNS	28.5750	1.8143	2A	0.0406	28.5344	28.2727	27.3558	27.2212	0.1346	26.3728	2B	26.6192	27.0002	27.3964	27.5717	0.1753	28.5750
1 1/8 – 24 or 1.125 – 24	UNS	28.5750	1.0583	2A	0.0330	28.5420	28.3591	27.8536	27.7444	0.1092	27.2821	2B	27.4320	27.6860	27.8867	28.0289	0.1422	28.5750
1 1/4 – 10 or 1.250 – 10	UNS	31.7500	2.5400	2A	0.0483	31.7017	31.3741	30.0507	29.8907	0.1600	28.6766	2B	29.0068	29.5402	30.0990	30.3073	0.2083	31.7500
1 1/4 – 14 or 1.250 – 14	UNS	31.7500	1.8143	2A	0.0406	31.7094	31.4477	30.5308	30.3936	0.1372	29.5478	2B	29.7942	30.1752	30.5714	30.7492	0.1778	31.7500
1 1/4 – 24 or 1.250 – 24	UNS	31.7500	1.0583	2A	0.0330	31.7170	31.5341	31.0286	30.9194	0.1092	30.4571	2B	30.6070	30.8610	31.0617	31.2039	0.1422	31.7500
1 3/8 – 10 or 1.375 – 10	UNS	34.9250	2.5400	2A	0.0483	34.8767	34.5491	33.2257	33.0657	0.1600	31.8516	2B	32.1818	32.7152	33.2740	33.4823	0.2083	34.9250
1 3/8 – 14 or 1.375 – 14	UNS	34.9250	1.8143	2A	0.0406	34.8844	34.6227	33.7058	33.5661	0.1397	32.7228	2B	32.9692	33.3502	33.7464	33.9268	0.1803	34.9250
1 3/8 – 24 or 1.375 – 24	UNS	34.9250	1.0583	2A	0.0330	34.8920	34.7091	34.2036	34.0919	0.1118	33.6321	2B	33.7820	34.0360	34.2367	34.3814	0.1448	34.9250
1 1/2 – 10 or 1.500 – 10	UNS	38.1000	2.5400	2A	0.0483	38.0517	37.7241	36.4007	36.2382	0.1626	35.0266	2B	35.3568	35.8902	36.4490	36.6598	0.2108	38.1000
1 1/2 – 14 or 1.500 – 14	UNS	38.1000	1.8143	2A	0.0432	38.0568	37.7952	36.8783	36.7386	0.1397	35.8953	2B	36.1442	36.5252	36.9214	37.1043	0.1829	38.1000
1 1/2 – 24 or 1.500 – 24	UNS	38.1000	1.0583	2A	0.0330	38.0670	37.8841	37.3786	37.2669	0.1118	36.8071	2B	36.9570	37.2110	37.4117	37.5590	0.1473	38.1000
1 5/8 – 10 or 1.625 – 10	UNS	41.2750	2.5400	2A	0.0483	41.2267	40.8991	39.5757	39.4132	0.1626	38.2016	2B	38.5318	39.0652	39.6240	39.8348	0.2108	41.2750
1 5/8 – 14 or 1.625 – 14	UNS	41.2750	1.8143	2A	0.0432	41.2318	40.9702	40.0533	39.9136	0.1397	39.0703	2B	39.3192	39.7002	40.0964	40.2793	0.1829	41.2750

Table C-2 Limits of Size for Selected Combinations of UNS/UNRS Series Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]								Internal [Note (1)]						
						Major Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{5}{8}$ – 24 or 1.625 – 24	UNS	41.2750	1.0583	2A	0.0330	41.2420	41.0591	40.5536	40.4393	0.1143	39.9821	2B	40.1320	40.3860	40.5867	40.7340	0.1473	41.2750
$1\frac{3}{4}$ – 10 or 1.750 – 10	UNS	44.4500	2.5400	2A	0.0483	44.4017	44.0741	42.7507	42.5856	0.1651	41.3766	2B	41.7068	42.2402	42.7990	43.0124	0.2134	44.4500
$1\frac{3}{4}$ – 14 or 1.750 – 14	UNS	44.4500	1.8143	2A	0.0432	44.4068	44.1452	43.2283	43.0860	0.1422	42.2453	2B	42.4942	42.8752	43.2714	43.4569	0.1854	44.4500
$1\frac{3}{4}$ – 18 or 1.750 – 18	UNS	44.4500	1.4111	2A	0.0381	44.4119	44.1909	43.4950	43.3654	0.1295	42.7304	2B	42.9260	43.2562	43.5331	43.7007	0.1676	44.4500
$1\frac{7}{8}$ – 10 or 1.875 – 10	UNS	47.6250	2.5400	2A	0.0508	47.5742	47.2465	45.9232	45.7581	0.1651	44.5491	2B	44.8818	45.4152	45.9740	46.1899	0.2159	47.6250
$1\frac{7}{8}$ – 14 or 1.875 – 14	UNS	47.6250	1.8143	2A	0.0432	47.5818	47.3202	46.4033	46.2610	0.1422	45.4203	2B	45.6692	46.0502	46.4464	46.6319	0.1854	47.6250
$1\frac{7}{8}$ – 18 or 1.875 – 18	UNS	47.6250	1.4111	2A	0.0381	47.5869	47.3659	46.6700	46.5404	0.1295	45.9054	2B	46.1010	46.4312	46.7081	46.8757	0.1676	47.6250
2 – 10 or 2.000 – 10	UNS	50.8000	2.5400	2A	0.0508	50.7492	50.4215	49.0982	48.9331	0.1651	47.7241	2B	48.0568	48.5902	49.1490	49.3649	0.2159	50.8000
2 – 14 or 2.000 – 14	UNS	50.8000	1.8143	2A	0.0432	50.7568	50.4952	49.5783	49.4335	0.1448	48.5953	2B	48.8442	49.2252	49.6214	49.8094	0.1880	50.8000
2 – 18 or 2.000 – 18	UNS	50.8000	1.4111	2A	0.0381	50.7619	50.5409	49.8450	49.7154	0.1295	49.0804	2B	49.2760	49.6062	49.8831	50.0532	0.1702	50.8000
$2\frac{1}{16}$ – 16 or 2.0625 – 16	UNS	52.3875	1.5875	2A	0.0406	52.3469	52.1081	51.3156	51.1785	0.1372	50.4571	2B	50.6730	51.0286	51.3563	51.5341	0.1778	52.3875
				3A	0.0000	52.3875	52.1487	51.3563	51.2547	0.1016	50.4977	3B	50.6730	50.8864	51.3563	51.4909	0.1346	52.3875
$2\frac{3}{16}$ – 16 or 2.1875 – 16	UNS	55.5625	1.5875	2A	0.0406	55.5219	55.2831	54.4906	54.3535	0.1372	53.6321	2B	53.8480	54.2036	54.5313	54.7116	0.1803	55.5625
				3A	0.0000	55.5625	55.3237	54.5313	54.4271	0.1041	53.6727	3B	53.8480	54.0614	54.5313	54.6659	0.1346	55.5625
$2\frac{1}{4}$ – 10 or 2.250 – 10	UNS	57.1500	2.5400	2A	0.0508	57.0992	56.7715	55.4482	55.2806	0.1676	54.0741	2B	54.4068	54.9402	55.4990	55.7174	0.2184	57.1500
$2\frac{1}{4}$ – 14 or 2.250 – 14	UNS	57.1500	1.8143	2A	0.0432	57.1068	56.8452	55.9283	55.7809	0.1473	54.9453	2B	55.1942	55.5752	55.9714	56.1619	0.1905	57.1500
$2\frac{1}{4}$ – 18 or 2.250 – 18	UNS	57.1500	1.4111	2A	0.0406	57.1094	56.8884	56.1924	56.0603	0.1321	55.4279	2B	55.6260	55.9562	56.2331	56.4058	0.1727	57.1500
$2\frac{5}{16}$ – 16 or 2.3125 – 16	UNS	58.7375	1.5875	2A	0.0406	58.6969	58.4581	57.6656	57.5259	0.1397	56.8071	2B	57.0230	57.3786	57.7063	57.8866	0.1803	58.7375
				3A	0.0000	58.7375	58.4987	57.7063	57.6021	0.1041	56.8477	3B	57.0230	57.2364	57.7063	57.8409	0.1346	58.7375
$2\frac{7}{16}$ – 16 or 2.4375 – 16	UNS	61.9125	1.5875	2A	0.0432	61.8693	61.6306	60.8381	60.6984	0.1397	59.9796	2B	60.1980	60.5536	60.8813	61.0641	0.1829	61.9125
				3A	0.0000	61.9125	61.6737	60.8813	60.7771	0.1041	60.0227	3B	60.1980	60.4114	60.8813	61.0184	0.1372	61.9125
$2\frac{1}{2}$ – 10 or 2.500 – 10	UNS	63.5000	2.5400	2A	0.0508	63.4492	63.1215	61.7982	61.6280	0.1702	60.4241	2B	60.7568	61.2902	61.8490	62.0700	0.2210	63.5000
$2\frac{1}{2}$ – 14 or 2.500 – 14	UNS	63.5000	1.8143	2A	0.0432	63.4568	63.1952	62.2783	62.1309	0.1473	61.2953	2B	61.5442	61.9252	62.3214	62.5145	0.1930	63.5000

Table C-2 Limits of Size for Selected Combinations of UNS/UNRS Series Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]								Internal [Note (1)]						
						Major Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$2\frac{1}{2}$ – 18 or 2.500 – 18	UNS	63.5000	1.4111	2A	0.0406	63.4594	63.2384	62.5424	62.4078	0.1346	61.7779	2B	61.9760	62.3062	62.5831	62.7583	0.1753	63.5000
$2\frac{3}{4}$ – 10 or 2.750 – 10	UNS	69.8500	2.5400	2A	0.0508	69.7992	69.4715	68.1482	67.9755	0.1727	66.7741	2B	67.1068	67.6402	68.1990	68.4225	0.2235	69.8500
$2\frac{3}{4}$ – 14 or 2.750 – 14	UNS	69.8500	1.8143	2A	0.0457	69.8043	69.5427	68.6257	68.4759	0.1499	67.6427	2B	67.8942	68.2752	68.6714	68.8670	0.1956	69.8500
$2\frac{3}{4}$ – 18 or 2.750 – 18	UNS	69.8500	1.4111	2A	0.0406	69.8094	69.5884	68.8924	68.7578	0.1346	68.1279	2B	68.3260	68.6562	68.9331	69.1109	0.1778	69.8500
3 – 10 or 3.000 – 10	UNS	76.2000	2.5400	2A	0.0508	76.1492	75.8215	74.4982	74.3255	0.1727	73.1241	2B	73.4568	73.9902	74.5490	74.7751	0.2261	76.2000
3 – 14 or 3.000 – 14	UNS	76.2000	1.8143	2A	0.0457	76.1543	75.8927	74.9757	74.8259	0.1499	73.9927	2B	74.2442	74.6252	75.0214	75.2170	0.1956	76.2000
3 – 18 or 3.000 – 18	UNS	76.2000	1.4111	2A	0.0406	76.1594	75.9384	75.2424	75.1053	0.1372	74.4779	2B	74.6760	75.0062	75.2831	75.4609	0.1778	76.2000
$3\frac{1}{4}$ – 10 or 3.250 – 10	UNS	82.5500	2.5400	2A	0.0533	82.4967	82.1690	80.8457	80.6704	0.1753	79.4715	2B	79.8068	80.3402	80.8990	81.1251	0.2261	82.5500
$3\frac{1}{4}$ – 14 or 3.250 – 14	UNS	82.5500	1.8143	2A	0.0457	82.5043	82.2427	81.3257	81.1733	0.1524	80.3427	2B	80.5942	80.9752	81.3714	81.5696	0.1981	82.5500
$3\frac{1}{4}$ – 18 or 3.250 – 18	UNS	82.5500	1.4111	2A	0.0406	82.5094	82.2884	81.5924	81.4527	0.1397	80.8279	2B	81.0260	81.3562	81.6331	81.8134	0.1803	82.5500
$3\frac{1}{2}$ – 10 or 3.500 – 10	UNS	88.9000	2.5400	2A	0.0533	88.8467	88.5190	87.1957	87.0204	0.1753	85.8215	2B	86.1568	86.6902	87.2490	87.4776	0.2286	88.9000
$3\frac{1}{2}$ – 14 or 3.500 – 14	UNS	88.9000	1.8143	2A	0.0457	88.8543	88.5927	87.6757	87.5208	0.1549	86.6927	2B	86.9442	87.3252	87.7214	87.9221	0.2007	88.9000
$3\frac{1}{2}$ – 18 or 3.500 – 18	UNS	88.9000	1.4111	2A	0.0432	88.8568	88.6358	87.9399	87.8002	0.1397	87.1753	2B	87.3760	87.7062	87.9831	88.1659	0.1829	88.9000
$3\frac{3}{4}$ – 10 or 3.750 – 10	UNS	95.2500	2.5400	2A	0.0533	95.1967	94.8690	93.5457	93.3679	0.1778	92.1715	2B	92.5068	93.0402	93.5990	93.8301	0.2311	95.2500
$3\frac{3}{4}$ – 14 or 3.750 – 14	UNS	95.2500	1.8143	2A	0.0457	95.2043	94.9427	94.0257	93.8708	0.1549	93.0427	2B	93.2942	93.6752	94.0714	94.2721	0.2007	95.2500
$3\frac{3}{4}$ – 18 or 3.750 – 18	UNS	95.2500	1.4111	2A	0.0432	95.2068	94.9858	94.2899	94.1476	0.1422	93.5253	2B	93.7260	94.0562	94.3331	94.5159	0.1829	95.2500
4 – 10 or 4.000 – 10	UNS	101.6000	2.5400	2A	0.0533	101.5467	101.2190	99.8957	99.7179	0.1778	98.5215	2B	98.8568	99.3902	99.9490	100.1801	0.2311	101.6000
4 – 14 or 4.000 – 14	UNS	101.6000	1.8143	2A	0.0457	101.5543	101.2927	100.3757	100.2182	0.1575	99.3927	2B	99.6442	100.0252	100.4214	100.6246	0.2032	101.6000
$4\frac{1}{4}$ – 10 or 4.250 – 10	UNS	107.9500	2.5400	2A	0.0533	107.8967	107.5690	106.2457	106.0653	0.1803	104.8715	2B	105.2068	105.7402	106.2990	106.5327	0.2337	107.9500
$4\frac{1}{4}$ – 14 or 4.250 – 14	UNS	107.9500	1.8143	2A	0.0483	107.9017	107.6401	106.7232	106.5657	0.1575	105.7402	2B	105.9942	106.3752	106.7714	106.9772	0.2057	107.9500
$4\frac{1}{2}$ – 10 or 4.500 – 10	UNS	114.3000	2.5400	2A	0.0533	114.2467	113.9190	112.5957	112.4153	0.1803	111.2215	2B	111.5568	112.0902	112.6490	112.8852	0.2362	114.3000

Table C-2 Limits of Size for Selected Combinations of UNS/UNRS Series Threads, mm (Cont'd)

Nominal Size and Threads/in.	Series Designation	Metric Equivalents		External [Note (1)]								Internal [Note (1)]						
						Major Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Notes (3), (4)]			Major Diameter, Min.
		Dia.	Pitch	Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$4\frac{1}{2}$ – 14 or 4.500 – 14	UNS	114.3000	1.8143	2A	0.0483	114.2517	113.9901	113.0732	112.9132	0.1600	112.0902	2B	112.3442	112.7252	113.1214	113.3272	0.2057	114.3000
$4\frac{3}{4}$ – 10 or 4.750 – 10	UNS	120.6500	2.5400	2A	0.0559	120.5941	120.2665	118.9431	118.7602	0.1829	117.5690	2B	117.9068	118.4402	118.9990	119.2352	0.2362	120.6500
$4\frac{3}{4}$ – 14 or 4.750 – 14	UNS	120.6500	1.8143	2A	0.0483	120.6017	120.3401	119.4232	119.2632	0.1600	118.4402	2B	118.6942	119.0752	119.4714	119.6797	0.2083	120.6500
5 – 10 or 5.000 – 10	UNS	127.0000	2.5400	2A	0.0559	126.9441	126.6165	125.2931	125.1102	0.1829	123.9190	2B	124.2568	124.7902	125.3490	125.5878	0.2388	127.0000
5 – 14 or 5.000 – 14	UNS	127.0000	1.8143	2A	0.0483	126.9517	126.6901	125.7732	125.6132	0.1626	124.7902	2B	125.0442	125.4252	125.8214	126.0323	0.2108	127.0000
$5\frac{1}{4}$ – 10 or 5.250 – 10	UNS	133.3500	2.5400	2A	0.0559	133.2941	132.9665	131.6431	131.4577	0.1854	130.2690	2B	130.6068	131.1402	131.6990	131.9378	0.2388	133.3500
$5\frac{1}{4}$ – 14 or 5.250 – 14	UNS	133.3500	1.8143	2A	0.0483	133.3017	133.0401	132.1232	131.9606	0.1626	131.1402	2B	131.3942	131.7752	132.1714	132.3823	0.2108	133.3500
$5\frac{1}{2}$ – 10 or 5.500 – 10	UNS	139.7000	2.5400	2A	0.0559	139.6441	139.3165	137.9931	137.8077	0.1854	136.6190	2B	136.9568	137.4902	138.0490	138.2903	0.2413	139.7000
$5\frac{1}{2}$ – 14 or 5.500 – 14	UNS	139.7000	1.8143	2A	0.0483	139.6517	139.3901	138.4732	138.3106	0.1626	137.4902	2B	137.7442	138.1252	138.5214	138.7348	0.2134	139.7000
$5\frac{3}{4}$ – 10 or 5.750 – 10	UNS	146.0500	2.5400	2A	0.0559	145.9941	145.6665	144.3431	144.1577	0.1854	142.9690	2B	143.3068	143.8402	144.3990	144.6403	0.2413	146.0500
$5\frac{3}{4}$ – 14 or 5.750 – 14	UNS	146.0500	1.8143	2A	0.0483	146.0017	145.7401	144.8232	144.6581	0.1651	143.8402	2B	144.0942	144.4752	144.8714	145.0848	0.2134	146.0500
6 – 10 or 6.000 – 10	UNS	152.4000	2.5400	2A	0.0559	152.3441	152.0165	150.6931	150.5052	0.1880	149.3190	2B	149.6568	150.1902	150.7490	150.9928	0.2438	152.4000
6 – 14 or 6.000 – 14	UNS	152.4000	1.8143	2A	0.0508	152.3492	152.0876	151.1706	151.0055	0.1651	150.1877	2B	150.4442	150.8252	151.2214	151.4373	0.2159	152.4000

GENERAL NOTE: Series designation shown indicates the UN thread form; however, the UNR thread form may be specified by substituting UNR in place of UN in all designations for external use only.

NOTES:

(1) Thread classes may be combined. See para. 4.2.

(2) For Class 2A threads having an additive finish, the maximum major and pitch diameters, after coating, may equal the basic sizes, whose values are the same as maximum values shown for Class 3A in these columns. See para. 4.1.2.

(3) See para. 5.2.1 for Functional Diameter.

(4) Since these tabulated tolerance values have been converted and then rounded, they may differ slightly from the difference between the tabulated maximum and minimum values.

(5) These values are for reference only. UN series external thread maximum minor diameter is basic (D_1 in para. 11) for Class 3A and basic minus allowance for Classes 1A and 2A.

Table C-3 Thread Form Data, mm

Threads/ in.	Pitch, P	Basic Flat at Internal Thread Crest, and External UN Thread Root, $F_{rs} = F_{cn} = P/4 =$ 0.25000000P	Flat at Internal Thread Root and External Thread Crest, $F_{rn} = F_{cs} = P/8 =$ 0.12500000P	H [Note (1)] Height of Sharp V-Thread = 0.86602540P	0.1250H [Note (1)] Truncation of Internal Thread Root and External Thread Crest, $f_{rn} = f_{es} =$ 0.10825318P [Note (2)]	0.1667H [Note (1)] External Thread Root Full Radius, Max., $r_{rs} =$ 0.14433757P	0.1875H [Note (1)] Truncation of UNR Design Profile External Thread Root and Half Addendum of External Thread, $S_{rs} =$ 0.16237976P	0.2500H [Note (1)] External Thread Root and Truncation of Internal Thread Crest, $f_{rs} = f_{cn} =$ 0.21650635P [Note (3)]
1	2	3	4	5	6	7	8	9
80	0.31750	0.0794	0.0397	0.2750	0.0344	0.0458	0.0516	0.0687
72	0.35278	0.0882	0.0441	0.3055	0.0382	0.0509	0.0573	0.0764
64	0.39688	0.0992	0.0496	0.3437	0.0430	0.0573	0.0644	0.0859
56	0.45357	0.1134	0.0567	0.3928	0.0491	0.0655	0.0737	0.0982
48	0.52917	0.1323	0.0661	0.4583	0.0573	0.0764	0.0859	0.1146
44	0.57727	0.1443	0.0722	0.4999	0.0625	0.0833	0.0937	0.1250
40	0.63500	0.1588	0.0794	0.5499	0.0687	0.0916	0.1031	0.1375
36	0.70556	0.1764	0.0882	0.6110	0.0764	0.1018	0.1146	0.1528
32	0.79375	0.1985	0.0992	0.6874	0.0859	0.1146	0.1289	0.1719
28	0.90714	0.2268	0.1134	0.7856	0.0982	0.1309	0.1473	0.1964
27	0.94074	0.2352	0.1176	0.8147	0.1018	0.1358	0.1528	0.2037
24	1.05833	0.2646	0.1323	0.9165	0.1146	0.1528	0.1719	0.2291
20	1.27000	0.3175	0.1588	1.0998	0.1375	0.1833	0.2062	0.2750
18	1.41111	0.3528	0.1764	1.2221	0.1528	0.2037	0.2291	0.3055
16	1.58750	0.3969	0.1985	1.3748	0.1719	0.2291	0.2578	0.3437
14	1.81429	0.4536	0.2268	1.5712	0.1964	0.2619	0.2946	0.3928
13	1.95385	0.4885	0.2442	1.6921	0.2115	0.2820	0.3173	0.4230
12	2.11667	0.5292	0.2646	1.8331	0.2291	0.3055	0.3437	0.4583
11.5	2.20870	0.5522	0.2761	1.9128	0.2391	0.3188	0.3586	0.4782
11	2.30909	0.5773	0.2886	1.9997	0.2500	0.3333	0.3750	0.4999
10	2.54000	0.6350	0.3175	2.1997	0.2750	0.3666	0.4124	0.5499
9	2.82222	0.7056	0.3528	2.4441	0.3055	0.4074	0.4583	0.6110
8	3.17500	0.7938	0.3969	2.7496	0.3437	0.4583	0.5155	0.6874
7	3.62857	0.9071	0.4536	3.1424	0.3928	0.5237	0.5892	0.7856
6	4.23333	1.0583	0.5292	3.6662	0.4583	0.6110	0.6874	0.9165
5	5.08000	1.2700	0.6350	4.3994	0.5499	0.7332	0.8249	1.0998
4.5	5.64444	1.4111	0.7056	4.8882	0.6110	0.8147	0.9165	1.2221
4	6.35000	1.5875	0.7938	5.4993	0.6874	0.9165	1.0311	1.3748

Table C-3 Thread Form Data, mm (Cont'd)

Threads/ in.	0.375*H* [Note (1)] Addendum of External Thread, h_{as} = 0.32475953*P* [Note (4)]	0.625*H* [Note (1)] Height of Internal Thread, UN External Thread, and Depth of Thread Engagement, $h_s = h_n = h_e$ = 0.54126588*P*	0.6875*H* [Note (1)] Height of UNR External Thread, h_s = 0.59539247*P*	0.7500*H* [Note (1)] Twice the External Thread Addendum, $h_b = 2h_{as}$ = 0.64951905*P*	0.9167*H* [Note (1)] Difference Between Max. Major and Pitch Diameters of Internal Thread = 0.79385662*P*	1.2500*H* [Note (1)] Double Height of Internal Thread and External UN Thread, $2h_n$ = 1.08253175*P*	1.3750*H* [Note (1)] Double Height of External UNR Thread, $2h_s$ = 1.19078493*P*	0.5000*H* [Note (1)] 0.43301270*P*
1	10	11	12	13	14	15	16	17
80	0.1031	0.1719	0.1890	0.2062	0.2520	0.3437	0.3781	0.1375
72	0.1146	0.1910	0.2100	0.2291	0.2801	0.3819	0.4201	0.1528
64	0.1289	0.2148	0.2363	0.2578	0.3151	0.4296	0.4726	0.1719
56	0.1473	0.2455	0.2701	0.2946	0.3601	0.4910	0.5401	0.1964
48	0.1719	0.2864	0.3151	0.3437	0.4201	0.5728	0.6301	0.2291
44	0.1875	0.3124	0.3437	0.3750	0.4583	0.6249	0.6874	0.2500
40	0.2062	0.3437	0.3781	0.4124	0.5041	0.6874	0.7562	0.2750
36	0.2291	0.3819	0.4201	0.4583	0.5601	0.7638	0.8402	0.3055
32	0.2578	0.4296	0.4726	0.5155	0.6301	0.8593	0.9452	0.3437
28	0.2946	0.4910	0.5401	0.5892	0.7201	0.9820	1.0802	0.3928
27	0.3055	0.5092	0.5601	0.6110	0.7468	1.0184	1.1202	0.4074
24	0.3437	0.5728	0.6301	0.6874	0.8402	1.1457	1.2602	0.4583
20	0.4124	0.6874	0.7562	0.8249	1.0082	1.3748	1.5123	0.5499
18	0.4583	0.7638	0.8402	0.9165	1.1202	1.5276	1.6803	0.6110
16	0.5155	0.8593	0.9452	1.0311	1.2602	1.7185	1.8904	0.6874
14	0.5892	0.9820	1.0802	1.1784	1.4403	1.9640	2.1604	0.7856
13	0.6345	1.0576	1.1633	1.2691	1.5511	2.1151	2.3266	0.8460
12	0.6874	1.1457	1.2602	1.3748	1.6803	2.2914	2.5205	0.9165
11.5	0.7173	1.1955	1.3150	1.4346	1.7534	2.3910	2.6301	0.9564
11	0.7499	1.2498	1.3748	1.4998	1.8331	2.4997	2.7496	0.9999
10	0.8249	1.3748	1.5123	1.6498	2.0164	2.7496	3.0246	1.0998
9	0.9165	1.5276	1.6803	1.8331	2.2404	3.0551	3.3606	1.2221
8	1.0311	1.7185	1.8904	2.0622	2.5205	3.4370	3.7807	1.3748
7	1.1784	1.9640	2.1604	2.3568	2.8806	3.9280	4.3208	1.5712
6	1.3748	2.2914	2.5205	2.7496	3.3606	4.5827	5.0410	1.8331
5	1.6498	2.7496	3.0246	3.2996	4.0328	5.4993	6.0492	2.1997
4.5	1.8331	3.0551	3.3606	3.6662	4.4809	6.1103	6.7213	2.4441
4	2.0622	3.4370	3.7807	4.1245	5.0410	6.8741	7.5615	2.7496

GENERAL NOTES:

(a) All dimensions are in millimeters (except for threads per inch, col. 1).

