



Standard Specification for Figure-9 Deep-Grooved and Figure-8 Copper Trolley Wire for Industrial Haulage¹

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1. Scope

1.1 This specification covers figure-9 deep-section grooved and figure-8 copper trolley wire for use in industrial haulage (Explanatory [Note 1](#)).

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 *ASTM Standards*:²

[B9 Specification for Bronze Trolley Wire](#)

[B47 Specification for Copper Trolley Wire](#)

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

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

3. Ordering Information

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

- 3.1.1 Quantity of each size and section,
- 3.1.2 Wire size: circular-mil area (Section [6](#), [Fig. 1](#) or [Fig. 2](#)),
- 3.1.3 Shape of section (Section [1](#)),
- 3.1.4 Type of copper, if special (Section [4](#)),
- 3.1.5 Package size (see [14.3](#)),
- 3.1.6 Lagging, if required (see [14.1](#)),
- 3.1.7 Relation between vertical axis of grooved wire and axis of reel (see [14.1](#)),
- 3.1.8 Size of arbor hole if other than for a 2½-in. (64-mm) shaft (see [14.2](#)),
- 3.1.9 Special package marking, if required (see [14.4](#)), and

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.

3.1.10 Place of inspection (Section [12](#)).

4. Materials and Manufacturer

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.

NOTE 1—Specification [B49](#) defines the materials suitable for use.

4.2 Copper bars of special qualities, forms, or types, as may be agreed upon between the manufacturer and the purchaser, and that will conform to the requirements prescribed in this specification may also be used.

5. Tensile Properties

5.1 Figure-8 wire shall conform to the requirements as to tensile properties specified in [Table 1](#).

5.2 Figure-9 deep-section grooved wire shall conform to the requirements as to tensile properties specified in [Table 2](#).

5.3 Tests on a specimen of wire containing a joint shall show at least 95 % of the tensile strength specified in [Table 1](#) or [Table 2](#), as may be applicable. Elongation tests shall not be made on specimens containing joints.

5.4 Tension tests shall be made on representative samples. The elongation shall be determined as the permanent increase in length, due to the breaking of the wire in tension, measured between gage marks placed originally 10 in. apart upon the test specimen (Explanatory [Note 1](#)). The fracture shall be between the gage marks and not closer than 1 in. (25 mm) to either gage mark.

5.5 The twist test shall be omitted.

6. Sections

6.1 Standard sections of figure-8 trolley wire shall be those shown in [Fig. 1](#).

6.2 Standard sections of figure-9 deep-section grooved trolley wire shall be those shown in [Fig. 2](#).

7. Dimensions and Permissible Variations

7.1 The size shall be expressed as the nominal area of cross section in circular mils.