



Standard Specification for Welded Copper and Copper-Alloy Condenser and Heat Exchanger Tubes with Integral Fins¹

This standard is issued under the fixed designation B956/B956M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

^{ε1} NOTE—Designation was corrected editorially in October 2013.

1. Scope*

1.1 This specification establishes the requirements for heat exchanger tubes manufactured from forge-welded copper and copper alloy tubing in straight lengths on which the external or internal surface, or both, has been modified by cold forming process to produce an integral enhanced surface for improved heat transfer.

1.2 *Units*—The values stated in either inch-pounds units or SI units are to be regarded separately as the standard. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems could result in non-conformance with the specification.

1.2.1 Within the text, the SI units are shown in brackets.

1.3 The tubes are typically used in surface condensers, evaporators, and heat exchangers.

1.4 The product shall be produced of the following coppers or copper alloys, as specified in the ordering information.

Copper or Copper Alloy	Type of Metal
UNS No.	
C12000 ^A	DLP Phosphorized, low residual phosphorus
C12200 ^A	DHP Phosphorized, high residual phosphorus
C19200	Phosphorized, 1 % iron
C19400	Copper-Iron Alloy
C23000	Red Brass
C44300	Admiralty, arsenical
C44400	Admiralty, antimonial
C44500	Admiralty, phosphorized
C68700	Aluminum Brass
C70400	95-5 Copper-Nickel
C70600	90-10 Copper-Nickel
C70620	90-10 Copper-Nickel (Modified for Welding)
C71000	80-20 Copper-Nickel
C71500	70-30 Copper-Nickel
C71520	70-30 Copper-Nickel (Modified for Welding)
C72200	Copper-Nickel

¹ This specification is under the jurisdiction of ASTM Committee B05 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.04 on Pipe and Tube.

Current edition approved April 1, 2010. Published May 2010. Originally approved in 2007. Last previous edition approved in 2007 as B956 – 07^{ε2}. DOI: 10.1520/B0956_B0956M-10E01.

^A Copper UNS Nos. C12000, and C12200 are classified in Classification B224.

NOTE 1—Designations listed in Classification B224.

1.5 *The following safety hazard caveat pertains only to the test methods described in this specification. This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

- B153 Test Method for Expansion (Pin Test) of Copper and Copper-Alloy Pipe and Tubing
- B154 Test Method for Mercurous Nitrate Test for Copper Alloys
- B224 Classification of Coppers
- B543 Specification for Welded Copper and Copper-Alloy Heat Exchanger Tube
- B601 Classification for Temper Designations for Copper and Copper Alloys—Wrought and Cast
- B846 Terminology for Copper and Copper Alloys
- B858 Test Method for Ammonia Vapor Test for Determining Susceptibility to Stress Corrosion Cracking in Copper Alloys
- E8 Test Methods for Tension Testing of Metallic Materials
- E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
- E53 Test Method for Determination of Copper in Unalloyed Copper by Gravimetry
- E54 Test Methods for Chemical Analysis of Special Brasses and Bronzes (Withdrawn 2002)³
- E62 Test Methods for Chemical Analysis of Copper and

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

*A Summary of Changes section appears at the end of this standard