



Designation: B 870 – 02

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

This standard is issued under the fixed designation B 870; 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-beryllium alloy forgings and extrusions. The following alloys are specified:

Copper Alloy UNS No.	Nominal Composition, %		
	Beryllium	Cobalt	Nickel
C17500	0.59	2.6	
C17510	0.40		1.8

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

1.3 The following safety hazard caveat pertains to Sections 10 and 11 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.*

2. Referenced Documents

2.1 ASTM Standards:

- B 194 Specification for Copper-Beryllium Alloy Plate, Sheet, Strip, and Rolled Bar²
- B 249 Specification for General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, Shapes, and Forgings²
- B 441 Specification for Copper-Cobalt-Beryllium (UNS No. C17500) and Copper-Nickel Beryllium (UNS No. C17510) Rod and Bar²
- B 601 Classification for Temper Designations for Copper and Copper Alloys—Wrought and Cast²
- B 846 Terminology for Copper and Copper Alloys²
- E 8 Test Methods for Tension Testing of Metallic Materials³
- E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials³
- E 527 Practice for Numbering Metals and Alloys (UNS)⁴

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 Annual Book of ASTM Standards, Vol 02.01.

³ Annual Book of ASTM Standards, Vol 03.01.

⁴ Annual Book of ASTM Standards, Vol 01.01.

E 1004 Practice for Determining Electrical Conductivity Using the Electromagnetic (Eddy-Current) Method⁵

3. General Requirements

3.1 The following sections of Specification B 249 form a part of this specification:

- 3.1.1 Material and Manufacture,
- 3.1.2 Sampling,
- 3.1.3 Number of Tests and Retests,
- 3.1.4 Specimen Preparation,
- 3.1.5 Significance of Numerical Limits,
- 3.1.6 Inspection,
- 3.1.7 Rejection and Rehearing,
- 3.1.8 Certification,
- 3.1.9 Test Reports, and
- 3.1.10 Packaging and Package Marking.

4. Terminology

4.1

4.1.1 For definitions of terms related to copper and copper alloys, see 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 pre-formed shape through an orifice (die) of the desired cross section.

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.

NOTE 1—Forged and extruded shapes in the context of this specification are generally construed to be large section products; round, oval, half round, geometric custom-ordered cross-sections, and asymmetrical metal shapes. This is to generally differentiate products supplied according to this document as opposed to forged and extruded “Rod and Bar” in Specification B 441.

5. Ordering Information

5.1 Include the following information in orders for product:

- 5.1.1 ASTM designation and year of issue,
- 5.1.2 Copper Alloy UNS No. (Section 1),
- 5.1.3 Temper (Section 8) or condition (Section 11),

⁵ Annual Book of ASTM Standards, Vol 03.03.

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