~~Designation:B62–02~~ Designation: B 62 – 09

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

This standard is issued under the fixed designation B 62; 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*

~~1.1This specification~~

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.

~~1.3The values stated in inch-pound units are to be regarded as the standard. Metric values given in parentheses are for information only.~~

1.3 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 are provided for information only and are not considered standard.

2. Referenced Documents

~~2.1The following documents of the issue in effect on date of material purchase form a part of this specification to the extent referenced herein:~~

~~2.2~~

2.1 *ASTM Standards:*[4]

B 208 Practice for Preparing Tension Test Specimens for ~~Copper-Base Alloys for~~ Copper Alloy Sand, Permanent Mold, Centrifugal, and Continuous Castings

B 824 Specification for General Requirements for Copper- Alloy Castings

E 527 ~~Practice for Numbering Metals and Alloys~~

~~2.3~~ *Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)*

2.2 *MSS Standards:*

SP-25 Standard Marking System for Valves, Fittings, Flanges and Unions[5]

3. General Requirements

3.1 The following sections of Specification B 824 form a part of this specification. In the event of a conflict between this specification and Specification B 824, the requirements of this specification shall take precedence.

3.1.1 Terminology (Section 3),

3.1.2 Other Requirements (Section 7),

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

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

3.1.5 Sampling (Section 10),

3.1.6 Number of Tests and Retests (Sections 11 and 13),

3.1.7 Specimen Preparation (Section 12),

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[1] This practice 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 E 527) 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] *Annual Book of ASTM Standards*, Vol 02.01.

~~[5] Annual Book of ASTM Standards, Vol 01.01.~~

[5] Available from Manufacturers Standardization Society of the Valve and Fittings Industry, 127 Park Street NE, Vienna, VA 22180-4602.

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

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

4. Terminology

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

5. Ordering Information

~~3.1Orders for castings under this specification shall include the following:~~
~~3.1.1Quantity of castings required,~~
~~3.1.2Copper Alloy UNS No. (~~
5.1 Include the following information when placing orders for castings under this specification:
5.1.1 Quantity of castings required,
5.1.2 Copper Alloy UNS No. (Table 1),
~~3~~5.1.3 Specification title, number, and year of issue,
~~3~~5.1.4 Pattern or drawing number and condition (as-cast, ~~machined, and so forth),~~ machined),
~~3~~5.1.5 Chemical analysis of residual elements, if specified in the purchase order (Specification B 824),
~~3~~5.1.6 Pressure test requirements, if specified in the purchase order (Specification B 824),
~~3~~5.1.7 Soundness requirements, if specified in the purchase order (Specification B 824),
~~3~~5.1.8 Certification, if specified in the purchase order (Specification B 824),
~~3~~5.1.9 Foundry test report, if specified in the purchase order (Specification B 824),
~~3~~5.1.10 Witness inspection, if specified in the purchase order (Specification B 824),
~~3~~5.1.11 ASME Boiler and Pressure Vessel application (Section ~~9~~10), and
~~3~~5.1.12 Product marking, if specified in the purchase order (Specification B 824 and Section ~~10~~11).
~~3.2When~~5.2 When material is purchased for agencies of the U.S. Government, specify the Supplementary Requirements in Specification B 824~~ may be specified.~~ .

~~4.~~6. Chemical Composition

~~4.1The alloy shall conform to the requirements for major elements specified in~~
6.1 The alloy shall conform to the requirements specified in Table 1.
~~4.2These~~6.2 These specification limits do not preclude the presence of other elements. Limits may be established for unnamed elements by agreement between manufacturer or supplier and purchaser. Copper or zinc may be given as remainder and may be taken as the difference between the sum of all elements analyzed and 100 %. When all named elements in Table 1 are analyzed, their sum shall be as follows:

Copper Plus Named Elements, 99.3 % Minimum (1)

~~4.3It~~6.3 It is recognized that residual elements may be present in cast copper base alloys. Analysis shall be made for residual elements only when specified in the purchase order (Specification B 824).

TABLE 1 Chemical Requirements Copper Alloy UNS No. C83600

Major 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 incl Cobalt	1.0[A]
Residual Elements	**Composition, % max (Except as Indicated)**
Iron	0.30
Antimony	0.25
Sulfur	0.08
Phosphorus	0.05
Aluminum	0.005
Silicon	0.005

[A] In determining copper minimum, copper may be calculated as copper plus nickel.