



## Standard Specification for Manganese Bronze Rod, Bar and Shapes [Metric]<sup>1</sup>

This standard is issued under the fixed designation B 138M; 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 the requirements for manganese bronze rod, bar and shapes produced in Copper Alloy UNS No. C67000 or C67500.

1.2 This specification is the SI-Metric companion to Specification B 138.

1.3 **Warning**—Mercury is a definite health hazard in use and disposal (Section 8).

NOTE 1—Product suitable for hot forging applications is available under Specification B 124.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

B 124M Specification for Copper and Copper Alloy Forging Rod, Bar and Shapes (Metric)<sup>2</sup>

B 154 Test Method of Mercurous Nitrate Test for Copper and Copper Alloys<sup>2</sup>

B 249M Specification for General Requirements for Wrought Copper and Copper-Alloy Rod, Bar Shapes and Forgings (Metric)<sup>2</sup>

B 601 Practice for Temper Designation for Copper and Copper Alloys—Wrought and Cast<sup>2</sup>

E 8M Test Methods for Tension Testing of Metallic Materials<sup>3</sup>

E 54 Test Methods for Chemical Analysis of Special Brasses and Bronzes<sup>4</sup>

E 62 Test Methods for Chemical Analysis of Copper and Copper Alloys (Photometric)<sup>4</sup>

E 478 Test Methods for Chemical Analysis of Copper Alloys<sup>4</sup>

### 3. Ordering Information

3.1 Orders for product shall include the following:

3.1.1 ASTM designation and year of issue (for example, B138 – 96),

<sup>1</sup> 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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<sup>2</sup> Annual Book of ASTM Standards, Vol 02.01.

<sup>3</sup> Annual Book of ASTM Standards, Vol 03.01.

<sup>4</sup> Annual Book of ASTM Standards, Vol 03.05.

3.1.2 Copper Alloy UNS No. designation (for example, C67000),

3.1.3 Temper (Section 6 and Table 1),

3.1.4 Form of product (for example, round, hexagonal),

3.1.5 Dimensions (for example, diameter, distance between parallel surfaces),

3.1.6 Tolerances for shapes,

3.1.7 Edge contours,

3.1.8 Length,

3.1.9 Quantity (total weight, footage or number of pieces),

3.1.10 When product is purchased for agencies of the U.S. Government (Section 10).

3.2 The following options are available under this specification and shall be included in the contract or purchase order when required:

3.2.1 Heat identification or traceability details (Specification B 249),

3.2.2 Piston finish (Section 9),

3.2.3 Mercurous nitrate test (Section 8),

3.2.4 Certification (Specification B 249), and

3.2.5 Mill Test Report (Specification B 249).

### 4. Material and Manufacture

#### 4.1 Material:

4.1.1 The material of manufacture shall be cast billets of Copper Alloy UNS No. C67000 or C67500, as specified in the ordering information, and shall be of such soundness as to be suitable for hot extrusion (Section 1.1).

#### 4.2 Manufacture:

4.2.1 The product shall be manufactured by hot extrusion and finished by such cold working, annealing and straightening as may be necessary to achieve the required properties.

### 5. Chemical Composition

5.1 The material shall conform to the composition requirements specified in Table 2 for the Copper Alloy UNS No. named in the ordering information.

5.1.1 These compositional limits do not preclude the presence of other elements. When required, limits shall be established and analysis required for unnamed elements by agreement between the manufacturer and the purchaser.

5.2 For Copper Alloys in which zinc is specified as the remainder, either copper or zinc is permitted to be taken as the

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