(b) Metric values are the rounded, direct soft conversion of the inch values and do not comply to ASME B1.30 and may not mathematically compute. They should be used for reference only.

(c) All thread calculations are to be performed using a function of pitch (*P*); the use of thread height (*H*) is for reference only as stated in ASME B1.30.

NOTES:

(1) The thread values based on a function of height "*H*" are used for reference only.

(2) The values tabulated in col. 6 also pertain to the minimum root radius of UNR screw threads. See paras. 2.3.1 and 2.3.1(a).

(3) $h_{an} = f_{cn} = 0.25H = 0.21650635P$

(4) $h_{dn} = h_{as} = 0.375H = 0.32475953P$

NONMANDATORY APPENDIX D
SPECIAL THREADS

Newly created special thread dimensions shall be determined by use of the formulas in the body of this standard and the employment of the rounding rules set forth by ASME B1.30.

Existing special thread dimensions developed from previous editions of B1.1 and using rounding rules other than those contained in B1.30 may differ. Previously established special thread dimensions are acceptable for continued use.

This Appendix contains Table D-1 (formerly Table 3B in B1.1-1989) which contains tabulated values for many of the more commonly used nonstandard thread sizes. Also contained are Tables D-2 through D-11 (formerly Tables 31 through 40 in B1.1-1989). These tables were used in the past to calculate special thread sizes.

Table D-1 Limits of Size for Selected Combinations of UNS/UNRS Series Threads

Nominal Size and Threads/in.	Series Designation	External [Note (1)]								Internal [Note (1)]						
		Class	Allowance	Major Diameter		Pitch Diameter and Functional Diameter [Note (3)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)	Class	Minor Diameter		Pitch Diameter and Functional Diameter [Note (3)]			Major Diameter, Min.
				Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance [Note (4)]			Min.	Max.	Min.	Max.	Tolerance	
(6) 10 – 28 or 0.190 – 28	UNS	2A	0.0010	0.1890	0.1825	0.1658	0.1625	0.003339	0.1465	2B	0.151	0.160	0.1668	0.1711	0.0043	0.1900
(6) 10 – 36 or 0.190 – 36	UNS	2A	0.0009	0.1891	0.1836	0.1711	0.1681	0.002988	0.1560	2B	0.160	0.167	0.1720	0.1759	0.0039	0.1900
(6) 10 – 40 or 0.190 – 40	UNS	2A	0.0009	0.1891	0.1840	0.1729	0.1700	0.002856	0.1593	2B	0.163	0.169	0.1738	0.1775	0.0037	0.1900
10 – 48 or 0.190 – 48	UNS	2A	0.0008	0.1892	0.1847	0.1757	0.1731	0.002648	0.1644	2B	0.167	0.172	0.1765	0.1799	0.0034	0.1900
(6) 10 – 56 or 0.190 – 56	UNS	2A	0.0007	0.1893	0.1852	0.1777	0.1752	0.002488	0.1680	2B	0.171	0.175	0.1784	0.1816	0.0032	0.1900
(6) 12 – 36 or 0.216 – 36	UNS	2A	0.0009	0.2151	0.2096	0.1971	0.1941	0.003026	0.1820	2B	0.186	0.193	0.1980	0.2019	0.0039	0.2160
(6) 12 – 40 or 0.216 – 40	UNS	2A	0.0009	0.2151	0.2100	0.1989	0.1960	0.002894	0.1853	2B	0.189	0.195	0.1998	0.2036	0.0038	0.2160
(6) 12 – 48 or 0.216 – 48	UNS	2A	0.0008	0.2152	0.2107	0.2017	0.1990	0.002686	0.1904	2B	0.193	0.198	0.2025	0.2060	0.0035	0.2160
(6) 12 – 56 or 0.216 – 56	UNS	2A	0.0008	0.2152	0.2111	0.2036	0.2011	0.002526	0.1939	2B	0.197	0.201	0.2044	0.2077	0.0033	0.2160
1/4 – 24 or 0.250 – 24	UNS	2A	0.0011	0.2489	0.2417	0.2218	0.2181	0.003667	0.1993	2B	0.205	0.215	0.2229	0.2277	0.0048	0.2500
1/4 – 27 or 0.250 – 27	UNS	2A	0.0010	0.2490	0.2423	0.2249	0.2214	0.003478	0.2049	2B	0.210	0.219	0.2259	0.2304	0.0045	0.2500
(6) 1/4 – 36 or 0.250 – 36	UNS	2A	0.0009	0.2491	0.2436	0.2311	0.2280	0.003071	0.2160	2B	0.220	0.227	0.2320	0.2360	0.0040	0.2500
1/4 – 40 or 0.250 – 40	UNS	2A	0.0009	0.2491	0.2440	0.2329	0.2300	0.002939	0.2193	2B	0.223	0.229	0.2338	0.2376	0.0038	0.2500
(6) 1/4 – 48 or 0.250 – 48	UNS	2A	0.0008	0.2492	0.2447	0.2357	0.2330	0.002731	0.2244	2B	0.227	0.232	0.2365	0.2401	0.0036	0.2500
(6) 1/4 – 56 or 0.250 – 56	UNS	2A	0.0008	0.2492	0.2451	0.2376	0.2350	0.002571	0.2279	2B	0.231	0.235	0.2384	0.2417	0.0033	0.2500
(6) 5/16–27 or 0.3125–27	UNS	2A	0.0011	0.3114	0.3047	0.2873	0.2837	0.003551	0.2673	2B	0.272	0.281	0.2884	0.2930	0.0046	0.3125
(6) 5/16–36 or 0.3125–36	UNS	2A	0.0009	0.3116	0.3061	0.2936	0.2905	0.003144	0.2785	2B	0.282	0.289	0.2945	0.2986	0.0041	0.3125
(6) 5/16–40 or 0.3125–40	UNS	2A	0.0009	0.3116	0.3065	0.2954	0.2924	0.003012	0.2818	2B	0.285	0.291	0.2963	0.3002	0.0039	0.3125
(6) 5/16–48 or 0.3125–48	UNS	2A	0.0008	0.3117	0.3072	0.2982	0.2954	0.002804	0.2869	2B	0.290	0.295	0.2990	0.3026	0.0036	0.3125

Table D-1 Limits of Size for Selected Combinations of UNS/UNRS Series Threads (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]								Internal [Note (1)]						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (3)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (3)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance [Note (4)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(6) 3/8 – 18 or 0.375 – 18	UNS	2A	0.0013	0.3737	0.3650	0.3376	0.3333	0.004327	0.3075	2B	0.315	0.328	0.3389	0.3445	0.0056	0.3750
3/8 – 27 or 0.375 – 27	UNS	2A	0.0011	0.3739	0.3672	0.3498	0.3462	0.003615	0.3298	2B	0.335	0.344	0.3509	0.3556	0.0047	0.3750
3/8 – 36 or 0.375 – 36	UNS	2A	0.0010	0.3740	0.3685	0.3560	0.3528	0.003208	0.3409	2B	0.345	0.352	0.3570	0.3612	0.0042	0.3750
3/8 – 40 or 0.375 – 40	UNS	2A	0.0009	0.3741	0.3690	0.3579	0.3548	0.003076	0.3443	2B	0.348	0.354	0.3588	0.3628	0.0040	0.3750
0.390 – 27 or 0.390 – 27	UNS	2A	0.0011	0.3889	0.3822	0.3648	0.3612	0.003629	0.3448	2B	0.350	0.359	0.3659	0.3706	0.0047	0.3900
(6) 7/16–18 or 0.4375–18	UNS	2A	0.0013	0.4362	0.4275	0.4001	0.3957	0.004384	0.3700	2B	0.377	0.390	0.4014	0.4071	0.0057	0.4375
(6) 7/16–24 or 0.4375–24	UNS	2A	0.0012	0.4363	0.4291	0.4092	0.4053	0.003861	0.3867	2B	0.392	0.402	0.4104	0.4154	0.0050	0.4375
(6) 7/16–27 or 0.4375–27	UNS	2A	0.0011	0.4364	0.4297	0.4123	0.4086	0.003672	0.3923	2B	0.397	0.406	0.4134	0.4182	0.0048	0.4375
(6) 1/2 – 12 or 0.500 – 12	UNS	2A	0.0016	0.4984	0.4870	0.4443	0.4389	0.005352	0.3992	2B	0.410	0.428	0.4459	0.4529	0.0070	0.5000
(6)		3A	0.0000	0.5000	0.4886	0.4459	0.4419	0.004000	0.4008	3B	0.4100	0.4185	0.4459	0.4511	0.0052	0.5000
(6) 1/2 – 14 or 0.500 – 14	UNS	2A	0.0015	0.4985	0.4882	0.4521	0.4471	0.004976	0.4134	2B	0.423	0.438	0.4536	0.4601	0.0065	0.5000
(6) 1/2 – 18 or 0.500 – 18	UNS	2A	0.0013	0.4987	0.4900	0.4626	0.4582	0.004436	0.4325	2B	0.440	0.453	0.4639	0.4697	0.0058	0.5000
1/2 – 24 or 0.500 – 24	UNS	2A	0.0012	0.4988	0.4916	0.4717	0.4678	0.003913	0.4492	2B	0.455	0.465	0.4729	0.4780	0.0051	0.5000
1/2 – 27 or 0.500 – 27	UNS	2A	0.0011	0.4989	0.4922	0.4748	0.4711	0.003724	0.4548	2B	0.460	0.469	0.4759	0.4807	0.0048	0.5000
(6) 9/16 – 14 or 0.5625 – 14	UNS	2A	0.0015	0.5610	0.5507	0.5146	0.5096	0.005023	0.4759	2B	0.485	0.501	0.5161	0.5226	0.0065	0.5625
(6) 9/16 – 27 or 0.5625 – 27	UNS	2A	0.0011	0.5614	0.5547	0.5373	0.5335	0.003771	0.5173	2B	0.522	0.531	0.5384	0.5433	0.0049	0.5625
(6) 5/8 – 14 or 0.625 – 14	UNS	2A	0.0015	0.6235	0.6132	0.5771	0.5720	0.005067	0.5384	2B	0.548	0.563	0.5786	0.5852	0.0066	0.6250
5/8 – 27 or 0.625 – 27	UNS	2A	0.0011	0.6239	0.6172	0.5998	0.5960	0.003815	0.5798	2B	0.585	0.594	0.6009	0.6059	0.0050	0.6250
(6) 3/4 – 14 or 0.750 – 14	UNS	2A	0.0015	0.7485	0.7382	0.7021	0.6970	0.005148	0.6634	2B	0.673	0.688	0.7036	0.7103	0.0067	0.7500

Table D-1 Limits of Size for Selected Combinations of UNS/UNRS Series Threads (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]								Internal [Note (1)]						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (3)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (3)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance [Note (4)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(6) 3/4 – 18 or 0.750 – 18	UNS	2A	0.0014	0.7486	0.7399	0.7125	0.7079	0.004608	0.6824	2B	0.690	0.703	0.7139	0.7199	0.0060	0.7500
3/4 – 24 or 0.750 – 24	UNS	2A	0.0012	0.7488	0.7416	0.7217	0.7176	0.004085	0.6992	2B	0.705	0.715	0.7229	0.7282	0.0053	0.7500
3/4 – 27 or 0.750 – 27	UNS	2A	0.0012	0.7488	0.7421	0.7247	0.7208	0.003896	0.7047	2B	0.710	0.719	0.7259	0.7310	0.0051	0.7500
(6) 7/8 – 10 or 0.875 – 10	UNS	2A	0.0018	0.8732	0.8603	0.8082	0.8021	0.006090	0.7541	2B	0.767	0.788	0.8100	0.8179	0.0079	0.8750
(6) 7/8 – 18 or 0.875 – 18	UNS	2A	0.0014	0.8736	0.8649	0.8375	0.8328	0.004680	0.8074	2B	0.815	0.828	0.8389	0.8450	0.0061	0.8750
(6) 7/8 – 24 or 0.875 – 24	UNS	2A	0.0012	0.8738	0.8666	0.8467	0.8425	0.004157	0.8242	2B	0.830	0.840	0.8479	0.8533	0.0054	0.8750
(6) 7/8 – 27 or 0.875 – 27	UNS	2A	0.0012	0.8738	0.8671	0.8497	0.8457	0.003968	0.8297	2B	0.835	0.844	0.8509	0.8561	0.0052	0.8750
(6) 1 – 10 or 1.000 – 10	UNS	2A	0.0018	0.9982	0.9853	0.9332	0.9270	0.006155	0.8791	2B	0.892	0.913	0.9350	0.9430	0.0080	1.0000
(6) 1 – 18 or 1.000 – 18	UNS	2A	0.0014	0.9986	0.9899	0.9625	0.9578	0.004745	0.9324	2B	0.940	0.953	0.9639	0.9701	0.0062	1.0000
1 – 24 or 1.000 – 24	UNS	2A	0.0013	0.9987	0.9915	0.9716	0.9674	0.004222	0.9491	2B	0.955	0.965	0.9729	0.9784	0.0055	1.0000
1 – 27 or 1.000 – 27	UNS	2A	0.0012	0.9988	0.9921	0.9747	0.9707	0.004033	0.9547	2B	0.960	0.969	0.9759	0.9811	0.0052	1.0000
(6) 1 1/8 – 10 or 1.125 – 10	UNS	2A	0.0019	1.1231	1.1102	1.0581	1.0519	0.006215	1.0040	2B	1.017	1.038	1.0600	1.0681	0.0081	1.1250
(6) 1 1/8 – 14 or 1.125 – 14	UNS	2A	0.0016	1.1234	1.1131	1.0770	1.0717	0.005345	1.0383	2B	1.048	1.063	1.0786	1.0855	0.0069	1.1250
(6) 1 1/8 – 24 or 1.125 – 24	UNS	2A	0.0013	1.1237	1.1165	1.0966	1.0923	0.004282	1.0741	2B	1.080	1.090	1.0979	1.1035	0.0056	1.1250
(6) 1 1/4 – 10 or 1.250 – 10	UNS	2A	0.0019	1.2481	1.2352	1.1831	1.1768	0.006271	1.1290	2B	1.142	1.163	1.1850	1.1932	0.0082	1.2500
(6) 1 1/4 – 14 or 1.250 – 14	UNS	2A	0.0016	1.2484	1.2381	1.2020	1.1966	0.005401	1.1633	2B	1.173	1.188	1.2036	1.2106	0.0070	1.2500
1 1/4 – 24 or 1.250 – 24	UNS	2A	0.0013	1.2487	1.2415	1.2216	1.2173	0.004338	1.1991	2B	1.205	1.215	1.2229	1.2285	0.0056	1.2500
(6) 1 3/8 – 10 or 1.375 – 10	UNS	2A	0.0019	1.3731	1.3602	1.3081	1.3018	0.006323	1.2540	2B	1.267	1.288	1.3100	1.3182	0.0082	1.3750
(6) 1 3/8 – 14 or 1.375 – 14	UNS	2A	0.0016	1.3734	1.3631	1.3270	1.3215	0.005453	1.2883	2B	1.298	1.313	1.3286	1.3357	0.0071	1.3750

Table D-1 Limits of Size for Selected Combinations of UNS/UNRS Series Threads (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]								Internal [Note (1)]						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (3)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (3)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance [Note (4)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(6) $1\frac{3}{8}$ – 24 or 1.375 – 24	UNS	2A	0.0013	1.3737	1.3665	1.3466	1.3422	0.004390	1.3241	2B	1.330	1.340	1.3479	1.3536	0.0057	1.3750
(6) $1\frac{1}{2}$ – 10 or 1.500 – 10	UNS	2A	0.0019	1.4981	1.4852	1.4331	1.4267	0.006372	1.3790	2B	1.392	1.413	1.4350	1.4433	0.0083	1.5000
(6) $1\frac{1}{2}$ – 14 or 1.500 – 14	UNS	2A	0.0017	1.4983	1.4880	1.4519	1.4464	0.005502	1.4132	2B	1.423	1.438	1.4536	1.4608	0.0072	1.5000
$1\frac{1}{2}$ – 24 or 1.500 – 24	UNS	2A	0.0013	1.4987	1.4915	1.4716	1.4672	0.004439	1.4491	2B	1.455	1.465	1.4729	1.4787	0.0058	1.5000
(6) $1\frac{5}{8}$ – 10 or 1.625 – 10	UNS	2A	0.0019	1.6231	1.6102	1.5581	1.5517	0.006419	1.5040	2B	1.517	1.538	1.5600	1.5683	0.0083	1.6250
(6) $1\frac{5}{8}$ – 14 or 1.625 – 14	UNS	2A	0.0017	1.6233	1.6130	1.5769	1.5714	0.005549	1.5382	2B	1.548	1.563	1.5786	1.5858	0.0072	1.6250
(6) $1\frac{5}{8}$ – 24 or 1.625 – 24	UNS	2A	0.0013	1.6237	1.6165	1.5966	1.5921	0.004486	1.5741	2B	1.580	1.590	1.5979	1.6037	0.0058	1.6250
(6) $1\frac{3}{4}$ – 10 or 1.750 – 10	UNS	2A	0.0019	1.7481	1.7352	1.6831	1.6766	0.006463	1.6290	2B	1.642	1.663	1.6850	1.6934	0.0084	1.7500
$1\frac{3}{4}$ – 14 or 1.750 – 14	UNS	2A	0.0017	1.7483	1.7380	1.7019	1.6963	0.005593	1.6632	2B	1.673	1.688	1.7036	1.7109	0.0073	1.7500
(6) $1\frac{3}{4}$ – 18 or 1.750 – 18	UNS	2A	0.0015	1.7485	1.7398	1.7124	1.7073	0.005053	1.6823	2B	1.690	1.703	1.7139	1.7205	0.0066	1.7500
(6) $1\frac{7}{8}$ – 10 or 1.875 – 10	UNS	2A	0.0020	1.8730	1.8601	1.8080	1.8015	0.006505	1.7539	2B	1.767	1.788	1.8100	1.8185	0.0085	1.8750
(6) $1\frac{7}{8}$ – 14 or 1.875 – 14	UNS	2A	0.0017	1.8733	1.8630	1.8269	1.8213	0.005635	1.7882	2B	1.798	1.813	1.8286	1.8359	0.0073	1.8750
(6) $1\frac{7}{8}$ – 18 or 1.875 – 18	UNS	2A	0.0015	1.8735	1.8648	1.8374	1.8323	0.005095	1.8073	2B	1.815	1.828	1.8389	1.8455	0.0066	1.8750
(6) 2 – 10 or 2.000 – 10	UNS	2A	0.0020	1.9980	1.9851	1.9330	1.9265	0.006545	1.8789	2B	1.892	1.913	1.9350	1.9435	0.0085	2.0000
(6) 2 – 14 or 2.000 – 14	UNS	2A	0.0017	1.9983	1.9880	1.9519	1.9462	0.005675	1.9132	2B	1.923	1.938	1.9536	1.9610	0.0074	2.0000
(6) 2 – 18 or 2.000 – 18	UNS	2A	0.0015	1.9985	1.9898	1.9624	1.9573	0.005135	1.9323	2B	1.940	1.953	1.9639	1.9706	0.0067	2.0000
(6) $2\frac{1}{16}$ – 16 or 2.063 – 16	UNS	2A	0.0016	2.0609	2.0515	2.0203	2.0149	0.005396	1.9865	2B	1.995	2.009	2.0219	2.0289	0.0070	2.0625
(6)		3A	0.0000	2.0625	2.0531	2.0219	2.0179	0.004000	1.9881	3B	1.9950	2.0034	2.0219	2.0272	0.0053	2.0625
(6) $2\frac{3}{16}$ – 16 or 2.1875 – 16	UNS	2A	0.0016	2.1859	2.1765	2.1453	2.1399	0.005434	2.1115	2B	2.120	2.134	2.1469	2.1540	0.0071	2.1875
(6)		3A	0.0000	2.1875	2.1781	2.1469	2.1428	0.004100	2.1131	3B	2.1200	2.1284	2.1469	2.1522	0.0053	2.1875

Table D-1 Limits of Size for Selected Combinations of UNS/UNRS Series Threads (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]								Internal [Note (1)]						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (3)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (3)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance [Note (4)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(6) $2\frac{1}{4}$ – 10 or 2.250 – 10	UNS	2A	0020	2.2480	2.2351	2.1830	2.1764	0.006621	2.1289	2B	2.142	2.163	2.1850	2.1936	0.0086	2.2500
(6) $2\frac{1}{4}$ – 14 or 2.250 – 14	UNS	2A	0.0017	2.2483	2.2380	2.2019	2.1961	0.005751	2.1632	2B	2.173	2.188	2.2036	2.2111	0.0075	2.2500
(6) $2\frac{1}{4}$ – 18 or 2.250 – 18	UNS	2A	0.0016	2.2484	2.2397	2.2123	2.2071	0.005211	2.1822	2B	2.190	2.203	2.2139	2.2207	0.0068	2.2500
(6) $2\frac{5}{16}$ – 16 or 2.3125 – 16	UNS	2A	0.0016	2.3109	2.3015	2.2703	2.2648	0.005471	2.2365	2B	2.245	2.259	2.2719	2.2790	0.0071	2.3125
(6)		3A	0.0000	2.3125	2.3031	2.2719	2.2678	0.004100	2.2381	3B	2.2450	2.2534	2.2719	2.2772	0.0053	2.3125
(6) $2\frac{7}{16}$ – 16 or 2.4375 – 16	UNS	2A	0.0017	2.4358	2.4264	2.3952	2.3897	0.005506	2.3614	2B	2.370	2.384	2.3969	2.4041	0.0072	2.4375
(6)		3A	0.0000	2.4375	2.4281	2.3969	2.3928	0.004100	2.3631	3B	2.3700	2.3784	2.3969	2.4023	0.0054	2.4375
(6) $2\frac{1}{2}$ – 10 or 2.500 – 10	UNS	2A	0.0020	2.4980	2.4851	2.4330	2.4263	0.006691	2.3789	2B	2.392	2.413	2.4350	2.4437	0.0087	2.5000
(6) $2\frac{1}{2}$ – 14 or 2.500 – 14	UNS	2A	0.0017	2.4983	2.4880	2.4519	2.4461	0.005821	2.4132	2B	2.423	2.438	2.4536	2.4612	0.0076	2.5000
(6) $2\frac{1}{2}$ – 18 or 2.500 – 18	UNS	2A	0.0016	2.4984	2.4897	2.4623	2.4570	0.005281	2.4322	2B	2.440	2.453	2.4639	2.4708	0.0069	2.5000
(6) $2\frac{3}{4}$ – 10 or 2.750 – 10	UNS	2A	0.0020	2.7480	2.7351	2.6830	2.6762	0.006757	2.6289	2B	2.642	2.663	2.6850	2.6938	0.0088	2.7500
(6) $2\frac{3}{4}$ – 14 or 2.750 – 14	UNS	2A	0.0018	2.7482	2.7379	2.7018	2.6959	0.005887	2.6631	2B	2.673	2.688	2.7036	2.7113	0.0077	2.7500
(6) $2\frac{3}{4}$ – 18 or 2.750 – 18	UNS	2A	0.0016	2.7484	2.7397	2.7123	2.7070	0.005347	2.6822	2B	2.690	2.703	2.7139	2.7209	0.0070	2.7500
(6) 3 – 10 or 3.000 – 10	UNS	2A	0.0020	2.9980	2.9851	2.9330	2.9262	0.006818	2.8789	2B	2.892	2.913	2.9350	2.9439	0.0089	3.0000
(6) 3 – 14 or 3.000 – 14	UNS	2A	0.0018	2.9982	2.9879	2.9518	2.9459	0.005948	2.9131	2B	2.923	2.938	2.9536	2.9613	0.0077	3.0000
(6) 3 – 18 or 3.000 – 18	UNS	2A	0.0016	2.9984	2.9897	2.9623	2.9569	0.005408	2.9322	2B	2.940	2.953	2.9639	2.9709	0.0070	3.0000
(6) $3\frac{1}{4}$ – 10 or 3.250 – 10	UNS	2A	0.0021	3.2479	3.2350	3.1829	3.1760	0.006877	3.1288	2B	3.142	3.163	3.1850	3.1939	0.0089	3.2500
(6) $3\frac{1}{4}$ – 14 or 3.250 – 14	UNS	2A	0.0018	3.2482	3.2379	3.2018	3.1958	0.006007	3.1631	2B	3.173	3.188	3.2036	3.2114	0.0078	3.2500
(6) $3\frac{1}{4}$ – 18 or 3.250 – 18	UNS	2A	0.0016	3.2484	3.2397	3.2123	3.2068	0.005467	3.1822	2B	3.190	3.203	3.2139	3.2210	0.0071	3.2500
(6) $3\frac{1}{2}$ – 10 or 3.500 – 10	UNS	2A	0.0021	3.4979	3.4850	3.4329	3.4260	0.006932	3.3788	2B	3.392	3.413	3.4350	3.4440	0.0090	3.5000

