



Standard Specification for Seamless Copper Bus Pipe and Tube¹

This standard is issued under the fixed designation B188; 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 U.S. Department of Defense.

^{ε1} NOTE—Table 10 was editorially corrected in April 2016.

1. Scope*

1.1 This specification establishes the requirements for seamless copper bus pipe and tube intended for use as electrical conductors.

1.1.1 The product shall be made from one of the following coppers, as denoted in the ordering information:²

Copper UNS No. ²	Previously Used Designation	Type of Copper
C10100	OFE	Oxygen-free, electronic
C10200	OF	Oxygen-free without residual deoxidants
C10300	—	Oxygen-free, extra low phosphorus
C10400, C10500, C10700	OFS	Oxygen-free, silver bearing
C11000	ETP	Electrolytic tough pitch
C11300, C11400, C11600	STP	Silver-bearing tough pitch
C12000	DLP	Phosphorized, low residual phosphorus

1.2 Unless otherwise specified, any one of the above coppers may be furnished.

1.3 *Units*—The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units, which are provided for information only and are not considered standard.

2. Referenced Documents

2.1 ASTM Standards:³

B193 Test Method for Resistivity of Electrical Conductor Materials

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 The UNS system for copper and copper alloys (see Practice E527) is a simple expansion of the former standard designation system accomplished by the addition of a prefix “C” and a suffix “00.” The suffix can be used to accommodate composition variations of the base alloy.

³ 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.

B428 Test Method for Angle of Twist in Rectangular and Square Copper and Copper Alloy Tube

B577 Test Methods for Detection of Cuprous Oxide (Hydrogen Embrittlement Susceptibility) in Copper

B601 Classification for Temper Designations for Copper and Copper Alloys—Wrought and Cast

B846 Terminology for Copper and Copper Alloys

E8/E8M Test Methods for Tension Testing of Metallic Materials

E18 Test Methods for Rockwell Hardness 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

E62 Test Methods for Chemical Analysis of Copper and Copper Alloys (Photometric Methods) (Withdrawn 2010)⁴

E243 Practice for Electromagnetic (Eddy Current) Examination of Copper and Copper-Alloy Tubes

E255 Practice for Sampling Copper and Copper Alloys for the Determination of Chemical Composition

E527 Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

3. Terminology

3.1 For definitions of terms related to copper and copper alloys, refer to Terminology B846.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *bus pipe or tube*—a high conductivity copper tubular product used as an electrical conductor.

4. Ordering Information

4.1 Include the following specified choices when placing orders for product under this specification, as applicable:

4.1.1 ASTM designation and year of issue,

4.1.2 Copper UNS designation (1.1.1 and 1.2),

4.1.3 Temper (Section 7),

⁴ 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