



Designation: B172 – 17

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

This standard is issued under the fixed designation B172; 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 U.S. Department of Defense.

1. Scope

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

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

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](#)
- [B33 Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes](#)
- [B173 Specification for Rope-Lay-Stranded Copper Conductors Having Concentric-Stranded Members, for Electrical Conductors](#)
- [B189 Specification for Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes](#)
- [B193 Test Method for Resistivity of Electrical Conductor Materials](#)
- [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 bunch-stranded members are classified as follows:

3.1.1 *Class I*—Conductors consisting of wires 0.0201-in. (0.511-mm) diameter (No. 24 AWG) to produce rope-lay-stranded conductors up to 2 000 000 cmil (1013 mm²) in total cross-sectional area. (Typical use is for special apparatus conductor.)

3.1.2 *Class K*—Conductors consisting of wires 0.0100-in. (0.254-mm) diameter (No. 30 AWG) to produce rope-lay-stranded conductors up to 1 000 000 cmil (507 mm²) in total cross-sectional area. (Typical use is for special portable cord and conductors.)

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.

Current edition approved April 1, 2017. Published April 2017. Originally approved in 1942 to replace portions of B158 – 41 T. Last previous edition approved in 2015 as B172 – 10 (2015). DOI: 10.1520/B0172-17.

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.

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