ASME B16.29-2012
(Revision of ASME B16.29-2007)

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

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

INTENTIONALLY LEFT BLANK

ASME B16.29-2012

(Revision of ASME B16.29-2007)

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

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

Three Park Avenue • New York, NY • 10016 USA

Date of Issuance: September 26, 2012

The next edition of this Standard is scheduled for publication in 2017. 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.

Errata to codes and standards may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The Committee Pages can be found at http://cstools.asme.org/. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting "Errata" in the "Publication Information" section.

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

CONTENTS

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, this 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 editorials and revisions have been made for clarity.

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

Requests for interpretations or suggestions for revisions should be sent to the Secretary, B16 Committee, The American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.

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.)

STANDARDS COMMITTEE OFFICERS

W. B. Bedesem, *Chair*
G. A. Jolly, *Vice Chair*
D. R. Sharp, *Secretary*

STANDARDS COMMITTEE PERSONNEL

A. Appleton, Alloy Stainless Products Co., Inc.
R. W. Barnes, Anric Enterprises, Inc.
W. B. Bedesem, Consultant
R. M. Bojarczuk, ExxonMobil Research & Engineering Co.
D. F. Buccicone, Consultant
A. M. Cheta, Shell Exploration and Production Co.
M. A. Clark, Nibco, Inc.
G. A. Cuccio, Capitol Manufacturing Co.
C. E. Davila, Crane Energy
D. R. Frikken, Becht Engineering Co.
R. P. Griffiths, U.S. Coast Guard
G. A. Jolly, Vogt Valves/Flowserve Corp.
M. Katcher, Haynes International
W. N. McLean, B&L Engineering
T. A. McMahon, Emerson Process Management
M. L. Nayyar, Bechtel Power Corp.
W. H. Patrick, The Dow Chemical Co.
R. A. Schmidt, Canadoil
D. R. Sharp, The American Society of Mechanical Engineers
H. R. Sonderegger, Fluoroseal, Inc.
W. M. Stephan, Flexitallic LP
F. R. Volgstadt, Volgstadt & Associates, Inc.
D. A. Williams, Southern Co. Generation

SUBCOMMITTEE J — COPPER AND COPPER ALLOY FLANGES

M. A. Clark, *Chair,* Nibco, Inc.
D. F. Buccicone, *Vice Chair,* Consultant
C. E. O'Brien, *Secretary,* The American Society of Mechanical Engineers
J. A. Ballanco, JB Engineering & Code Consulting
S. L. Cavanaugh, Cavanaugh Consulting
A. Ciechanowski, NSF International
D. R. Frikken, Becht Engineering Co.
M. Gillespie, Viega North America
T. L. Jamison, Jamison Engineering
A. G. Kireta, Jr., Copper Development Association, Inc.
A. A. Knapp, A. Knapp & Associates
C. A. Stout, Mueller Industries, Inc.
R. M. McKenzie, *Alternate,* Mueller Fittings Co., Inc.
C. Mueller, *Alternate,* Mueller Industries, Inc.

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

As an alternative, inquiries may be submitted via e-mail to: SecretaryB16@asme.org.

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 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 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 will be rewritten in this 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.

ASME B16.29-2012
SUMMARY OF CHANGES

Following approval by the ASME B16 Committee and ASME, and after public review, ASME B16.29-2012 was approved by the American National Standards Institute on August 23, 2012.

ASME B16.29-2012 includes the following changes identified by a margin note, **(12)**. In addition, in the main text, the "General" section was moved to section 2, and subsequent sections and their paragraphs were renumbered accordingly. All paragraph references were then revised as needed. Throughout the text, the words "male" and "female" were changed to "external" and "internal," respectively.

Page	*Location*	*Change*
1	5	Revised
2	11.1	Revised
	11.3	(1) Revised (2) Split into paras. 11.3.1 and 11.3.2
27	Mandatory Appendix II	Updated
28	Nonmandatory Appendix A	Revised

INTENTIONALLY LEFT BLANK

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 or in separate tables that appear in Mandatory Appendix I. 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 II.

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 (12)

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.