



Designation: D 1676 – 01

An American National Standard

Standard Test Methods for Film-Insulated Magnet Wire¹

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1. Scope

1.1 These test methods cover procedures for testing film-insulated magnet wire that is used in electrical apparatus. These test methods are intended primarily for the evaluation of the electrical insulating materials used. The intent is that these test methods be used, except where modified, by individual specifications for particular applications.

1.2 These test methods present different procedures for evaluating given properties of round, rectangular or square, copper or aluminum film-insulated magnet wire.

1.3 The values stated in inch-pound units are the standard. The SI units in parentheses are provided for information only.

1.4 The test methods appear in the following sections:

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Burnout (AC Overload Resistance)	13-21
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Coefficient of Friction	29-37
Continuity, DC High Voltage	38-45
Continuity, DC Low Voltage	46-53
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Dielectric Breakdown AC Voltage	69-75
Dielectric Breakdown AC Voltage after Bending	76-82
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Dimensional Measurement	100-106
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a) Elastic Ratio	152
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Resistance to Insulating Liquids and Hydrolytic Stability	186-195

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 appro-*

priate safety and health practices and determine the applicability of regulatory limitations prior to use. Specific hazard statements are given in 9.5, 19.1, 19.3, 19.8, 52.1, 58, 59.1, 74.1, 112.1, 135.4, and 182.3.

NOTE 1—This test method is related to IEC 60851. Since both methods contain multiple test procedures, many procedures are technically equivalent while others differ significantly.

2. Referenced Documents

2.1 ASTM Standards:

- A 228/A 228M Specification for Steel Wire, Music Spring Quality²
- B 3 Specification for Soft or Annealed Copper Wire³
- B 33 Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes³
- B 43 Specification for Seamless Red Brass Pipe, Standard Sizes⁴
- B 193 Test Method for Resistivity of Electrical Conductor Materials³
- B 279 Test Method for Stiffness of Bare Soft Square and Rectangular Copper and Aluminum Wire for Magnet Wire Fabrication³
- B 324 Specification for Aluminum Rectangular and Square Wire for Electrical Purposes³
- B 609/B 609M Specification for Aluminum 1350 Round Wire, Annealed and Intermediate Tempers, for Electrical Purposes³
- D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies⁵
- D 150 Test Methods for AC Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulation⁵
- D 374 Test Methods for Thickness of Solid Electrical Insulation⁵
- D 709 Specification for Laminated Thermosetting Materials⁵
- D 877 Test Method for Dielectric Breakdown Voltage of Insulating Liquids Using Disk Electrodes⁶

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 D09.10 on Magnet Wire Insulation.

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² *Annual Book of ASTM Standards*, Vol 01.03.

³ *Annual Book of ASTM Standards*, Vol 02.03.

⁴ *Annual Book of ASTM Standards*, Vol 02.01.

⁵ *Annual Book of ASTM Standards*, Vol 10.01.

⁶ *Annual Book of ASTM Standards*, Vol 10.03.