Designation: B 301/B 301M – 99

Standard Specification for Free-Cutting Copper Rod, Bar, Wire, and Shapes[1]

This standard is issued under the fixed designation B 301/B 301M; 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 Alloys C14500, C14510, C14520, C14700, and C18700, suitable for high-speed screw machine work.

1.2 Typically, product made to this specification is furnished as straight lengths. Sizes ½ in. [12 mm] and under may be furnished in coils when requested.

1.3 The values stated in either inch-pound or SI units are to be regarded separately as standard. Within the text, 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 may result in nonconformance with this specification.

2. Referenced Documents

2.1 *ASTM Standards:*

B 193 Test Method for Resistivity of Electrical Conductor Materials[2]

B 249 Specification for General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, Shapes, and Forgings[3]

B 249M Specification for General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, Shapes, and Forgings [Metric][3]

B 250 Specification for General Requirements for Wrought Copper-Alloy Wire[3]

B 250M Specification for General Requirements for Wrought Copper-Alloy Wire [Metric][3]

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

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

E 121 Test Methods for Chemical Analysis of Copper-Tellurium Alloys[5]

E 478 Test Methods for Chemical Analysis of Copper Alloys[6]

3. General Requirements

3.1 The following sections of Specifications B 249, B 249M, B 250, or B 250M 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 Rehearing.
3.1.12 Certification.
3.1.13 Test Reports.
3.1.14 Packaging and Package Marking.
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 Specification B 249, B 249M, B 250, or B 250M.

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,

[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 Rods, Bar, Wire, Shapes, and Forgings.

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[2] *Annual Book of ASTM Standards*, Vol 02.03.
[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 03.05.
[6] *Annual Book of ASTM Standards*, Vol 03.06.

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