



Standard Specification for Copper-Beryllium Alloy Forgings and Extrusions (UNS Nos. C17500 and C17510)¹

This standard is issued under the fixed designation B 938; 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.

1. Scope

1.1 This specification establishes the requirements for copper-cobalt-beryllium alloy (UNS No. C17500) and copper-nickel-beryllium alloy (UNS No. C17510) forgings and extrusions.

1.2 The intent is to provide a system of interchangeable alloys.

1.3 *Units*—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.

1.4 The following safety hazard caveat pertains only to the test method(s) described in 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 ASTM Standards:²

- B 194 Specification for Copper-Beryllium Alloy Plate, Sheet, Strip, and Rolled Bar
- B 249/B 249M Specification for General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, Shapes, and Forgings
- B 601 Classification for Temper Designations for Copper and Copper Alloys-Wrought and Cast
- B 846 Terminology for Copper and Copper Alloys
- E 8 Test Methods for Tension Testing of Metallic Materials
- E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials
- E 1004 Practice for Determining Electrical Conductivity Using the Electromagnetic (Eddy-Current) Method

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.

Current edition approved May 1, 2004. Published May 2004.

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. General Requirements

3.1 The following sections of Specification B 249/B 249M constitute a part of this specification.

- 3.1.1 Terminology,
- 3.1.2 Materials and Manufacture,
- 3.1.3 Sampling,
- 3.1.4 Number of Tests and Retests,
- 3.1.5 Sample Preparation,
- 3.1.6 Test Methods,
- 3.1.7 Significance of Numerical Limits,
- 3.1.8 Inspection,
- 3.1.9 Rejection and Rehearing,
- 3.1.10 Certification
- 3.1.11 Mill Test Report,
- 3.1.12 Packaging, Marking, Shipping, and Preservation.

3.2 An identical section in this specification supplements the referenced section.

4. Terminology

4.1 For definitions of terms related to copper and copper alloys, refer to Terminology B 846.

4.2 Definitions of Terms Specific to This Standard:

4.2.1 *extrusion, n*—a uniform metal shape, long in relation to its cross-sectional dimensions, produced by forcing a suitably preheated billet or preform through an orifice (die) of the desired cross section. Extrusions generally are furnished in straight lengths.

4.2.2 *forging, n*—a metal part worked to a predetermined shape by one or more such processes as hammering, upsetting, pressing, rolling, and so forth.

5. Ordering Information

5.1 Include the following information when placing orders for product under this specification, as applicable:

- 5.1.1 ASTM designation and year of issue,
- 5.1.2 *Quantity*—total weight or total length or number of pieces of each size,
- 5.1.3 Copper Alloy UNS No. (Section 1).
- 5.1.4 Temper (Section 8) or condition (Section 12),
- 5.1.5 Drawing showing the shape, dimensions, and tolerances, if required,