ASME B16.12-2009
[Revision of ASME B16.12-1998 (R2006)]

Cast Iron Threaded Drainage Fittings

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Date of Issuance: August 14, 2009

The next edition of this Standard is scheduled for publication in 2014. 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.

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

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FOREWORD

Screw joint drainage fittings were developed in about 1880 by the Durham House Drainage Company 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 revised 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 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. The edition was approved by ASME and by ANSI 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 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.

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 inch dimensions constitute an independent but equal standard to the metric 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 April 6, 2009, and designated as ASME B16.12-2009.

ASME B16 COMMITTEE
Standardization of Valves, Flanges, Fittings, Gaskets, and Valve Actuators

(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

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 Standards 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 an 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 may be rewritten in the appropriate 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.

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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 manufacturer's 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.

2 SIZE

2.1 Nominal Pipe Size

The size of the fittings scheduled in Tables 1 and 2 is identified by the corresponding nominal pipe size. For reducing tees, Y-branches, or crosses, the largest run opening shall be given first. The straight-line sketches (Fig. 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
1¼	32
1½	40
2	50
2½	65
3	80
3½	. . .
4	100

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

Table 1 Inspection Limits for Diameter and Width of Band

NPS	Diameter and Width of Band, Minus, mm
1¼	1.0
1½	1.0
2	1.0
2½	1.0
3	1.3
4	1.6
5	1.6
6	1.8
8	2.3

Table 2 Inspection Limits for Center-to-End Dimensions

NPS	Center-to-End, Plus or Minus, mm
1¼	1.8
1½	2.0
2	2.0
2½	2.5
3	2.5
4	3.0
5	3.0
6	3.6
8	4.1

GENERAL NOTE: The above limits apply to all fittings covered by this Standard. Inspection limits for end-to-end dimensions shall be double the limits for center-to-center dimensions. The largest opening in the fitting governs the tolerance to be applied to all openings.