



**Designation: B 258 – 01**

## **Standard Specification for Standard Nominal Diameters and Cross-Sectional Areas of AWG Sizes of Solid Round Wires Used as Electrical Conductors<sup>1</sup>**

This standard is issued under the fixed designation B 258; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the 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:**

- A 111 Specification for Zinc-Coated (Galvanized) "Iron" Telephone and Telegraph Line Wire<sup>2</sup>
- A 326 Specification for Zinc-Coated (Galvanized) High Tensile Steel Telephone and Telegraph Line Wire<sup>3</sup>
- B 1 Specification for Hard-Drawn Copper Wire<sup>4</sup>
- B 2 Specification for Medium-Hard-Drawn Copper Wire<sup>4</sup>
- B 3 Specification for Soft or Annealed Copper Wire<sup>4</sup>
- B 9 Specification for Bronze Trolley Wire<sup>4</sup>
- B 33 Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes<sup>4</sup>
- B 47 Specification for Copper Trolley Wire<sup>4</sup>
- B 105 Specification for Hard-Drawn Copper Alloy Wires

for Electrical Conductors<sup>4</sup>

B 189 Specification for Lead-Coated and Lead-Alloy-Coated Soft Copper Wire for Electrical Purposes<sup>4</sup>

B 227 Specification for Hard-Drawn Copper-Clad Steel Wire<sup>4</sup>

B 230/B 230M Specification for Aluminum 1350-H19 Wire for Electrical Purposes<sup>4</sup>

B 314 Specification for Aluminum 1350 Wire for Communication Cable<sup>5</sup>

B 396 Specification for Aluminum-Alloy 5005-H19 Wire for Electrical Purposes<sup>4</sup>

B 398/B 398M Specification for Aluminum-Alloy 6201-T81 Wire for Electrical Purposes<sup>4</sup>

B 415 Specification for Hard-Drawn Aluminum-Clad Steel Wire<sup>4</sup>

B 609/B 609M Specification for Aluminum 1350 Round Wire, Annealed and Intermediate Tempers, for Electrical Purposes<sup>4</sup>

B 800 Specification for 8000 Series Aluminum Alloy Wire for Electrical Purposes—Annealed and Intermediate Tempers<sup>4</sup>

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications<sup>6</sup>

F 205 Test Method for Measuring Diameter of Fine Wire by Weighing<sup>7</sup>

### **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).

### **4. Standard Rules for Rounding**

4.1 All calculations for the standard nominal dimensions and properties of solid round wires shall be rounded in the *final* value only, in accordance with rounding method of Practice E 29.

<sup>1</sup> 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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<sup>2</sup> Annual Book of ASTM Standards, Vol 01.06.

<sup>3</sup> Discontinued, see 1990 Annual Book of ASTM Standards, Vol 01.06.

<sup>4</sup> Annual Book of ASTM Standards, Vol 02.03.

<sup>5</sup> Discontinued, see 1994 Annual Book of ASTM Standards, Vol 02.03.

<sup>6</sup> Annual Book of ASTM Standards, Vol 14.02.

<sup>7</sup> Annual Book of ASTM Standards, Vol 10.04.