Table D-1 Limits of Size for Selected Combinations of UNS/UNRS Series Threads (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]								Internal [Note (1)]						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (3)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (3)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance [Note (4)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(6) $3\frac{1}{2}$ – 14 or 3.500 – 14	UNS	2A	0.0018	3.4982	3.4879	3.4518	3.4457	0.006062	3.4131	2B	3.423	3.438	3.4536	3.4615	0.0079	3.5000
(6) $3\frac{1}{2}$ – 18 or 3.500 – 18	UNS	2A	0.0017	3.4983	3.4896	3.4622	3.4567	0.005522	3.4321	2B	3.440	3.453	3.4639	3.4711	0.0072	3.5000
(6) $3\frac{3}{4}$ – 10 or 3.750 – 10	UNS	2A	0.0021	3.7479	3.7350	3.6829	3.6759	0.006985	3.6288	2B	3.642	3.663	3.6850	3.6941	0.0091	3.7500
(6) $3\frac{3}{4}$ – 14 or 3.750 – 14	UNS	2A	0.0018	3.7482	3.7379	3.7018	3.6957	0.006115	3.6631	2B	3.673	3.688	3.7036	3.7115	0.0079	3.7500
(6) $3\frac{3}{4}$ – 18 or 3.750 – 18	UNS	2A	0.0017	3.7483	3.7396	3.7122	3.7066	0.005575	3.6821	2B	3.690	3.703	3.7139	3.7211	0.0072	3.7500
(6) 4 – 10 or 4.000 – 10	UNS	2A	0.0021	3.9979	3.9850	3.9329	3.9259	0.007036	3.8788	2B	3.892	3.913	3.9350	3.9441	0.0091	4.0000
(6) 4 – 14 or 4.000 – 14	UNS	2A	0.0018	3.9982	3.9879	3.9518	3.9456	0.006166	3.9131	2B	3.923	3.938	3.9536	3.9616	0.0080	4.0000
(6) $4\frac{1}{4}$ – 10 or 4.250 – 10	UNS	2A	0.0021	4.2479	4.2350	4.1829	4.1758	0.007085	4.1288	2B	4.142	4.163	4.1850	4.1942	0.0092	4.2500
(6) $4\frac{1}{4}$ – 14 or 4.250 – 14	UNS	2A	0.0019	4.2481	4.2378	4.2017	4.1955	0.006215	4.1630	2B	4.173	4.188	4.2036	4.2117	0.0081	4.2500
(6) $4\frac{1}{2}$ – 10 or 4.500 – 10	UNS	2A	0.0021	4.4979	4.4850	4.4329	4.4258	0.007131	4.3788	2B	4.392	4.413	4.4350	4.4443	0.0093	4.5000
(6) $4\frac{1}{2}$ – 14 or 4.500 – 14	UNS	2A	0.0019	4.4981	4.4878	4.4517	4.4454	0.006261	4.4130	2B	4.423	4.438	4.4536	4.4617	0.0081	4.5000
(6) $4\frac{3}{4}$ – 10 or 4.750 – 10	UNS	2A	0.0022	4.7478	4.7349	4.6828	4.6756	0.007176	4.6287	2B	4.642	4.663	4.6850	4.6943	0.0093	4.7500
(6) $4\frac{3}{4}$ – 14 or 4.750 – 14	UNS	2A	0.0019	4.7481	4.7378	4.7017	4.6954	0.006306	4.6630	2B	4.673	4.688	4.7036	4.7118	0.0082	4.7500
(6) 5 – 10 or 5.000 – 10	UNS	2A	0.0022	4.9978	4.9849	4.9328	4.9256	0.007220	4.8787	2B	4.892	4.913	4.9350	4.9444	0.0094	5.0000
(6) 5 – 14 or 5.000 – 14	UNS	2A	0.0019	4.9981	4.9878	4.9517	4.9454	0.006350	4.9130	2B	4.923	4.938	4.9536	4.9619	0.0083	5.0000
(6) $5\frac{1}{4}$ – 10 or 5.250 – 10	UNS	2A	0.0022	5.2478	5.2349	5.1828	5.1755	0.007262	5.1287	2B	5.142	5.163	5.1850	5.1944	0.0094	5.2500
(6) $5\frac{1}{4}$ – 14 or 5.250 – 14	UNS	2A	0.0019	5.2481	5.2378	5.2017	5.1953	0.006392	5.1630	2B	5.173	5.188	5.2036	5.2119	0.0083	5.2500
(6) $5\frac{1}{2}$ – 10 or 5.500 – 10	UNS	2A	0.0022	5.4978	5.4849	5.4328	5.4255	0.007303	5.3787	2B	5.392	5.413	5.4350	5.4445	0.0095	5.5000

Table D-1 Limits of Size for Selected Combinations of UNS/UNRS Series Threads (Cont'd)

Nominal Size and Threads/in.	Series Designation	External [Note (1)]								Internal [Note (1)]						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (3)]			UNR Minor Diameter, Max. [Note (5)] (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (3)]			Major Diameter, Min.
		Class	Allowance	Max. [Note (2)]	Min.	Max. [Note (2)]	Min.	Tolerance [Note (4)]		Class	Min.	Max.	Min.	Max.	Tolerance	
(6) $5\frac{1}{2}$ – 14 or 5.500 – 14	UNS	2A	0.0019	5.4981	5.4878	5.4517	5.4453	0.006433	5.4130	2B	5.423	5.438	5.4536	5.4620	0.0084	5.5000
(6) $5\frac{3}{4}$ – 10 or 5.750 – 10	UNS	2A	0.0022	5.7478	5.7349	5.6828	5.6755	0.007342	5.6287	2B	5.642	5.663	5.6850	5.6945	0.0095	5.7500
(6) $5\frac{3}{4}$ – 14 or 5.750 – 14	UNS	2A	0.0019	5.7481	5.7378	5.7017	5.6952	0.006472	5.6630	2B	5.673	5.688	5.7036	5.7120	0.0084	5.7500
(6) 6 – 10 or 6.000 – 10	UNS	2A	0.0022	5.9978	5.9849	5.9328	5.9254	0.007381	5.8787	2B	5.892	5.913	5.9350	5.9446	0.0096	6.0000
(6) 6 – 14 or 6.000 – 14	UNS	2A	0.0020	5.9980	5.9877	5.9516	5.9451	0.006511	5.9129	2B	5.923	5.938	5.9536	5.9621	0.0085	6.0000

GENERAL NOTES: Series designation shown indicates the UN thread form; however, the UNR thread form may be specified by substituting UNR in place of UN in all designations for external use only.

NOTES:

(1) Thread classes may be combined. See para. 4.2.

(2) For Class 2A threads having an additive finish, the maximum major and pitch diameters, after coating, may equal the basic sizes, whose values are the same as the nominal major diameter and the minimum pitch diameter shown for Class 2B, respectively. See para. 4.1.2.

(3) See para. 5.2.1 for Functional Diameter.

(4) 2A pitch diameter tolerance (Td_2) is listed and used to a six place decimal to calculate the listed Class 1A/1B, 2B, 3A/3B tolerances and Class 1A/2A allowances and all dimensional limits which depend upon them.

(5) UN series external thread maximum minor diameter is basic (D_1 in para. 11) for Class 3A and basic minus allowance for Classes 1A and 2A.

(6) One or more of the numbers listed in this row have been changed to correct for calculation errors and a change in rounding methods. The original numbers from past issues of ASME B1.1 are listed in Nonmandatory Appendix E and are for reference only.

Table D-2 Major Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Classes 1A, 2A, and 3A

	Major Diameter Tolerance	
Threads/ in.	Class 1A $0.090\sqrt[3]{P^2}$	Class 2A and Class 3A $0.060\sqrt[3]{P^2}$
80	...	0.0032
72	...	0.0035
64	...	0.0038
56	...	0.0041
48	...	0.0045
44	...	0.0048
40	0.0077	0.0051
36	0.0083	0.0055
32	0.0089	0.0060
28	0.0098	0.0065
27	0.0100	0.0067
24	0.0108	0.0072
20	0.0122	0.0081
18	0.0131	0.0087
16	0.0142	0.0094
14	0.0155	0.0103
12	0.0172	0.0114
10	0.0194	0.0129
8	0.0225	0.0150
6	0.0273	0.0182
4	0.0357	0.0238
...	...	...

Table D-3 Allowances for External Threads of Special Diameters and Pitches (UNS/UNRS) — Classes 1A and 2A

Allowance based on basic major diameter of	0.0625	0.09375	0.125	0.1875	0.25	0.375	0.5	0.625	0.75	1	1.25	1.5
For diameter range above	0.0470	0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875	1.125	1.375
To and including	0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875	1.125	1.375	1.625
Threads/in.	Major, Pitch, and Minor Diameter Allowances, in.											
80	0.0006	0.0006	0.0006	0.0007	0.0007	...	...	...	...	...	...	...
72	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007	...	...	...	...	...	...
64	0.0006	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	...	...	...	...	...
56	...	0.0007	0.0007	0.0007	0.0008	0.0008	0.0008	0.0009	0.0009	...	...	...
48	...	0.0007	0.0008	0.0008	0.0008	0.0009	0.0009	0.0009	0.0009	...	...	...
44	...	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009	0.0009	0.0010	0.0010	...	...
40	...	...	0.0008	0.0009	0.0009	0.0009	0.0010	0.0010	0.0010	0.0010	...	...
36	...	...	0.0009	0.0009	0.0009	0.0010	0.0010	0.0010	0.0010	0.0011	0.0011	0.0012
32	...	...	0.0009	0.0009	0.0010	0.0010	0.0010	0.0011	0.0011	0.0011	0.0012	0.0012
28	...	...	...	0.0010	0.0010	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0013
27	...	...	...	0.0010	0.0010	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0013
24	...	...	...	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0013	0.0013	0.0013
20	...	...	...	...	0.0012	0.0012	0.0013	0.0013	0.0013	0.0014	0.0014	0.0014
18	...	...	...	...	...	0.0013	0.0013	0.0014	0.0014	0.0014	0.0015	0.0015
16	...	...	...	...	...	0.0014	0.0014	0.0014	0.0015	0.0015	0.0015	0.0016
14	...	...	...	...	...	...	0.0015	0.0015	0.0015	0.0016	0.0016	0.0017
12	...	...	...	...	...	...	0.0016	0.0016	0.0017	0.0017	0.0017	0.0018
10	...	...	...	...	...	...	...	...	0.0018	0.0018	0.0019	0.0019
8	...	...	...	...	...	...	...	...	...	0.0021	0.0021	0.0021
6	...	...	...	...	...	...	...	...	...	...	...	0.0024
4	...	...	...	...	...	...	...	...	...	...	...	...

Allowance based on basic major diameter of	1.75	2	2.5	3	3.5	4	5	6	8	10	12
For diameter range above	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11
To and including	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11	13
Threads/in.	Major, Pitch, and Minor Diameter Allowances, in.										
80	...	...	...	...	...	...	...	...	...	...	...
72	...	...	...	...	...	...	...	...	...	...	...
64	...	...	...	...	...	...	...	...	...	...	...
56	...	...	...	...	...	...	...	...	...	...	...
48	...	...	...	...	...	...	...	...	...	...	...
44	...	...	...	...	...	...	...	...	...	...	...
40	...	...	...	...	...	...	...	...	...	...	...
36	...	...	...	...	...	...	...	...	...	...	...
32	0.0012	0.0013	0.0013	0.0013	...	...	...	...	...	...	...
28	0.0013	0.0013	0.0014	0.0014	0.0014	0.0015	...	...	...	...	...
27	0.0013	0.0013	0.0014	0.0014	0.0014	0.0015	0.0015	0.0016	...	...	...
24	0.0014	0.0014	0.0014	0.0015	0.0015	0.0015	0.0016	0.0016	...	...	...
20	0.0015	0.0015	0.0015	0.0016	0.0016	0.0016	0.0017	0.0017	...	...	...
18	0.0015	0.0015	0.0016	0.0016	0.0017	0.0017	0.0017	0.0018	0.0019	...	...
16	0.0016	0.0016	0.0017	0.0017	0.0017	0.0018	0.0018	0.0019	0.0019	0.0020	...
14	0.0017	0.0017	0.0017	0.0018	0.0018	0.0018	0.0019	0.0020	0.0020	0.0021	0.0022
12	0.0018	0.0018	0.0019	0.0019	0.0019	0.0020	0.0020	0.0021	0.0021	0.0022	0.0023
10	0.0019	0.0020	0.0020	0.0020	0.0021	0.0021	0.0022	0.0022	0.0023	0.0024	0.0024
8	0.0021	0.0022	0.0022	0.0023	0.0023	0.0023	0.0024	0.0024	0.0025	0.0026	0.0026
6	0.0025	0.0025	0.0025	0.0026	0.0026	0.0026	0.0027	0.0027	0.0028	0.0029	0.0029
4	...	0.0030	0.0031	0.0031	0.0031	0.0032	0.0032	0.0033	0.0034	0.0034	0.0035

GENERAL NOTE: Classes 1A and 2A allowances are determined by multiplying Class 2A pitch diameter tolerances (computed to six decimal places) by 0.3 and are based on lengths of engagement of nine pitches.

Table D-4 Pitch Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 1A

Tolerance based on basic major diameter of			0.0625	0.09375	0.125	0.1875	0.25	0.375	0.5	0.625	0.75	1
For diameter range above			0.0470	0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875
To and including			0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875	1.125
	Length of Engagement											
Threads/in.	Number of Pitches	in.	Pitch Diameter Tolerances, in.									
80	5 to 15	0.06 to 0.19	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.191 to 0.38	...	...	...	...	...	...	...	...	...	...
72	5 to 15	0.07 to 0.21	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.211 to 0.42	...	...	...	...	...	...	...	...	...	...
64	5 to 15	0.08 to 0.23	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.231 to 0.46	...	...	...	...	...	...	...	...	...	...
56	5 to 15	0.09 to 0.27	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.271 to 0.54	...	...	...	...	...	...	...	...	...	...
48	5 to 15	0.10 to 0.31	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.311 to 0.62	...	...	...	...	...	...	...	...	...	...
44	5 to 15	0.11 to 0.34	...	0.0038	0.0039	0.0041	0.0042	0.0044	0.0046	0.0047	0.0049	0.0051
	16 to 30	0.341 to 0.68	...	0.0048	0.0049	0.0051	0.0053	0.0056	0.0058	0.0059	0.0061	0.0063
40	5 to 15	0.12 to 0.38	...	...	0.0041	0.0043	0.0044	0.0046	0.0048	0.0049	0.0050	0.0052
	16 to 30	0.381 to 0.76	...	...	0.0051	0.0053	0.0055	0.0058	0.0060	0.0061	0.0063	0.0066
36	5 to 15	0.14 to 0.42	...	...	0.0043	0.0045	0.0046	0.0048	0.0050	0.0051	0.0052	0.0054
	16 to 30	0.421 to 0.84	...	...	0.0054	0.0056	0.0058	0.0060	0.0062	0.0064	0.0065	0.0068
32	5 to 15	0.16 to 0.47	...	...	0.0045	0.0047	0.0048	0.0050	0.0052	0.0053	0.0055	0.0057
	16 to 30	0.471 to 0.94	...	...	0.0057	0.0059	0.0061	0.0063	0.0065	0.0067	0.0068	0.0071
28	5 to 15	0.18 to 0.54	...	...	...	0.0050	0.0051	0.0053	0.0055	0.0056	0.0058	0.0060
	16 to 30	0.541 to 1.08	...	...	...	0.0063	0.0064	0.0067	0.0069	0.0070	0.0072	0.0075
27	5 to 15	0.19 to 0.56	...	...	...	0.0051	0.0052	0.0056	0.0056	0.0057	0.0058	0.0060
	16 to 30	0.561 to 1.12	...	...	...	0.0064	0.0065	0.0068	0.0070	0.0072	0.0073	0.0076
24	5 to 15	0.21 to 0.62	...	...	...	0.0054	0.0055	0.0057	0.0059	0.0060	0.0061	0.0063
	16 to 30	0.621 to 1.24	...	...	...	0.0067	0.0069	0.0071	0.0073	0.0075	0.0077	0.0079
20	5 to 15	0.25 to 0.75	...	...	...	...	0.0060	0.0062	0.0063	0.0065	0.0066	0.0068
	16 to 30	0.751 to 1.50	...	...	...	...	0.0075	0.0077	0.0079	0.0081	0.0083	0.0085
18	5 to 15	0.28 to 0.83	...	...	...	...	...	0.0065	0.0067	0.0068	0.0069	0.0071
	16 to 30	0.831 to 1.66	...	...	...	...	...	0.0081	0.0083	0.0085	0.0086	0.0089
16	5 to 15	0.31 to 0.94	...	...	...	...	...	0.0069	0.0070	0.0072	0.0073	0.0075
	16 to 30	0.941 to 1.88	...	...	...	...	...	0.0086	0.0088	0.0089	0.0091	0.0094
14	5 to 15	0.36 to 1.07	...	...	...	...	...	...	0.0075	0.0076	0.0077	0.0079
	16 to 30	1.071 to 2.14	...	...	...	...	...	...	0.0093	0.0095	0.0097	0.0099
12	5 to 15	0.42 to 1.25	...	...	...	...	...	...	0.0080	0.0082	0.0083	0.0085
	16 to 30	1.251 to 2.50	...	...	...	...	...	...	0.0100	0.0102	0.0104	0.0106
10	5 to 15	0.50 to 1.50	...	...	...	...	...	...	...	...	0.0090	0.0092
	16 to 30	1.501 to 3.00	...	...	...	...	...	...	...	...	0.0113	0.0115
8	5 to 15	0.62 to 1.88	...	...	...	...	...	...	...	...	...	0.0103
	16 to 30	1.881 to 3.76	...	...	...	...	...	...	...	...	...	0.0128
6	5 to 15	0.83 to 2.50	...	...	...	...	...	...	...	...	...	...
	16 to 30	2.501 to 5.00	...	...	...	...	...	...	...	...	...	...
4	5 to 15	1.25 to 3.75	...	...	...	...	...	...	...	...	...	...
	16 to 30	3.751 to 7.50	...	...	...	...	...	...	...	...	...	...

GENERAL NOTES:

(a) These values do not agree with and shall not be used in place of any tabulated values for the UNC, UNF, and 4-UN, 6-UN, and 8-UN thread series.

(b) Class 1A tolerances in this Table for 5 to 15 pitches are based on 9 pitches and are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places (see Table 20) by a factor of 1.5.

(c) Class 1A tolerances in this Table for 16 to 30 pitches are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places by a factor of 1.875 (obtained by multiplying the 1.5 factor by 1.25). For lengths of engagement not tabulated, see para. 5.

Table D-4 Pitch Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 1A

1.25	1.5	1.75	2	2.5	3	3.5	4	5	6	8	10	12
1.125	1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11
1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11	13

Pitch Diameter Tolerances, in.													Threads/in.
...	...	...	...	...	...	...	...	...	...	...	...	...	80
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	72
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	64
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	56
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	48
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	44
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	40
...	...	...	...	...	...	...	...	...	...	...	...	...	
0.0056	0.0058	...	...	...	...	...	...	...	...	...	...	...	36
0.0070	0.0072	...	...	...	...	...	...	...	...	...	...	...	
0.0058	0.0060	0.0061	0.0063	0.0065	0.0067	...	...	...	...	...	...	...	32
0.0073	0.0075	0.0077	0.0078	0.0081	0.0083	...	...	...	...	...	...	...	
0.0061	0.0063	0.0064	0.0066	0.0068	0.0070	0.0071	0.0073	...	...	...	...	...	28
0.0077	0.0079	0.0080	0.0082	0.0085	0.0087	0.0089	0.0091	...	...	...	...	...	
0.0061	0.0064	0.0065	0.0066	0.0069	0.0070	0.0072	0.0074	0.0076	0.0079	...	...	...	27
0.0078	0.0080	0.0081	0.0083	0.0086	0.0088	0.0090	0.0092	0.0096	0.0099	...	...	...	
0.0065	0.0067	0.0068	0.0069	0.0071	0.0073	0.0075	0.0077	0.0079	0.0082	...	...	...	24
0.0081	0.0083	0.0085	0.0086	0.0089	0.0092	0.0094	0.0096	0.0099	0.0102	...	...	...	
0.0070	0.0071	0.0073	0.0074	0.0076	0.0078	0.0080	0.0081	0.0084	0.0087	...	...	...	20
0.0087	0.0089	0.0091	0.0092	0.0095	0.0098	0.0100	0.0102	0.0105	0.0108	...	...	...	
0.0073	0.0074	0.0076	0.0077	0.0079	0.0081	0.0083	0.0084	0.0087	0.0090	0.0094	...	...	18
0.0091	0.0093	0.0095	0.0096	0.0099	0.0101	0.0104	0.0105	0.0109	0.0112	0.0117	...	...	
0.0077	0.0078	0.0078	0.0081	0.0083	0.0085	0.0086	0.0088	0.0091	0.0093	0.0097	0.0101	...	16
0.0096	0.0098	0.0099	0.0101	0.0104	0.0106	0.0108	0.0110	0.0113	0.0116	0.0122	0.0126	...	
0.0081	0.0083	0.0084	0.0085	0.0087	0.0089	0.0091	0.0092	0.0095	0.0098	0.0102	0.0105	0.0108	14
0.0101	0.0103	0.0105	0.0106	0.0109	0.0112	0.0114	0.0116	0.0119	0.0122	0.0127	0.0132	0.0135	
0.0087	0.0088	0.0090	0.0091	0.0093	0.0095	0.0097	0.0098	0.0101	0.0103	0.0107	0.0111	0.0114	12
0.0108	0.0110	0.0112	0.0113	0.0116	0.0119	0.0121	0.0123	0.0126	0.0129	0.0134	0.0139	0.0142	
0.0094	0.0096	0.0097	0.0098	0.0100	0.0102	0.0104	0.0106	0.0108	0.0111	0.0115	0.0118	0.0121	10
0.0118	0.0119	0.0121	0.0123	0.0125	0.0128	0.0130	0.0132	0.0135	0.0138	0.0144	0.0148	0.0152	
0.0104	0.0106	0.0107	0.0108	0.0111	0.0113	0.0114	0.0116	0.0119	0.0121	0.0125	0.0129	0.0132	8
0.0130	0.0132	0.0134	0.0136	0.0138	0.0141	0.0143	0.0145	0.0148	0.0151	0.0156	0.0161	0.0165	
...	0.0121	0.0123	0.0124	0.0126	0.0128	0.0130	0.0131	0.0134	0.0137	0.0141	0.0144	0.0147	6
...	0.0152	0.0154	0.0155	0.0158	0.0160	0.0162	0.0164	0.0168	0.0171	0.0176	0.0180	0.0184	
...	...	...	0.0151	0.0154	0.0155	0.0157	0.0159	0.0162	0.0164	0.0168	0.0172	0.0175	4
...	...	...	0.0189	0.0192	0.0194	0.0196	0.0198	0.0202	0.0205	0.0210	0.0214	0.0214	

(d) Pitches listed are those used most commonly and are recommended. Where intermediate pitches are specified, the formula in para. 5 should be applied.

(e) Tolerances are tabulated only for combinations of diameter, pitch, and length of engagement that are considered to be generally used. For other combinations encountered, see para. 5.

