ASME B16.3-2006
(Revision of ASME B16.3-1998)

Malleable Iron Threaded Fittings

Classes 150 and 300

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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The next edition of this Standard is scheduled for publication in 2011. There will be no addenda issued to this edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. 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 1921, the American Engineering Standards Committee, later the American Standards Association (ASA) and currently the American National Standards Institute (ANSI), authorized the organization of a Sectional Committee on the Standardization of Pipe Flanges and Flanged Fittings, with the following organizations as joint sponsors: Heating, Piping, and Air Conditioning Contractors National Association (later the Mechanical Contractors Association of America, MCAA), Manufacturers Standardization Society of the Valves and Fittings Industry (MSS), and The American Society of Mechanical Engineers (ASME).

Threaded fittings were also included in the scope of the B16 Committee, and Subcommittee Number 2 (now Subcommittee B) was made responsible for threaded fittings other than steel. The first edition of a standard covering malleable iron fittings, 150 lb, was approved as American Tentative Standard by ASA in December 1927. In 1936, a revision was undertaken to add hydraulic service ratings, material specifications, alignment tolerances, and dimensions for additional sizes. It was approved with the designation American Standard B16c-1939.

Pipe plugs, bushings, and locknuts, included in the first editions, are now covered in a separate standard, B16.14.

A revision begun in 1947 amplified the sections on threading, inspection, and tolerances, and added dimensions for additional sizes of elbows, reducing crosses, reducing tees, straight and reducing couplings, caps, and return bends. It was approved as ASA B16.3-1951.

Meanwhile, MSS, in cooperation with the Association of American Railroads (AAR), developed the first standard for 300 lb malleable iron threaded fittings, published as MSS SP-31 of 1932. The 1950 edition of SP-31, which agreed with AAR Purchase Specification M-404, was submitted to ASA Sectional Committee B16 and assigned to Subcommittee Number 2. After balloting, it was approved as a separate standard, ASA B16.19-1951.

Work was begun to combine the two standards (for 150 lb and 300 lb) into a single document in 1961. The resulting Standard was approved as ASA B16.3-1963. Subsequent reviews of the Standard, leading to revisions approved as ANSI B16.3-1971 and ANSI B16.3-1977, involved updating referenced standards and the introduction of metric (SI) dimensions and ratings. In the 1977 edition, 150 lb and 300 lb were redesignated as Class 150 and Class 300.

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 further revision of the standard, approved and published as ANSI/ASME B16.3-1985, provided for electrodeposition as an alternative to hot dipping when zinc coating was required.

The 1992 edition of B16.3 omits metric units, establishing U.S. customary units as the standard. Clarifications and editorial revisions were made in order to improve the text. Following approval by the Standards Committee and ASME, the 1992 edition received approval as an American National Standard on December 2, 1992, with the designation ASME B16.3-1992.

In the 1998 edition of ASME B16.3, the References section was updated; a Quality System Program Annex was added; and several editorial revisions were made. Following approval by ASME B16 Subcommittee B and B16 Main Committee, ANSI approved this American National Standard on November 20, 1998.

In this edition, metric dimensions have become the primary units and inch dimensions are incorporated into this standard as secondary units and shown in parentheses. The added metric dimensions constitute an independent but equal standard to the inch units. 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 with the new designation, ASME B16.3-2006.

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 e-mail 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.

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, which 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.

MALLEABLE IRON THREADED FITTINGS

Classes 150 and 300

1 SCOPE

1.1 General

This Standard covers malleable iron threaded fittings, Classes 150 and 300. It also contains provisions for using steel for caps and couplings in Class 150 for NPS $\frac{3}{8}$ and smaller. This Standard includes

(a) pressure–temperature ratings

(b) size 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.

1.2 References

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

1.3 Quality Systems

Requirements relating to the product manufacturers' Quality System Programs are described in Nonmandatory Appendix A.

1.4 Relevant Units

This Standard states values in both metric and U.S. Customary units. These systems of units are to be regarded separately. Within the text, the U.S. Customary units are shown in parentheses or in separate tables. The values stated in each table 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 this Standard.

1.5 Service Conditions

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

1.6 Convention

For the purpose of determining conformance with this Standard, the convention for fixing significant digits where limits (maximum and minimum values) are specified, shall be rounded as defined in ASTM E 29. This requires that an observed or calculated value shall be rounded off to the nearest unit in the last right hand digit used for expressing the limit. Decimal values and tolerance do not imply a particular method of measurement.

1.7 Denotation

1.7.1 Pressure Rating Designation. Class, followed by a dimensionless number, is the designation for pressure–temperature ratings as follows: Class 150; Class 300.

1.7.2 Size. NPS, followed by a dimensionless number, is the designation for nominal fitting size. NPS is related to the referenced nominal diameter, DN, used in international standards. The relationship is, typically, as follows:

NPS	DN
$\frac{1}{4}$	8
$\frac{1}{2}$	15
1	25
$1\frac{1}{4}$	32
$1\frac{1}{2}$	40
2	50
$2\frac{1}{2}$	65
3	80
4	100

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

2 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 gauge 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