



Designation: B 159/B 159M – 01

Standard Specification for Phosphor Bronze Wire¹

This standard is issued under the fixed designation B 159/B 159M; 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 reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope *

1.1 This specification establishes the requirements for round, square and flat phosphor bronze wire of UNS Alloy Nos. C51000, C52100, and C52400 for general and spring applications.

1.1.1 Rectangular and square wire of the three alloys are generally available in sizes up to a maximum of 0.188 in. [5 mm] thick and 1.250 in. [32 mm] wide.

1.1.2 Round wire from Copper Alloy UNS No. C51000 is generally available in sizes up to 0.500 in. [13 mm] in diameter.

1.2 The values stated in either inch-pound units or in SI units are to be regarded separately as standard. Within the text, the SI units are shown in brackets. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the standard.

1.3 Additional requirements for these products are established in Specification B 250/B 250M, see Section 3.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—It is to be understood that this specification is general. Since the product is used for many applications where the requirements of the operations used are too particular to be specified by any of the ordinary mechanical tests, it is frequently advisable to submit samples or drawings to the manufacturer and secure an adjustment of temper to suit the actual application for which the product is intended.

NOTE 2—Product in rod, bar and shape form is produced to Specification B 139/B 139M.

2. Referenced Documents

2.1 ASTM Standards:

2.1.1 The following documents in the current issue of the Book of Standards form a part of this specification.

¹ This specification is under the jurisdiction of ASTM Committee B05 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.02 on Rod, Bar, Wire, Shapes and Forgings.

Current edition approved Nov. 10, 2001. Published February 2002. Originally published as B 159 – 41 T. Last previous edition B 159 – 96a¹.

B 139/B 139M Specification for Phosphorus Bronze Rod, Bar, and Shapes²

B 250/B 250M Specification for General Requirements for Wrought Copper-Alloy Wire²

B 601 Practice for Temper Designations for Copper and Copper Alloys—Wrought and Cast²

B 846 Terminology for Copper and Copper Alloys²

E 8 Test Methods for Tension Testing of Metallic Materials³

E 8M Test Methods for Tension Testing of Metallic Materials [Metric]³

E 62 Test Methods for Chemical Analysis of Copper and Copper Alloys (Photometric Methods)⁴

E 290 Test Method for Bend Testing of Material for Ductility³

E 478 Test Methods for Chemical Analysis of Copper Alloys⁵

3. General Requirements

3.1 The following sections of Specification B 250/B 250M are a part of this specification:

3.1.1 Terminology,

3.1.2 Materials and Manufacture,

3.1.3 Workmanship, Finish, and Appearance, -b159m-01

3.1.4 Sampling,

3.1.5 Number of Tests and Retests,

3.1.6 Specimen Preparation,

3.1.7 Test Methods,

3.1.8 Significance of Numerical Limits,

3.1.9 Inspection,

3.1.10 Rejection and Reheating,

3.1.11 Certification,

3.1.12 Test Reports,

3.1.13 Packaging and Package Markings, and

3.1.14 Supplementary Requirements.

3.2 In addition, when a section with a title identical to one of those referenced in 3.1 appears in this specification, it contains additional requirements which supplement those appearing in Specification B 250/250M.

² Annual Book of ASTM Standards, Vol 02.01.

³ Annual Book of ASTM Standards, Vol 03.01.

⁴ Annual Book of ASTM Standards, Vol 03.05.

⁵ Annual Book of ASTM Standards, Vol 03.06.

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