Table D-5 Pitch Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 2A

Tolerance based on basic major diameter of			0.0625	0.09375	0.125	0.1875	0.25	0.375	0.5	0.625	0.75	1
For diameter range above			0.0470	0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875
To and including			0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875	1.125
	Length of Engagement											
Threads/in.	Number of Pitches	in.	Pitch Diameter Tolerances, in.									
80	5 to 15	0.06 to 0.19	0.0019	0.0020	0.0021	0.0022	0.0023	...	...	...	...	...
	16 to 30	0.191 to 0.38	0.0024	0.0025	0.0026	0.0027	0.0028	...	...	...	...	...
72	5 to 15	0.07 to 0.21	0.0020	0.0021	0.0021	0.0023	0.0023	0.0025	...	...	...	...
	16 to 30	0.211 to 0.42	0.0025	0.0026	0.0027	0.0028	0.0029	0.0031	...	...	...	...
64	5 to 15	0.08 to 0.23	0.0021	0.0022	0.0022	0.0024	0.0024	0.0026	0.0027	...	...	...
	16 to 30	0.231 to 0.46	0.0026	0.0027	0.0028	0.0029	0.0031	0.0032	0.0034	...	...	...
56	5 to 15	0.09 to 0.27	...	0.0023	0.0024	0.0025	0.0026	0.0027	0.0028	0.0029	0.0030	...
	16 to 30	0.271 to 0.54	...	0.0029	0.0030	0.0031	0.0032	0.0034	0.0035	0.0036	0.0037	...
48	5 to 15	0.10 to 0.31	...	0.0025	0.0025	0.0026	0.0027	0.0029	0.0030	0.0031	0.0031	...
	16 to 30	0.311 to 0.62	...	0.0031	0.0032	0.0033	0.0034	0.0036	0.0037	0.0038	0.0039	...
44	5 to 15	0.11 to 0.34	...	0.0026	0.0026	0.0027	0.0028	0.0030	0.0031	0.0032	0.0032	0.0034
	16 to 30	0.341 to 0.68	...	0.0032	0.0033	0.0034	0.0035	0.0037	0.0038	0.0040	0.0041	0.0042
40	5 to 15	0.12 to 0.38	...	...	0.0027	0.0029	0.0029	0.0031	0.0032	0.0033	0.0034	0.0035
	16 to 30	0.381 to 0.76	...	...	0.0034	0.0036	0.0037	0.0038	0.0040	0.0041	0.0042	0.0044
36	5 to 15	0.14 to 0.42	...	...	0.0029	0.0030	0.0031	0.0032	0.0033	0.0034	0.0035	0.0036
	16 to 30	0.421 to 0.84	...	...	0.0036	0.0037	0.0038	0.0040	0.0041	0.0043	0.0044	0.0045
32	5 to 15	0.16 to 0.47	...	...	0.0030	0.0031	0.0032	0.0034	0.0035	0.0036	0.0036	0.0038
	16 to 30	0.471 to 0.94	...	...	0.0038	0.0039	0.0040	0.0042	0.0043	0.0045	0.0046	0.0047
28	5 to 15	0.18 to 0.54	...	...	...	0.0033	0.0034	0.0036	0.0037	0.0038	0.0038	0.0040
	16 to 30	0.541 to 1.08	...	...	...	0.0042	0.0043	0.0044	0.0046	0.0047	0.0048	0.0050
27	5 to 15	0.19 to 0.56	...	...	...	0.0034	0.0035	0.0036	0.0037	0.0038	0.0039	0.0040
	16 to 30	0.561 to 1.12	...	...	...	0.0042	0.0043	0.0045	0.0047	0.0048	0.0049	0.0050
24	5 to 15	0.21 to 0.62	...	...	...	0.0036	0.0037	0.0038	0.0039	0.0040	0.0041	0.0042
	16 to 30	0.621 to 1.24	...	...	...	0.0045	0.0046	0.0048	0.0049	0.0050	0.0051	0.0053
20	5 to 15	0.25 to 0.75	...	...	...	...	0.0040	0.0041	0.0042	0.0043	0.0044	0.0045
	16 to 30	0.751 to 1.50	...	...	...	...	0.0050	0.0052	0.0053	0.0054	0.0055	0.0057
18	5 to 15	0.28 to 0.83	...	...	...	...	...	0.0043	0.0044	0.0045	0.0046	0.0047
	16 to 30	0.831 to 1.66	...	...	...	...	...	0.0054	0.0055	0.0057	0.0058	0.0059
16	5 to 15	0.31 to 0.94	...	...	...	...	...	0.0046	0.0047	0.0048	0.0049	0.0050
	16 to 30	0.941 to 1.88	...	...	...	...	...	0.0057	0.0058	0.0060	0.0061	0.0062
14	5 to 15	0.36 to 1.07	...	...	...	...	...	...	0.0050	0.0051	0.0051	0.0053
	16 to 30	1.071 to 2.14	...	...	...	...	...	...	0.0062	0.0063	0.0064	0.0066
12	5 to 15	0.42 to 1.25	...	...	...	...	...	...	0.0054	0.0054	0.0055	0.0057
	16 to 30	1.251 to 2.50	...	...	...	...	...	...	0.0067	0.0068	0.0069	0.0071
10	5 to 15	0.50 to 1.50	...	...	...	...	...	...	...	...	0.0060	0.0062
	16 to 30	1.501 to 3.00	...	...	...	...	...	...	...	...	0.0075	0.0077
8	5 to 15	0.62 to 1.88	...	...	...	...	...	...	...	...	...	0.0068
	16 to 30	1.881 to 3.76	...	...	...	...	...	...	...	...	...	0.0086
6	5 to 15	0.83 to 2.50	...	...	...	...	...	...	...	...	...	...
	16 to 30	2.501 to 5.00	...	...	...	...	...	...	...	...	...	...
4	5 to 15	1.25 to 3.75	...	...	...	...	...	...	...	...	...	
	16 to 30	3.751 to 7.50	...	...	...	...	...	...	...	...	...	

GENERAL NOTES:

(a) These values do not agree with and shall not be used in place of any tabulated values for the UNC, UNF, and 4-UN, 6-UN, and 8-UN thread series.

(b) Formula:
Class 2A tolerances $= 0.0015\sqrt[3]{D} + 0.0015\sqrt{LE} + 0.015\sqrt[3]{P^2}$, where
D = basic major diameter
LE = length of engagement
P = pitch

Table D-5 Pitch Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 2A

1.25	1.5	1.75	2	2.5	3	3.5	4	5	6	8	10	12
1.125	1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11
1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11	13

Pitch Diameter Tolerances, in.													Threads/in.
...	...	...	...	...	...	...	...	...	...	...	...	...	80
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	72
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	64
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	56
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	48
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	44
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	40
...	...	...	...	...	...	...	...	...	...	...	...	...	
0.0037	0.0038	...	...	...	...	...	...	...	...	...	...	...	36
0.0047	0.0048	...	...	...	...	...	...	...	...	...	...	...	
0.0039	0.0040	0.0041	0.0042	0.0043	0.0044	...	...	...	...	...	...	...	32
0.0049	0.0050	0.0051	0.0052	0.0054	0.0056	...	...	...	...	...	...	...	
0.0041	0.0042	0.0043	0.0044	0.0045	0.0046	0.0048	0.0049	...	...	...	...	...	28
0.0051	0.0052	0.0054	0.0055	0.0056	0.0058	0.0059	0.0061	...	...	...	...	...	
0.0041	0.0042	0.0043	0.0044	0.0046	0.0047	0.0048	0.0049	0.0051	0.0053	...	...	...	27
0.0052	0.0053	0.0054	0.0055	0.0057	0.0059	0.0060	0.0061	0.0064	0.0066	...	...	...	
0.0043	0.0044	0.0045	0.0046	0.0048	0.0049	0.0050	0.0051	0.0053	0.0054	...	...	...	24
0.0054	0.0055	0.0057	0.0058	0.0059	0.0061	0.0062	0.0064	0.0066	0.0068	...	...	...	
0.0047	0.0048	0.0048	0.0049	0.0051	0.0052	0.0053	0.0054	0.0056	0.0058	...	...	...	20
0.0058	0.0059	0.0061	0.0062	0.0063	0.0065	0.0066	0.0068	0.0070	0.0072	...	...	...	
0.0049	0.0050	0.0051	0.0051	0.0053	0.0054	0.0055	0.0056	0.0058	0.0060	0.0062	...	...	18
0.0061	0.0062	0.0063	0.0064	0.0066	0.0068	0.0069	0.0070	0.0073	0.0075	0.0078	...	...	
0.0051	0.0052	0.0053	0.0054	0.0055	0.0056	0.0058	0.0059	0.0061	0.0062	0.0065	0.0067	...	16
0.0064	0.0065	0.0066	0.0067	0.0069	0.0071	0.0072	0.0073	0.0076	0.0078	0.0081	0.0084	...	
0.0054	0.0055	0.0056	0.0057	0.0058	0.0059	0.0061	0.0062	0.0064	0.0065	0.0068	0.0070	0.0072	14
0.0068	0.0069	0.0070	0.0071	0.0073	0.0074	0.0076	0.0077	0.0079	0.0081	0.0085	0.0088	0.0090	
0.0058	0.0059	0.0060	0.0061	0.0062	0.0063	0.0064	0.0065	0.0067	0.0069	0.0072	0.0074	0.0076	12
0.0072	0.0073	0.0075	0.0076	0.0077	0.0079	0.0080	0.0082	0.0084	0.0086	0.0090	0.0092	0.0095	
0.0063	0.0064	0.0065	0.0065	0.0067	0.0068	0.0069	0.0070	0.0072	0.0074	0.0077	0.0079	0.0081	10
0.0078	0.0080	0.0081	0.0082	0.0084	0.0085	0.0087	0.0088	0.0090	0.0092	0.0096	0.0099	0.0101	
0.0070	0.0071	0.0071	0.0072	0.0074	0.0075	0.0076	0.0077	0.0079	0.0081	0.0083	0.0086	0.0088	8
0.0087	0.0088	0.0089	0.0090	0.0092	0.0094	0.0095	0.0097	0.0099	0.0101	0.0104	0.0107	0.0110	
...	0.0081	0.0082	0.0083	0.0084	0.0085	0.0087	0.0088	0.0089	0.0091	0.0094	0.0096	0.0098	6
...	0.0101	0.0102	0.0103	0.0105	0.0107	0.0108	0.0110	0.0112	0.0114	0.0117	0.0120	0.0123	
...	...	...	0.0101	0.0102	0.0104	0.0105	0.0106	0.0108	0.0109	0.0112	0.0114	0.0116	4
...	...	...	0.0126	0.0128	0.0130	0.0131	0.0132	0.0135	0.0137	0.0140	0.0143	0.0145	

(c) Length of engagement increments included in the tabulated tolerances for length of engagement of from 5 to 15 pitches are based on lengths of 9 pitches; those for lengths of engagement of from 16 to 30 pitches are obtained by multiplying the 9 pitch values taken to six decimal places by 1.25. For lengths of engagement not tabulated, the formula in (b) above should be applied except as modified.

(d) Pitches listed are those used most commonly and are recommended. When intermediate pitches are specified, the formula in (b) above should be applied.

(e) Tolerances are tabulated only for combinations of diameter, pitch, and length of engagement that are considered to be generally used. For other combinations encountered, see para. 5.

Table D-6 Pitch Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 3A

Tolerance based on basic major diameter of			0.0625	0.09375	0.125	0.1875	0.25	0.375	0.5	0.625	0.75	1
For diameter range above			0.0470	0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875
To and including			0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875	1.125
	Length of Engagement											
Threads/in.	Number of Pitches	in.	Pitch Diameter Tolerances, in.									
80	5 to 15	0.06 to 0.19	0.0014	0.0015	0.0015	0.0016	0.0017	...	...	...	...	...
	16 to 30	0.191 to 0.38	0.0018	0.0019	0.0019	0.0020	0.0021	...	...	...	...	...
72	5 to 15	0.07 to 0.21	0.0015	0.0016	0.0016	0.0017	0.0018	0.0019	...	...	...	...
	16 to 30	0.211 to 0.42	0.0019	0.0019	0.0020	0.0021	0.0022	0.0023	...	...	...	...
64	5 to 15	0.08 to 0.23	0.0016	0.0016	0.0017	0.0018	0.0018	0.0019	0.0020	...	...	...
	16 to 30	0.231 to 0.46	0.0020	0.0020	0.0021	0.0022	0.0023	0.0024	0.0025	...	...	...
56	5 to 15	0.09 to 0.27	...	0.0017	0.0018	0.0019	0.0019	0.0020	0.0021	0.0022	0.0022	...
	16 to 30	0.271 to 0.54	...	0.0022	0.0022	0.0023	0.0024	0.0025	0.0026	0.0027	0.0028	...
48	5 to 15	0.10 to 0.31	...	0.0019	0.0019	0.0019	0.0020	0.0020	0.0022	0.0023	0.0024	...
	16 to 30	0.311 to 0.62	...	0.0022	0.0023	0.0024	0.0025	0.0026	0.0027	0.0029	0.0030	...
44	5 to 15	0.11 to 0.34	...	0.0019	0.0020	0.0021	0.0021	0.0022	0.0023	0.0024	0.0024	0.0025
	16 to 30	0.341 to 0.68	...	0.0024	0.0025	0.0026	0.0026	0.0028	0.0029	0.0030	0.0030	0.0032
40	5 to 15	0.12 to 0.38	...	...	0.0021	0.0021	0.0022	0.0023	0.0024	0.0025	0.0025	0.0026
	16 to 30	0.381 to 0.76	...	...	0.0026	0.0027	0.0028	0.0029	0.0030	0.0031	0.0031	0.0033
36	5 to 15	0.14 to 0.42	...	...	0.0022	0.0022	0.0023	0.0024	0.0025	0.0026	0.0026	0.0027
	16 to 30	0.421 to 0.84	...	...	0.0027	0.0028	0.0029	0.0030	0.0031	0.0032	0.0033	0.0034
32	5 to 15	0.16 to 0.47	...	...	0.0023	0.0024	0.0024	0.0025	0.0026	0.0027	0.0027	0.0028
	16 to 30	0.471 to 0.94	...	...	0.0028	0.0029	0.0030	0.0032	0.0033	0.0033	0.0034	0.0035
28	5 to 15	0.18 to 0.54	...	...	...	0.0025	0.0026	0.0027	0.0028	0.0028	0.0029	0.0030
	16 to 30	0.541 to 1.08	...	...	...	0.0031	0.0032	0.0033	0.0034	0.0035	0.0036	0.0037
27	5 to 15	0.19 to 0.56	...	...	...	0.0025	0.0026	0.0027	0.0028	0.0029	0.0029	0.0030
	16 to 30	0.561 to 1.12	...	...	...	0.0032	0.0033	0.0034	0.0035	0.0036	0.0037	0.0038
24	5 to 15	0.21 to 0.62	...	...	...	0.0027	0.0028	0.0029	0.0029	0.0030	0.0031	0.0032
	16 to 30	0.621 to 1.24	...	...	...	0.0034	0.0034	0.0036	0.0037	0.0038	0.0038	0.0040
20	5 to 15	0.25 to 0.75	...	...	...	...	0.0030	0.0031	0.0032	0.0032	0.0033	0.0034
	16 to 30	0.751 to 1.50	...	...	...	...	0.0037	0.0039	0.0040	0.0041	0.0041	0.0043
18	5 to 15	0.28 to 0.83	...	...	...	...	...	0.0032	0.0033	0.0034	0.0035	0.0036
	16 to 30	0.831 to 1.66	...	...	...	...	...	0.0041	0.0042	0.0042	0.0043	0.0044
16	5 to 15	0.31 to 0.94	...	...	...	...	...	0.0034	0.0035	0.0036	0.0036	0.0037
	16 to 30	0.941 to 1.88	...	...	...	...	...	0.0043	0.0044	0.0045	0.0045	0.0047
14	5 to 15	0.36 to 1.07	...	...	...	...	...	...	0.0037	0.0038	0.0039	0.0040
	16 to 30	1.071 to 2.14	...	...	...	...	...	...	0.0047	0.0048	0.0048	0.0050
12	5 to 15	0.42 to 1.25	...	...	...	...	...	...	0.0040	0.0041	0.0041	0.0042
	16 to 30	1.251 to 2.50	...	...	...	...	...	...	0.0050	0.0051	0.0052	0.0053
10	5 to 15	0.50 to 1.50	...	...	...	...	...	...	...	...	0.0045	0.0046
	16 to 30	1.501 to 3.00	...	...	...	...	...	...	...	...	0.0056	0.0058
8	5 to 15	0.62 to 1.88	...	...	...	...	...	...	...	...	...	0.0051
	16 to 30	1.881 to 3.76	...	...	...	...	...	...	...	...	...	0.0064
6	5 to 15	0.83 to 2.50	...	...	...	...	...	...	...	...	...	...
	16 to 30	2.501 to 5.00	...	...	...	...	...	...	...	...	...	...
4	5 to 15	1.25 to 3.75	...	...	...	...	...	...	...	...	...	...
	16 to 30	3.751 to 7.50	...	...	...	...	...	...	...	...	...	...

GENERAL NOTES:

(a) These values do not agree with and shall not be used in place of any tabulated values for the UNC, UNF, and 4-UN, 6-UN, and 8-UN thread series.

(b) Class 3A tolerances in this Table for 5 to 15 pitches are based on 9 pitches and are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places by a factor 0f 0.75.

(c) Class 3A tolerances in this Table for 16 to 30 pitches are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places by a factor of 0.9375 (obtained by multiplying the 0.75 factor by 1.25). For lengths of engagement not tabulated, see para. 5.

Table D-6 Pitch Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 3A

1.25	1.5	1.75	2	2.5	3	3.5	4	5	6	8	10	12
1.125	1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11
1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11	13

Pitch Diameter Tolerances, in.													Threads/in.
...	...	...	...	...	...	...	...	...	...	...	...	...	80
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	72
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	64
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	56
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	48
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	44
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	40
...	...	...	...	...	...	...	...	...	...	...	...	...	
0.0028	0.0029	...	...	...	...	...	...	...	...	...	...	...	36
0.0035	0.0036	...	...	...	...	...	...	...	...	...	...	...	
0.0029	0.0030	0.0031	0.0031	0.0032	0.0033	...	...	...	...	...	...	...	32
0.0037	0.0038	0.0038	0.0039	0.0040	0.0042	...	...	...	...	...	...	...	
0.0031	0.0031	0.0032	0.0033	0.0034	0.0035	0.0036	0.0036	...	...	...	...	...	28
0.0038	0.0039	0.0040	0.0041	0.0042	0.0044	0.0045	0.0046	...	...	...	...	...	
0.0031	0.0032	0.0033	0.0033	0.0034	0.0035	0.0036	0.0037	0.0038	0.0039	...	...	...	27
0.0039	0.0040	0.0041	0.0041	0.0043	0.0044	0.0045	0.0046	0.0048	0.0049	...	...	...	
0.0033	0.0033	0.0034	0.0035	0.0036	0.0037	0.0037	0.0038	0.0040	0.0041	...	...	...	24
0.0041	0.0042	0.0042	0.0043	0.0045	0.0046	0.0047	0.0048	0.0050	0.0051	...	...	...	
0.0035	0.0036	0.0036	0.0037	0.0038	0.0039	0.0040	0.0041	0.0042	0.0043	...	...	...	20
0.0044	0.0045	0.0045	0.0046	0.0048	0.0049	0.0050	0.0051	0.0053	0.0054	...	...	...	
0.0036	0.0037	0.0038	0.0039	0.0040	0.0041	0.0041	0.0042	0.0044	0.0045	0.0047	...	...	18
0.0046	0.0047	0.0047	0.0048	0.0050	0.0051	0.0052	0.0053	0.0054	0.0056	0.0059	...	...	
0.0038	0.0039	0.0040	0.0040	0.0041	0.0042	0.0043	0.0045	0.0045	0.0047	0.0049	0.0050	...	16
0.0048	0.0049	0.0050	0.0050	0.0052	0.0053	0.0054	0.0055	0.0057	0.0058	0.0061	0.0063	...	
0.0041	0.0041	0.0042	0.0043	0.0044	0.0045	0.0045	0.0046	0.0048	0.0049	0.0051	0.0053	0.0054	14
0.0051	0.0052	0.0052	0.0053	0.0055	0.0056	0.0057	0.0058	0.0060	0.0061	0.0064	0.0066	0.0068	
0.0043	0.0044	0.0045	0.0045	0.0046	0.0047	0.0048	0.0049	0.0050	0.0052	0.0054	0.0055	0.0057	12
0.0054	0.0055	0.0056	0.0057	0.0058	0.0059	0.0060	0.0061	0.0063	0.0065	0.0067	0.0069	0.0071	
0.0047	0.0048	0.0048	0.0049	0.0050	0.0051	0.0052	0.0053	0.0054	0.0055	0.0057	0.0059	0.0061	10
0.0059	0.0060	0.0061	0.0061	0.0063	0.0064	0.0065	0.0066	0.0068	0.0069	0.0072	0.0074	0.0076	
0.0052	0.0053	0.0054	0.0054	0.0055	0.0056	0.0057	0.0058	0.0059	0.0061	0.0063	0.0064	0.0066	8
0.0065	0.0066	0.0067	0.0068	0.0069	0.0070	0.0071	0.0072	0.0074	0.0076	0.0078	0.0080	0.0082	
...	0.0061	0.0061	0.0062	0.0063	0.0064	0.0065	0.0066	0.0067	0.0068	0.0070	0.0072	0.0074	6
...	0.0076	0.0077	0.0078	0.0079	0.0080	0.0081	0.0082	0.0084	0.0085	0.0088	0.0090	0.0092	
...	...	...	0.0076	0.0077	0.0078	0.0079	0.0079	0.0081	0.0082	0.0084	0.0086	0.0087	4
...	...	...	0.0095	0.0096	0.0097	0.0098	0.0099	0.0101	0.0102	0.0105	0.0107	0.0109	

(d) Pitches listed are those used most commonly and are recommended. Where intermediate pitches are specified, the formula in para. 5 should be applied.

(e) Tolerances are tabulated only for combinations of diameter, pitch, and length of engagement that are considered to be generally used. For other combinations encountered, see para. 5.

Table D-7 Pitch Diameter Tolerances for Internal Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 1B

Tolerance based on basic major diameter of			0.0625	0.09375	0.125	0.1875	0.25	0.375	0.5	0.625	0.75	1
For diameter range above			0.0470	0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875
To and including			0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875	1.125
	Length of Engagement											
Threads/in.	Number of Pitches	in.	Pitch Diameter Tolerances, in.									
80	5 to 15	0.06 to 0.19	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.191 to 0.38	...	...	...	...	...	...	...	...	...	...
72	5 to 15	0.07 to 0.21	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.211 to 0.42	...	...	...	...	...	...	...	...	...	...
64	5 to 15	0.08 to 0.23	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.231 to 0.46	...	...	...	...	...	...	...	...	...	...
56	5 to 15	0.09 to 0.27	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.271 to 0.54	...	...	...	...	...	...	...	...	...	...
48	5 to 15	0.10 to 0.31	...	...	...	...	...	...	...	...	...	...
	16 to 30	0.311 to 0.62	...	...	...	...	...	...	...	...	...	...
44	5 to 15	0.11 to 0.34	...	0.0050	0.0051	0.0053	0.0055	0.0058	0.0060	0.0062	0.0063	0.0066
	16 to 30	0.341 to 0.68	...	0.0062	0.0064	0.0067	0.0069	0.0072	0.0075	0.0077	0.0079	0.0082
40	5 to 15	0.12 to 0.38	...	...	0.0054	0.0056	0.0057	0.0060	0.0062	0.0064	0.0065	0.0068
	16 to 30	0.381 to 0.76	...	...	0.0067	0.0070	0.0072	0.0075	0.0078	0.0080	0.0082	0.0085
36	5 to 15	0.14 to 0.42	...	...	0.0056	0.0058	0.0060	0.0063	0.0065	0.0066	0.0068	0.0071
	16 to 30	0.421 to 0.84	...	...	0.0070	0.0073	0.0075	0.0078	0.0081	0.0083	0.0085	0.0088
32	5 to 15	0.16 to 0.47	...	...	0.0059	0.0061	0.0063	0.0066	0.0068	0.0070	0.0071	0.0074
	16 to 30	0.471 to 0.94	...	...	0.0074	0.0077	0.0079	0.0082	0.0085	0.0087	0.0089	0.0092
28	5 to 15	0.18 to 0.54	...	...	...	0.0065	0.0067	0.0069	0.0072	0.0073	0.0075	0.0078
	16 to 30	0.541 to 1.08	...	...	...	0.0081	0.0083	0.0087	0.0089	0.0092	0.0094	0.0097
27	5 to 15	0.19 to 0.56	...	...	...	0.0066	0.0068	0.0070	0.0073	0.0074	0.0076	0.0079
	16 to 30	0.561 to 1.12	...	...	...	0.0083	0.0085	0.0088	0.0091	0.0093	0.0095	0.0098
24	5 to 15	0.21 to 0.62	...	...	...	0.0070	0.0072	0.0074	0.0076	0.0078	0.0080	0.0082
	16 to 30	0.621 to 1.24	...	...	...	0.0087	0.0089	0.0093	0.0095	0.0098	0.0100	0.0103
20	5 to 15	0.25 to 0.75	...	...	...	...	0.0078	0.0080	0.0083	0.0084	0.0086	0.0089
	16 to 30	0.751 to 1.50	...	...	...	...	0.0097	0.0101	0.0103	0.0105	0.0107	0.0111
18	5 to 15	0.28 to 0.83	...	...	...	...	...	0.0084	0.0087	0.0088	0.0090	0.0093
	16 to 30	0.831 to 1.66	...	...	...	...	...	0.0105	0.0108	0.0110	0.0112	0.0116
16	5 to 15	0.31 to 0.94	...	...	...	...	...	0.0089	0.0091	0.0093	0.0095	0.0097
	16 to 30	0.941 to 1.88	...	...	...	...	...	0.0111	0.0114	0.0116	0.0118	0.0122
14	5 to 15	0.36 to 1.07	...	...	...	...	...	...	0.0097	0.0099	0.0100	0.0103
	16 to 30	1.071 to 2.14	...	...	...	...	...	...	0.0121	0.0124	0.0125	0.0129
12	5 to 15	0.42 to 1.25	...	...	...	...	...	...	0.0104	0.0106	0.0108	0.0109
	16 to 30	1.251 to 2.50	...	...	...	...	...	...	0.0130	0.0133	0.0135	0.0138
10	5 to 15	0.50 to 1.50	...	...	...	...	...	...	...	...	0.0117	0.0120
	16 to 30	1.501 to 3.00	...	...	...	...	...	...	...	...	0.0147	0.0150
8	5 to 15	0.62 to 1.88	...	...	...	...	...	...	...	...	...	0.0133
	16 to 30	1.881 to 3.76	...	...	...	...	...	...	...	...	...	0.0167
6	5 to 15	0.83 to 2.50	...	...	...	...	...	...	...	...	...	...
	16 to 30	2.501 to 5.00	...	...	...	...	...	...	...	...	...	...
4	5 to 15	1.25 to 3.75	...	...	...	...	...	...	...	...	...	...
	16 to 30	3.751 to 7.50	...	...	...	...	...	...	...	...	...	...

GENERAL NOTES:

(a) These values do not agree with and shall not be used in place of any tabulated values for the UNC, UNF, and 4-UN, 6-UN, and 8-UN thread series.

(b) Class 1B (internal thread) tolerances in this Table for 5 to 15 pitches are based on 9 pitches and are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places by a factor of 1.95.

(c) Class 1B tolerances in this Table for 16 to 30 pitches are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places by a factor of 2.437 (obtained by multiplying the 1.95 factor by 1.25). For lengths of engagement not tabulated, see para. 5.

