



Standard Specification for Insulated and Insulating Hand Tools¹

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1. Scope

1.1 This specification covers the testing of insulated and insulating hand tools used for working on, or in close proximity to, energized electrical apparatus or conductors operating at maximum voltage of 1000 V ac or 1500 V dc.

1.2 The use and maintenance of these tools are beyond the scope of this specification.

1.3 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.

1.4 The following precautionary caveat pertains to the test method portion only, Section 7, of this specification: *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.*

1.5 This specification does not purport to address all of the safety problems associated with the use of tools on, or in close proximity to, energized electrical apparatus.

2. Referenced Documents

2.1 ASTM Standards:

D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies²

D 618 Practice for Conditioning Plastics and Electrical Insulating Materials for Testing³

2.2 ASME/ANSI Standard:

ASME/ANSI B107 Series⁴

2.3 IEC Standards:

IEC 60900 (IEC 900:1987 + amend. 1995) Hand Tools for Live Working up to 1000 V a.c. and 1500 V d.c.⁵

3. Terminology

3.1 Definitions:

3.1.1 *insulated hand tools, n*—those covered with insulating material in order to protect the user from electric shock and to minimize the risk of short circuits between parts at different potentials.

3.1.2 *insulating hand tools, n*—those made predominantly of insulating material, except for metal inserts at the working head or active part or used for reinforcement but with no exposed metal parts. In either case, to protect the user from electric shocks, as well as, to prevent short-circuits between exposed parts at different potentials.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *acceptance test, n*—a contractual test to prove to the customer that the device meets certain conditions of its specification.

3.2.2 *formation of lots or batches, n*—the product is assembled into identifiable lots, sub-lots, batches, or in such other manner as may be prescribed. Each lot or batch, as far as practicable, consists of units of product of a single type, grade, class, size, and composition, manufactured under essentially the same conditions and essentially the same time.

3.2.3 *routine test, n*—a test to which each individual device is subjected during or after manufacture to ascertain whether it complies with certain criteria.

3.2.4 *sampling test, n*—a test on a number of devices taken at random from a batch.

3.2.5 *type test, n*—a test of one or more devices made to a certain design to show that the design meets certain specifications.

4. Performance Requirements

4.1 Insulated and insulating tools shall be designed and manufactured in such a way that they do not constitute a danger for the user or the installation if they are used properly.

4.2 The mechanical specifications for insulated and insulating hand tools having the same function shall comply with the corresponding ANSI or ISO standards. The mechanical performance of the working parts shall be maintained even after the application of any insulating layer(s). The insulation material shall be such that it will adequately withstand the electrical, mechanical, and thermal stresses to which it may be exposed during normal use. Insulating hand tools specially designed for

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² Annual Book of ASTM Standards, Vol 10.01.

³ Annual Book of ASTM Standards, Vol 08.01.

⁴ Available from American Society of Mechanical Engineers, 345 E. 47th Street, New York, NY 10017.

⁵ Available from the Institute of Electrical and Electronics Engineers, Inc., 345 E. 47th Street, New York, NY 10017.