



Standard Test Methods for Hookup Wire Insulation¹

This standard is issued under the fixed designation D3032; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

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

1. Scope

1.1 These test methods cover procedures for testing hookup wire.

1.2 For the purposes of these test methods, hookup wire insulation includes all components of the insulation system used on single insulated conductors or an assembly of single insulated conductors such as a cable bundle and harness or flat ribbon cable. The insulating materials include not only the primary insulation over the conductor, but also insulating jackets over shielded constructions.

1.3 The test procedures and their locations are as follows:

	Section
Axial Stability (Longitudinal Change) After Thermal Exposure	21
Bondability of Insulation to Potting Compounds	19
Capacitance	9 to 12
Cold Bend Test	26
Concentricity	16
Crush Resistance	20
Dielectric Breakdown Voltage	5
Dimensions	15
Dry-Arc Tracking	29
Dynamic Cut-Through	22
Fluid Immersion	23
High Temperature Shock	24
Insulation-Continuity Proof Tests	13
Insulation Resistance	6
Partial Discharge (Corona) Inception and Extinction Voltage	25
Relative Thermal Life and Temperature Index	14
Strip Force	27
Surface Resistance	7
Tensile Properties	17
Vertical Flame Test	18
Voltage Rating of Hook-Up Wire	A2
Voltage Withstand Test	8
Wet Arc-Tracking	28

1.4 The values stated in SI units are to be regarded as standard. The values given in parentheses are mathematical conversions to inch-pound units that are provided for information only and are not considered standard.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the*

responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. For specific precaution statements, see 12.2.1, 12.4.1.8, 18.1.3, Note 17, and 25.4.

2. Referenced Documents

2.1 ASTM Standards:²

- D149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies
- D150 Test Methods for AC Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulation
- D257 Test Methods for DC Resistance or Conductance of Insulating Materials
- D374 Test Methods for Thickness of Solid Electrical Insulation (Metric) D0374_D0374M
- D412 Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
- D471 Test Method for Rubber Property—Effect of Liquids
- D543 Practices for Evaluating the Resistance of Plastics to Chemical Reagents
- D638 Test Method for Tensile Properties of Plastics
- D1711 Terminology Relating to Electrical Insulation
- D1868 Test Method for Detection and Measurement of Partial Discharge (Corona) Pulses in Evaluation of Insulation Systems
- D2303 Test Methods for Liquid-Contaminant, Inclined-Plane Tracking and Erosion of Insulating Materials
- D2307 Test Method for Thermal Endurance of Film-Insulated Round Magnet Wire
- D2865 Practice for Calibration of Standards and Equipment for Electrical Insulating Materials Testing
- D3183 Practice for Rubber—Preparation of Pieces for Test Purposes from Products
- D3636 Practice for Sampling and Judging Quality of Solid Electrical Insulating Materials

¹ These test methods are under the jurisdiction of ASTM Committee D09 on Electrical and Electronic Insulating Materials and are the direct responsibility of Subcommittee D09.07 on Electrical Insulating Materials.

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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.