Table D-7 Pitch Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 1B

1.25	1.5	1.75	2	2.5	3	3.5	4	5	6	8	10	12
1.125	1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11
1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11	13

Pitch Diameter Tolerances, in.													Threads/in.
...	...	...	...	...	...	...	...	...	...	...	...	...	80
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	72
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	64
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	56
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	48
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	44
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	40
...	...	...	...	...	...	...	...	...	...	...	...	...	
0.0073	0.0075	...	...	...	...	...	...	...	...	...	...	...	36
0.0091	0.0094	...	...	...	...	...	...	...	...	...	...	...	
0.0076	0.0078	0.0080	0.0081	0.0084	0.0087	...	...	...	...	...	...	...	32
0.0095	0.0098	0.0100	0.0102	0.0105	0.0108	...	...	...	...	...	...	...	
0.0080	0.0082	0.0084	0.0085	0.0088	0.0090	0.0093	0.0095	...	...	...	...	...	28
0.0100	0.0102	0.0104	0.0106	0.0110	0.0113	0.0116	0.0118	...	...	...	...	...	
0.0080	0.0083	0.0085	0.0085	0.0089	0.0092	0.0094	0.0096	0.0099	0.0103	...	...	...	27
0.0101	0.0104	0.0106	0.0108	0.0111	0.0114	0.0117	0.0120	0.0124	0.0128	...	...	...	
0.0085	0.0087	0.0088	0.0090	0.0093	0.0095	0.0097	0.0100	0.0103	0.0106	...	...	...	24
0.0106	0.0106	0.0110	0.0112	0.0116	0.0119	0.0122	0.0124	0.0129	0.0133	...	...	...	
0.0091	0.0093	0.0095	0.0096	0.0099	0.0101	0.0104	0.0106	0.0109	0.0112	...	...	...	20
0.0114	0.0116	0.0118	0.0120	0.0124	0.0127	0.0130	0.0132	0.0137	0.0141	...	...	...	
0.0095	0.0097	0.0099	0.0100	0.0103	0.0105	0.0108	0.0110	0.0113	0.0116	0.0122	...	...	18
0.0118	0.0121	0.0123	0.0125	0.0129	0.0132	0.0135	0.0137	0.0142	0.0146	0.0152	...	...	
0.0100	0.0101	0.0103	0.0105	0.0108	0.0110	0.0112	0.0114	0.0118	0.0121	0.0126	0.0131	...	16
0.0124	0.0127	0.0129	0.0131	0.0135	0.0138	0.0140	0.0143	0.0148	0.0151	0.0158	0.0164	...	
0.0105	0.0107	0.0109	0.0111	0.0114	0.0116	0.0118	0.0120	0.0124	0.0127	0.0132	0.0137	0.0141	14
0.0132	0.0134	0.0136	0.0138	0.0142	0.0145	0.0148	0.0150	0.0155	0.0159	0.0165	0.0171	0.0176	
0.0113	0.0115	0.0116	0.0118	0.0121	0.0123	0.0126	0.0128	0.0131	0.0134	0.0140	0.0144	0.0148	12
0.0141	0.0143	0.0145	0.0147	0.0151	0.0154	0.0157	0.0159	0.0164	0.0168	0.0175	0.0180	0.0185	
0.0122	0.0124	0.0126	0.0128	0.0130	0.0133	0.0135	0.0137	0.0141	0.0144	0.0149	0.0154	0.0158	10
0.0153	0.0155	0.0158	0.0160	0.0163	0.0166	0.0169	0.0172	0.0176	0.0180	0.0187	0.0192	0.0197	
0.0136	0.0138	0.0139	0.0141	0.0144	0.0146	0.0149	0.0151	0.0154	0.0157	0.0163	0.0167	0.0171	8
0.0170	0.0172	0.0174	0.0176	0.0180	0.0183	0.0186	0.0188	0.0193	0.0197	0.0203	0.0209	0.0214	
...	0.0158	0.0160	0.0161	0.0164	0.0167	0.0169	0.0171	0.0174	0.0178	0.0183	0.0187	0.0191	6
...	0.0197	0.0200	0.0202	0.0205	0.0208	0.0211	0.0214	0.0218	0.0222	0.0229	0.0234	0.0239	
...	...	...	0.0197	0.0200	0.0202	0.0204	0.0206	0.0210	0.0213	0.0218	0.0223	0.0227	4
...	...	...	0.0246	0.0250	0.0253	0.0255	0.0258	0.0262	0.0266	0.0273	0.0279	0.0284	

(d) Pitches listed are those used most commonly and are recommended. Where intermediate pitches are specified, the formula in para. 5 should be applied.

(e) Tolerances are tabulated only for combinations of diameter, pitch, and length of engagement that are considered to be generally used. For other combinations encountered, see para. 5.

Table D-8 Pitch Diameter Tolerances for Internal Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 2B

Tolerance based on basic major diameter of			0.0625	0.09375	0.125	0.1875	0.25	0.375	0.5	0.625	0.75	1
For diameter range above			0.0470	0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875
To and including			0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875	1.125
	Length of Engagement											
Threads/in.	Number of Pitches	in.	Pitch Diameter Tolerances, in.									
80	5 to 15	0.06 to 0.19	0.0025	0.0026	0.0027	0.0028	0.0029	...	...	...	...	...
	16 to 30	0.191 to 0.38	0.0031	0.0032	0.0033	0.0035	0.0037	...	...	...	...	...
72	5 to 15	0.07 to 0.21	0.0026	0.0027	0.0028	0.0029	0.0030	0.0032	...	...	...	...
	16 to 30	0.211 to 0.42	0.0032	0.0034	0.0035	0.0037	0.0038	0.0040	...	...	...	...
64	5 to 15	0.08 to 0.23	0.0027	0.0028	0.0029	0.0031	0.0032	0.0034	0.0035	...	...	...
	16 to 30	0.231 to 0.46	0.0034	0.0035	0.0037	0.0038	0.0040	0.0042	0.0044	...	...	...
56	5 to 15	0.09 to 0.27	...	0.0030	0.0031	0.0032	0.0033	0.0035	0.0037	0.0038	0.0039	...
	16 to 30	0.271 to 0.54	...	0.0037	0.0039	0.0040	0.0042	0.0044	0.0046	0.0047	0.0049	...
48	5 to 15	0.10 to 0.31	...	0.0032	0.0033	0.0034	0.0036	0.0037	0.0039	0.0040	0.0041	...
	16 to 30	0.311 to 0.62	...	0.0040	0.0041	0.0043	0.0044	0.0047	0.0048	0.0050	0.0051	...
44	5 to 15	0.11 to 0.34	...	0.0033	0.0034	0.0036	0.0037	0.0039	0.0040	0.0041	0.0042	0.0044
	16 to 30	0.341 to 0.68	...	0.0042	0.0043	0.0045	0.0046	0.0048	0.0050	0.0051	0.0053	0.0055
40	5 to 15	0.12 to 0.38	...	...	0.0036	0.0037	0.0038	0.0041	0.0041	0.0043	0.0044	0.0045
	16 to 30	0.381 to 0.76	...	...	0.0045	0.0046	0.0048	0.0050	0.0052	0.0053	0.0055	0.0057
36	5 to 15	0.14 to 0.42	...	...	0.0037	0.0039	0.0040	0.0042	0.0043	0.0044	0.0045	0.0047
	16 to 30	0.421 to 0.84	...	...	0.0047	0.0049	0.0050	0.0052	0.0054	0.0055	0.0057	0.0059
32	5 to 15	0.16 to 0.47	...	...	0.0030	0.0041	0.0042	0.0044	0.0045	0.0046	0.0047	0.0049
	16 to 30	0.471 to 0.94	...	...	0.0049	0.0051	0.0052	0.0055	0.0056	0.0058	0.0059	0.0061
28	5 to 15	0.18 to 0.54	...	...	...	0.0043	0.0044	0.0046	0.0048	0.0049	0.0050	0.0052
	16 to 30	0.541 to 1.08	...	...	...	0.0054	0.0056	0.0058	0.0060	0.0061	0.0062	0.0065
27	5 to 15	0.19 to 0.56	...	...	...	0.0044	0.0045	0.0047	0.0048	0.0050	0.0051	0.0052
	16 to 30	0.561 to 1.12	...	...	...	0.0055	0.0057	0.0059	0.0061	0.0062	0.0063	0.0066
24	5 to 15	0.21 to 0.62	...	...	...	0.0047	0.0048	0.0049	0.0051	0.0052	0.0053	0.0055
	16 to 30	0.621 to 1.24	...	...	...	0.0058	0.0060	0.0062	0.0064	0.0065	0.0066	0.0069
20	5 to 15	0.25 to 0.75	...	...	...	...	0.0052	0.0055	0.0056	0.0057	0.0057	0.0059
	16 to 30	0.751 to 1.50	...	...	...	...	0.0065	0.0067	0.0069	0.0072	0.0074	0.0074
18	5 to 15	0.28 to 0.83	...	...	...	...	...	0.0056	0.0059	0.0060	0.0060	0.0062
	16 to 30	0.831 to 1.66	...	...	...	...	...	0.0070	0.0072	0.0074	0.0075	0.0077
16	5 to 15	0.31 to 0.94	...	...	...	...	...	0.0059	0.0061	0.0062	0.0063	0.0065
	16 to 30	0.941 to 1.88	...	...	...	...	...	0.0074	0.0076	0.0077	0.0079	0.0081
14	5 to 15	0.36 to 1.07	...	...	...	...	...	...	0.0065	0.0066	0.0067	0.0069
	16 to 30	1.071 to 2.14	...	...	...	...	...	...	0.0081	0.0082	0.0084	0.0086
12	5 to 15	0.42 to 1.25	...	...	...	...	...	...	0.0070	0.0071	0.0072	0.0074
	16 to 30	1.251 to 2.50	...	...	...	...	...	...	0.0087	0.0088	0.0090	0.0092
10	5 to 15	0.50 to 1.50	...	...	...	...	...	...	...	...	0.0078	0.0080
	16 to 30	1.501 to 3.00	...	...	...	...	...	...	...	...	0.0098	0.0100
8	5 to 15	0.62 to 1.88	...	...	...	...	...	...	...	...	...	0.0089
	16 to 30	1.881 to 3.76	...	...	...	...	...	...	...	...	...	0.0111
6	5 to 15	0.83 to 2.50	...	...	...	...	...	...	...	...	...	...
	16 to 30	2.501 to 5.00	...	...	...	...	...	...	...	...	...	...
4	5 to 15	1.25 to 3.75	...	...	...	...	...	...	...	...	...	...
	16 to 30	3.751 to 7.50	...	...	...	...	...	...	...	...	...	...

GENERAL NOTES:

(a) These values do not agree with and shall not be used in place of any tabulated values for the UNC, UNF, and 4-UN, 6-UN, and 8-UN thread series.

(b) Class 2B (internal thread) tolerances in this Table for 5 to 15 pitches are based on 9 pitches and are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places by a factor of 1.3.

(c) Class 2B tolerances in this Table for 16 to 30 pitches are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places by a factor of 1.625 (obtained by multiplying the 1.3 factor by 1.25). For lengths of engagement not tabulated, see para. 5.

Table D-8 Pitch Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 2B

1.25	1.5	1.75	2	2.5	3	3.5	4	5	6	8	10	12
1.125	1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11
1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11	13

Pitch Diameter Tolerances, in.													Threads/in.
...	...	...	...	...	...	...	...	...	...	...	...	...	80
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	72
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	64
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	56
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	48
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	44
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	40
...	...	...	...	...	...	...	...	...	...	...	...	...	
0.0049	0.0050	...	...	...	...	...	...	...	...	...	...	...	36
0.0061	0.0062	...	...	...	...	...	...	...	...	...	...	...	
0.0051	0.0052	0.0053	0.0054	0.0056	0.0058	...	...	...	...	...	...	...	32
0.0063	0.0065	0.0066	0.0068	0.0070	0.0072	...	...	...	...	...	...	...	
0.0053	0.0055	0.0056	0.0057	0.0059	0.0060	0.0062	0.0063	...	...	...	...	...	28
0.0067	0.0068	0.0070	0.0071	0.0073	0.0075	0.0077	0.0079	...	...	...	...	...	
0.0053	0.0055	0.0056	0.0057	0.0059	0.0061	0.0063	0.0064	0.0066	0.0068	...	...	...	27
0.0067	0.0069	0.0071	0.0072	0.0074	0.0076	0.0078	0.0080	0.0083	0.0085	...	...	...	
0.0056	0.0058	0.0059	0.0060	0.0062	0.0064	0.0065	0.0066	0.0069	0.0071	...	...	...	24
0.0070	0.0072	0.0074	0.0075	0.0077	0.0079	0.0081	0.0083	0.0086	0.0089	...	...	...	
0.0061	0.0062	0.0063	0.0064	0.0066	0.0068	0.0069	0.0070	0.0073	0.0075	...	...	...	20
0.0076	0.0077	0.0079	0.0080	0.0083	0.0085	0.0086	0.0088	0.0091	0.0094	...	...	...	
0.0063	0.0065	0.0066	0.0067	0.0069	0.0070	0.0072	0.0073	0.0076	0.0078	0.0081	...	...	18
0.0079	0.0081	0.0082	0.0083	0.0086	0.0088	0.0090	0.0091	0.0094	0.0097	0.0101	...	...	
0.0066	0.0068	0.0069	0.0070	0.0072	0.0073	0.0075	0.0076	0.0079	0.0081	0.0084	0.0087	...	16
0.0083	0.0085	0.0086	0.0087	0.0090	0.0092	0.0094	0.0095	0.0098	0.0101	0.0105	0.0109	...	
0.0070	0.0072	0.0073	0.0074	0.0076	0.0077	0.0079	0.0080	0.0083	0.0085	0.0088	0.0091	0.0094	14
0.0088	0.0089	0.0091	0.0092	0.0095	0.0097	0.0099	0.0100	0.0103	0.0106	0.0110	0.0114	0.0117	
0.0075	0.0076	0.0078	0.0079	0.0081	0.0082	0.0084	0.0085	0.0087	0.0090	0.0093	0.0096	0.0099	12
0.0094	0.0096	0.0097	0.0098	0.0101	0.0103	0.0105	0.0106	0.0109	0.0112	0.0116	0.0120	0.0123	
0.0082	0.0083	0.0084	0.0085	0.0087	0.0089	0.0090	0.0091	0.0094	0.0096	0.0100	0.0103	0.0105	10
0.0102	0.0104	0.0105	0.0106	0.0109	0.0111	0.0113	0.0114	0.0117	0.0120	0.0124	0.0128	0.0131	
0.0090	0.0092	0.0093	0.0094	0.0096	0.0098	0.0099	0.0100	0.0103	0.0105	0.0108	0.0111	0.0114	8
0.0113	0.0115	0.0116	0.0118	0.0120	0.0122	0.0124	0.0125	0.0128	0.0131	0.0136	0.0139	0.0143	
...	0.0105	0.0106	0.0108	0.0109	0.0111	0.0113	0.0114	0.0116	0.0118	0.0122	0.0125	0.0128	6
...	0.0132	0.0133	0.0134	0.0137	0.0139	0.0141	0.0142	0.0145	0.0148	0.0152	0.0156	0.0159	
...	...	...	0.0131	0.0133	0.0135	0.0136	0.0138	0.0140	0.0142	0.0146	0.0149	0.0151	4
...	...	...	0.0164	0.0166	0.0168	0.0170	0.0172	0.0175	0.0178	0.0182	0.0186	0.0189	

(d) Pitches listed are those used most commonly and are recommended. Where intermediate pitches are specified, the formula in para. 5 should be applied.

(e) Tolerances are tabulated only for combinations of diameter, pitch, and length of engagement that are considered to be generally used. For other combinations encountered, see para. 5.

Table D-9 Pitch Diameter Tolerances for Internal Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 3B

Tolerance based on basic major diameter of			0.0625	0.09375	0.125	0.1875	0.25	0.375	0.5	0.625	0.75	1
For diameter range above			0.0470	0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875
To and including			0.0781	0.1094	0.1562	0.2188	0.3125	0.4375	0.5625	0.6875	0.875	1.125
	Length of Engagement											
Threads/in.	Number of Pitches	in.	Pitch Diameter Tolerances, in.									
80	5 to 15	0.06 to 0.19	0.0019	0.0019	0.0020	0.0021	0.0022	...	...	...	...	...
	16 to 30	0.191 to 0.38	0.0023	0.0024	0.0025	0.0026	0.0027	...	...	...	...	...
72	5 to 15	0.07 to 0.21	0.0019	0.0020	0.0021	0.0022	0.0023	0.0024	...	...	...	...
	16 to 30	0.211 to 0.42	0.0024	0.0025	0.0026	0.0027	0.0029	0.0030	...	...	...	...
64	5 to 15	0.08 to 0.23	0.0020	0.0021	0.0022	0.0023	0.0024	0.0025	0.0026	...	...	...
	16 to 30	0.231 to 0.46	0.0026	0.0027	0.0027	0.0029	0.0030	0.0031	0.0033	...	...	...
56	5 to 15	0.09 to 0.27	...	0.0023	0.0023	0.0024	0.0025	0.0026	0.0027	0.0028	0.0029	...
	16 to 30	0.271 to 0.54	...	0.0028	0.0029	0.0030	0.0031	0.0033	0.0034	0.0035	0.0036	...
48	5 to 15	0.10 to 0.31	...	0.0024	0.0025	0.0026	0.0027	0.0028	0.0029	0.0030	0.0031	...
	16 to 30	0.311 to 0.62	...	0.0030	0.0031	0.0032	0.0033	0.0035	0.0036	0.0037	0.0038	...
44	5 to 15	0.11 to 0.34	...	0.0025	0.0026	0.0027	0.0028	0.0029	0.0030	0.0031	0.0032	0.0033
	16 to 30	0.341 to 0.68	...	0.0031	0.0032	0.0033	0.0034	0.0036	0.0037	0.0039	0.0040	0.0041
40	5 to 15	0.12 to 0.38	...	...	0.0027	0.0028	0.0029	0.0030	0.0031	0.0032	0.0033	0.0034
	16 to 30	0.381 to 0.76	...	...	0.0033	0.0035	0.0036	0.0037	0.0039	0.0040	0.0041	0.0043
36	5 to 15	0.14 to 0.42	...	...	0.0028	0.0029	0.0030	0.0031	0.0032	0.0033	0.0034	0.0035
	16 to 30	0.421 to 0.84	...	...	0.0035	0.0036	0.0037	0.0039	0.0040	0.0042	0.0043	0.0044
32	5 to 15	0.16 to 0.47	...	...	0.0030	0.0031	0.0031	0.0033	0.0034	0.0035	0.0036	0.0037
	16 to 30	0.471 to 0.94	...	...	0.0037	0.0038	0.0039	0.0041	0.0042	0.0043	0.0044	0.0046
28	5 to 15	0.18 to 0.54	...	...	...	0.0033	0.0033	0.0035	0.0036	0.0037	0.0037	0.0039
	16 to 30	0.541 to 1.08	...	...	...	0.0041	0.0042	0.0043	0.0045	0.0046	0.0047	0.0048
27	5 to 15	0.19 to 0.56	...	...	...	0.0033	0.0034	0.0035	0.0036	0.0037	0.0038	0.0039
	16 to 30	0.561 to 1.12	...	...	...	0.0041	0.0042	0.0044	0.0045	0.0046	0.0047	0.0049
24	5 to 15	0.21 to 0.62	...	...	...	0.0035	0.0036	0.0037	0.0038	0.0039	0.0040	0.0041
	16 to 30	0.621 to 1.24	...	...	...	0.0044	0.0045	0.0046	0.0048	0.0049	0.0050	0.0051
20	5 to 15	0.25 to 0.75	...	...	...	...	0.0039	0.0040	0.0041	0.0042	0.0043	0.0044
	16 to 30	0.751 to 1.50	...	...	...	...	0.0049	0.0050	0.0052	0.0053	0.0054	0.0055
18	5 to 15	0.28 to 0.83	...	...	...	...	...	0.0042	0.0043	0.0044	0.0045	0.0046
	16 to 30	0.831 to 1.66	...	...	...	...	...	0.0053	0.0054	0.0055	0.0056	0.0058
16	5 to 15	0.31 to 0.94	...	...	...	...	...	0.0045	0.0046	0.0046	0.0047	0.0049
	16 to 30	0.941 to 1.88	...	...	...	...	...	0.0056	0.0057	0.0058	0.0059	0.0061
14	5 to 15	0.36 to 1.07	...	...	...	...	...	...	0.0049	0.0049	0.0050	0.0052
	16 to 30	1.071 to 2.14	...	...	...	...	...	...	0.0061	0.0062	0.0063	0.0064
12	5 to 15	0.42 to 1.25	...	...	...	...	...	...	0.0052	0.0053	0.0054	0.0055
	16 to 30	1.251 to 2.50	...	...	...	...	...	...	0.0065	0.0066	0.0067	0.0069
10	5 to 15	0.50 to 1.50	...	...	...	...	...	...	...	...	0.0059	0.0060
	16 to 30	1.501 to 3.00	...	...	...	...	...	...	...	...	0.0073	0.0075
8	5 to 15	0.62 to 1.88	...	...	...	...	...	...	...	...	...	0.0067
	16 to 30	1.881 to 3.76	...	...	...	...	...	...	...	...	...	0.0083
6	5 to 15	0.83 to 2.50	...	...	...	...	...	...	...	...	...	...
	16 to 30	2.501 to 5.00	...	...	...	...	...	...	...	...	...	...
4	5 to 15	1.25 to 3.75	...	...	...	...	...	...	...	...	...	...
	16 to 30	3.751 to 7.50	...	...	...	...	...	...	...	...	...	...

GENERAL NOTES:

(a) These values do not agree with and shall not be used in place of any tabulated values for the UNC, UNF, and 4-UN, 6-UN, and 8-UN thread series.

(b) Class 3B (internal thread) tolerances in this Table for 5 to 15 pitches are based on 9 pitches and are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places by a factor of 0.975.

(c) Class 3B tolerances in this Table for 16 to 30 pitches are obtained by multiplying the Class 2A (external thread) tolerances for 9 pitches taken to six decimal places by a factor of 1.21875 (obtained by multiplying the 0.975 factor by 1.25). For lengths of engagement not tabulated, see para. 5.

Table D-9 Pitch Diameter Tolerances for External Threads of Special Diameters, Pitches, and Lengths of Engagement (UNS/UNRS) — Class 3B

1.25	1.5	1.75	2	2.5	3	3.5	4	5	6	8	10	12
1.125	1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11
1.375	1.625	1.875	2.25	2.75	3.25	3.75	4.5	5.5	7	9	11	13

Pitch Diameter Tolerances, in.													Threads/in.
...	...	...	...	...	...	...	...	...	...	...	...	...	80
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	72
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	64
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	56
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	48
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	44
...	...	...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	40
...	...	...	...	...	...	...	...	...	...	...	...	...	
0.0036	0.0037	...	...	...	...	...	...	...	...	...	...	...	36
0.0046	0.0047	...	...	...	...	...	...	...	...	...	...	...	
0.0038	0.0039	0.0040	0.0041	0.0042	0.0043	...	...	...	...	...	...	...	32
0.0048	0.0049	0.0050	0.0051	0.0053	0.0054	...	...	...	...	...	...	...	
0.0040	0.0041	0.0042	0.0043	0.0044	0.0045	0.0046	0.0047	...	...	...	...	...	28
0.0050	0.0051	0.0052	0.0053	0.0055	0.0057	0.0058	0.0059	...	...	...	...	...	
0.0040	0.0041	0.0042	0.0043	0.0045	0.0046	0.0047	0.0048	0.0050	0.0051	...	...	...	27
0.0051	0.0052	0.0053	0.0054	0.0056	0.0057	0.0059	0.0060	0.0062	0.0064	...	...	...	
0.0042	0.0043	0.0044	0.0045	0.0046	0.0048	0.0049	0.0050	0.0052	0.0053	...	...	...	24
0.0053	0.0054	0.0055	0.0056	0.0058	0.0060	0.0061	0.0062	0.0064	0.0066	...	...	...	
0.0045	0.0046	0.0047	0.0048	0.0050	0.0051	0.0052	0.0053	0.0055	0.0056	...	...	...	20
0.0057	0.0058	0.0059	0.0060	0.0062	0.0063	0.0065	0.0066	0.0068	0.0070	...	...	...	
0.0047	0.0048	0.0049	0.0050	0.0051	0.0053	0.0054	0.0055	0.0057	0.0058	0.0061	...	...	18
0.0059	0.0060	0.0062	0.0063	0.0064	0.0066	0.0067	0.0069	0.0071	0.0073	0.0076	...	...	
0.0050	0.0051	0.0052	0.0052	0.0054	0.0055	0.0056	0.0057	0.0059	0.0061	0.0063	0.0066	...	16
0.0062	0.0063	0.0065	0.0066	0.0067	0.0069	0.0070	0.0072	0.0074	0.0076	0.0079	0.0082	...	
0.0053	0.0054	0.0055	0.0055	0.0057	0.0058	0.0059	0.0060	0.0062	0.0063	0.0066	0.0068	0.0070	14
0.0066	0.0067	0.0068	0.0069	0.0071	0.0072	0.0074	0.0075	0.0077	0.0079	0.0083	0.0086	0.0088	
0.0056	0.0057	0.0058	0.0059	0.0060	0.0062	0.0063	0.0064	0.0066	0.0067	0.0070	0.0072	0.0074	12
0.0070	0.0072	0.0073	0.0074	0.0076	0.0077	0.0078	0.0080	0.0082	0.0084	0.0087	0.0090	0.0093	
0.0061	0.0062	0.0063	0.0064	0.0065	0.0066	0.0068	0.0069	0.0070	0.0072	0.0075	0.0077	0.0079	10
0.0076	0.0078	0.0079	0.0080	0.0082	0.0083	0.0084	0.0086	0.0088	0.0090	0.0093	0.0096	0.0099	
0.0068	0.0069	0.0070	0.0071	0.0072	0.0073	0.0074	0.0075	0.0077	0.0079	0.0081	0.0084	0.0086	8
0.0085	0.0086	0.0087	0.0088	0.0090	0.0091	0.0093	0.0094	0.0096	0.0098	0.0102	0.0104	0.0107	
...	0.0079	0.0080	0.0081	0.0082	0.0083	0.0084	0.0085	0.0087	0.0089	0.0091	0.0094	0.0096	6
...	0.0090	0.0100	0.0101	0.0103	0.0104	0.0106	0.0107	0.0109	0.0111	0.0114	0.0117	0.0120	
...	...	...	0.0098	0.0100	0.0101	0.0102	0.0103	0.0105	0.0107	0.0109	0.0111	0.0113	4
...	...	...	0.0123	0.0125	0.0126	0.0128	0.0129	0.0131	0.0133	0.0137	0.0139	0.0142	

(d) Pitches listed are those used most commonly and are recommended. Where intermediate pitches are specified, the formula in para. 5 should be applied.

