ASME B16.4-2011
(Revision of ASME B16.4-2006)

Gray Iron Threaded Fittings

Classes 125 and 250

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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The American Society of Mechanical Engineers
Three Park Avenue • New York, NY • 10016 USA

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The next edition of this Standard is scheduled for publication in 2016.

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 Web site under the Committee Pages at http://cstools.asme.org as they are issued, and will be published within the next edition of the standard.

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

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FOREWORD

In the spring of 1921, when the unification and extension of the flanged and threaded fittings standards in force in this country seemed desirable, the American Engineering Standards Committee [subsequently the American Standards Association and currently the American National Standards Institute (ANSI)] authorized the organization of a Sectional Committee on the Standardization of Pipe Flanges and Flanged Fittings. The following organizations served as joint sponsors: Heating, Piping, and Air Conditioning Contractors National Association (later the Mechanical Contractors Association of America), Manufacturers Standardization Society of the Valve and Fittings Industry, and the American Society of Mechanical Engineers.

At the second meeting of the Sectional Committee held in New York on December 16, 1921, a report was submitted by the Subcommittee on Threaded Fittings. It indicated clearly that good progress was already being made toward the development of an American Standard for cast iron threaded fittings intended for services of 125 and 250 lb steam pressure. The review of the proposals of the manufacturer's Committee of Five was assigned to the Subcommittee on Threaded Fittings, and after a thorough study, it made its report to the Sectional Committee. The Standard was finally completed, approved, and published in December, 1927 with the designation ASA B16d-1927.

To bring this Standard in line with the best current practice, a revision was begun in September, 1936, providing for hydraulic service ratings, material specifications, tolerances on alignment, threading of fittings, and dimensions of some additional sizes, as well as dimensional tables covering reducing couplings, caps, and closed- and open-pattern return bends. The revision was approved in March, 1941.

The Standard was reviewed in 1947 and was approved by the Sectional Committee. Following approval of the sponsor bodies, the Standard was presented for approval as an American Standard. It received that approval in December, 1949, and was given the new designation ASA B16.4-1949.

A review was started in 1961 by Subcommittee No. 2. A draft involving only minor changes was approved by the Sectional Committee and sponsor bodies. Final ASA approval was granted on December 26, 1963.

As the changes in organization occurred and standards designation increased, Subcommittee No. 2 began a review in 1968. Minor changes included updating references and bringing the Standard into conformance with adopted policies of the B16 Committee. Final approval was granted by the American National Standards Institute on January 20, 1971.

In 1975, Subcommittee B (formerly 2), in its regular five-year review of the document, recommended the addition of metric (SI) equivalents and updating of referenced standards. The revised edition received approval by ANSI on August 30, 1977.

In 1982, American National Standards Committee B16 became the ASME B16 Standards Committee, operating with the same scope under ASME procedures accredited by ANSI. A new revision of the Standard, including rationalization of metric equivalent dimensions and updating of referenced standards, was approved and published as ANSI/ASME B16.4-1985.

The 1992 edition of B16.4 omitted metric units, established U.S. customary units as the standard, and provided for electrodeposition as an alternative to hot dipping for zinc coating. Editorial revisions were made to clarify and correct the text. Following approval by the Standards Committee and ASME, approval as an American National Standard was given on December 2, 1992, with the designation ASME B16.4-1992.

In the 1998 edition of ASME B16.4, the list of referenced standards was updated, a Quality System Program Annex added, an issued Interpretation included, and several editorial revisions made. Following approval by ASME B16 Subcommittee B and B16 Standards Committee, ANSI approved this American National Standard on November 20, 1998.

Work started during 1999 to revise the Standard to include metric units as the primary reference units while maintaining U.S. Customary units in either parenthetical or separate forms. Following

approval by the Standards Committee and the ASME Board, this revision to the 1998 edition of this Standard was approved as an American National Standard by ANSI on November 9, 2006.

In this edition, references to ASME Standards were revised to no longer list specific edition years; the latest edition of ASME publications applies unless stated otherwise. Materials manufactured to other editions of the referenced ASTM Standards have been permitted to be used to manufacture fittings meeting the requirements of this Standard as long as the fitting manufacturer verifies the material meets the requirements of the referenced edition. Following approval by the Standards Committee and the ASME Board on PTCS, this revision to the 2006 edition was approved as an American National Standard by ANSI on August 9, 2011 with the new designation, ASME B16.4-2011.

Requests for interpretation and suggestions for revision should be sent to the Secretary, B16 Committee, The American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.

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, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B16 Standards Committee
The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

As an alternative, inquiries may be submitted via email to: SecretaryB16@asme.org.

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 for the purpose of providing 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, 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 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.

The request for 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.
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. 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 this format will be rewritten in this format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

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, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the B16 Standards Committee.

ASME B16.4-2011
SUMMARY OF CHANGES

Following approval by the ASME B16 Committee and ASME, and after public review, ASME B16.4-2011 was approved by the American National Standards Institute on August 9, 2011.

ASME B16.4-2011 includes the following changes identified by a margin note, **(11)**. In addition, in the main text, the "General" section was moved to section 2, and the subsequent sections and their paragraphs were renumbered accordingly.

Page	*Location*	*Change*
19	Mandatory Appendix II	Updated

GRAY IRON THREADED FITTINGS

CLASSES 125 AND 250

1 SCOPE

This Standard for gray iron threaded fittings, Classes 125 and 250, covers

(a) pressure–temperature ratings

(b) sizes and method of designating openings of reducing fittings

(c) marking

(d) material

(e) dimensions and tolerances

(f) threading

(g) coatings

Mandatory Appendix I provides table values in U.S. Customary units.

2 GENERAL

2.1 References

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

2.2 Quality Systems

Requirements relating to the product manufacturers' quality system programs are described in Nonmandatory Appendix A.

2.3 Relevant Units

This Standard states values in both SI (Metric) 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 or in separate tables that appear in Mandatory Appendix I. 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 as follows: Class 125 and Class 250.

2.6.2 Size. NPS, followed by a dimensionless number, is the designation for nominal 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	. . .
4	100

GENERAL NOTE: For NPS ≥ 4, the related DN = 25 × NPS.

3 PRESSURE–TEMPERATURE RATINGS

(a) Pressure–temperature ratings for these fittings are shown in Tables 1 and I-1.

(b) All ratings are independent of the contained fluid and are the maximum allowable working gage pressures at the tabulated temperatures. Intermediate ratings may be obtained by linear interpolation between the temperatures shown.

(c) The temperatures shown for the corresponding pressure rating shall be the material temperature of the pressure-retaining structure. It may be assumed that the material temperature is the same as the fluid temperature. Use of a pressure rating at a material temperature