



Standard Specification for Nickel-Coated Braid and Ribbon Flat Copper Wire Intended for use in Electronic Application¹

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1. Scope

1.1 This specification covers nickel-coated copper braid and ribbon flat wire intended for electronic application (Explanatory **Note 1**).

1.2 Two classes of nickel-coated braid and ribbon flat copper wire are covered as follows:

1.2.1 *Class A*—Annealed temper.

1.2.2 *Class H*—Hard-drawn.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3.1 *Exceptions*—The SI values for density, resistivity, and volume are to be regarded as standard.

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.*

2. Referenced Documents

2.1 *ASTM Standards*:²

B1 Specification for Hard-Drawn Copper Wire

B3 Specification for Soft or Annealed Copper Wire

B49 Specification for Copper Rod Drawing Stock for Electrical Purposes

B193 Test Method for Resistivity of Electrical Conductor Materials

B258 Specification for Nominal Diameters and Cross-Sectional Areas of AWG Sizes of Solid Round Wires Used as Electrical 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.

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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.

2.2 *Other Standards*:³

NBS Handbook 100 Copper Wire Tables

3. Ordering Information

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

3.1.1 Quantity of each size,

3.1.2 Wire size-thickness and width in inches (see 5.4),

3.1.3 Class of wire (see 1.2),

3.1.4 Type of copper, if special (see 4.2),

3.1.5 Package size (see 10.1),

3.1.6 Special packaging marking, if required, and

3.1.7 Place of inspection (see 7.1).

4. Material

4.1 The material shall be nickel-coated flat wire (Explanatory **Note 1**) of such quality and purity that the finished product shall meet the properties and characteristics prescribed in this specification.

4.2 *Copper-Base Metal*—The base metal shall be copper of such quality and purity that the finished product shall have properties and characteristics prescribed in this specification.

NOTE 1—Specifications B1, B3, or B49 defines copper suitable for use.

5. General Requirements (See Section 8)

5.1 *Temper*—The nickel-coated flat wire conductor shall be provided in either hard-drawn condition (Class H) or annealed condition (class A) as agreed upon between the manufacturer and purchaser.

5.2 *Tensile and Elongation (Explanatory Note 2)*:

5.2.1 *Class A*—The nickel-coated copper flat wire in the annealed condition shall conform to the elongation requirements prescribed in Table 1. See Explanatory **Note 3** for equivalent round diameter calculations based on given thickness and width dimensions for the flat wire. For flat wire whose nominal equivalent round diameter is more than 0.001 in. (0.025 mm) greater than a size listed in Table 1, but less than that of the next larger size, the requirements of the next larger size shall apply. No requirements for tensile strength are specified.

³ Available from National Technical Information Service (NTIS), 5285 Port Royal Rd., Springfield, VA 22161, <http://www.ntis.gov>.