



Standard Specification for Standard Nominal Diameters and Cross-Sectional Areas of AWG Sizes of Solid Round Wires Used as Electrical Conductors¹

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This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This specification prescribes standard nominal diameters and cross-sectional areas of American Wire Gage (AWG) sizes of solid round wires, used as electrical conductors, and gives equations and rules for the calculation of standard nominal mass and lengths, resistances, and breaking strengths of such wires (Explanatory [Note 1](#)).

1.2 The values stated in inch-pound or SI units are to be regarded separately as standard. Each system shall be used independently of the other. Combining values of the two systems may result in nonconformance with the specification. For conductor sizes designated by AWG or kcmil sizes, the requirements in SI units have been numerically converted from the corresponding values stated or derived, in inch-pound units. For conductor sizes designated by SI units only, the requirements are stated or derived in SI units.

1.2.1 For density, resistivity and temperature, the values stated in SI units are to be regarded as standard.

2. Referenced Documents

2.1 ASTM Standards:²

[A111](#) Specification for Zinc-Coated (Galvanized) “Iron” Telephone and Telegraph Line Wire

[A326](#) Specification for Zinc-Coated (Galvanized) High Tensile Steel Telephone and Telegraph Line Wire (Withdrawn 1990)³

[B1](#) Specification for Hard-Drawn Copper Wire

[B2](#) Specification for Medium-Hard-Drawn Copper Wire

[B3](#) Specification for Soft or Annealed Copper Wire

[B9](#) Specification for Bronze Trolley Wire

[B33](#) Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes

[B47](#) Specification for Copper Trolley Wire

[B105](#) Specification for Hard-Drawn Copper Alloy Wires for Electric Conductors

[B189](#) Specification for Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes

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

[B227](#) Specification for Hard-Drawn Copper-Clad Steel Wire

[B230/B230M](#) Specification for Aluminum 1350–H19 Wire for Electrical Purposes

[B314](#) Specification for Aluminum 1350 Wire for Communication Cable (Withdrawn 1994)³

[B396](#) Specification for Aluminum-Alloy 5005-H19 Wire for Electrical Purposes (Withdrawn 2003)³

[B398/B398M](#) Specification for Aluminum-Alloy 6201-T81 and 6201-T83 Wire for Electrical Purposes

[B415](#) Specification for Hard-Drawn Aluminum-Clad Steel Wire

[B609/B609M](#) Specification for Aluminum 1350 Round Wire, Annealed and Intermediate Tempers, for Electrical Purposes

[B800](#) Specification for 8000 Series Aluminum Alloy Wire for Electrical Purposes—Annealed and Intermediate Tempers

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

[F205](#) Test Method for Measuring Diameter of Fine Wire by Weighing

3. Standard Reference Temperature

3.1 For the purpose of this specification, all wire dimensions and properties shall be considered as occurring at the internationally standardized reference temperature of 20°C (68°F).

¹ This specification is under the jurisdiction of ASTM Committee B01 on Electrical Conductors and is the direct responsibility of Subcommittee B01.02 on Methods of Test and Sampling Procedure.

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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 The last approved version of this historical standard is referenced on www.astm.org.