(e) Tolerances are tabulated only for combinations of diameter, pitch, and length of engagement that are considered to be generally used. For other combinations encountered, see para. 5.

Table D-10 Minor Diameter Tolerances for Internal Special Screw Threads (UNS/UNRS) — Classes 1B and 2B

Tolerance based on basic major diameter of				0.060	0.073	0.086	0.099	0.112	0.125	0.138	0.164	0.190	0.216	All Larger Diameters
For diameter range above				0.053	0.066	0.079	0.092	0.105	0.118	0.131	0.151	0.177	0.203	
To and including				0.066	0.079	0.092	0.105	0.118	0.131	0.151	0.177	0.203	0.233	
Threads/ in.	Tolerance Ratios	Length of Eng. in Terms of Diam. [Note (1)] Above	To and Incl.	Minor Diameter Tolerances, in. [Note (2)]										
80	0.5	0	0.33*D*	0.0035	0.0029	0.0025	0.0022	0.0020	0.0018	0.0017	0.0016	0.0016	0.0016	0.0016
	0.75	0.33*D*	0.67*D*	0.0049	0.0044	0.0038	0.0034	0.0030	0.0028	0.0026	0.0023	0.0023	0.0023	0.0023
	1.0	0.67*D*	1.5*D*	0.0049	0.0049	0.0049	0.0045	0.0040	0.0037	0.0034	0.0031	0.0031	0.0031	0.0031
	1.25	1.5*D*	3*D*	0.0049	0.0049	0.0049	0.0049	0.0049	0.0046	0.0043	0.0039	0.0039	0.0039	0.0039
72	0.5	0	0.33*D*	0.0039	0.0033	0.0029	0.0026	0.0023	0.0021	0.0020	0.0017	0.0017	0.0017	0.0017
	0.75	0.33*D*	0.67*D*	0.0055	0.0049	0.0043	0.0040	0.0035	0.0032	0.0029	0.0026	0.0026	0.0026	0.0026
	1.0	0.67*D*	1.5*D*	0.0055	0.0055	0.0055	0.0051	0.0046	0.0042	0.0039	0.0034	0.0034	0.0034	0.0034
	1.25	1.5*D*	3*D*	0.0055	0.0055	0.0055	0.0055	0.0055	0.0053	0.0049	0.0043	0.0042	0.0042	0.0042
64	0.5	0	0.33*D*	0.0045	0.0038	0.0033	0.0029	0.0027	0.0024	0.0023	0.0020	0.0019	0.0019	0.0019
	0.75	0.33*D*	0.67*D*	0.0062	0.0057	0.0049	0.0044	0.0040	0.0037	0.0034	0.0030	0.0028	0.0028	0.0028
	1.0	0.67*D*	1.5*D*	0.0062	0.0062	0.0062	0.0059	0.0053	0.0049	0.0045	0.0040	0.0038	0.0038	0.0038
	1.25	1.5*D*	3*D*	0.0062	0.0062	0.0062	0.0062	0.0062	0.0061	0.0057	0.0050	0.0048	0.0048	0.0048
56	0.5	0	0.33*D*	...	0.0044	0.0038	0.0034	0.0031	0.0029	0.0026	0.0023	0.0022	0.0022	0.0022
	0.75	0.33*D*	0.67*D*	...	0.0066	0.0057	0.0051	0.0046	0.0043	0.0040	0.0035	0.0032	0.0032	0.0032
	1.0	0.67*D*	1.5*D*	...	0.0070	0.0070	0.0068	0.0062	0.0057	0.0053	0.0047	0.0043	0.0043	0.0043
	1.25	1.5*D*	3*D*	...	0.0070	0.0070	0.0070	0.0070	0.0070	0.0066	0.0059	0.0054	0.0054	0.0054
48	0.5	0	0.33*D*	...	...	0.0045	0.0040	0.0037	0.0034	0.0032	0.0028	0.0025	0.0025	0.0025
	0.75	0.33*D*	0.67*D*	...	...	0.0068	0.0061	0.0055	0.0051	0.0047	0.0042	0.0038	0.0038	0.0038
	1.0	0.67*D*	1.5*D*	...	...	0.0082	0.0081	0.0074	0.0068	0.0063	0.0056	0.0051	0.0050	0.0050
	1.25	1.5*D*	3*D*	...	...	0.0082	0.0082	0.0082	0.0082	0.0079	0.0070	0.0063	0.0062	0.0062
44	0.5	0	0.33*D*	...	...	0.0050	0.0044	0.0040	0.0037	0.0035	0.0031	0.0028	0.0028	0.0028
	0.75	0.33*D*	0.67*D*	...	...	0.0075	0.0067	0.0061	0.0056	0.0052	0.0046	0.0042	0.0041	0.0041
	1.0	0.67*D*	1.5*D*	...	...	0.0090	0.0089	0.0081	0.0075	0.0070	0.0062	0.0056	0.0055	0.0055
	1.25	1.5*D*	3*D*	...	...	0.0090	0.0090	0.0090	0.0090	0.0087	0.0077	0.0070	0.0069	0.0069
40	0.5	0	0.33*D*	...	...	...	0.0049	0.0045	0.0041	0.0039	0.0034	0.0031	0.0030	0.0030
	0.75	0.33*D*	0.67*D*	...	...	...	0.0074	0.0067	0.0062	0.0058	0.0051	0.0047	0.0045	0.0045
	1.0	0.67*D*	1.5*D*	...	...	...	0.0098	0.0090	0.0083	0.0077	0.0068	0.0062	0.0060	0.0060
	1.25	1.5*D*	3D	...	...	...	0.0098	0.0098	0.0098	0.0096	0.0086	0.0078	0.0075	0.0075

Table D-10 Minor Diameter Tolerances for Internal Special Screw Threads (UNS/UNRS) — Classes 1B and 2B (Cont'd)

Tolerance based on basic major diameter of			0.060	0.073	0.086	0.099	0.112	0.125	0.138	0.164	0.190	0.216	
For diameter range above			0.053	0.066	0.079	0.092	0.105	0.118	0.131	0.151	0.177	0.203	All Larger Diameters
To and including			0.066	0.079	0.092	0.105	0.118	0.131	0.151	0.177	0.203	0.233	
Threads/ in.	Tolerance Ratios	Length of Eng. in Terms of Diam. [Note (1)] Above	To and Incl.	Minor Diameter Tolerances, in. [Note (2)]										
36	0.5	0	0.33*D*	...	...	...	...	0.0050	0.0046	0.0043	0.0038	0.0035	0.0033	0.0033
	0.75	0.33*D*	0.67*D*	...	...	...	...	0.0075	0.0069	0.0065	0.0058	0.0052	0.0050	0.0050
	1.0	0.67*D*	1.5*D*	...	...	...	...	0.0100	0.0093	0.0086	0.0077	0.0070	0.0066	0.0066
	1.25	1.5*D*	3*D*	...	...	...	...	0.0109	0.0109	0.0108	0.0096	0.0087	0.0082	0.0082
32	0.5	0	0.33*D*	...	...	...	...	...	...	0.0049	0.0043	0.0039	0.0037	0.0037
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	0.0073	0.0065	0.0059	0.0056	0.0056
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	0.0098	0.0087	0.0079	0.0074	0.0074
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	0.0122	0.0108	0.0099	0.0092	0.0092
28	0.5	0	0.33*D*	...	...	Tolerances in this range also apply to Class 38 Threads				...	...	0.0045	0.0042	0.0042
	0.75	0.33*D*	0.67*D*	...	...					...	...	0.0068	0.0063	0.0063
	1.0	0.67*D*	1.5*D*	...	...					...	...	0.0091	0.0084	0.0084
	1.25	1.5*D*	3*D*	...	...					...	...	0.0113	0.0105	0.0105
27	0.5	0	0.33*D*	...	...	...	...	...	...	...	...	0.0047	0.0044	0.0044
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	...	...	0.0071	0.0065	0.0065
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	...	...	0.0094	0.0087	0.0087
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	...	...	0.0118	0.0109	0.0109
24	0.5	0	0.33*D*	...	...	...	...	...	...	...	...	0.0053	0.0049	0.0048
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	...	...	0.0079	0.0073	0.0073
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	...	...	0.0106	0.0098	0.0097
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	...	...	0.0132	0.0122	0.0121

Table D-10 Minor Diameter Tolerances for Internal Special Screw Threads (UNS/UNRS) — Classes 1B and 2B (Cont'd)

Threads/ in.	Tolerance Ratios	Length of Eng. in Terms of Diam. [Note (1)] Above	Length of Eng. in Terms of Diam. [Note (1)] To and Including	Minor Dia. Tolerances, in. (Not Applicable to Dia. Less Than 0.25 in.)
20	0.5	0	0.33*D*	0.0058
	0.75	0.33*D*	0.67*D*	0.0086
	1.0	0.67*D*	1.5*D*	0.0015
	1.25	1.5*D*	3*D*	0.0144
18	0.5	0	0.33*D*	0.0064
	0.75	0.33*D*	0.67*D*	0.0095
	1.0	0.67*D*	1.5*D*	0.0127
	1.25	1.5*D*	3*D*	0.0159
16	0.5	0	0.33*D*	0.0070
	0.75	0.33*D*	0.67*D*	0.0106
	1.0	0.67*D*	1.5*D*	0.0141
	1.25	1.5*D*	3*D*	0.0176
14	0.5	0	0.33*D*	0.0079
	0.75	0.33*D*	0.67*D*	0.0118
	1.0	0.67*D*	1.5*D*	0.0158
	1.25	1.5*D*	3*D*	0.0198
13	0.5	0	0.33*D*	0.0085
	0.75	0.33*D*	0.67*D*	0.0128
	1.0	0.67*D*	1.5*D*	0.0170
	1.25	1.5*D*	3*D*	0.0213
12	0.5	0	0.33*D*	0.0090
	0.75	0.33*D*	0.67*D*	0.0135
	1.0	0.67*D*	1.5*D*	0.0180
	1.25	1.5*D*	3*D*	0.0225
11	0.5	0	0.33*D*	0.0097
	0.75	0.33*D*	0.67*D*	0.0146
	1.0	0.67*D*	1.5*D*	0.0194
	1.25	1.5*D*	3*D*	0.0242
10	0.5	0	0.33*D*	0.0105
	0.75	0.33*D*	0.67*D*	0.0158
	101.0	0.67*D*	1.5*D*	0.0210
	1.25	1.5*D*	3*D*	0.0262
9	0.5	0	0.33*D*	0.0114
	0.75	0.33*D*	0.67*D*	0.0171
	1.0	0.67*D*	1.5*D*	0.0228
	1.25	1.5*D*	3*D*	0.0286
8	0.5	0	0.33*D*	0.0125
	0.75	0.33*D*	0.67*D*	0.0188
	1.0	0.67*D*	1.5*D*	0.0250
	1.25	1.5*D*	3*D*	0.0312
7	0.5	0	0.33*D*	0.0138
	0.75	0.33*D*	0.67*D*	0.0207
	1.0	0.67*D*	1.5*D*	0.0276
	1.25	1.5*D*	3*D*	0.0344
6	0.5	0	0.33*D*	0.0153
	0.75	0.33*D*	0.67*D*	0.0230
	1.0	0.67*D*	1.5*D*	0.0306
	1.25	1.5*D*	3*D*	0.0382
5	0.5	0	0.33*D*	0.0170
	0.75	0.33*D*	0.67*D*	0.0255
	1.0	0.67*D*	1.5*D*	0.0340
	1.25	1.5*D*	3*D*	0.0425
4.5	0.5	0	0.33*D*	0.0179
	0.75	0.33*D*	0.67*D*	0.0268
	1.0	0.67*D*	1.5*D*	0.0358
	1.25	1.5*D*	3*D*	0.0448
4	0.5	0	0.33*D*	0.0188
	0.75	0.33*D*	0.67*D*	0.0281
	1.0	0.67*D*	1.5*D*	0.0375
	1.25	1.5*D*	3*D*	0.0469

NOTES:

(1) Tolerances for lengths of engagement in terms of pitch should be selected from equivalent lengths of engagement in terms of diameter ranges.

(2) If the minor diameter tolerance as selected from this Table is less than the pitch diameter tolerance, use the latter.

Table D-11 Minor Diameter Tolerances for Internal Special Screw Threads (UNS/UNRS) — Class 3B

Tolerance based on basic major diameter of	...	0.161	0.190	0.216	0.250	0.3125	0.375	0.4375	0.500	0.5625	0.625	0.6875	
For diameter range above	0.053	0.151	0.177	0.203	0.233	0.281	0.344	0.406	0.469	0.531	0.594	0.656	
To and including	0.151 (1)	0.177	0.203	0.233	0.281	0.344	0.406	0.469	0.531	0.594	0.656	0.719	All Larger Diameters

Threads/ in.	Tolerance Ratios	Length of Eng. in Terms of Diameter [Note (2)] Above	To and Including	Minor Diameter Tolerances, in. [Note (3)]												
80	0.5	0	0.33*D*	...	0.0015	0.0013	0.0013	0.0013	0.0013	...	...	...	...	...	...	...
	0.75	0.33*D*	0.67*D*	...	0.0022	0.0020	0.0020	0.0020	0.0020	...	...	...	...	...	...	...
	1.0	0.67*D*	1.5*D*	...	0.0030	0.0027	0.0026	0.0026	0.0026	...	...	...	...	...	...	...
	1.25	1.5*D*	3*D*	...	0.0037	0.0033	0.0033	0.0033	0.0033	...	...	...	...	...	...	...
72	0.5	0	0.33*D*	...	0.0017	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	...	...	...	...	...
	0.75	0.33*D*	0.67*D*	...	0.0026	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022	...	...	...	...	...
	1.0	0.67*D*	1.5*D*	...	0.0034	0.0031	0.0029	0.0029	0.0029	0.0029	0.0029	...	...	...	...	...
	1.25	1.5*D*	3*D*	...	0.0043	0.0039	0.0036	0.0036	0.0036	0.0036	0.0036	...	...	...	...	...
64	0.5	0	0.33*D*	...	0.0020	0.0018	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	...	...	...
	0.75	0.33*D*	0.67*D*	...	0.0030	0.0027	0.0025	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	...	...	...
	1.0	0.67*D*	1.5*D*	...	0.0040	0.0036	0.0033	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	...	...	...
	1.25	1.5*D*	3*D*	...	0.0050	0.0045	0.0041	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	...	...	...
56	0.5	0	0.33*D*	...	0.0023	0.0021	0.0019	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
	0.75	0.33*D*	0.67*D*	...	0.0035	0.0032	0.0029	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027
	1.0	0.67*D*	1.5*D*	...	0.0047	0.0042	0.0039	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036
	1.25	1.5*D*	3*D*	...	0.0059	0.0053	0.0049	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045
48	0.5	0	0.33*D*	...	0.0028	0.0025	0.0023	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
	0.75	0.33*D*	0.67*D*	...	0.0042	0.0038	0.0035	0.0032	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031
	1.0	0.67*D*	1.5*D*	...	0.0056	0.0051	0.0047	0.0043	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041
	1.25	1.5*D*	3*D*	...	0.0070	0.0063	0.0059	0.0054	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
44	0.5	0	0.33*D*	...	0.0031	0.0028	0.0026	0.0024	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
	0.75	0.33*D*	0.67*D*	...	0.0046	0.0042	0.0039	0.0036	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033
	1.0	0.67*D*	1.5*D*	...	0.0062	0.0056	0.0052	0.0047	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045
	1.25	1.5*D*	3*D*	...	0.0077	0.0070	0.0065	0.0059	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056
40	0.5	0	0.33*D*	...	0.0034	0.0031	0.0029	0.0026	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
	0.75	0.33*D*	0.67*D*	...	0.0051	0.0047	0.0043	0.0040	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036
	1.0	0.67*D*	1.5*D*	...	0.0068	0.0062	0.0057	0.0053	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048
	1.25	1.5*D*	3*D*	...	0.0086	0.0078	0.0072	0.0066	0.0062	0.0062	0.0060	0.0060	0.0060	0.0060	0.0060	0.0060
36	0.5	0	0.33*D*	...	0.0038	0.0035	0.0032	0.0030	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
	0.75	0.33*D*	0.67*D*	...	0.0058	0.0052	0.0048	0.0044	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039
	1.0	0.67*D*	1.5*D*	...	0.0077	0.0070	0.0064	0.0059	0.0053	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
	1.25	1.5*D*	3*D*	...	0.0096	0.0087	0.0081	0.0074	0.0066	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065
32	0.5	0	0.33*D*	...	0.0043	0.0039	0.0036	0.0034	0.0030	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029
	0.75	0.33*D*	0.67*D*	...	0.0065	0.0059	0.0055	0.0050	0.0045	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043
	1.0	0.67*D*	1.5*D*	...	0.0087	0.0079	0.0073	0.0067	0.0060	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057
	1.25	1.5*D*	3*D*	...	0.0108	0.0099	0.0091	0.0084	0.0075	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072
28	0.5	0	0.33*D*	...	...	0.0045	0.0042	0.0039	0.0034	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
	0.75	0.33*D*	0.67*D*	...	...	0.0068	0.0063	0.0058	0.0051	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047
	1.0	0.67*D*	1.5*D*	...	...	0.0091	0.0084	0.0077	0.0069	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063
	1.25	1.5*D*	3*D*	...	...	0.0113	0.0105	0.0096	0.0086	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079
27	0.5	0	0.33*D*	...	...	0.0047	0.0044	0.0040	0.0036	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
	0.75	0.33*D*	0.67*D*	...	...	0.0071	0.0065	0.0060	0.0053	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048
	1.0	0.67*D*	1.5*D*	...	...	0.0094	0.0087	0.0080	0.0071	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065
	1.25	1.5*D*	3*D*	...	...	0.0118	0.0109	0.0100	0.0089	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081
24	0.5	0	0.33*D*	...	...	0.0053	0.0049	0.0045	0.0040	0.0037	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
	0.75	0.33*D*	0.67*D*	...	...	0.0079	0.0073	0.0068	0.0060	0.0055	0.0052	0.0052	0.0052	0.0052	0.0052	0.0052
	1.0	0.67*D*	1.5*D*	...	...	0.0106	0.0098	0.0090	0.0080	0.0073	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070
	1.25	1.5*D*	3*D*	...	...	0.0132	0.0122	0.0113	0.0100	0.0092	0.0087	0.0087	0.0087	0.0087	0.0087	0.0087
20	0.5	0	0.33*D*	...	...	...	...	0.0054	0.0048	0.0044	0.0041	0.0039	0.0039	0.0039	0.0039	0.0039
	0.75	0.33*D*	0.67*D*	...	...	...	...	0.0081	0.0072	0.0066	0.0062	0.0058	0.0058	0.0058	0.0058	0.0058
	1.0	0.67*D*	1.5*D*	...	...	...	...	0.0108	0.0096	0.0088	0.0082	0.0078	0.0078	0.0078	0.0078	0.0078
	1.25	1.5*D*	3*D*	...	...	...	...	0.0135	0.0120	0.0110	0.0103	0.0097	0.0097	0.0097	0.0097	0.0097
18	0.5	0	0.33*D*	...	...	...	...	...	0.0053	0.0049	0.0045	0.0043	0.0041	0.0041	0.0041	0.0041
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	0.0080	0.0073	0.0068	0.0065	0.0062	0.0061	0.0061	0.0061
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	0.0106	0.0097	0.0091	0.0086	0.0082	0.0081	0.0081	0.0081
	1.25	1.5*D*	3*D*	...	...	...	...	...	0.0133	0.0122	0.0114	0.0108	0.0103	0.0102	0.0102	0.0102
16	0.5	0	0.33*D*	...	...	...	...	...	...	0.0054	0.0051	0.0048	0.0046	0.0044	0.0043	0.0043
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	0.0082	0.0076	0.0072	0.0069	0.0067	0.0064	0.0064
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	0.0109	0.0102	0.0096	0.0092	0.0089	0.0086	0.0085
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	0.0136	0.0127	0.0120	0.0115	0.0111	0.0108	0.0106

Table D-11 Minor Diameter Tolerances for Internal Special Screw Threads (UNS/UNRS) — Class 3B (Cont'd)

Tolerance based on basic major diameter of			0.0375	0.4375	0.500	0.5625	0.625	0.6875	0.750	0.8125	0.875	0.9375	All Larger Diameters
For diameter range above			0.0344	0.406	0.469	0.531	0.594	0.656	0.719	0.781	0.844	0.906	
To and including			0.406	0.469	0.531	0.594	0.656	0.719	0.781	0.844	0.906	0.969	
Threads/ in.	Tolerance Ratios	Length of Eng. in Terms of Diam. [Note (2)] Above	To and Including	Minor Diameter Tolerances, in. [Note (3)]									
14	0.5	0	0.33*D*	...	0.0058	0.0054	0.0052	0.0050	0.0049	0.0047	0.0046	0.0045	0.0044	0.0044
	0.75	0.33*D*	0.67*D*	...	0.0086	0.0082	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0067	0.0066
	1.0	0.67*D*	1.5*D*	...	0.0115	0.0109	0.0104	0.0100	0.0097	0.0095	0.0092	0.0091	0.0089	0.0088
	1.25	1.5*D*	3*D*	...	0.0144	0.0136	0.0130	0.0125	0.0122	0.0118	0.0116	0.0113	0.0111	0.0110
13	0.5	0	0.33*D*	...	...	0.0058	0.0056	0.0054	0.0052	0.0050	0.0050	0.0049	0.0048	0.0047
	0.75	0.33*D*	0.67*D*	...	...	0.0087	0.0083	0.0080	0.0078	0.0076	0.0074	0.0073	0.0071	0.0070
	1.0	0.67*D*	1.5*D*	...	...	0.0117	0.0111	0.0107	0.0104	0.0101	0.0099	0.0097	0.0095	0.0094
	1.25	1.5*D*	3*D*	...	...	0.0146	0.0139	0.0134	0.0130	0.0126	0.0124	0.0122	0.0119	0.0118
12	0.5	0	0.33*D*	...	...	0.0063	0.0060	0.0058	0.0056	0.0054	0.0053	0.0052	0.0051	0.0050
	0.75	0.33*D*	0.67*D*	...	...	0.0094	0.0090	0.0087	0.0084	0.0082	0.0080	0.0078	0.0077	0.0075
	1.0	0.67*D*	1.5*D*	...	...	0.0125	0.0120	0.0115	0.0112	0.0109	0.0106	0.0104	0.0102	0.0100
	1.25	1.5*D*	3*D*	...	...	0.0157	0.0150	0.0144	0.0140	0.0136	0.0133	0.0130	0.0128	0.0125
11	0.5	0	0.33*D*	...	...	...	...	0.0062	0.0060	0.0058	0.0058	0.0056	0.0055	0.0054
	0.75	0.33*D*	0.67*D*	...	...	...	...	0.0094	0.0091	0.0088	0.0086	0.0084	0.0082	0.0082
	1.0	0.67*D*	1.5*D*	...	...	...	...	0.0125	0.0121	0.0177	0.0115	0.0112	0.0110	0.0109
	1.25	1.5*D*	3*D*	...	...	...	...	0.0156	0.0151	0.0146	0.0144	0.0140	0.0138	0.0136
10	0.5	0	0.33*D*	...	...	...	...	...	0.0066	0.0064	0.0062	0.0061	0.0060	0.0060
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	0.0099	0.0096	0.0093	0.0092	0.0090	0.0090
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	0.0131	0.0128	0.0125	0.0122	0.0120	0.0120
	1.25	1.5*D*	3*D*	...	...	...	...	...	0.0164	0.0160	0.0156	0.0153	0.0150	0.0150
9	0.5	0	0.33*D*	...	...	...	...	...	...	...	0.0068	0.0067	0.0066	0.0066
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	...	0.0103	0.0100	0.0100	0.0100
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	...	0.0137	0.0134	0.0133	0.0133
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	...	0.0171	0.0168	0.0166	0.0166
8	0.5	0	0.33*D*	...	...	...	...	...	...	...	0.0075	0.0075	0.0075	0.0075
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	...	0.0112	0.0112	0.0112	0.0112
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	...	0.0150	0.0150	0.0150	0.0150
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	...	0.0188	0.0188	0.0188	0.0188
7	0.5	0	0.33*D*	...	...	...	...	...	...	...	...	...	0.0086	0.0086
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	...	...	...	0.0129	0.0129
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	...	...	...	0.0171	0.0171
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	...	...	...	0.0214	0.0214
6	0.5	0	0.33*D*	...	...	...	...	...	...	...	...	...	...	0.0100
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	...	...	...	...	0.0150
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	...	...	...	...	0.0200
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	...	...	...	...	0.0250
5	0.5	0	0.33*D*	...	...	...	...	...	...	...	...	...	...	0.0120
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	...	...	...	...	0.0180
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	...	...	...	...	0.0240
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	...	...	...	...	0.0300
4.5	0.5	0	0.33*D*	...	...	...	...	...	...	...	...	...	...	0.0133
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	...	...	...	...	0.0200
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	...	...	...	...	0.0267
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	...	...	...	...	0.0333
4	0.5	0	0.33*D*	...	...	...	...	...	...	...	...	...	...	0.0150
	0.75	0.33*D*	0.67*D*	...	...	...	...	...	...	...	...	...	...	0.0225
	1.0	0.67*D*	1.5*D*	...	...	...	...	...	...	...	...	...	...	0.0300
	1.25	1.5*D*	3*D*	...	...	...	...	...	...	...	...	...	...	0.0375

NOTES:

(1) For 0.151 in. diameter sizes and smaller, tolerance values for all three classes are the same. For smaller sizes, tolerance values are given in Table D-10.

(2) Tolerances for lengths of engagement in terms of pitch should be selected from equivalent lengths of engagement in terms of diameter ranges.

(3) If the minor diameter tolerance as selected from this Table is less than the pitch diameter tolerance, use the latter.

