ASME B16.12-2025
(Revision of ASME B16.12-2019)

Cast Iron Threaded Drainage Fittings

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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FOREWORD

Screw joint drainage fittings were developed in about 1880 by the Durham House Drainage Co. of New York and are often referred to as Durham fittings. At that time, soil pipes and drains in New York had been required to be of plumber's cast iron soil pipe, whereas Chicago's soil pipes were required to be of lead or plumber's cast iron pipe.

To form a continuous passageway with no pockets or obstructions where foreign matter could collect and gradually accumulate, it was necessary to design a special type of screw fitting. Inside diameters of the fittings are about the nominal size of standard weight wrought steel pipe (Schedule 40). The thread chamber is designed so that when the pipe is tightly screwed into the fitting, its end nearly abuts the shoulder of the fitting, thereby making a practically continuous passage. The threading of these fittings required special care, and the threads on the pipe were cut to suit the threads in the fitting.

With the passage of time, manufacturers' practices began to diverge in regard to center-to-end dimensions and other features. The Manufacturers Standardization Society of the Valve and Fittings Industry (MSS) studied the situation, developed a standard practice for these fittings, and published MSS SP-8, Cast Iron Drainage Fittings, in 1929. Subsequently, for better coordination with other screwed fitting standards under the jurisdiction of the B16 Sectional Committee of the American Standards Association (ASA), the subject was assigned to Subcommittee 2 of B16.

Many drafts of the proposed standard were developed, and printer's proofs were distributed to industry for criticism and comment in May 1940. A revised proposal dated July 1941 was submitted to the members of the Sectional Committee for letter ballot vote. Following its approval by that body, it was submitted to the sponsors and to ASA with recommendations for approval as an American Standard. This was granted in February 1942, with the designation ASA B16.12-1942.

The MSS Ferrous Screw Fittings Committee made a thorough study of the 1942 Standard and recommended that several changes be made to bring the data in line with current production and usage of this type of fitting. To comply with the recommendations, Subcommittee 2 of the B16 Sectional Committee revised portions of the text and illustrations and added dimensional tables for Tucker connections, roof connections, and Tucker Y-branches, as well as dimensions for P-traps, bath traps, and running traps.

A draft, dated September 1952, was presented to the Sectional Committee for letter ballot vote. After the committee and other sponsor organizations approved the draft, it was presented to ASA, and approval of ASA B16.12-1953 was granted on September 11, 1953.

Subcommittee 2 reviewed the document from 1963 to 1964. The Sectional Committee approved several minor changes in format and wording, changing the title to Cast Iron Threaded Drainage Fittings. ASA B16.12-1965 was approved on November 12, 1965.

In 1970, further review was initiated by Subcommittee 2, now an American National Standards Institute (ANSI) Committee, and ANSI B16.12-1971 was granted approval on November 1, 1971.

The Standard was updated, and metric (SI) dimensions were added in ANSI B16.12-1977, approved on February 4, 1977.

In 1982, American Standards Committee B16 was reorganized as the ASME B16 Standards Committee under procedures accredited by ANSI. Also in 1982, Subcommittee B (formerly Subcommittee 2) updated reference standards, and the revision was approved on July 20, 1983, as ANSI B16.12-1983.

In the 1991 edition of ASME B16.12, reference standards were updated, and the metric dimensions were deleted. Following approval by ASME, ANSI approved the edition on January 4, 1991.

In the 1998 edition of ASME B16.12, 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 Main Committee, ANSI approved the edition 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.

In the 2009 edition, metric dimensions became the primary units, and inch dimensions were incorporated as secondary units and shown in parentheses. The added inch dimensions constituted an independent but equal standard to the metric units. ANSI approved the edition on April 6, 2009.

In the 2019 edition, Mandatory Appendix I was revised to include updates to the referenced standards. In addition, the U.S. Customary tables formerly in Mandatory Appendix II were merged with the SI tables in the main text; the tables and figures were redesignated; Mandatory Appendix II was deleted; and the cross-references were updated accordingly.

Following approval by the ASME B16 Standards Committee, ANSI approved the 2019 edition as an American National Standard, with the designation ASME B16.12-2019, on July 29, 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.

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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 B16.12-2025
SUMMARY OF CHANGES

Following approval by the ASME B16 Standards Committee and ASME, and after public review, ASME B16.12-2025 was approved by the American National Standards Institute on March 4, 2025.

ASME B16.12-2025 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	1.5	Added *(24-699)*
14	Mandatory Appendix I	Updated *(24-519)*

LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
24-519	Updated Mandatory Appendix I.
24-699	Added para. 1.5 to define “may,” “shall,” and “should.”

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CAST IRON THREADED DRAINAGE FITTINGS

1 SCOPE AND GENERAL

1.1 Scope

This Standard for cast iron threaded drainage fittings covers

(a) sizes and method of designating openings in reducing fittings
(b) marking
(c) material
(d) dimensions and tolerances
(e) threading
(f) ribs
(g) coatings
(h) face bevel

1.2 Applicability

This Standard covers fittings intended for use in gravity drainage systems subject only to the gravity head of waste liquids at temperatures from ambient to approximately 100°C (212°F). The use of this Standard for pressurized waste handling systems is the responsibility of the user and is subject to the requirements of any applicable code.

1.3 Quality Systems

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

1.4 References

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

(25) ### 1.5 Definitions

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.

2 SIZE

2.1 Nominal Pipe Size

The size of the fittings scheduled in Tables 2.1-1 and 2.1-2 is identified by the corresponding nominal pipe size (NPS). For reducing tees, Y-branches, or crosses, the largest run opening shall be given first. The straight-line sketches (Figure 2.1-1) illustrate how the reducing fittings are read.

2.2 Denotation

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
$1^1/_4$	32
$1^1/_2$	40
2	50
$2^1/_2$	65
3	80
$3^1/_2$	...
4	100

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

3 MARKING

Each fitting shall be marked with the manufacturer's name or trademark in accordance with the requirements of MSS Standard Practice No. SP-25.

4 MATERIALS

4.1 Castings

The dimensions prescribed in this Standard (Tables 4.1-1 through 4.1-11) are based on gray iron castings of high quality produced under regular control of chemical and physical properties by a recognized process. The manufacturer shall be prepared to certify that the product has been so produced and that its chemical and physical properties, as proved by test specimens, are equal to the requirements specified in ASTM A126.