

Standard Specification for Copper-Clad Steel Wire Strand¹

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1. Scope

1.1 This specification covers copper-clad steel wire strand composed of a number of round steel, copper-clad wires, for use as guys, messengers, span wires, and for similar purposes where electrical conductance is not a requirement.

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:

A 902 Terminology Relating to Metallic Coated Steel Products²

3. Terminology

3.1 *Definitions:* For definitions of terms used in this specification see Terminology A 902.

4. Classification

4.1 The strand is classified by the minimum breaking strength and number of wires in the strand as stated in Table 1.

5. Ordering Information

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

5.1.1 Quantity of strand in feet.

5.1.2 Breaking strength and number of wires in strand (4.1 and Table 1).

5.1.3 Package size of coils or reels from Table 2.

5.1.4 ASTM designation and year of issue.

6. Materials and Manufacture

6.1 Each wire in the strand shall be composed of a steel core made from steel produced by the open-hearth, basic-oxygen, or electric-furnace process with a substantially uniform and continuous copper cladding thoroughly bonded to it throughout. The thickness and adherence of the copper cladding on the finished wire shall comply with the requirements prescribed in this specification.

6.2 Each wire in the strand shall be of such quality that, when drawn to the size specified in Table 1 and when fabricated into strand, the finished copper-clad steel wire strand shall have the properties and characteristics prescribed in this specification.

7. Stranding

7.1 The strand shall consist of either 3 or 7 wires and, unless otherwise specified, shall have a left lay with a uniform pitch. In 3-wire strand, the pitch shall be not less than 12 nor more than 20 times the nominal diameter of the strand. In 7-wire strand, the pitch shall be not less than 10 nor more than 16 times the nominal diameter of the strand. A left lay is defined as a counter-clockwise twist away from the observer looking along the axis of the strand. All wires shall be stranded with uniform tension.

7.2 All wires in the strand shall lie naturally in their true positions in the completed strand, and when the strand is cut, the ends shall remain in position or be readily replaced by hand and then remain in position. This may be accomplished by any means or process, such as preforming, post forming, or form setting.

8. Joints and Splices

8.1 Joints or splices may be made prior to final wire drawing in individual finished wires composing the strand, provided that such joints or splices have protection from corrosion equivalent to that of the copper-clad wire itself and that they do not decrease the strength of the finished strand below the minimum breaking strength shown in Table 1. A joint or splice shall be not closer than 50 ft (15.2 m) to any other wire joint or splice in the strand.

8.2 The finished strand shall not be joined or spliced as a unit, unless specifically permitted by the purchaser.

9. Thickness of Copper Cladding

9.1 The minimum thickness of the copper cladding on wires taken from the finished strand shall be not less than that specified in Table 3.

9.2 The copper thickness shall be determined by either of the following:

9.2.1 By direct measurements of cross sections of the wires, the ends of the specimens having been ground smooth, polished, and etched before being measured microscopically, or

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² Annual Book of ASTM Standards, Vol 01.06.