ASME B16.14-2018
(Revision of ASME B16.14-2013)

Ferrous Pipe Plugs, Bushings, and Locknuts With Pipe Threads

AN AMERICAN NATIONAL STANDARD

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Two Park Avenue • New York, NY • 10016 USA

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ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Periodically certain actions of the ASME B16 Committee may be published as Cases. Cases and interpretations are published on the ASME website under the Committee Pages at http://cstools.asme.org/ as they are issued.

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The American Society of Mechanical Engineers
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FOREWORD

In 1921, the American Engineering Standards Committee [later the American Standards Association (ASA)] organized Sectional Committee B16 to unify and develop standards for pipe flanges and fittings. Cosponsors of the B16 Committee were The American Society of Mechanical Engineers (ASME), the Heating and Piping Contractors National Association [now Mechanical Contractors Association of America (MCAA)], and the Manufacturers Standardization Society of the Valve and Fitting Industry (MSS). Cosponsors were later designated as Co-Secretariat organizations.

Threaded fittings were also included in the scope of the B16 Committee, and Subcommittee 2 (now Subcommittee B) was made responsible for threaded fittings other than steel.

The American Standard for Pipe Plugs was originally published as ASA B16e2-1936. It had been developed by Subcommittee 2 from material assembled and published by MSS as a standard practice in April 1929.

From the beginning, pipe plugs have been made with the American Standard Taper Pipe Thread, but the design of the square heads necessary to screw them into fittings or any tapped hole has been a matter of manufacturers' and users' individual design. However, the use of pipe plugs soon broadened, and they came to be employed in many other service applications, e.g., automotive and industrial machinery. Accordingly, it was natural for the dimensions of the square heads and the sockets to conform to standard open wrench sizes and to maximum dimensions of standard hot-rolled steel bars.

Pipe bushing and locknut dimensions were originally included in ASA B16c-1939, American Standard for 150 lb Malleable Iron Screwed Fittings. ASA B16c-1939 was adapted from information assembled and published by MSS in 1929.

In response to a demand for inclusion under one cover, B16.14-1943, American Standard for Ferrous Plugs, Bushings, Locknuts, and Caps, was developed from ASA B16c-1939 and ASA B16d-1941, American Standard for Cast Iron Screwed Fittings, 125 lb and 250 lb, and approved by ASA in October 1943. The section of B16.14 covering pipe caps was later removed because of differences in pressure ratings between caps made of cast iron and malleable iron.

This Standard was revised in 1948 and approved by letter ballot vote of the Sectional Committee. Following the approval by the sponsor bodies, it was presented to ASA, now the American National Standards Institute (ANSI), with recommendations for approval as an American Standard. This approval and designation was given on April 6, 1949.

Subcommittee 2 began a review of the document in 1963 and completed its work in 1964. The Sectional Committee approved a number of minor changes in format and wording. Following approval by the sponsor organizations, ANSI approval was granted on November 12, 1965.

In 1970, a review was initiated by Subcommittee 2 that resulted in the proposal to revise the document in several minor areas and update referenced standards. Following approvals by the B16 Standards Committee and Co-Secretariat, ANSI granted approval on November 1, 1971.

In 1975, review was again initiated by Subcommittee B (formerly Subcommittee 2), and it was determined that the only significant changes needed were the updating of referenced standards and the addition of metric equivalents. Approvals were granted by the B16 Standards Committee, Co-Secretariat, and ANSI, the latter on February 4, 1977.

In 1982, the American National Standards Committee was reorganized as an ASME Committee operating under procedures accredited by ANSI. That same year, Subcommittee B once again began review of the Standard. The only changes made were the dates of the referenced standards. After approval by the B16 Standards Committee and ASME, final approval was granted by ANSI in July 1983.

In the 1991 edition of B16.14, U.S. Customary units were established as the standard and updates were made to the referenced standards and minimum specifications for steel fittings. Following approval by the B16 Standards Committee and ASME, approval as an American National Standard was given by ANSI on January 4, 1991, with the new designation ASME B16.14-1991.

In the 2010 edition of B16.14, SI units became the primary units, and U.S. Customary units were incorporated into the Standard as secondary units and shown in parentheses. Following approval by the B16 Standards Committee and the ASME Board, the revision to the 1991 edition of the Standard was approved as an American National Standard by ANSI on April 1, 2010, and designated as ASME B16.14-2010.

In the 2013 edition, section 8 was revised to require threads and gaging practices to be as per, and identical with, ASME B1.20.1 and other B16 standards. Following approval by the ASME B16 Standards Committee, approval as an American National Standard was given by ANSI on July 29, 2013, with the new designation ASME B16.14-2013.

In this 2018 edition, the U.S. Customary tables formerly in Mandatory Appendix I have been merged with the SI tables in the main text; the tables have been redesignated, Mandatory Appendix I has been deleted, and the cross-references have been updated accordingly. In addition, all reference standards in what was formerly Mandatory Appendix II were updated. Following approval by the ASME B16 Standards Committee, approval as an American National Standard was given by ANSI on August 3, 2018, with the new designation ASME B16.14-2018.

ASME B16 COMMITTEE
Standardization of Valves, Flanges, Fittings, and Gaskets

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

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CORRESPONDENCE WITH THE B16 COMMITTEE

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B16 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

Interpretations. Upon request, the B16 Standards Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B16 Standards Committee.

