

**ASME B16.22-2001**  
(Revision of ASME B16.22-1995)

# **WROUGHT COPPER AND COPPER ALLOY SOLDER JOINT PRESSURE FITTINGS**

**AN AMERICAN NATIONAL STANDARD**



The American Society of  
Mechanical Engineers



The American Society of  
Mechanical Engineers

A N A M E R I C A N N A T I O N A L S T A N D A R D

# WROUGHT COPPER AND COPPER ALLOY SOLDER JOINT PRESSURE FITTINGS

**ASME B16.22-2001**  
(Revision of ASME B16.22-1995)

Date of Issuance: August 9, 2002

The next edition of this Standard is scheduled for publication in 2007. There will be no addenda issued to this edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard.

ASME is the registered trademark of The American Society of Mechanical Engineers.

This code or standard was developed under procedures accredited as meeting the criteria for American National Standards. The Standards Committee that approved the code or standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed code or standard was made available for public review and comment that provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not "approve," "rate," or "endorse" any item, construction, proprietary device, or activity.

ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor assumes any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.

No part of this document may be reproduced in any form,  
in an electronic retrieval system or otherwise,  
without the prior written permission of the publisher.

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

Copyright © 2002 by  
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS  
All Rights Reserved  
Printed in U.S.A.

# CONTENTS

Foreword .....	iv
Standards Committee Roster .....	vi
<b>1 Scope</b> .....	<b>1</b>
<b>2 Pressure–Temperature Ratings</b> .....	<b>1</b>
<b>3 Terminology</b> .....	<b>2</b>
<b>4 Size</b> .....	<b>2</b>
<b>5 Marking</b> .....	<b>2</b>
<b>6 Material</b> .....	<b>2</b>
<b>7 Laying Lengths</b> .....	<b>5</b>
<b>8 Tube Stops</b> .....	<b>5</b>
<b>9 Inspection Tolerance</b> .....	<b>5</b>
<b>10 Threaded Ends</b> .....	<b>7</b>
<b>11 Alignment</b> .....	<b>7</b>
<b>12 Gaging</b> .....	<b>7</b>
<b>Figures</b>	
1 Method of Designating Laying Lengths of Fittings and Openings of Reducing Fittings .....	3
2 Tube Stops .....	5
3 Alignment .....	7
<b>Tables</b>	
1 Rated Internal Working Pressure for Copper Fittings, kPa .....	2
2 Inspection Tolerance .....	5
3 Dimensions of Solder-Joint Ends, mm .....	6
<b>Mandatory Appendices</b>	
I Strength of Solder Joints .....	9
II U.S. Customary Equivalents .....	11
III References .....	14
<b>Nonmandatory Appendices</b>	
A Fitting Rating .....	15
B Quality System Program .....	16

## 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. The standard benefited from work done by Mr. A. R. Maupin of the National Bureau of Standards, both before and during its development, on the strength of solder joints.

In 1949, work on these fittings was transferred to Sectional Committee B16, which established Subcommittee 9 (now Subcommittee J) with a scope broader than plumbing applications. The first standard developed was approved as ASA B16.18-1950, Cast-Brass Solder Joint Fittings. It was then decided to revise A40.3 as a B16 standard covering only wrought solder-joint fittings. This effort was facilitated by a 1950 draft prepared by joint effort of the Copper and Brass Research Association and the Manufacturers Standardization Society of the Valve and Fittings Industry (MSS). The draft, after review and approval by Subcommittee 9 and the Sectional Committee, was approved as B16.22-1951.

Revisions were published as ASA B16.22-1963 and, after reorganization of ASA as the American National Standards Institute (ANSI), as ANSI B16.22-1973. In these editions, updated practices, new materials, and new types of fittings were incorporated into the standard, as well as editorial improvements and updating of referenced specifications and standards.

In 1979, Subcommittee I (formerly 9, now J) added metric dimensional equivalents and made other minor improvements. This revision was approved by ANSI, after approval by the Committee and secretariat organizations, as ANSI B16.22-1980.

In 1982, American National Standards Committee B16 was reorganized as an ASME Committee operating under procedures accredited by ANSI.

In 1989, Subcommittee J removed metric equivalents and updated referenced standards.

In 1995, Subcommittee J defined bursting strength, defined standard gaging method for threaded ends, revised solder-joint lengths for  $\frac{1}{8}$  in. size external and internal ends, and revised minimum wall-thickness values based on a comprehensive bursting-test study. Following approval by the Standards Committee and ASME, approval as an American National Standard was given by ANSI on July 24, 1995, with the new designation ASME B16.22-1995.

In 1998, editorial revisions, which included the addition of a new section on quality systems and a change in the designation of ASTM B 32 alloys, were issued as an addendum. This addendum to the 1995 edition of ASME B16.22, after approval by the ASME B16 Committee and ASME, was approved as ASME B16.22a-1998.

In this 2001 edition, Subcommittee J converted the physical requirements to SI (metric) units of measure, added requirements for tube stops, clarified ovalate and alignment requirements, and made numerous editorial revisions. Alloy E and Alloy HB were incorporated into the table listing pressure-temperature ratings for the soldering and brazing materials, plus values for the 95-5 tin-antimony solder were revised. These revisions to pressure-temperature ratings reflect the data from a National Institute of Standards and Technology (NIST) solder-joint testing study, initiated in 1993 to develop stress rupture and strength data on copper tube sleeve joints using various solders. Following approval by the Standards

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-