ASME B16.39-2025

(Revision of ASME B16.39-2019)

Malleable Iron Threaded Pipe Unions

Classes 150, 250, and 300

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: April 30, 2025

The next edition of this Standard is scheduled for publication in 2030.

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CONTENTS

FOREWORD

In 1921, the American Engineering Standards Committee, later 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, 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 Valve and Fittings Industry (MSS); and the American Society of Mechanical Engineers (ASME).

Threaded fittings were added to the scope of the B16 Committee, and Subcommittee No. 2 (now Subcommittee B) was made responsible for threaded fittings other than steel. Standards for cast and malleable iron fittings were approved by ASA as early as 1927.

For many years, the need for standardization of threaded malleable iron unions was met by Federal Specifications (published by the General Services Administration) and other documents published by the Association of American Railroads (AAR) and the Underwriters Laboratories (UL). As these standards continued to diverge, however, manufacturers concluded that a common practice would be desirable. Accordingly, beginning in 1957, MSS developed a standard practice embodying features of the existing standards and published it as MSS SP-76-1970.

During the next few years, ANSI recognition of the AAR and UL standards was withdrawn in favor of SP-76, and in 1975 MSS submitted its standards to Subcommittee B of American National Standards Committee B16 for consideration as an American National Standard. After several modifications and the addition of metric equivalents, the Standard was approved by the Committee, co-secretariat organizations, and ANSI. It was then published with the designation ANSI B16.39-1977.

In 1982 American National Standards Committee B16 was reorganized as an ASME Committee operating under procedures accredited by ANSI. The 1986 edition of B16.39 updated the referenced standards and specifications, established U.S. Customary units as the standard, and provided for electrodeposition as an alternative to hot dipping for any application of zinc coating. Following approval by the Standards Committee and ASME, approval as an American National Standard was given by ANSI on December 31, 1986, with the designation ASME/ANSI B16.39-1986.

In the 1998 edition of ASME B16.39, reference standards were updated, a quality system program annex was added, and several editorial revisions were made. Following approval by ASME B16 Subcommittee B and the B16 Standards Committee, ANSI approved this American National Standard on November 20, 1998.

In the 2009 edition, metric units became the primary units in the body text and tables, with U.S. Customary units shown in parentheses or in separate tables or in an Appendix. The *D* min. values in Table 3 were replaced with the L_2 values (external thread length) from ASME B1.20.2M-2006, Pipe Threads, 60 deg, General Purpose, and the *D* min. values in Table I-3 were replaced with the L_2 values from ASME B1.20.1-1983, Pipe Threads, General Purpose (Inch).

In the 2014 edition, para. 8.2 was revised to standardize the verbiage for internal threads and safety, and to harmonize language with other B16 Standards as it relates to defining thread lengths and gage points. Following approval by the ASME B16 Standards Committee, approval as an American National Standard was given by ANSI on June 24, 2014, with the designation ASME B16.39-2014.

In the 2019 edition, the U.S. Customary tables formerly in Mandatory Appendix I were merged with the SI tables in the main text; the tables were redesignated; Mandatory Appendix I was deleted, and the cross-references were updated accordingly. In addition, all reference standards in what was formerly Mandatory Appendix II were updated; no additional/technical changes were made to the Standard. Following approval by the ASME B16 Standards Committee, approval as an American National Standard was given by ANSI on December 23, 2019, with the new designation ASME B16.39-2019.

In the 2025 edition, a paragraph on definitions has been added. In addition, Mandatory Appendix I has been revised to update the referenced standards. Following approval by the ASME B16 Standards Committee, ASME B16.12-2025 was approved by ANSI as an American National Standard on March 4, 2025.

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 email 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 email 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.

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.

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 B16.39-2025
SUMMARY OF CHANGES

Following approval by the ASME B16 Standards Committee and ASME, and after public review, ASME B16.39-2025 was approved by the American National Standards Institute on March 4, 2025.

ASME B16.39-2025 includes the following changes identified by a margin note, **(25)**. 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	1.8	Added *(24-697)*
2	4	Paragraph 4.1 redesignated
2	6	Subparagraph (c) revised *(24-697)*
6	Mandatory Appendix I	Updated *(24-698)*

LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
24-697	Added para. 1.8 to define “may,” “shall,” and “should”; revised 6(c) to use “shall.”
24-698	Updated Mandatory Appendix I.

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MALLEABLE IRON THREADED PIPE UNIONS
Classes 150, 250, and 300

1 SCOPE

1.1 General

This Standard covers threaded malleable iron unions, Classes 150, 250, and 300. It also contains provisions for using steel for NPS $^{1}/_{8}$ unions. This Standard includes

(a) design
(b) pressure–temperature ratings
(c) size
(d) marking
(e) materials
(f) joints and seats
(g) threads
(h) hydrostatic strength
(i) tensile strength
(j) air pressure test
(k) sampling
(l) coatings
(m) dimensions

1.2 References

Standards and specifications adopted by reference in this Standard are shown in Mandatory Appendix I. 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 I.

1.3 Quality Systems

Nonmandatory requirements relating to the fitting manufacturer's quality system programs are described in Nonmandatory Appendix A.

1.4 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.

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 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.

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	250	300

1.7.1 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
$^{1}/_{4}$	8
$^{1}/_{2}$	15
1	25
$1^{1}/_{4}$	32
$1^{1}/_{2}$	40
2	50
$2^{1}/_{2}$	65
3	80
4	100

1.8 Definitions (25)

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

shall: the term used to denote a requirement.

should: the term used to denote a recommendation.