ASME B16.15-2024
(Revision of ASME B16.15-2018)

Cast Copper Alloy Threaded Fittings

Classes 125 and 250

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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FOREWORD

As early as the spring of 1921, the consolidation and further development of threaded and flanged fittings standards in force in the United States seemed desirable. To meet this need, the American Standards Association (ASA) [now the American National Standards Institute (ANSI)] authorized the organization of a Sectional Committee on the Standardization of Pipe Flanges and Flanged Fittings (B16), with the Heating, Piping, and Air Conditioning Contractors' National Association (now known as the Mechanical Contractors Association of America), the Manufacturers Standardization Society of the Valve and Fittings Industry (MSS), and The American Society of Mechanical Engineers (ASME) acting as joint sponsors.

In June 1927, the MSS appointed a committee on Nonferrous Screw Fittings for the purpose of developing standards for products commonly designated as threaded pipe fittings of brass, bronze, and other nonferrous materials. At the time, brass threaded fittings were furnished from a number of different patterns with wide variations in dimensions and weights.

MSS SP-10 for 125-lb bronze screwed fittings and MSS SP-11 for 250-lb bronze screwed fittings were developed and adopted by the MSS in September 1930. The lighter fittings were patterned after malleable iron threaded fittings, then standardized in ASA B16c, while the heavier products were patterned after the cast iron threaded fittings covered by ASA B16d. Thus, a practice was standardized that had been found satisfactory in the valve and fittings industry for many years.

Following the publication of revised editions in 1941 and 1943, SP-10 was submitted to Subcommittee No. 2 of ASA Sectional Committee B16 for adoption as an American Standard. Final approval of that edition was granted on January 23, 1947, with the designation ASA B16.15. A reaffirmation of the Standard was granted in 1952, and a complete revision updating the Standard was approved by ASA on March 25, 1958.

After revision in 1944, SP-11 was submitted to Subcommittee No. 2 in August 1947, and ASA granted the approval of B16.17 on April 6, 1949.

In 1961, Subcommittee No. 2 reviewed the two Standards and noted that the historical reason for their separate existence no longer applied. Accordingly, the two were combined into ASA B16.15 with final ASA approval granted on February 6, 1964.

In 1969, the document was reviewed by Subcommittee No. 2, and minor changes were proposed. Final ANSI approval was granted on April 14, 1971.

In 1977, the MSS submitted a proposed revision to Subcommittee B (formerly No. 2) for B16 review and approval. Changes included the addition of metric (SI) units and editorial updating. ANSI granted final approval on December 4, 1978.

In 1982, American National Standards Committee B16 was reorganized as the ASME B16 Committee, operating under procedures accredited by ANSI. A revision, following regular 5-yr review by Subcommittee B, involved rationalization of metric equivalent dimensions and updating of reference standards. Following approval within ASME, ANSI approval was granted on July 30, 1985, with the designation ANSI/ASME B16.15-1985.

In 1994, and again in 2004, the document was reaffirmed.

In 2005, Subcommittee B of the ASME B16 Committee changed the title to Cast Copper Alloy Threaded Fittings, a section on leakage capacity was added, and nominal size (DN) according to ISO 6078 was addressed as SI values were positioned in the main text and U.S. Customary values were positioned in Mandatory Appendix I. The reference for gaging internal fitting threads was made clearer by using the wording from ASME B1.20.1, Pipe Threads, General Purpose (Inch). Many clarifying and editorial revisions were made to improve the text. After approval by ASME, ANSI approval was granted on August 25, 2006, with the designation ASME B16.15-2006.

In 2011, 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 ASME B16 Standards Committee, the revision to the 2006 edition was approved as an American National Standard by ANSI on August 9, 2011, with the designation ASME B16.15-2011.

In the 2013 edition, section 7 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 designation ASME B16.15-2013.

In the 2018 edition, the U.S. Customary tables formerly in Mandatory Appendix I were merged with the SI tables in the main text; the tables and figure were redesignated, Mandatory Appendix I was deleted, and the cross-references were updated accordingly. In addition, section 10 was revised to add clarification to the wall thickness requirements in the transitional area of a reducing fitting in which there is a change from one size of end connection to another, and 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 B16.15-2018.

In the 2024 edition, definitions for the terms “may,” “shall,” and “should” were added, and the references in Mandatory Appendix I were updated. Following approval by the ASME B16 Standards Committee, approval as an American National Standard was given by ANSI on May 28, 2024, with the new designation ASME B16.15-2024.

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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Revisions and Errata. The committee processes revisions to this Standard on a continuous basis 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 in the next edition of the Standard.

In addition, the committee may post errata on the committee web page. Errata become effective on the date posted. Users can register on the committee web page to receive e-mail notifications of posted errata.

