



Standard Specification for Copper Alloy Permanent Mold Castings for General Applications¹

This standard is issued under the fixed designation B 806; 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 *

1.1 This specification establishes requirements for copper alloy² permanent mold castings for general applications. Nominal compositions of the alloys under this specification are shown in Table 1.

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

2. Referenced Documents

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

2.2 *ASTM Standards*:

B 208 Practice for Preparing Tension Test Specimens for Copper-Base Alloys for Sand, Permanent Mold, Centrifugal, and Continuous Castings³

B 824 Specification for General Requirements for Copper Alloy Castings³

E 527 Practice for Numbering Metals and Alloys (UNS)⁴

3. Ordering Information

3.1 Orders for casting under this specification shall include the following information:

3.1.1 Quantity of castings required,

3.1.2 Copper alloy UNS number (Table 2) and temper (as-cast, heat-treated, and so forth), (4.2),

3.1.3 Specification number, title, and year of issue.

3.1.4 Pattern or drawing number, and condition (cast, machined, and so forth),

3.1.5 Pressure test requirements, if specified in the purchase order (Specification B 824),

3.1.6 Soundness requirements, if specified in the purchase order (Specification B 824),

3.1.7 Repair of castings (Section 7),

3.1.8 Certification, if specified in the purchase order (Specification B 824),

3.1.9 Foundry test report, if specified in the purchase order (Specification B 824),

3.1.10 Witness inspection, if specified in the purchase order (Specification B 824),

3.1.11 Product marking, if specified in the purchase order (Specification B 824), and

3.1.12 Castings for Seawater Service (Section 4).

3.2 When material is purchased for agencies of the U.S. Government, the Supplementary Requirements of Specification B 824 may be specified.

4. Materials and Manufacture

4.1 For better corrosion resistance in sea water applications, castings in Copper Alloy UNS No. C95800 shall be given a temper anneal heat treatment at $1250 \pm 50^\circ\text{F}$ ($675 \pm 10^\circ\text{C}$) for 6 h minimum. Cooling shall be the fastest means possible that will not cause excess distortion or cracking. Propeller castings shall be exempt from this requirement.

5. Chemical Composition

5.1 The castings shall conform to the chemical requirements specified in Table 2.

5.2 These specification limits do not preclude the presence of other elements. Limits may be established for unnamed elements by agreement between the manufacturer and the supplier and the purchaser. Copper or zinc may be given as the remainder and may be taken as the difference between the sum of all the elements analysed and 100 %.

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 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.

³ *Annual Book of ASTM Standards*, Vol 02.01.

⁴ *Annual Book of ASTM Standards*, Vol 01.01.

