



**Summary of Substantive Changes
between the 2013 and the 2018 editions of
ASME B16.51, “Copper and Copper Alloy Press-Connect Pressure Fittings”**

Presented to the IAPMO Standards Review Committee on February 11, 2019

General: Changes to this standard should not have an impact on currently listed products. The substantive changes are:

- Added English Equivalent Units to all Tables within the Standard and deleted Mandatory Appendix I “U.S. Customary Equivalents”.
- Added tolerances to figures within the standard (see Figures 14.2.1-1, 14.5.1-1, 14.8.1-1, 14.9.1-1, and 14.10.1-1)

Section 6.3, Elastomers (Seals): Removed tolerance from the minimum durometer hardness requirements and reduced the requirement from 60 to 55 EPDM as follows:

6.3 Elastomers (Seals)

Elastomeric components shall be resistant to microbiological attack and ozone attack and shall contain inhibitors to prevent copper degradation. The elastomer shall be an ethylene propylene diene monomer (EPDM) and shall meet the minimum property and test requirements as defined by ASTM D2000, shown in the following table:

| <i>Material</i> | <i>EPDM</i> |
|---|-----------------------|
| <i>Minimum durometer hardness, ±5 points Shore A</i> | <i>60-55 points</i> |
| <i>Minimum tensile strength, MPa (psi)</i> | <i>10 (1.450)</i> |
| <i>Heat resistance</i> | <i>A25</i> |
| <i>Compression set</i> | <i>835</i> |
| <i>Water resistance</i> | <i>EA14</i> |
| <i>Low-temperature resistance</i> | <i>F17</i> |
| <i>Tear resistance</i> | <i>G21</i> |
| <i>Special requirements</i> | <i>Z1, Z2, Z3, Z4</i> |

Section 14.2, Hydrostatic Pressure Test at 20°C (68°F): The acceptance criteria for the Hydrostatic Pressure Test was clarified as follows:

14.2.1 Test Assembly. The test assembly shall contain a press-connection fitting located between two sections of copper tube as shown in Figure 14.2.1-1. The sample shall not be restrained in the test assembly. The sample shall be filled with water to a pressure of 4 140 kPa ± 50 kPa (600 psi ± 7 psi) at a temperature of 20°C ± 5°C (68°F ± 9°F) for a period of 48 h.

14.2.2 Acceptance Criteria. During the first hour, the maximum slippage of each joint shall be as specified in ~~Table 2 (Table 1-2)~~ 14.2.2-1. Once the 1-h slippage is recorded, the maximum additional slippage ~~after the first hour~~ shall not exceed the distance specified in ~~Table 2 (Table 1-2)~~ 14.2.2-1. During the test, there shall be no visible leakage of the joint.



Figures 14.2.1-1, 14.5.1-1, 14.8.1-1, 14.9.1-1, and 14.10.1-1: Tolerances of ± 5 were added to these Figures.

~~MANDATORY APPENDIX I U.S. CUSTOMARY EQUIVALENTS
U.S. Customary equivalents are given in Tables I-1 through I-4.~~

Appendix I, References: The following references were added, revised or deleted as follows:

~~MANDATORY APPENDIX I~~ REFERENCES

The following is a list of publications referenced in this Standard. Unless otherwise specified, the latest edition of ASME publications shall apply. Materials manufactured to other editions of the referenced ASTM standards shall be permitted to be used to manufacture fittings meeting the requirements of this Standard as long as the fitting manufacturer verifies the material meets the requirements of the referenced edition.

~~ASME ANSI B4.4M-1981 (R1994), Inspection of Workpieces
Publisher: The American National Standards Institute
(ANSI), 25 West 43rd Street, New York, NY 10036
(www.ansi.org)~~

~~ASTM 832-08(2014), Standard Specification for Solder Metal
ASTM B62-0917, Standard Specification for Composition Bronze or Ounce Metal Castings
ASTM B88-0916, Standard Specification for Seamless Copper Water Tube
ASTM B584-09a14, Standard Specification for Copper Alloy Sand Castings for General Applications
ASTM D2000-0812(2017), Standard Classification System for Rubber Products in Automotive Applications
ASTM D6284-0917, Standard Test Method for Rubber Property-Effect of Aqueous Solutions with available Chlorine and Chloramine
ASTM E29-0813, Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
Publisher: American Society for Testing and Materials
(ASTM International), 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959
(www.astm.org)~~

~~ISO 9000:20052015, Quality management systems - Fundamentals and vocabulary
ISO 9001:20082015, Quality management systems - Requirements
Publisher: International Organization for Standardization
(ISO) Central Secretariat, Chemin de Blandonnet 8, Case Postale 401, 1214 Vernier, Geneva, Switzerland
(www.iso.org)~~

~~MSS SP-25-20082013, Standard Marking System for Valves, Fittings, Flanges, and Unions
Publisher: Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSSJ), 127 Park Street NE, Vienna, VA 22180-4602 (www.mss-hq.org)~~

~~NSF/ ANSI 61-2017, Drinking Water System Components - Health Effects
Publisher: NSF International (NSF), P.O. Box 130140, 789
North Dixboro Road, Ann Arbor, MI 48105
(www.nsf.org)~~