



Standard Specification for Soft Rectangular and Square Bare Copper Wire for Electrical Conductors¹

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1. Scope

1.1 This specification covers soft or annealed bare copper wire, rectangular or square in shape with rounded corners (Explanatory [Note 1](#)).

1.2 For the purpose of this specification, the wire is classified as follows:

1.2.1 *Type A*—For all applications except those involving edgewise bending.

1.2.2 *Type B*—For applications involving edgewise bending. Type B wire of thickness less than 0.020 in. (0.51 mm) or with a ratio of width to thickness greater than 30 to 1 is not contemplated in this specification.

1.3 Unless otherwise specified by the purchaser, Type A material shall be furnished.

1.4 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; except for Sections [12](#) and [13](#).

2. Referenced Documents

2.1 *ASTM Standards*:²

[B49](#) Specification for Copper Rod for Electrical Purposes

[B193](#) Test Method for Resistivity of Electrical Conductor Materials

[B279](#) Test Method for Stiffness of Bare Soft Square and Rectangular Copper and Aluminum Wire for Magnet Wire Fabrication

[E8/E8M](#) Test Methods for Tension Testing of Metallic Materials

[E29](#) Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

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 Documents*:

[NBS Handbook 100](#) [Copper Wire Tables](#)³

3. Ordering Information

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

3.1.1 Quantity of each size;

3.1.2 Type of wire (see [1.1](#), [1.2](#), and [1.3](#));

3.1.3 Wire size: thickness and width, in inches or millimetres (see [6.1](#));

3.1.4 Type of copper, if special (see Section [4](#));

3.1.5 Package size (see [16.1](#));

3.1.6 Special package marking, if required; and

3.1.7 Place of inspection. (see Section [15](#)).

4. Material

4.1 The material shall be copper of such quality and purity that the finished product shall have the properties and characteristics prescribed in this specification.

4.2 Specification [B49](#) defines the materials suitable for use.

5. Manufacture

5.1 The wire shall be annealed after the last drawing or rolling to size and shape, and shall be so processed as to produce a uniformly soft product with a clean surface.

5.2 The finished wire shall not contain joints except such as have passed through drawing dies. Necessary joints in the wire and rods prior to final drawing shall be made in accordance with good commercial practice.

6. Dimensions and Permissible Variations

6.1 The dimensions shall be expressed in decimal fractions of an inch or in millimetres. Unless otherwise specified, it will be assumed that the dimensions are in inches. (Explanatory [Note 6](#), Explanatory [Note 7](#), and Explanatory [Note 8](#).)

6.2 The thickness shall not vary from that specified by more than the amounts prescribed in [Table 1](#).

³ Available from National Institute of Standards and Technology (NIST), 100 Bureau Dr., Stop 1070, Gaithersburg, MD 20899-1070, <http://www.nist.gov>.