



# Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service<sup>1</sup>

This standard is issued under the fixed designation B280; 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 ( $\epsilon$ ) 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.*

## 1. Scope\*

1.1 This specification establishes the requirements for seamless copper tube intended for use in the connection, repairs, or alternations of air conditioning or refrigeration units in the field.

NOTE 1—Fittings used for soldered or brazed connections in air conditioning and refrigeration systems are described in ASME Standard B16.22.

NOTE 2—The assembly of copper tubular systems by soldering is described in Practice B828.

NOTE 3—Solders for joining copper tubular systems are described in Specification B32. The requirements for acceptable fluxes for these systems are described in Specification B813.

1.2 The tube shall be produced from the following coppers, and the manufacturer has the option to supply any one of them, unless otherwise specified:

| Copper<br>UNS No. | Previously Used<br>Designation | Description                                     |
|-------------------|--------------------------------|-------------------------------------------------|
| C10200            | OF                             | Oxygen free without residual deoxidants         |
| C12000            | DLP                            | Phosphorus deoxidized, low residual phosphorus  |
| C12200            | DHP                            | Phosphorus deoxidized, high residual phosphorus |

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

1.4 The following hazard statement pertains only to the test method described in 18.2.4 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.*

<sup>1</sup> 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. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

- B32 Specification for Solder Metal
  - B153 Test Method for Expansion (Pin Test) of Copper and Copper-Alloy Pipe and Tubing
  - 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
  - B813 Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube
  - B828 Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings
  - B900 Practice for Packaging of Copper and Copper Alloy Mill Products for U.S. Government Agencies
  - E3 Guide for Preparation of Metallographic Specimens
  - E8/E8M 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
  - E62 Test Methods for Chemical Analysis of Copper and Copper Alloys (Photometric Methods) (Withdrawn 2010)<sup>3</sup>
  - E112 Test Methods for Determining Average Grain Size
  - 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
- ### 2.2 ASME Standard:<sup>4</sup>
- B1622 Wrought Copper and Copper Alloy Solder Joint Pressure Fittings

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

<sup>4</sup> Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Two Park Ave., New York, NY 10016-5990, <http://www.asme.org>.

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