



Standard Specification for Copper-Beryllium Alloy Forgings and Extrusions Alloys C17500 and C17510¹

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 covered:

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

1.2 The values stated in inch-pound units are the standard. Values given in parentheses are for information only.

1.3 The following safety hazard caveat pertains to Sections 9 and 10 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. 17500) and Copper-Nickel Beryllium (UNS No. 17510) Rod and Bar²
- B 601 Practice for Temper Designations for Copper and Copper Alloys—Wrought and Cast²
- E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials³
- E 527 Practice for Numbering Metals and Alloys (UNS)⁴

3. Terminology

3.1 Definitions—General:

3.1.1 See Terminology B 846.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *extrusion, n*—a uniform metal shape, long in relation to its cross-sectional dimensions, produced by forcing a suit-

ably preheated billet or preform through an orifice (die) of the desired cross section. Extrusions generally are furnished in straight lengths.

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

NOTE 1—Forged and extruded shapes in the context of this specification are generally construed to be large section sized products; round, oval, half round, geometric custom ordered cross-sections, and nonsymmetrical 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.

4. Ordering Information

4.1 The contract or purchase order for product under this specification should include the following information:

4.1.1 ASTM designation and year of issue (for example, B 870 – 96),

4.1.2 Copper Alloy UNS No. (Section 1),

4.1.3 Temper (Section 7) or condition (Section 10),

4.1.4 Drawing, when required, and

4.1.5 Quantity: number of pieces or pounds.

4.2 The following requirements are optional under this specification and should be included in the contract or purchase order.

4.2.1 Tension tests (Section 9),

4.2.2 Special marking or packaging (Section 23),

4.2.3 Inspection (Section 19),

4.2.4 Certification (Section 21),

4.2.5 Mill test report (Section 22),

4.2.6 Finish (Section 14), and

4.2.7 When material is purchased for agencies of the U.S. Government, this shall be specified in the contract or purchase order, and the material shall conform to the supplementary requirements as defined in the current issue of Specification B 249.

5. Materials and Manufacture

5.1 Materials:

5.1.1 The material of manufacture should be a cast billet conforming to the chemical composition requirements for the alloy specified in the ordering information and shall be of such purity and soundness as to be suitable for processing into the product prescribed herein.

¹ This specification is under the jurisdiction of ASTM Committee B-5 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.