This Standard is always open for comment, and the committee welcomes proposals for revisions. Such proposals should be as specific as possible, citing the paragraph number, the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent background information and supporting documentation.

Cases

(a) The most common applications for cases are

(1) to permit early implementation of a revision based on an urgent need

(2) to provide alternative requirements

(3) to allow users to gain experience with alternative or potential additional requirements prior to incorporation directly into the Standard

(4) to permit the use of a new material or process

(b) Users are cautioned that not all jurisdictions or owners automatically accept cases. Cases are not to be considered as approving, recommending, certifying, or endorsing any proprietary or specific design, or as limiting in any way the freedom of manufacturers, constructors, or owners to choose any method of design or any form of construction that conforms to the Standard.

(c) A proposed case shall be written as a question and reply in the same format as existing cases. The proposal shall also include the following information:

(1) a statement of need and background information

(2) the urgency of the case (e.g., the case concerns a project that is underway or imminent)

(3) the Standard and the paragraph, figure, or table number

(4) the editions of the Standard to which the proposed case applies

(d) A case is effective for use when the public review process has been completed and it is approved by the cognizant supervisory board. Approved cases are posted on the committee web page.

Interpretations. Upon request, the committee will issue an interpretation of any requirement of this Standard. An interpretation can be issued only in response to a request submitted through the online Inquiry Submittal Form at https://go.asme.org/InterpretationRequest. Upon submitting the form, the inquirer will receive an automatic e-mail confirming receipt.

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 information submitted, it is the opinion of the committee that the inquirer should seek assistance, the request will be returned with the recommendation that such assistance be obtained. Inquirers can track the status of their requests at https://go.asme.org/Interpretations.

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Interpretations are published in the ASME Interpretations Database at https://go.asme.org/Interpretations as they are issued.

Committee Meetings. The B16 Standards Committee regularly holds meetings that are open to the public. Persons wishing to attend any meeting should contact the secretary of the committee. Information on future committee meetings can be found on the committee web page at https://go.asme.org/B16committee.

ASME B16.15-2024
SUMMARY OF CHANGES

Following approval by the ASME B16 Committee and ASME, and after public review, ASME B16.15-2024 was approved by the American National Standards Institute on May 28, 2024.

ASME B16.15-2024 includes the following changes identified by a margin note, **(24)**. The Record Numbers listed below are explained in more detail in the "List of Changes in Record Number Order" following this Summary of Changes.

Page	*Location*	*Change (Record Number)*
1	2.8	Added *(23-2141)*
17	Mandatory Appendix I	Updated *(23-592 and 23-2139)*

LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
23-592	References updated.
23-2139	References updated.
23-2141	Definitions of the terms “may,” “shall,” and “should” added.

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CAST COPPER ALLOY THREADED FITTINGS
Classes 125 and 250

1 SCOPE

This Standard covers cast Classes 125 and 250 copper alloy threaded pipe fittings with provisions for substituting wrought copper alloys for plugs, bushings, caps, and couplings in small sizes. This Standard includes the following:

(a) pressure–temperature ratings

(b) size and method of designating openings of reducing pipe fittings

(c) marking requirements

(d) minimum requirements for casting quality and materials

(e) dimensions and tolerances in SI (metric) and U.S. Customary units

(f) threading requirements

(g) pressure test requirements

2 GENERAL

2.1 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. 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.

2.2 References

Standards and specifications containing provisions to the extent referenced herein constitute requirements of this Standard. These referenced documents are listed in Mandatory Appendix I.

2.3 Quality Systems

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

2.4 Denotation

2.4.1 Pressure Rating Designation. Class followed by a dimensionless number is the designation for pressure–temperature ratings, e.g., Class 125 and Class 250.

2.4.2 Size. NPS followed by a dimensionless number is the designation for nominal fittings size, e.g., NPS 2.

2.5 Time of Purchase, Manufacture, or Installation

The pressure–temperature ratings in this Standard are applicable upon its publication to all fittings within its scope that otherwise meet its requirements. For unused fittings maintained in inventory, the manufacturer of the fittings may certify conformance to this edition provided it can be demonstrated that all requirements of this edition have been met. Where such components were installed in accordance with the pressure–temperature ratings of an earlier edition of this Standard, those ratings are applicable except as may be governed by the applicable code or regulation.

2.6 User Accountability

This Standard cites responsibilities that are to be assumed by the fitting user in the areas of the temperature at which the pressure rating is taken.

2.7 Service Conditions

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

2.8 Definitions (24)

may: a term used to denote permission, neither a requirement nor a recommendation.

shall: a term used to denote a requirement.

should: a term used to denote a recommendation.

3 PRESSURE–TEMPERATURE RATINGS

3.1 General

Pressure–temperature ratings for these pipe fittings are shown in Table 3.1-1. All pressures are gage.