INTERNATIONAL

Designation: ~~B62 – 15~~ B62 – 17

Standard Specification for Composition Bronze or Ounce Metal Castings[1]

This standard is issued under the fixed designation B62; 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 U.S. Department of Defense.

1. Scope*

1.1 This specification[2] establishes requirements for an alloy having a composition of copper, tin, lead, and zinc, used for component castings of valves, flanges, and fittings. The common trade name of this alloy is 85-5-5-5; the correct identification is Copper Alloy UNS No. C83600.[3]

1.2 The castings covered are used in products that may be manufactured in advance and supplied from stock from the manufacturer or other dealer.

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

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[4]

B208 Practice for Preparing Tension Test Specimens for Copper Alloy Sand, Permanent Mold, Centrifugal, and Continuous Castings

B824 Specification for General Requirements for Copper Alloy Castings

B846 Terminology for Copper and Copper Alloys

E8/E8M Test Methods for Tension Testing of Metallic Materials

E527 Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

2.2 *MSS ~~Standards:~~Standard:*[5]

SP-25 Standard Marking System for Valves, Fittings, Flanges and Unions

3. General Requirements

3.1 The following sections of Specification B824 ~~form~~constitute a part of this specification. In the event of a conflict between this specification and Specification B824, the requirements of this specification shall take precedence.

~~3.1.1 Terminology (Section 3),~~

3.1.1 Other Requirements (Section 7),

3.1.2 Dimensions, Mass, and Permissible Variations (Section 8),

3.1.3 Workmanship, Finish, and Appearance (Section 9),

3.1.4 Sampling (Section 10),

3.1.5 Number of Tests and Retests ~~(Sections 11 and 13),~~(Section 11),

3.1.6 Specimen Preparation (Section 12),

[1] This ~~practice~~specification is under the jurisdiction of ASTM Committee B05 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.05 on Castings and Ingots for Remelting.

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[2] For *ASME Boiler and Pressure Vessel Code* applications see related Specification SB-61 of that Code.

[3] The UNS system for copper and copper alloys (see Practice E527) is a simple expansion of the former standard designation system accomplished by the addition of a prefix "C" and a suffix "00". The suffix can be used to accommodate composition variations of the base alloy.

[4] 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~~standard's Document Summary page on the ASTM website.

[5] Available from Manufacturers Standardization Society (MSS) of the Valve and Fittings Industry, 127 Park St., NE, Vienna, VA 22180-4602, http://www.msshq.org.

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

3.1.7 Test Methods (Section 13),
3.1.8 Significance of Numerical Limits (Section 14),
3.1.9 Inspection (Section 15),
3.1.10 Rejection and Rehearing (Section 16),
3.1.11 Certification (Section 17),
3.1.12 Test Report (Section 18),
3.1.13 Product Marking (Section 19), and
3.1.14 Packaging and Package Marking (Section ~~20)~~20).

4. Terminology

4.1 For definitions of terms relating to copper and copper alloys, refer to Terminology B846.

5. Ordering Information

5.1 Include the following information when placing orders for castings under this specification:
5.1.1 Quantity of castings ~~required,~~required;
5.1.2 Copper Alloy UNS No. (Table 1~~),~~);
5.1.3 Specification title, number, and year of ~~issue,~~issue;
5.1.4 Pattern or drawing number and condition (as-cast, ~~machined),~~machined);
5.1.5 Pressure test requirements, if specified in the purchase order (Specification B824~~),~~);
5.1.6 Soundness requirements, if specified in the purchase order (Specification B824~~),~~);
5.1.7 Certification, if specified in the purchase order (Specification B824~~),~~);
5.1.8 Foundry test report, if specified in the purchase order (Specification B824~~),~~);
5.1.9 Witness inspection, if specified in the purchase order (Specification B824~~),~~);
5.1.10 ASME Boiler and Pressure Vessel application (Section 10~~),~~); and
5.1.11 Product marking, if specified in the purchase order (Specification B824 and Section 11).

5.2 When material is purchased for agencies of the U.S. Government, specify the Supplementary Requirements in Specification B824.

6. Materials and Manufacture

6.1 *Material(s):*
6.1.1 The material of manufacture shall be a casting of Copper Alloy UNS No. C83600 of such purity and soundness as to be suitable for processing into the products prescribed herein.
6.1.2 When specified in the contract or purchase order that heat identification or traceability is required, the purchaser shall specify the details desired.

6.2 *Manufacture:*
6.2.1 The product shall be manufactured by such casting methods as to produce a uniform finished product.
6.2.2 Castings shall not be repaired, plugged, welded, or burned-in.

7. Chemical Composition

7.1 The ~~alloy~~material shall conform to the chemical composition requirements specified in Table 1~~.~~ for the Copper Alloy UNS No. C83600.

TABLE 1 Chemical Requirements Copper Alloy UNS No. C83600

Elements	Composition, % max (Except as Indicated)
Copper	84.0–86.0
Tin	4.0–6.0
Lead	4.0–6.0
Zinc	4.0–6.0
Nickel including Cobalt	1.0[A]
Iron	0.30
Antimony	0.25
Sulfur	0.08
Phosphorus[B]	0.05
Aluminum	0.005
Silicon	0.005

[A] In determining copper minimum, copper may be calculated as copper plus nickel.
[B] For continuous castings, Phosphorus shall be 1.5 % max.