



Designation: B 172 – 95

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

This standard is issued under the fixed designation B 172; 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.

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 SI values for density are regarded as the standard. For all other properties the inch-pound values are to be regarded as standard and the SI units may be approximate.

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:

B 3 Specification for Soft or Annealed Copper Wire²

B 33 Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes²

B 173 Specification for Rope-Lay-Stranded Copper Conductors Having Concentric-Stranded Members, for Electrical Conductors²

B 189 Specification for Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes²

B 263 Test Method for Determination of Cross-Sectional Area of Stranded Conductors²

B 354 Terminology Relating to Uninsulated Metallic Electrical Conductors²

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.)

3.1.3 *Class M*—Conductors consisting of wires 0.0063 in. (0.160 mm) diameter (No. 34 AWG) to produce rope-lay-stranded conductors up to 1 000 000 cmil (507 mm²) in total cross-sectional area. (Typical use is for welding conductors.)

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,

4.1.2 Conductor size: circular-mil area or AWG (see 7.1),

4.1.3 Class (Section 4 and Table 1),

4.1.4 Whether coated or uncoated; if coated, designate type of coating (see 11.1),

4.1.5 Details of special-purpose lays, if required (see 6.2 and 6.3 and Explanatory Note 3),

4.1.6 Package size (see 15.1),

4.1.7 Special package marking, if required (Section 14),

4.1.8 Lagging, if required (see 15.2), and

4.1.9 Place of inspection (Section 13).

4.1.10 In addition, Supplementary Requirements shall apply only when specified by the purchaser in the inquiry, contract, or purchase order for direct procurement by agencies of the U.S. Government (S1, S2, and S3).

5. Joints

5.1 Necessary joints in wires or in groups of wires shall be made in accordance with accepted commercial practice, taking into account the size of the wire or group of wires as related to the size of the entire conductor.

5.2 Bunch-stranded members or rope-stranded members forming the completed conductor may be joined as a unit by

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

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² *Annual Book of ASTM Standards*, Vol 02.03.

³ Available from American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036.