ASME B16.29-2022
(Revision of ASME B16.29-2017)

Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings — DWV

AN AMERICAN NATIONAL STANDARD

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The American Society of Mechanical Engineers
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FOREWORD

Standardization of cast and wrought solder-joint fittings was initiated in Subcommittee 11 of American Standards Association (ASA) Sectional Committee A40 on Plumbing Requirements and Equipment. Development work culminated in publication of ASA A40.3-1941.

In 1949, work on these fittings was transferred to Sectional Committee B16 of ASA, which established Subcommittee 9 (now Subcommittee J). The first standard developed was approved as ASA B16.18-1950, Cast Bronze Solder-Joint Fittings. A later joint effort of the Copper and Brass Research Association and the Manufacturers Standardization Society of the Valve and Fittings Industry (MSS) culminated in a standard on wrought fittings, ultimately approved as B16.22-1951.

Concurrently, recognizing the need for drainage fitting standards, an MSS task group developed the standard later approved as ASA B16.23-1953, Cast Bronze Solder-Joint Drainage Fittings, and a standard for wrought fittings was initially published as MSS SP-64-1961. A revision of that standard was submitted to Subcommittee 9 of B16 and was eventually approved as ASA B16.29-1966.

A revision was published [after reorganization of ASA as the American National Standards Institute (ANSI)] as ANSI B16.29-1973. In this edition, shorter solder cups were specified in larger sizes, since strength to contain pressure is not a factor. In 1979, Subcommittee I (formerly 9, now J) added metric dimensional equivalents and made other minor improvements. That revision was approved by ANSI, after approval by the Committee and secretariat organizations, as ANSI B16.29-1980.

In 1982, American National Standards Committee B16 was reorganized as an ASME Committee operating under procedures accredited by ANSI. The 1986 edition of the standard removed metric equivalents (not functionally applicable in the plumbing industry), updated the referenced standards, and incorporated editorial and format revisions. The 1994 edition removed inspection tolerance requirements, established minimum laying lengths, added soil pipe adapters, and incorporated editorial revisions. Following approval by the Standards Committee and ASME, approval as an American National Standard was given by ANSI on October 10, 1994, with the designator ASME B16.29-1994.

The 2001 edition of this Standard was revised to include Nonmandatory Appendix B, Quality System Program. Editorial revisions were made for the purpose of clarification. Following approval by the B16 Main Committee and ASME Supervisory Board, the Standard was approved as an American National Standard by ANSI on October 11, 2001.

In the 2007 edition, metric units were used as a primary reference unit while maintaining U.S. Customary units in either parenthetical or separate forms. In addition, several editorial revisions were made for clarity.

In the 2012 edition, references to ASME standards were revised to no longer list specific edition years; the latest edition of ASME publications applied unless stated otherwise. Following approval by the B16 Standards Committee and the ASME Supervisory Board, and after public review, the Standard was approved as an American National Standard by ANSI on August 23, 2012.

In the 2017 edition, provisions were made to update verbiage and readings. Following approval by the ASME B16 Standards Committee, approval as an American National Standard was given by ANSI on September 7, 2017, with the new designation ASME B16.29-2017.

In ASME B16.29-2022, the U.S. Customary tables in former Mandatory Appendix I have been merged with the SI tables in the main text. The tables and figures have been redesignated, former Mandatory Appendix I has been deleted, and the subsequent Mandatory Appendix has been redesignated. Cross-references have been updated accordingly. Also, in this edition, the references in Mandatory Appendix I (formerly Mandatory Appendix II) have been updated and reformatted. Following approval by the ASME B16 Standards Committee, ASME B16.25-2022 was approved by ANSI on November 28, 2022.

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 codes and standards are developed and maintained by committees with the intent to represent the consensus of concerned interests. Users of ASME codes and standards may correspond with the committees to propose revisions or cases, report errata, or request interpretations. Correspondence for this Standard should be sent to the staff secretary noted on the committee's web page, accessible at https://go.asme.org/B16committee.

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(s), 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(s)

(4) the edition(s) 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 Interpretation 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.

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 B16.29-2022
SUMMARY OF CHANGES

Following approval by the ASME B16 Standards Committee and ASME, and after public review, ASME B16.29-2022 was approved by the American National Standards Institute on November 28, 2022.

In ASME B16.29-2022, the U.S. Customary tables in former Mandatory Appendix I have been merged with the SI tables in the main text. The tables and figures have been redesignated, former Mandatory Appendix I has been deleted, and the subsequent Mandatory Appendix has been redesignated. Cross-references have been updated accordingly. In addition, this edition includes the following change identified by a margin note, **(22)**. The Record Number listed below is explained in more detail in the "List of Changes in Record Number Order" following this Summary of Changes.

Page	*Location*	*Change (Record Number)*
15	Mandatory Appendix I	References updated *(22-814)*

LIST OF CHANGES IN RECORD NUMBER ORDER

Record Number	Change
22-814	Updated references in Mandatory Appendix I (former Mandatory Appendix II).

Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings — DWV

1 SCOPE

This Standard for wrought copper and wrought copper alloy solder-joint drainage fittings, designed for use with copper drainage tube conforming to ASTM B306, covers the following:

(a) description
(b) pitch (slope)
(c) abbreviations for end connections
(d) sizes and method of designating openings for reducing fittings
(e) marking
(f) material
(g) dimensions and tolerances

2 GENERAL

2.1 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.

2.2 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.

2.3 References

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

2.4 Quality Systems

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

3 DESCRIPTION

These fittings are designed for drainage and vent systems only, using the solder-joint method of connection. The fitting cups (C) are provided with stops so that the ends of the tube, when assembled, meet the stops. Sketches and designs of fittings are illustrative only. The dimensions specified herein shall govern in all cases.

4 PITCH (SLOPE)

All nominal 90-deg fittings shall be pitched to result in a slope of 0.20 mm/m (0.25 in./ft) (2%) of horizontal tube length with reference to a horizontal plane.

5 ABBREVIATIONS

The symbols shown below are used to designate the type of fitting end.

Symbols	Definitions
C	Solder-joint fitting end (internal) made to receive copper tube diameter
F	Internal American National Standard taper pipe thread, NPTI
FTG	Solder-joint fitting end (external) made to copper tube diameter
M	External American National Standard taper pipe thread, NPTE
NPSM	American National Standard free-fitting straight mechanical pipe thread
SJ	End of fitting formed to receive outside diameter tube size

6 COMPONENT SIZE

6.1 Nominal Size

As applied in this Standard, the use of the phrase “nominal size” followed by a dimensionless number is for the purpose of fitting end connection size identification.