



Designation: B173 – 01a (Reapproved 2007)^{ε1}

Standard Specification for Rope-Lay-Stranded Copper Conductors Having Concentric- Stranded Members, for Electrical Conductors¹

This standard is issued under the fixed designation B173; 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.

^{ε1} NOTE—Table 1 was editorially corrected in March 2007.

1. Scope

1.1 This specification covers bare rope-lay-stranded conductors having concentric-stranded members made from round copper wires, either uncoated or coated with tin, lead, or lead-alloy for use as electrical conductors (Explanatory Note 1 and Note 2).

1.2 Coated wires shall include only those wires with finished diameters and densities substantially equal to the respective diameters and densities of uncoated wires.

1.3 The values stated in inch-pound or SI units are to be regarded separately as standard. Each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the specification. For conductor sizes designated by AWG or kcmil, the requirements in SI units have been numerically converted from corresponding values, stated or derived, in inch-pound units. For conductor sizes designated by SI units only, the requirements are stated or derived in SI units.

1.3.1 For density, resistivity, and temperature, the values stated in SI units are to be regarded as standard.

2. Referenced Documents

2.1 The following documents of the issue in effect at the time of reference form a part of this specification to the extent referenced herein:

2.2 *ASTM Standards*:²

B3 Specification for Soft or Annealed Copper Wire

B8 Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

B33 Specification for Tinned Soft or Annealed Copper Wire

¹ This specification is under the jurisdiction of ASTM Committee B01 on Electrical Conductors and is the direct responsibility of Subcommittee B01.04 on Conductors of Copper and Copper Alloys.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

for Electrical Purposes

B172 Specification for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Members, for Electrical Conductors

B189 Specification for Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes

B263 Test Method for Determination of Cross-Sectional Area of Stranded Conductors

B354 Terminology Relating to Uninsulated Metallic Electrical Conductors

2.3 *American National Standard*:

ANSI C42.35 Definitions of Electrical Terms³

3. Classification

3.1 For the purpose of this specification rope-lay-stranded conductors having concentric-stranded members are classified as follows:

3.1.1 *Class G*—Conductors consisting of 7 to 61 rope-lay-stranded members, each of which consists of 7 to 19 concentric-stranded wires, with total conductor sizes ranging from No. 14 AWG (2.08 mm²) to 5 000 000 cmil (2534 mm²). (Typical use is for rubber-sheathed conductor, apparatus conductor, portable conductor, and similar applications.)

3.1.2 *Class H*—Conductors consisting of 19 to 91 rope-lay-stranded members, each of which consists of 7 to 19 concentric-stranded wires, with total conductor sizes ranging from No. 9 AWG (6.63 mm²) to 5 000 000 cmil (2534 mm²). Class K construction produces a conductor with greater flexibility than class G. (Typical use is for rubber-sheathed cord and applications where flexibility is required such as on take-up reels over sheaves and extra-flexible apparatus conductor.)

4. Ordering Information

4.1 Orders for material under this specification shall include the following information:

4.1.1 Quantity of each size and class;

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

