

ASME B16.50-2013

[Revision of ASME B16.50-2001 (R2008)]

Wrought Copper and Copper Alloy Braze-Joint Pressure Fittings

AN AMERICAN NATIONAL STANDARD



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Mechanical Engineers**

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FOREWORD

In 1994, the ASME B16 Standards Committee authorized Subcommittee J Standardization to develop a standard for wrought copper and copper alloy braze-joint pressure fittings. These fittings are intended for use with seamless copper tube conforming to the American National Standards Institute (ASTM) Standard Specifications, B88 (Water and General Plumbing Systems), B280 (Air Conditioning and Refrigeration Service), and B819 (Medical Gas Systems). Following approval by the Standards Committee and ASME, this Standard was approved as an American National Standard on October 11, 2001, with the new designation ASME B16.50-2001.

In this 2013 Edition, references to ASME standards were revised to no longer list specific edition years; the latest edition of ASME publication applies, unless stated otherwise. Also in this Edition, Tables 3 and I-3 now include a maximum cup length under the column heading shown as "Depth, G." 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 May 28, 2013.

Requests for interpretation or suggestions for revision should be sent to the Secretary, B16 Standards Committee, The American Society of Mechanical Engineers, Two 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.)

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Secretary, B16 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
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As an alternative, inquiries may be submitted via email to: SecretaryB16@asme.org.

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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.

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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.

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ASME B16.50-2013

SUMMARY OF CHANGES

Following approval by the B16 Committee and ASME, and after public review, ASME B16.50-2013 was approved by the American National Standards Institute on May 28, 2013.

ASME B16.50-2013 consists of editorial changes, revisions, and corrections identified by a margin note, **(13)**, placed next to the affected area.

<i>Page</i>	<i>Location</i>	<i>Change</i>
1	1	(1) "General" section moved to section 2, and remaining paragraphs renumbered (2) Paragraph 1.2 deleted
	3	Revised in its entirety
2	Table 1	Title, General Notes, and Note (1) revised
5	9.1	Revised
7	Table 3	Eighth column added
8	12.2	Second paragraph designation revised
10	Table I-1	Title, General Notes, and Note (1) revised
11	Table I-3	Eighth column added
12	Mandatory Appendix II	Updated
13	Nonmandatory Appendix A	Revised



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WROUGHT COPPER AND COPPER ALLOY BRAZE-JOINT PRESSURE FITTINGS

(13) 1 SCOPE

This Standard establishes requirements for wrought copper and wrought copper alloy braze-joint seamless fittings designed for use with seamless copper tube conforming to ASTM Standard Specification, B88 (Water and General Plumbing Systems), B280 (Air Conditioning and Refrigeration Service), and B819 (Medical Gas Systems).

This Standard covers joints assembled with brazing materials conforming to ANSI/AWS A5.8.

This Standard is allied to ASME standards B16.18 and B16.22. It provides requirements for fitting-ends suitable for brazing. This Standard covers

- (a) pressure-temperature ratings
- (b) abbreviations for end connections
- (c) size and method of designating openings of fittings
- (d) marking
- (e) material
- (f) dimensions and tolerances
- (g) testing

2 GENERAL

2.1 Units of Measure

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.

2.2 References

Standards and specifications adopted by reference in this Standard are shown in Mandatory Appendix II, which is part of this Standard. It is not considered practical to identify the specific edition of each standard and specification in the individual references. Instead, the specific edition reference is identified in Mandatory Appendix II.

2.3 Quality Systems

Requirements relating to the product manufacturer's Quality System Programs are described in Nonmandatory Appendix B.

3 PRESSURE-TEMPERATURE RATINGS

(13)

3.1 Rating of System

The internal pressure-temperature rating for a braze-joint system is dependent upon not only fitting and tube strength but also selection of valves and appurtenances.

Pressure-temperature ratings for fittings and braze joints to the dimensions of Table 3 (Table I-3), made with typical commercial brazing materials, shall be considered equal to the values given in Table 1 (Table I-1).

The internal pressure-temperature rating of the system shall be the lowest of the values shown in Table 1 (Table I-1) and those of the tube, valves, or appurtenances.

3.2 Fitting Bursting Strength

Fittings manufactured to this Standard shall have an ambient-temperature bursting strength of at least four times the 38°C (100°F) internal pressure rating as shown in Table 1 (Table I-1).

4 TERMINOLOGY

4.1 Size

The size of the fittings shown in Tables 3 and I-3 corresponds to standard water tube size as shown in ASTM B88. The size of the threaded ends corresponds to nominal pipe size as shown in ASME B1.20.1.

Fittings are designated by the size of the openings in the sequence illustrated in Fig. 1.

4.2 Abbreviations

The following symbols are used to designate the type of fitting end:

- C* = braze-joint fitting end made to receive copper tube diameter (female)
- F* = internal ANSI standard taper pipe-thread end (female) NPTI
- FTG* = braze-joint fitting end made to copper tube diameter (male)
- M* = external ANSI standard taper pipe-thread end (male) NPTE

