



Designation: B301/B301M – 08

Standard Specification for Free-Cutting Copper Rod, Bar, Wire, and Shapes¹

This standard is issued under the fixed designation B301/B301M; 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 specification establishes the requirements for free-cutting copper rod, bar, wire, and shapes of UNS Alloy Nos. C14500, C14510, C14520, C14700, and C18700, suitable for high-speed screw machine work or for general applications.

1.2 Typically, product made to this specification is furnished as straight lengths. Sizes $\frac{1}{2}$ in. [12 mm] and under may be furnished in coils when requested.

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

2. Referenced Documents

2.1 *ASTM Standards*:²

[B193 Test Method for Resistivity of Electrical Conductor Materials](#)

[B249/B249M Specification for General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, Shapes and Forgings](#)

[B250/B250M Specification for General Requirements for Wrought Copper Alloy Wire](#)

[E8 Test Methods for Tension Testing of Metallic Materials](#)

[E8M Test Methods for Tension Testing of Metallic Materials \[Metric\] \(Withdrawn 2008\)](#)³

[E121 Test Methods for Chemical Analysis of Copper-Tellurium Alloys \(Withdrawn 2010\)](#)³

[E478 Test Methods for Chemical Analysis of Copper Alloys](#)

¹ This specification is under the jurisdiction of ASTM Committee B05 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.02 on Rod, Bar, Wire, Shapes and Forgings.

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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.

3. General Requirements

3.1 The following sections of Specifications [B249/B249M](#) or [B250/B250M](#) constitute a part of this specification.:

- 3.1.1 Terminology,
- 3.1.2 Materials and Manufacture,
- 3.1.3 Dimensions and Permissible Variations,
- 3.1.4 Workmanship, Finish, and Appearance,
- 3.1.5 Sampling,
- 3.1.6 Number of Tests and Retests,
- 3.1.7 Specimen Preparation,
- 3.1.8 Test Methods,
- 3.1.9 Inspection,
- 3.1.10 Significance of Numerical Limits,
- 3.1.11 Rejection and Reheating,
- 3.1.12 Certification,
- 3.1.13 Test Reports,
- 3.1.14 Packaging and Package Marking, and
- 3.1.15 Supplementary Requirements.

3.2 In addition, when a section with a title identical to that referenced in 3.1 appears in this specification, it contains additional requirements which supplement those appearing in Specifications [B249/B249M](#) or [B250/B250M](#).

4. Ordering Information

4.1 Include the following information in orders for products:

- 4.1.1 ASTM designation and year of issue,
- 4.1.2 Copper UNS No. designation,
- 4.1.3 Product (rod, bar, wire, or shape),
- 4.1.4 Cross section (round, hexagonal, square, and so forth),
- 4.1.5 Temper (Section 6),
- 4.1.6 Dimensions, diameter or distance between parallel surfaces; width and thickness,
- 4.1.7 How furnished: straight lengths, coils, or reels,
- 4.1.8 Length (Section 9.3),
- 4.1.9 Total length, or number of pieces of each size,
- 4.1.10 Total weight of each size, and
- 4.1.11 When product is purchased for agencies of the U.S. government (Specifications [B249/B249M](#) or [B250/B250M](#)).

4.2 The following options are available and should be specified at the time of placing of the order when required:

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