NONMANDATORY APPENDIX E
CHANGES TO ASME B1.1-1989 TABLES 3A AND 3B

This Appendix contains Tables E-1 and E-2, which show the thread sizes that were listed in the previous revisions of ASME B1.1, Tables 3A and 3B, respectively. Those areas in which no data is listed are identical to data in Tables 2 and D-1 in this Standard.

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter,			Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter,
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance	Max. (Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Min.
1 – 64 or 0.073 – 64	UNC	2A	...	...	...	...	...	...	...	...	2B	...	0.0623	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	0.0623	...	...	...	...
1 – 72 or 0.073 – 72	UNF	2A	...	...	...	...	...	...	...	...	2B	...	0.0635	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	0.0635	...	...	...	...
2 – 64 or 0.086 – 64	UNF	2A	...	...	...	...	...	...	...	...	2B	...	0.0753	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	0.0753	...	...	...	...
6 – 32 or 0.138 – 32	UNC	3A	...	...	...	...	...	...	...	...	3B	...	0.1140	...	...	...	...
8 – 32 or 0.164 – 32	UNC	3A	...	...	...	...	...	...	...	...	3B	...	0.1389	...	...	...	...
10 – 24 or 0.190 – 24	UNC	2A	...	...	...	...	...	...	...	...	2B	...	0.156	...	...	...	...
12 – 32 or 0.216 – 32	UNEF	2A	0.0009	0.2151	0.2091	...	0.1948	0.1917	0.0031	...	2B	...	...	...	...	...	...
5/16 – 20 or 0.3125 – 20	UN	2A	...	...	...	...	...	0.2748	0.0040	...	2B	...	...	...	0.2852	0.0052	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	0.2839	0.0039	...
5/16 – 28 or 0.3125 – 28	UN	2A	...	...	...	...	...	0.2849	0.0034	...	2B	...	...	...	0.2937	0.0044	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	0.2926	0.0033	...
5/16 – 32 or 0.3125 – 32	UNEF	2A	...	...	...	...	...	0.2880	0.0032	...	2B	...	...	...	0.2964	0.0042	...
		3A	...	...	...	...	...	0.2898	0.0024	...	3B	...	0.2847	...	0.2953	0.0031	
7/16 – 16 or 0.4375 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	0.4028	0.0059	...
		3A	...	...	...	...	...	0.3935	0.0034	...	3B	...	...	...	...	...	...
7/16 – 20 or 0.4375 – 20	UNF	1A	...	...	...	...	...	0.3975	0.0062	...	1B	...	...	...	...	...	...
7/16 – 28 or 0.4375 – 28	UNEF	2A	...	...	...	...	...	...	...	...	2B	...	...	...	0.4189	0.0046	...
7/16 – 32 or 0.4375 – 32	UN	3A	...	...	...	...	...	0.4147	0.0025	...	3B	...	...	...	...	...	...
1/2 – 16 or 0.500 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	0.4419	...	...	...	...
9/16 – 16 or 0.5625 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	0.5040	...	...	...	...
9/16 – 20 or 0.5625 – 20	UN	2A	...	...	...	...	...	0.5245	0.0042	...	2B	...	...	...	0.5355	0.0055	...
		3A	...	...	...	...	...	...	...	...	3B	...	0.5162	...	0.5341	0.0041	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
9/16 – 24 or 0.5625 – 24	UNEF	2A	...	...	...	...	...	0.5303	0.0039	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	0.5325	0.0029	...	3B	...	...	...	0.5392	0.0038	...
9/16 – 32 or 0.5625 – 32	UN	2A	0.0010	0.5615	0.5555	...	0.5412	0.5377	...	...	2B	...	...	...	0.5467	0.0045	...
5/8 – 11 or 0.625 – 11	UNC	1A	0.0016	0.6234	0.6052	0.5644	0.5561	...	...	...	1B	...	...	...	...	...	...
		2A	0.0016	0.6234	0.6113	...	0.5644	0.5589	...	...	2B	...	...	...	...	...	...
5/8 – 32 or 0.625 – 32	UN	2A	...	...	...	...	...	...	...	...	2B	...	0.590	...	...	...	...
11/16 – 12 or 0.6875 – 12	UN	2A	...	...	...	...	...	0.6264	0.0054	...	2B	...	...	...	...	...	...
11/16 – 16 or 0.6875 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	0.6531	0.0062	...
11/16 – 20 or 0.6875 – 20	UN	2A	...	...	...	...	...	0.6494	0.0043	...	2B	...	...	...	0.6606	0.0056	...
		3A	...	...	...	...	...	0.6518	0.0032	...	3B	...	0.6412	...	0.6592	0.0042	...
11/16 – 24 or 0.6875 – 24	UNEF	2A	...	...	...	...	...	...	...	...	2B	...	...	...	0.6656	0.0052	...
11/16 – 28 or 0.6875 – 28	UN	3A	...	...	...	...	...	0.6615	0.0028	...	3B	...	...	...	...	...	...
11/16 – 32 or 0.6875 – 32	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	0.6718	0.0046	...
3/4 – 16 or 0.750 – 16	UNF	3A	...	...	...	...	...	...	...	...	3B	...	0.6908	...	...	...	...
3/4 – 20 or 0.750 – 20	UNEF	3A	...	...	...	...	...	...	...	...	3B	...	0.7037	...	...	...	...
3/4 – 28 or 0.750 – 28	UN	3A	...	...	...	...	...	...	...	0.7074	3B	...	...	...	...	...	...
13/16 – 12 or 0.8125 – 12	UN	2A	...	...	...	...	...	0.7512	0.0055	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	0.7543	0.0041	...	3B	...	...	...	...	...	...
13/16 – 16 or 0.8125 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	0.7782	0.0063	...
		3A	...	...	...	...	...	0.7683	0.0036	...	3B	...	0.7533	...	...	0.0047	...
13/16 – 20 or 0.8125 – 20	UNEF	2A	...	...	...	...	...	...	...	...	2B	...	...	...	0.7857	0.0057	...
		3A	...	...	...	...	...	...	...	...	3B	...	0.7662	...	...	...	...
13/16 – 28 or 0.8125 – 28	UN	2A	...	...	...	...	...	0.7843	0.0038	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	0.7930	0.0037	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter,		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter,
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance	Max. (Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Min.
$^{13}/_{16}$ – 32 or 0.8125 – 32	UN	2A	...	...	...	...	...	0.7875	0.0036	...	2B	...	...	...	0.7969	0.0047	...
		3A	...	...	...	...	...	0.7895	0.0027	...	3B	...	...	...	...	...	...
$^{7}/_{8}$ – 12 or 0.875 – 12	UN	2A	...	...	...	...	...	0.8137	0.0055	...	2B	...	...	...	0.8281	0.0072	...
		3A	...	...	...	...	...	0.8168	...	...	3B	...	0.7948	...	0.8263	0.0054	...
$^{7}/_{8}$ – 14 or 0.875 – 14	UNF	1A	...	...	...	...	...	...	...	...	1B	...	0.814	...	...	...	...
		2A	...	...	...	...	...	...	...	...	2B	...	0.814	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	0.8068	...	...	...	...
$^{7}/_{8}$ – 16 or 0.875 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	0.8407	0.0063	...
		3A	...	...	...	...	...	0.8308	0.0036	...	3B	...	0.8158	...	0.8391	0.0047	...
$^{7}/_{8}$ – 20 or 0.875 – 20	UNEF	2A	...	...	...	...	...	0.8368	0.0044	...	2B	...	...	...	0.8482	0.0057	...
		3A	...	...	...	...	...	0.8392	0.0033	...	3B	...	0.8287	...	0.8468	0.0043	...
$^{7}/_{8}$ – 28 or 0.875 – 28	UN	2A	...	...	...	...	...	0.8468	0.0038	...	2B	...	...	...	0.8568	0.0050	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	0.8555	0.0037	...
$^{7}/_{8}$ – 32 or 0.875 – 32	UN	2A	...	...	...	...	...	0.8500	0.0036	...	2B	...	...	...	0.8594	0.0047	...
		3A	...	...	...	...	...	0.8520	0.0027	...	3B	...	...	...	...	...	...
$^{15}/_{16}$ – 12 or 0.9375 – 12	UN	2A	...	...	...	...	...	0.8760	0.0057	...	2B	...	...	...	0.8908	0.0074	...
		3A	...	...	...	...	...	0.8793	0.0041	...	3B	...	...	...	...	...	...
$^{15}/_{16}$ – 16 or 0.9375 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	0.9034	0.0065	...
		3A	...	...	...	...	...	...	...	...	3B	...	0.8783	...	0.9018	0.0049	...
$^{15}/_{16}$ – 20 or 0.9375 – 20	UNEF	3A	...	...	...	...	...	...	...	...	3B	...	0.8912	...	...	...	...
$^{15}/_{16}$ – 28 or 0.9375 – 28	UN	2A	...	...	...	...	...	0.9091	0.0040	...	2B	...	...	...	0.9195	0.0052	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	0.9182	0.0039	...
1 – 8 or 1.000 – 8	UNC	2A	...	...	...	...	...	0.9100	...	...	2B	...	...	...	...	...	...
1 – 14 or 1.000 – 14	UNS	2A	0.0017	0.9983	0.9880	...	0.9519	0.9463	0.0056	...	2B	...	...	...	0.9609	0.0073	...
		3A	...	...	...	...	...	0.9494	0.0042	...	3B	...	...	...	0.9590	0.0054	...
$1^{1}/_{16}$ – 12 or 1.0625 – 12	UN	3A	...	...	...	...	...	1.0042	0.0042	...	3B	...	...	...	...	...	...
$1^{1}/_{16}$ – 16 or 1.0625 – 16	UN	3A	...	...	...	...	...	1.0182	0.0037	...	3B	...	1.0033	...	...	...	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{1}{16}$ – 18 or 1.0625 – 18	UNEF	2A	...	...	...	...	...	1.0203	0.0047	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	1.0310	0.0046	...
$1\frac{1}{16}$ – 20 or 1.0625 – 20	UN	2A	...	...	...	...	...	1.0241	0.0045	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	1.0162	...	1.0344	0.0044	...
$1\frac{1}{8}$ – 7 or 1.125 – 7	UNC	2A	...	...	...	...	...	...	0.0072	...	2B	...	...	...	...	...	...
$1\frac{1}{8}$ – 16 or 1.125 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.0909	0.0065	...
		3A	...	...	...	...	...	1.0807	0.0037	...	3B	...	1.0658	...	...	...	...
$1\frac{1}{8}$ – 18 or 1.125 – 18	UNEF	2A	...	...	...	...	...	1.0828	0.0047	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	1.0935	0.0046	...
$1\frac{1}{8}$ – 20 or 1.125 – 20	UN	2A	...	...	...	...	...	1.0866	0.0045	...	2B	...	...	...	1.0984	0.0059	...
		3A	...	...	...	...	...	1.0891	0.0034	...	3B	...	1.0787	...	1.0969	0.0044	...
$1\frac{3}{16}$ – 12 or 1.1875 – 12	UN	2A	...	...	...	...	...	1.1259	0.0058	...	2B	...	...	...	...	...	...
$1\frac{3}{16}$ – 16 or 1.1875 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.1283	...	1.1519	0.0050	...
$1\frac{3}{16}$ – 18 or 1.1875 – 18	UNEF	2A	0.0015	1.1860	1.1773	...	1.1499	1.1450	0.0049	...	2B	...	...	...	...	...	...
$1\frac{3}{16}$ – 20 or 1.1875 – 20	UN	2A	...	...	...	...	...	1.1489	0.0047	...	2B	...	...	...	1.1611	0.0061	...
		3A	...	...	...	...	...	...	...	...	3B	...	1.1412	...	...	...	...
$1\frac{1}{4}$ – 16 or 1.250 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.1908	...	...	...	...
$1\frac{1}{4}$ – 20 or 1.250 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.2037	...	...	...	...
$1\frac{5}{16}$ – 12 or 1.3125 – 12	UN	3A	...	...	...	...	...	1.2541	0.0045	...	3B	...	...	...	1.2640	0.0056	...
$1\frac{5}{16}$ – 16 or 1.3125 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.2785	0.0066	...
		3A	...	...	...	...	...	...	...	...	3B	...	1.2533	...	...	...	...
$1\frac{5}{16}$ – 18 or 1.3125 – 18	UNEF	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.2827	0.0063	...
		3A	...	...	...	...	...	1.2728	0.0038	...	3B	...	...	...	1.2811	0.0047	...
$1\frac{5}{16}$ – 20 or 1.3125 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.2662	...	1.2845	0.0045	...
$1\frac{5}{16}$ – 28 or 1.3125 – 28	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.2946	0.0053	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter,		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter,
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance	Max. (Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Min.
$1\frac{3}{8}$ – 16 or 1.375 – 16	UN	2A	...	...	...	...	...	1.3278	0.0051	...	2B	...	...	...	1.3410	0.0066	...
		3A	...	...	...	...	...	...	...	...	3B	...	1.3158	...	...	...	...
$1\frac{3}{8}$ – 18 or 1.375 – 18	UNEF	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.3452	0.0063	...
		3A	...	...	...	...	...	1.3353	0.0036	...	3B	...	...	...	1.3436	0.0047	...
$1\frac{3}{8}$ – 20 or 1.375 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.3287	...	1.3470	0.0045	...
$1\frac{3}{8}$ – 28 or 1.375 – 28	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.3571	0.0053	...
$1\frac{7}{16}$ – 16 or 1.4375 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.4037	0.0068	...
		3A	...	...	...	...	...	...	...	...	3B	...	1.3783	...	...	...	...
$1\frac{7}{16}$ – 18 or 1.4375 – 18	UNEF	2A	...	...	...	...	...	1.3949	0.0050	...	2B	...	...	...	...	...	...
$1\frac{7}{16}$ – 20 or 1.4375 – 20	UN	2A	...	...	...	...	...	1.3988	0.0048	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	1.3912	...	...	...	...
$1\frac{7}{16}$ – 28 or 1.4375 – 28	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.4198	0.0055	...
$1\frac{1}{2}$ – 16 or 1.500 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.4408	...	...	...	...
$1\frac{1}{2}$ – 18 or 1.500 – 18	UNEF	2A	...	...	...	...	...	...	...	...	2B	...	1.452	...	...	...	...
$1\frac{1}{2}$ – 20 or 1.500 – 20		3A	...	...	...	...	...	...	...	...	3B	...	1.4537	...	...	...	...
$1\frac{9}{16}$ – 12 or 1.5625 – 12	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.5160	0.0076	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	1.5141	0.0057	...
$1\frac{9}{16}$ – 16 or 1.5625 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.5033	...	...	...	...
$1\frac{9}{16}$ – 18 or 1.5625 – 18	UNEF	3A	...	...	...	...	...	...	...	...	3B	...	...	...	1.5312	0.0048	...
$1\frac{9}{16}$ – 20 or 1.5625 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.5162	...	1.5346	0.0046	...
$1\frac{5}{8}$ – 12 or 1.625 – 12	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	1.5785	0.0076	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	1.5766	0.0057	...
$1\frac{5}{8}$ – 16 or 1.625 – 16	UN	2A	...	...	...	...	...	1.5776	0.0052	...	2B	...	...	...	...	...	...
$1\frac{5}{8}$ – 18 or 1.625 – 18	UN	3A	...	...	...	...	...	1.5852	0.0037	...	3B	...	...	...	1.5937	0.0048	...
$1\frac{5}{8}$ – 20 or 1.625 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.5787	...	1.5971	0.0046	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{11}{16}$ – 12 or 1.6875 – 12	UN	2A	...	...	...	...	...	1.6256	0.0060	...	2B	...	...	...	1.6412	0.0076	...
$1\frac{11}{16}$ – 16 or 1.6875 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.6283	...	1.6521	0.0052	...
$1\frac{11}{16}$ – 18 or 1.6875 – 18	UNEF	2A	...	...	...	...	...	1.6448	0.0051	...	2B	...	...	...	1.6580	0.0066	...
$1\frac{11}{16}$ – 20 or 1.6875 – 20	UN	2A	0.0015	1.6860	1.6779	...	1.6535	1.6487	...	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	1.6412	...	...	...	...
$1\frac{3}{4}$ – 5 or 1.750 – 5	UNC	1A	...	...	...	...	...	...	...	...	1B	1.534	1.568	...	...	...	...
		2A	...	...	...	...	...	...	...	...	2B	1.534	1.568	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	1.5340	...	...	...	...	...
$1\frac{3}{4}$ – 8 or 1.750 – 8	UN	3A	...	...	...	...	...	1.6632	0.0056	...	3B	...	...	...	...	...	...
$1\frac{3}{4}$ – 16 or 1.750 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.6908	...	...	...	...
$1\frac{3}{4}$ – 20 or 1.750 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.7037	...	...	...	...
$1\frac{13}{16}$ – 16 or 1.8125 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.7533	...	...	...	...
$1\frac{13}{16}$ – 20 or 1.8125 – 20	UN	3A	...	...	...	...	...	1.7764	0.0036	...	3B	...	1.7662	...	...	...	...
$1\frac{7}{8}$ – 12 or 1.875 – 12	UN	3A	...	...	...	...	...	...	...	...	3B	...	...	...	1.8267	0.0058	...
$1\frac{7}{8}$ – 16 or 1.875 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.8158	...	...	...	...
$1\frac{7}{8}$ – 20 or 1.875 – 20	UN	2A	...	...	...	...	...	1.8362	0.0048	...	2B	...	...	...	1.8488	0.0063	...
		3A	...	...	...	...	...	1.8389	0.0036	...	3B	...	1.8287	...	1.8472	0.0047	...
$1\frac{15}{16}$ – 12 or 1.9375 – 12	UN	2A	...	...	...	...	...	1.8755	0.0061	...	2B	...	...	...	1.8913	0.0079	...
$1\frac{15}{16}$ – 16 or 1.9375 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.8785	...	...	...	...
$1\frac{15}{16}$ – 20 or 1.9375 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.8912	...	...	...	...
2 – 16 or 2.000 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.9408	...	...	...	...
2 – 20 or 2.000 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	1.9537	...	...	...	...
$2\frac{1}{8}$ – 12 or 2.1250 – 12	UN	3A	...	...	...	...	...	2.0664	0.0045	...	3B	...	...	...	...	...	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter,		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter,
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance	Max. (Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Min.
$2\frac{1}{8}$ – 16 or 2.1250 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	2.0658	...	2.0896	0.0052	...
$2\frac{1}{8}$ – 20 or 2.1250 – 20	UN	2A	...	...	...	...	...	2.0861	0.0049	...	2B	...	...	...	2.0989	0.0064	...
		3A	...	...	...	...	...	...	...	...	3B	...	2.0787	...	...	...	...
$2\frac{1}{4}$ – 12 or 2.250 – 12	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	2.2038	0.0079	...
		3A	...	...	...	...	...	2.1914	0.0045	...	3B	...	...	...	2.2018	0.0059	...
$2\frac{1}{4}$ – 16 or 2.250 – 16	UN	2A	...	...	...	...	...	2.2024	0.0054	...	2B	...	...	...	2.2164	0.0070	...
		3A	...	...	...	...	...	...	...	...	3B	...	2.1908	...	2.2146	0.0052	...
$2\frac{1}{4}$ – 20 or 2.250 – 20	UN	2A	...	...	...	...	...	2.2111	0.0049	...	2B	...	...	...	2.2239	0.0064	...
		3A	...	...	...	...	...	...	...	...	3B	...	2.2037	...	2.2223	0.0048	...
$2\frac{3}{8}$ – 6 or 2.3750 – 6	UN	2A	...	...	...	...	...	...	...	...	2B	...	2.226	...	...	...	...
$2\frac{3}{8}$ – 12 or 2.3750 – 12	UN	2A	0.0019	2.3731	2.3617	...	2.3190	2.3128	...	...	2B	...	...	...	2.3290	0.0081	...
$2\frac{3}{8}$ – 16 or 2.3750 – 16	UN	2A	0.0017	2.3733	2.3639	...	2.3327	2.3272	...	...	2B	...	...	...	2.3416	0.0072	...
		3A	...	...	...	...	...	...	...	...	3B	...	2.3158	...	...	...	...
$2\frac{3}{8}$ – 20 or 2.3750 – 20	UN	2A	...	...	...	...	...	2.3359	0.0051	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	2.3287	...	2.3475	0.0050	...
$2\frac{1}{2}$ – 16 or 2.500 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	2.4408	...	...	...	...
$2\frac{1}{2}$ – 20 or 2.500 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	2.4537	...	...	...	...
$2\frac{5}{8}$ – 12 or 2.625 – 12	UN	3A	...	...	...	...	...	2.5663	0.0046	...	3B	...	...	...	2.5769	0.0060	...
$2\frac{5}{8}$ – 16 or 2.625 – 16	UN	2A	...	...	...	...	...	2.5772	0.0055	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	2.5803	0.0041	...	3B	...	2.5658	...	...	...	...
$2\frac{5}{8}$ – 20 or 2.625 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	2.5784	...	...	...	...
$2\frac{3}{4}$ – 12 or 2.750 – 12	UN	2A	...	...	...	...	...	2.6878	0.0062	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	2.6913	0.0046	...	3B	...	...	...	2.7019	0.0060	...
$2\frac{3}{4}$ – 16 or 2.750 – 16	UN	2A	...	...	...	...	...	2.7022	0.0055	...	2B	...	...	...	2.7166	0.0072	...
		3A	...	...	...	...	...	2.7053	0.0041	...	3B	...	2.6908	...	...	...	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$2\frac{3}{4}$ – 20 or 2.750 – 20	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	2.7241	0.0066	...
		3A	...	...	...	...	...	2.7137	0.0038	...	3B	...	2.7037	...	...	...	...
$2\frac{7}{8}$ – 12 or 2.875 – 12	UN	3A	...	...	...	...	...	...	...	...	3B	...	...	...	2.8271	0.0062	...
$2\frac{7}{8}$ – 16 or 2.875 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	2.8158	...	...	...	...
$2\frac{7}{8}$ – 20 or 2.875 – 20	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	2.8493	0.0068	...
		3A	...	...	...	...	...	...	...	...	3B	...	2.8287	...	2.8476	0.0051	...
3 – 16 or 3.000 – 16	UN	2A	...	...	...	...	...	...	0.0056	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	2.9408	...	...	...	...
3 – 20 or 3.000 – 20	UN	3A	...	...	...	...	...	...	...	...	3B	...	2.9537	...	...	...	...
$3\frac{1}{8}$ – 12 or 3.125 – 12	UN	2A	...	...	...	...	...	3.0627	0.0063	...	2B	...	...	...	3.0791	0.0082	...
		3A	...	...	...	...	...	3.0662	0.0047	...	3B	...	...	...	...	...	...
$3\frac{1}{8}$ – 16 or 3.125 – 16	UN	2A	...	...	...	...	...	3.0771	0.0056	...	2B	...	...	...	3.0917	0.0073	...
		3A	...	...	...	...	...	3.0802	0.0042	...	3B	...	3.0658	...	...	...	...
$3\frac{1}{4}$ – 12 or 3.250 – 12	UN	2A	...	...	...	...	...	3.1877	0.0063	...	2B	...	...	...	3.2041	0.0082	...
		3A	...	...	...	...	...	3.1912	0.0047	...	3B	...	...	...	...	...	...
$3\frac{1}{4}$ – 16 or 3.250 – 16	UN	2A	...	...	...	...	...	3.2021	0.0056	...	2B	...	...	...	3.2167	0.0073	...
		3A	...	...	...	...	...	3.2052	0.0042	...	3B	...	3.1908	...	3.2149	0.0055	...
$3\frac{3}{8}$ – 12 or 3.375 – 12	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	3.3293	0.0084	...
$3\frac{3}{8}$ – 16 or 3.375 – 16	UN	2A	...	...	...	...	...	3.3269	0.0058	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	3.3158	...	...	...	...
$3\frac{1}{2}$ – 16 or 3.500 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	3.4408	...	...	...	...
$3\frac{5}{8}$ – 12 or 3.625 – 12	UN	2A	...	...	...	...	...	3.5626	0.0064	...	2B	...	...	...	...	...	...
$3\frac{5}{8}$ – 16 or 3.625 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	3.5658	...	...	...	...
$3\frac{3}{4}$ – 12 or 3.750 – 12	UN	2A	...	...	...	...	...	3.6876	0.0064	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	3.6911	0.0048	...	3B	...	...	...	...	...	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter,		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter,
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance	Max. (Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Min.
$3\frac{3}{4}$ – 16 or 3.750 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	3.7169	0.0075	...
		3A	...	...	...	...	...	3.7051	0.0043	...	3B	...	3.6908	...	3.7150	0.0056	...
$3\frac{7}{8}$ – 16 or 3.875 – 16	UN	2A	...	...	...	...	...	3.8267	0.0059	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	...	3B	...	3.8158	...	...	...	...
4 – 16 or 4.000 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	3.9408	...	...	...	...
$4\frac{1}{8}$ – 12 or 4.125 – 12	UN	2A	...	...	...	...	...	4.0624	0.0065	...	2B	...	...	...	...	...	...
$4\frac{1}{8}$ – 16 or 4.125 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	4.0920	0.0076	...
		3A	...	...	...	...	...	...	...	...	3B	...	4.0658	...	...	...	...
$4\frac{1}{4}$ – 8 or 4.250 – 8	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	4.1808	0.0120	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	4.1779	0.0091	...
$4\frac{1}{4}$ – 12 or 4.250 – 12	UN	2A	...	...	...	...	...	4.1874	0.0065	...	2B	...	...	...	4.2044	0.0085	...
$4\frac{1}{4}$ – 16 or 4.250 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	4.2170	0.0076	...
		3A	...	...	...	...	...	...	...	...	3B	...	4.1908	...	4.2151	0.0057	...
$4\frac{3}{8}$ – 8 or 4.375 – 8	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	4.3058	0.0120	...
$4\frac{3}{8}$ – 12 or 4.375 – 12	UN	2A	...	...	...	...	...	4.3124	0.0065	...	2B	...	...	...	4.3294	0.0085	...
		3A	...	...	...	...	...	4.3160	0.0049	...	3B	...	...	...	...	...	...
$4\frac{3}{8}$ – 16 or 4.375 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	4.3420	0.0076	...
		3A	...	...	...	...	...	4.3300	0.0044	...	3B	...	4.3158	...	4.3401	0.0057	...
$4\frac{1}{2}$ – 12 or 4.500 – 12	UN	2A	...	...	...	...	...	4.4374	0.0065	...	2B	...	...	...	4.4544	0.0085	...
		3A	...	...	...	...	...	4.4410	0.0049	...	3B	...	...	...	4.4523	0.0064	...
$4\frac{1}{2}$ – 16 or 4.500 – 16	UN	2A	...	...	...	...	...	4.4517	0.0059	...	2B	...	...	...	4.4670	0.0076	...
		3A	...	...	...	...	...	4.4550	0.0044	...	3B	...	4.4408	...	4.4651	0.0057	...
$4\frac{5}{8}$ – 8 or 4.625 – 8	UN	2A	0.0029	4.6221	4.6071	...	4.5409	4.5314	...	...	2B	...	...	...	4.5562	0.0124	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	4.5531	0.0093	...
$4\frac{5}{8}$ – 16 or 4.625 – 16	UN	2A	...	...	...	...	...	4.5765	0.0061	...	2B	...	...	...	4.5923	0.0079	...
		3A	...	...	...	...	...	...	...	...	3B	...	4.5658	...	4.5903	0.0059	...
$4\frac{3}{4}$ – 8 or 4.750 – 8	UN	3A	...	...	...	...	...	4.6617	0.0071	...	3B	...	...	...	...	...	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$4\frac{3}{4}$ – 12 or 4.750 – 12	UN	3A	...	...	...	...	...	...	...	...	3B	...	...	...	4.7025	0.0066	...
$4\frac{3}{4}$ – 16 or 4.750 – 16	UN	2A	...	...	...	...	...	4.7015	0.0059	...	2B	...	...	...	4.7173	0.0079	...
		3A	...	...	...	...	...	...	...	...	3B	...	4.6908	...	...	...	...
$4\frac{7}{8}$ – 12 or 4.875 – 12	UN	3A	...	...	...	...	...	...	...	...	3B	...	...	...	4.8275	0.0066	...
$4\frac{7}{8}$ – 16 or 4.875 – 16	UN	2A	...	...	...	...	...	4.8265	0.0061	...	2B	...	...	...	4.8423	0.0079	...
		3A	...	...	...	...	...	...	...	...	3B	...	4.8158	...	...	...	...
5 – 8 or 5.000 – 8	UN	3A	...	...	...	...	...	...	...	...	3B	...	...	...	4.9283	0.0095	...
5 – 16 or 5.000 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	4.9408	...	...	...	...
$5\frac{1}{8}$ – 8 or 5.125 – 8	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	5.0564	0.0126	...
$5\frac{1}{8}$ – 12 or 5.125 – 12	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	5.0796	0.0087	...
		3A	...	...	...	...	...	5.0659	0.0050	...	3B	...	...	...	...	...	...
$5\frac{1}{8}$ – 16 or 5.125 – 16	UN	3A	...	...	...	...	...	5.0799	0.0045	...	3B	...	5.0658	...	...	...	...
$5\frac{1}{4}$ – 8 or 5.250 – 8	UN	3A	...	...	...	...	...	5.1614	0.0074	...	3B	...	...	...	5.1784	0.0096	...
$5\frac{1}{4}$ – 12 or 5.250 – 12	UN	2A	...	...	...	...	...	5.1872	0.0067	...	2B	...	...	...	5.2046	0.0087	...
		3A	...	...	...	...	...	5.1909	0.0050	...	3B	...	...	...	...	...	...
$5\frac{1}{4}$ – 16 or 5.250 – 16	UN	3A	...	...	...	...	...	5.2049	0.0047	...	3B	...	...	...	...	...	...
$5\frac{3}{8}$ – 8 or 5.375 – 8	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	5.3067	0.0129	...
		3A	...	...	...	...	...	...	...	...	3B	...	...	...	5.3035	0.0097	...
$5\frac{3}{8}$ – 12 or 5.375 – 12	UN	2A	...	...	...	...	...	5.3122	0.0067	...	2B	...	...	...	5.3296	0.0087	...
		3A	...	...	...	...	...	5.3159	0.0050	...	3B	...	...	...	...	...	...
$5\frac{3}{8}$ – 16 or 5.375 – 16	UN	3A	...	...	...	...	...	5.3299	0.0045	...	3B	...	5.3158	...	5.3403	0.0059	...
$5\frac{1}{2}$ – 12 or 5.500 – 12	UN	2A	...	...	...	...	...	5.4372	0.0067	...	2B	...	...	...	5.4546	0.0087	...
		3A	...	...	...	...	...	5.4409	0.0050	...	3B	...	...	...	...	...	...
$5\frac{1}{2}$ – 16 or 5.500 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	5.4673	0.0079	...
		3A	...	...	...	...	...	5.4549	0.0045	...	3B	...	5.4408	...	5.4653	0.0059	...

