



Standard Specification for U-Bend Seamless Copper and Copper Alloy Heat Exchanger and Condenser Tubes¹

This standard is issued under the fixed designation B 395/B 395M; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope *

1.1 This specification² establishes the requirements for condenser, evaporator, and heat exchanger U-bends that are manufactured from seamless copper and copper alloy tube.

1.2 **Units**—The values stated in either inch-pound units or SI units are to be regarded separately as the standard. Within the text, the SI units are shown in brackets. 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 nonconformance with the specification.

1.3 This specification is applicable to product 2 in. [50 mm] or less, inclusive, in diameter.

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

Copper or Copper Alloy UNS No.	Previously Used Designation	Type of Metal
C10200	OF ^A	oxygen-free without residual deoxidants
C10300	...	oxygen-free, extra low phosphorus
C10800	...	oxygen-free, low phosphorus
C12000	DLP ^A	phosphorized, low residual phosphorus
C12200	DHP ^A	phosphorized, high residual phosphorus
C14200	DPA ^A	phosphorized, arsenical
C19200	...	phosphorized, 1 % iron
C23000	...	red brass
C44300	Type B	admiralty metal
C44400	Type C	admiralty metal
C44500	Type D	admiralty metal
C60800	...	aluminum bronze
C68700	Type B	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

^A Designations listed in Classification B 224.

1.5 The following pertains only to the test method described in Sections 11 and 15, of 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 The following documents of the issue in effect on date of material purchase form a part of this specification to the extent referenced herein:

2.2 ASTM Standards:

B 153 Test Method for Expansion (Pin Test) of Copper and Copper-Alloy Pipe and Tubing³

B 154 Test Method for Mercurous Nitrate Test for Copper and Copper Alloys³

B 170 Specification for Oxygen-Free Electrolytic Copper—Refinery Shapes³

B 224 Classification of Coppers³

B 601 Practice for Temper Designations for Copper and Copper Alloys—Wrought and Cast³

B 846 Terminology for Copper and Copper Alloys³

B 858 Test Method for Ammonia Vapor Test for Determining Susceptibility to Stress Corrosion Cracking in Copper Alloys³

B 900 Practice for Packaging Copper and Copper Alloy Mill-Products for U.S. Government Agencies³

E 3 Practice for Preparation of Metallographic Specimens⁴

E 8 Test Methods for Tension Testing of Metallic Materials⁴

E 8M Test Methods for Tension Testing of Metallic Materials [Metric]⁴

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁵

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.

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² For ASME Boiler and Pressure Vessel Code applications see related Specification SB-395 in Section II of that Code.

³ Annual Book of ASTM Standards, Vol 02.01.

⁴ Annual Book of ASTM Standards, Vol 03.01.

⁵ Annual Book of ASTM Standards, Vol 14.02.

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

