



## Standard Specification for Bronze Castings for Bridges and Turntables<sup>1</sup>

This standard is issued under the fixed designation B 22; 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 ( $\epsilon$ ) 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 bronze castings for turntables, movable bridges and bridge parts, and bronze castings suitable for use in bridges and other structures for fixed and expansion bearings in which motion is slow and intermittent. Historically, the alloys in this specification have been used in the applications listed in Appendix X1. Actual practice may vary.<sup>2</sup>

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

### 2. Referenced Documents

2.1 The following documents in the current issue of the Book of Standards form a 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 Castings<sup>3</sup>

B 824 Specification for General Requirements for Copper Alloy Castings<sup>3</sup>

B 846 Terminology for Copper and Copper Alloys<sup>3</sup>

E 10 Test Method for Brinell Hardness of Metallic Materials<sup>4</sup>

E 527 Practice for Numbering Metals and Alloys (UNS)<sup>5</sup>

### 3. Terminology

3.1 Definitions of terms relating to copper alloys can be found in Terminology B 846.

### 4. Ordering Information

4.1 Orders for castings under this specification should include the following information:

4.1.1 Specification title, number, and year of issue,

4.1.2 Quantity of castings,

4.1.3 Copper Alloy UNS Number (Table 1),

4.1.4 Pattern or drawing number and condition (as-cast, machined, and so forth), and

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

4.2 The following are optional and should be specified in the purchase order when required:

4.2.1 Chemical analysis of residual elements (Section 5.3),

4.2.2 Soundness requirements (Specification B 824),

4.2.3 Certification (Specification B 824),

4.2.4 Foundry test report (Specification B 824),

4.2.5 Witness inspection (Specification B 824), and

4.2.6 Product marking (Specification B 824).

### 5. Chemical Composition

5.1 The castings shall conform to the compositional requirements for named elements as shown in Table 1 for the Copper Alloy UNS Numbers specified in the purchase order.

5.2 These specification limits do not preclude the presence of other elements. Limits may be established and analysis required for unnamed elements agreed upon between the manufacturer or supplier and the purchaser.

5.3 Copper or zinc may be taken as the difference between the sum of all elements determined and 100 % for Copper Alloy UNS No. C86300.

5.4 Copper may be taken as the difference between the sum of all elements determined and 100 % for Copper Alloy UNS Nos. C90500, C91100, C91300, and C93700.

5.5 When all named elements listed in Table 1 are determined their sum shall be as given below:

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee B-5 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.05 on Castings and Ingots for Remelting.

Current edition approved Nov. 10, 1995. Published January 1996. Originally published as B 22 – 36 T. Last previous edition B 22 – 93a.

This specification was prepared in cooperation with representatives of the American Association of State Highway Officials and the American Railway Engineering Association.

<sup>2</sup> 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.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 02.01.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 03.01.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 01.01.