Requests for interpretation should preferably be submitted through the online Interpretation Submittal Form. The form is accessible at http://go.asme.org/InterpretationRequest. Upon submittal of the form, the Inquirer will receive an automatic e-mail confirming receipt.

If the Inquirer is unable to use the online form, he/she may e-mail the request to the Secretary of the B16 Standards Committee at SecretaryB16@asme.org, or mail it to the above address. The request for an interpretation should be clear and unambiguous. It is further recommended that the Inquirer submit his/her request in the following format:

Subject:	Cite the applicable paragraph number(s) and the topic of the inquiry in one or two words.
Edition:	Cite the applicable edition of the Standard for which the interpretation is being requested.
Question:	Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. Please provide a condensed and precise question, composed in such a way that a "yes" or "no" reply is acceptable.
Proposed Reply(ies):	Provide a proposed reply(ies) in the form of "Yes" or "No," with explanation as needed. If entering replies to more than one question, please number the questions and replies.
Background Information:	Provide the Committee with any background information that will assist the Committee in understanding the inquiry. The Inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in the format described above may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

Moreover, ASME does not act as a consultant for specific engineering problems or for the general application or understanding of the Standard requirements. If, based on the inquiry information submitted, it is the opinion of the Committee that the Inquirer should seek assistance, the inquiry will be returned with the recommendation that such assistance be obtained.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. The B16 Standards Committee regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the B16 Standards Committee.

ASME B16.14-2018
SUMMARY OF CHANGES

Following approval by the ASME B16 Standards Committee and ASME, and after public review, ASME B16.14-2018 was approved by the American National Standards Institute on August 3, 2018.

In ASME B16.14-2018, the U.S. Customary tables formerly in Mandatory Appendix I have been merged with the SI tables in the main text; the tables have been redesignated, Mandatory Appendix I has been deleted, and the cross-references have been updated accordingly. In addition, this edition includes the following change identified by a margin note, **(18)**. The Record Number listed below is explained in more detail in the "List of Changes in Record Number Order" following this Summary of Changes.

Page	*Location*	*Change (Record Number)*
10	Mandatory Appendix I	Formerly Mandatory Appendix II, updated *(18-798)*

LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
18-798	Updated references in Mandatory Appendix I, formerly Mandatory Appendix II.

FERROUS PIPE PLUGS, BUSHINGS, AND LOCKNUTS WITH PIPE THREADS

1 SCOPE

This Standard covers the following:
(a) pressure–temperature ratings
(b) size
(c) marking
(d) materials
(e) dimensions and tolerances
(f) threading
(g) pattern taper

2 GENERAL

2.1 References

Standards and specifications adopted by reference are shown in Mandatory Appendix I. It is not considered practical to identify the edition of each referenced standard and specification in the text. Instead, the editions of the referenced standards and specifications are listed in Mandatory Appendix I.

2.2 Quality Systems

Requirements relating to the product manufacturer's quality system program are described in Nonmandatory Appendix A.

2.3 Relevant Units

This Standard states values in both SI (metric) units and U.S. Customary units. These systems of units are to be regarded separately as standard. Within the text, the U.S. Customary units are shown in parentheses. The values stated in each system are not exact equivalents; therefore, it is required that each system of units be used independently of the other. Combining values from the two systems constitutes nonconformance with the Standard.

2.4 Service Conditions

Criteria for selection of materials suitable for particular fluid service are not within the scope of this Standard.

2.5 Convention

For determining conformance with this Standard, the convention for fixing significant digits where limits (maximum and minimum values) are specified shall be as defined in ASTM E29. This requires that an observed or calculated value be rounded off to the nearest unit in the last right-hand digit used for expressing the limit. Decimal values and tolerances do not imply a particular method of measurement.

2.6 Denotation

2.6.1 Pressure Rating Designation. Class followed by a dimensionless number is the designation for pressure–temperature ratings.

2.6.2 Size. Nominal pipe size (NPS) followed by a dimensionless number is the designation for nominal flange or flange fitting size. NPS is related to the reference nominal diameter, DN, used in international standards. The relationship is, typically, as follows:

NPS	DN
1	25
1¼	32
1½	40
2	50
2½	65
3	80
3½	90
4	100

For NPS ≥ 4, the related DN = 25 × (NPS)

3 PRESSURE–TEMPERATURE RATINGS

(a) Pressure–temperature ratings for plugs and bushings shall be in accordance with ASME B16.4 if made of cast iron, or ASME B16.3 if made of malleable iron, ductile iron, or steel. Use of cored plugs or hexagon head bushings should be limited to Class 125 cast iron and Class 150 malleable iron threaded fittings. Solid plugs and face bushings are recommended for use with Class 250 cast iron fittings and Class 300 malleable iron fittings.
(b) Locknuts are not pressure–temperature rated.

4 NOMINAL PIPE SIZE

As applied in this Standard, the use of the phrase "nominal pipe size" or the designation NPS followed by a dimensionless number is for identifying the end connection of fittings. The number is not necessarily the same as the fitting inside diameter.

5 MARKING

Each fitting shall be marked for identification with the manufacturer's name or trademark, except where a marking is impractical.