Table E-1 Limits as Listed in Table 2 (Formerly 3A) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External									Internal						
				Major Diameter			Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter,		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter,
		Class	Allowance	Max.	Min.	Min.	Max.	Min.	Tolerance	Max. (Ref.)	Class	Min.	Max.	Min.	Max.	Tolerance	Min.
$5\frac{5}{8}$ – 8 or 5.625 – 8	UN	3A	...	...	...	...	...	...	...	...	3B	...	...	...	5.5536	0.0098	...
$5\frac{5}{8}$ – 12 or 5.625 – 12	UN	2A	0.0021	5.6229	5.6115	...	5.5688	5.5619	0.0069	...	2B	...	...	...	5.5799	0.0090	...
		3A	...	...	...	...	...	5.5657	0.0052	...	3B	...	...	...	...	...	...
$5\frac{5}{8}$ – 16 or 5.625 – 16	UN	2A	0.0019	5.6231	5.6137	...	5.5825	5.5763	...	...	2B	...	...	...	5.5925	0.0081	...
		3A	...	...	...	...	...	5.5797	0.0047	...	3B	...	5.5658	...	5.5905	0.0061	...
$5\frac{3}{4}$ – 8 or 5.750 – 8	UN	2A	...	...	5.7250	...	...	...	...	...	2B	...	...	...	...	...	...
$5\frac{3}{4}$ – 12 or 5.750 – 12	UN	2A	...	...	...	...	...	5.6869	0.0069	...	2B	...	...	...	5.7049	0.0090	...
		3A	...	...	...	...	...	5.6907	0.0052	...	3B	...	...	...	...	...	...
$5\frac{3}{4}$ – 16 or 5.750 – 16	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	5.7175	0.0081	...
		3A	...	...	...	...	...	5.7047	0.0047	...	3B	...	5.6908	...	5.7155	0.0061	...
$5\frac{7}{8}$ – 8 or 5.875 – 8	UN	2A	0.0031	5.8719	5.8569	...	5.7907	5.7806	...	...	2B	...	...	...	...	...	...
$5\frac{7}{8}$ – 12 or 5.875 – 12	UN	2A	...	...	...	...	...	...	...	...	2B	...	...	...	5.8299	0.0090	...
$5\frac{7}{8}$ – 16 or 5.875 – 16	UN	3A	...	...	...	...	...	5.8297	0.0047	...	3B	...	5.8158	...	5.8405	0.0061	...
6 – 8 or 6.000 – 8	UN	2A	0.0031	5.9969	5.9819	...	5.9157	5.9055	...	...	2B	...	...	...	5.9321	0.0131	...
		3A	...	...	...	...	...	5.9111	0.0077	...	3B	...	...	...	5.9287	0.0099	...
6 – 16 or 6.000 – 16	UN	3A	...	...	...	...	...	...	...	...	3B	...	5.9408	...	...	...	...

GENERAL NOTES:

(a) The limits listed in this Table are no longer considered standard and are for information only. They have been replaced because of calculation errors and a change in rounding methods.

(b) Product threads, gages, or tooling that conform or were generated using limits listed in this Table should be considered acceptable. When replacing, the new limits should be used.

(c) It is recommended that all users prepare for the eventual adoption of only the values in Table 2.

NOTE:

(1) See para. 5.2.1 for Functional Diameter.

Table E-2 Limits as Listed in Table D-1 (Formerly 3B) Prior to ASME B1.1-2003 Edition

Nominal Size and Threads/in.	Series Designation	External								Internal						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
10 – 28 or 0.190 – 28	UNS	2A	...	...	...	...	...	...	0.1464	2B	...	...	...	...	...	...
10 – 36 or 0.190 – 36	UNS	2A	...	...	...	...	...	...	...	2B	...	0.166	...	...	...	...
10 – 40 or 0.190 – 40	UNS	2A	...	...	...	...	...	...	0.1592	2B	...	...	...	...	...	...
10 – 48 or 0.190 – 48	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
10 – 56 or 0.190 – 56	UNS	2A	...	...	...	...	...	...	0.1681	2B	...	...	...	...	...	...
12 – 36 or 0.216 – 36	UNS	2A	...	...	...	...	...	...	0.1821	2B	...	0.192	...	...	...	...
12 – 40 or 0.216 – 40	UNS	2A	...	...	...	...	...	...	0.1835	2B	...	...	...	0.2035	0.0037	...
12 – 48 or 0.216 – 48	UNS	2A	...	...	...	...	0.1991	0.0026	...	2B	...	...	...	0.2059	0.0034	...
12 – 56 or 0.216 – 56	UNS	2A	0.0007	0.2153	0.2112	0.2037	0.2012	...	0.1941	2B	...	...	...	0.2076	0.0032	...
1/4 – 24 or 0.250 – 24	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
1/4 – 27 or 0.250 – 27	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
1/4 – 36 or 0.250 – 36	UNS	2A	...	...	...	...	...	...	0.2161	2B	...	0.226	...	...	...	...
1/4 – 40 or 0.250 – 40	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
1/4 – 48 or 0.250 – 48	UNS	2A	...	...	...	...	...	...	0.2243	2B	...	...	...	...	...	...
1/4 – 56 or 0.250 – 56	UNS	2A	...	...	...	...	...	...	0.2280	2B	...	...	...	...	...	...
5/16 – 27 or 0.3125 – 27	UNS	2A	0.0010	0.3115	0.3048	0.2874	0.2839	0.0035	0.2674	2B	...	...	...	0.2929	0.0045	...
5/16 – 36 or 0.3125 – 36	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	0.2985	0.0040	...
5/16 – 40 or 0.3125 – 40	UNS	2A	...	...	...	...	0.2925	0.0029	...	2B	...	...	...	0.3001	0.0038	...
5/16 – 48 or 0.3125 – 48	UNS	2A	...	...	...	...	0.2955	0.0027	...	2B	...	...	...	...	...	...
3/8 – 18 or 0.375 – 18	UNS	2A	...	...	...	...	...	...	0.3076	2B	...	...	...	...	...	...
3/8 – 27 or 0.375 – 27	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...

Table E-2 Limits as Listed in Table D-1 (Formerly 3B) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External								Internal						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
3/8 – 36 or 0.375 – 36	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
3/8 – 40 or 0.375 – 40	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
0.390 – 27 or 0.390 – 27	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
7/16 – 18 or 0.4375 – 18	UNS	2A	...	...	...	...	0.3958	0.0043	0.3701	2B	...	...	...	0.4070	0.0056	...
7/16 – 24 or 0.4375 – 24	UNS	2A	0.0011	0.4364	0.4292	0.4093	0.4055	0.0038	0.3868	2B	...	...	...	0.4153	0.0049	...
7/16 – 27 or 0.4375 – 27	UNS	2A	...	...	...	...	0.4087	0.0036	...	2B	...	...	...	0.4181	0.0047	...
1/2 – 12 or 0.500 – 12	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	...	3B	...	0.422	...	...	...	...
1/2 – 14 or 0.500 – 14	UNS	2A	...	...	...	...	...	...	0.4135	2B	...	...	...	...	...	...
1/2 – 18 or 0.500 – 18	UNS	2A	...	...	...	...	...	...	0.4326	2B	...	...	...	...	...	...
1/2 – 24 or 0.500 – 24	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
1/2 – 27 or 0.500 – 27	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
9/16 – 14 or 0.5625 – 14	UNS	2A	...	...	...	...	...	...	0.4760	2B	...	...	...	...	...	...
9/16 – 27 or 0.5625 – 27	UNS	2A	...	...	...	...	0.5336	0.0037	...	2B	...	...	...	0.5432	0.0048	...
5/8 – 14 or 0.625 – 14	UNS	2A	...	...	...	...	...	...	0.5385	2B	...	0.564	...	...	...	...
5/8 – 27 or 0.625 – 27	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
3/4 – 14 or 0.750 – 14	UNS	2A	...	...	...	...	...	...	0.6635	2B	...	...	...	...	...	...
3/4 – 18 or 0.750 – 18	UNS	2A	...	...	...	...	...	...	0.6825	2B	...	...	...	...	...	...
3/4 – 24 or 0.750 – 24	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
3/4 – 27 or 0.750 – 27	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
7/8 – 10 or 0.875 – 10	UNS	2A	...	...	...	...	0.8022	0.0060	0.7542	2B	...	...	...	0.8178	0.0078	...

Table E-2 Limits as Listed in Table D-1 (Formerly 3B) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External								Internal						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
7/8 – 18 or 0.875 – 18	UNS	2A	...	...	...	...	0.8329	0.0046	0.8075	2B	...	...	...	0.8449	0.0060	...
7/8 – 24 or 0.875 – 24	UNS	2A	...	...	...	...	0.8426	0.0041	...	2B	...	...	...	0.8532	0.0052	...
7/8 – 27 or 0.875 – 27	UNS	2A	...	...	...	...	0.8458	0.0039	...	2B	...	...	...	0.8560	0.0051	...
1 – 10 or 1.000 – 10	UNS	2A	...	...	...	...	...	...	0.8792	2B	...	...	...	...	...	...
1 – 18 or 1.000 – 18	UNS	2A	...	...	...	...	...	...	0.9325	2B	...	...	...	...	...	...
1 – 24 or 1.000 – 24	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
1 – 27 or 1.000 – 27	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
1 1/8 – 10 or 1.125 – 10	UNS	2A	0.0018	1.1232	1.1103	1.0582	1.0520	...	1.0042	2B	...	...	...	1.0680	0.0080	...
1 1/8 – 14 or 1.125 – 14	UNS	2A	...	...	...	...	...	...	1.0384	2B	...	1.064	...	...	...	...
1 1/8 – 24 or 1.125 – 24	UNS	2A	...	...	...	...	1.0924	0.0042	1.0742	2B	...	...	...	1.1034	0.0055	...
1 1/4 – 10 or 1.250 – 10	UNS	2A	...	...	...	...	...	...	1.1291	2B	...	...	...	...	...	...
1 1/4 – 14 or 1.250 – 14	UNS	2A	...	...	...	...	...	...	1.1634	2B	...	...	...	...	...	...
1 1/4 – 24 or 1.250 – 24	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
1 3/8 – 10 or 1.375 – 10	UNS	2A	...	...	...	...	...	...	1.2541	2B	...	...	...	...	...	...
1 3/8 – 14 or 1.375 – 14	UNS	2A	...	...	...	...	1.3216	0.0054	1.2884	2B	...	1.314	...	1.3356	0.0070	...
1 3/8 – 24 or 1.375 – 24	UNS	2A	...	...	...	...	1.3423	0.0043	...	2B	...	...	...	1.3535	0.0056	...
1 1/2 – 10 or 1.500 – 10	UNS	2A	...	...	...	...	...	...	1.3791	2B	...	...	...	...	...	...
1 1/2 – 14 or 1.500 – 14	UNS	2A	...	...	...	...	...	...	1.4133	2B	...	...	...	...	...	...
1 1/2 – 24 or 1.500 – 24	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
1 5/8 – 10 or 1.625 – 10	UNS	2A	...	...	...	...	...	...	1.5041	2B	...	...	...	...	...	...
1 5/8 – 14 or 1.625 – 14	UNS	2A	...	...	...	...	...	...	1.5383	2B	...	1.564	...	...	...	...

Table E-2 Limits as Listed in Table D-1 (Formerly 3B) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External								Internal						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
$1\frac{5}{8}$ – 24 or 1.625 – 24	UNS	2A	...	...	...	...	1.5922	0.0044	...	2B	...	...	...	...	...	...
$1\frac{3}{4}$ – 10 or 1.750 – 10	UNS	2A	...	...	...	...	...	...	1.6291	2B	...	...	...	...	...	...
$1\frac{3}{4}$ – 14 or 1.750 – 14	UNS	2A	...	...	...	...	...	...	...	2B	...	...	...	...	...	...
$1\frac{3}{4}$ – 18 or 1.750 – 18	UNS	2A	...	...	...	...	...	...	1.6824	2B	...	...	...	...	...	...
$1\frac{7}{8}$ – 10 or 1.875 – 10	UNS	2A	0.0019	1.8731	1.8602	1.8081	1.8016	...	1.7534	2B	...	...	...	1.8184	0.0084	...
$1\frac{7}{8}$ – 14 or 1.875 – 14	UNS	2A	...	...	...	...	...	...	1.7883	2B	...	1.814	...	...	...	...
$1\frac{7}{8}$ – 18 or 1.875 – 18	UNS	2A	...	...	...	...	...	...	1.8074	2B	...	...	...	...	...	...
2 – 10 or 2.000 – 10	UNS	2A	...	...	...	...	...	...	1.8790	2B	...	...	...	...	...	...
2 – 14 or 2.000 – 14	UNS	2A	...	...	...	...	...	...	1.9133	2B	...	...	...	...	...	...
2 – 18 or 2.000 – 18	UNS	2A	...	...	...	...	...	...	1.9324	2B	...	...	...	...	...	...
$2\frac{1}{16}$ – 16 or 2.0625 – 16	UNS	2A	...	...	...	...	...	...	1.9864	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	1.9880	3B	...	2.003	...	2.0271	0.0052	...
$2\frac{3}{16}$ – 16 or 2.1875 – 16	UNS	2A	...	...	...	...	...	...	2.1154	2B	...	...	...	2.1539	0.0070	...
		3A	...	...	...	...	...	...	2.1130	3B	...	2.128	...	2.1521	0.0052	...
$2\frac{1}{4}$ – 10 or 2.250 – 10	UNS	2A	...	...	...	...	2.1765	0.0065	2.1290	2B	...	...	...	2.1935	0.0085	...
$2\frac{1}{4}$ – 14 or 2.250 – 14	UNS	2A	...	...	...	...	2.1962	0.0057	2.1633	2B	...	...	...	2.2110	0.0074	...
$2\frac{1}{4}$ – 18 or 2.250 – 18	UNS	2A	0.0015	2.2485	2.2398	2.2124	2.2073	0.0051	2.1824	2B	...	...	...	2.2206	0.0067	...
$2\frac{5}{16}$ – 16 or 2.3125 – 16	UNS	2A	0.0017	2.3108	2.3014	2.2702	2.2647	...	2.2363	2B	...	...	...	2.2791	0.0072	...
		3A	...	...	...	...	...	...	2.2380	3B	...	2.253	...	2.2773	0.0054	...
$2\frac{7}{16}$ – 16 or 2.4375 – 16	UNS	2A	...	...	...	...	...	...	2.3613	2B	...	...	...	...	...	...
		3A	...	...	...	...	...	...	2.3630	3B	...	2.378	...	...	...	...
$2\frac{1}{2}$ – 10 or 2.500 – 10	UNS	2A	...	...	...	...	...	...	2.3790	2B	...	...	...	...	...	...
$2\frac{1}{2}$ – 14 or 2.500 – 14	UNS	2A	...	...	...	...	...	...	2.4133	2B	...	...	...	...	...	...

Table E-2 Limits as Listed in Table D-1 (Formerly 3B) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External								Internal						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
2½ – 18 or 2.500 – 18	UNS	2A	...	...	...	...	...	...	2.4323	2B	...	...	...	...	...	...
2¾ – 10 or 2.750 – 10	UNS	2A	...	...	...	...	2.6763	0.0067	2.6290	2B	...	...	...	2.6837	0.0087	...
2¾ – 14 or 2.750 – 14	UNS	2A	0.0017	2.7483	2.7380	2.7019	2.6961	0.0058	2.6633	2B	...	...	...	2.7112	0.0076	...
2¾ – 18 or 2.750 – 18	UNS	2A	...	...	...	...	...	...	2.6823	2B	...	...	...	2.7208	0.0069	...
3 – 10 or 3.000 – 10	UNS	2A	...	...	...	...	...	...	2.8790	2B	...	...	...	...	...	...
3 – 14 or 3.000 – 14	UNS	2A	...	...	...	...	...	...	2.9132	2B	...	...	...	...	...	...
3 – 18 or 3.000 – 18	UNS	2A	...	...	...	...	...	...	2.9323	2B	...	...	...	...	...	...
3¼ – 10 or 3.250 – 10	UNS	2A	0.0020	3.2480	3.2351	3.1830	3.1762	0.0068	3.1290	2B	...	...	...	...	...	...
3¼ – 14 or 3.250 – 14	UNS	2A	...	...	...	...	3.1959	0.0059	3.1632	2B	...	...	...	3.2113	0.0077	...
3¼ – 18 or 3.250 – 18	UNS	2A	...	...	...	...	3.2069	0.0054	3.1823	2B	...	...	...	3.2209	0.0070	...
3½ – 10 or 3.500 – 10	UNS	2A	...	...	...	...	...	...	3.3789	2B	...	...	...	...	...	...
3½ – 14 or 3.500 – 14	UNS	2A	...	...	...	...	...	...	3.4132	2B	...	...	...	...	...	...
3½ – 18 or 3.500 – 18	UNS	2A	...	...	...	...	...	...	3.4322	2B	...	...	...	...	...	...
3¾ – 10 or 3.750 – 10	UNS	2A	...	...	...	...	3.6760	0.0069	3.6289	2B	...	...	...	3.6940	0.0090	...
3¾ – 14 or 3.750 – 14	UNS	2A	...	...	...	...	...	...	3.6632	2B	...	...	...	...	...	...
3¾ – 18 or 3.750 – 18	UNS	2A	...	...	...	...	3.7067	0.0055	3.6822	2B	...	...	...	...	...	...
4 – 10 or 4.000 – 10	UNS	2A	...	...	...	...	...	...	3.8768	2B	...	...	...	...	...	...
4 – 14 or 4.000 – 14	UNS	2A	...	...	...	...	...	...	3.9132	2B	...	...	...	...	...	...
4¼ – 10 or 4.250 – 10	UNS	2A	...	...	...	...	4.1759	0.0070	4.1289	2B	...	...	...	4.1941	0.0091	...
4¼ – 14 or 4.250 – 14	UNS	2A	0.0018	4.2482	4.2379	4.2018	4.1956	...	4.1632	2B	...	...	...	4.2116	0.0080	...
4½ – 10 or 4.500 – 10	UNS	2A	...	...	...	...	4.4259	0.0070	4.3789	2B	...	...	...	4.4441	0.0091	...

Table E-2 Limits as Listed in Table D-1 (Formerly 3B) Prior to ASME B1.1-2003 Edition (Cont'd)

Nominal Size and Threads/in.	Series Designation	External								Internal						
				Major Diameter		Pitch Diameter and Functional Diameter [Note (1)]			UNR Minor Diameter, Max. (Ref.)		Minor Diameter		Pitch Diameter and Functional Diameter [Note (1)]			Major Diameter, Min.
		Class	Allowance	Max.	Min.	Max.	Min.	Tolerance		Class	Min.	Max.	Min.	Max.	Tolerance	
4 1/2 – 14 or 4.500 – 14	UNS	2A	0.0018	4.4982	4.4879	4.4518	4.4456	0.0062	4.4132	2B	...	...	...	4.4616	0.0080	...
4 3/4 – 10 or 4.750 – 10	UNS	2A	...	...	...	...	...	...	4.6288	2B	...	...	...	4.6944	0.0094	...
4 3/4 – 14 or 4.750 – 14	UNS	2A	...	...	...	...	4.6953	0.0064	4.6631	2B	...	...	...	4.7119	0.0083	...
5 – 10 or 5.000 – 10	UNS	2A	...	...	...	...	...	...	4.8788	2B	...	...	...	...	...	...
5 – 14 or 5.000 – 14	UNS	2A	...	...	...	...	4.9453	...	4.9131	2B	...	...	...	...	...	...
5 1/4 – 10 or 5.250 – 10	UNS	2A	...	...	...	...	5.1756	0.0072	5.1288	2B	...	...	...	...	...	...
5 1/4 – 14 or 5.250 – 14	UNS	2A	...	...	...	...	...	...	5.1631	2B	...	...	...	...	...	...
5 1/2 – 10 or 5.500 – 10	UNS	2A	...	...	...	...	5.4256	0.0072	5.3788	2B	...	...	...	5.4444	0.0094	...
5 1/2 – 14 or 5.500 – 14	UNS	2A	...	...	...	...	...	...	5.4131	2B	...	...	...	5.4619	0.0083	...
5 3/4 – 10 or 5.750 – 10	UNS	2A	...	...	...	...	5.6754	0.0074	5.6288	2B	...	...	...	5.6946	0.0096	...
5 3/4 – 14 or 5.750 – 14	UNS	2A	0.0020	5.7480	5.7377	5.7016	5.6951	...	...	2B	...	...	...	5.7121	0.0085	...
6 – 10 or 6.000 – 10	UNS	2A	...	...	...	...	...	...	5.8788	2B	...	...	...	...	...	...
6 – 14 or 6.000 – 14	UNS	2A	...	...	...	...	...	...	5.9130	2B	...	...	...	...	...	...

GENERAL NOTES:

(a) The limits listed in this Table are no longer considered standard and are for information only. They have been replaced because of calculation errors and a change in rounding methods.

(b) Product threads, gages, or tooling that conform or were generated using limits listed in this Table should be considered acceptable. When replacing, the new limits should be used.

(c) It is recommended that all users prepare for the eventual adoption of only the values in Table D-1.

NOTE:

(1) See para. 5.2.1 for Functional Diameter.

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