

(PREVIEW)

Indian Standard

INSULATION COORDINATION FOR EQUIPMENT WITHIN LOW-VOLTAGE SYSTEM

PART 1 PRINCIPLES, REQUIREMENTS AND TESTS

SECTION 1 : GENERAL AND DEFINITIONS

1.1 Scope

1.1.1 This part of IEC 60664 deals with insulation coordination for equipment within low voltage systems. It applies to equipment for use up to 2 000 m above sea level having a rated voltage up to a.c. 1000 V with rated frequencies up to 30 kHz or a rated voltage up to d.c. 1500 V.

It specifies the requirements for clearances, creepage distances and solid insulation for equipment based upon their performance criteria. It includes methods of electric testing with respect to insulation coordination.

The minimum clearances specified in this part do not apply where ionized gases occur. Special requirements for such situations may be specified at the discretion of the relevant Technical Committee. This part does not deal with distances

- through liquid insulation,
- through gases other than air,
- through compressed air

NOTE 1 Extension of the scope up to 1 MHz is under consideration.

NOTE 2 Higher voltages may exist in internal circuits of the equipment.

NOTE 3 Requirements for altitudes exceeding 2000 m can be derived from table A.2 of annex

1.1.2 The object of this basic safety standard is to guide Technical Committees responsible for different equipment in order to rationalize their requirements so that insulation coordination is achieved.

It provides the information necessary to give guidance to Technical Committees when specifying clearances in air, creepage distances

1.2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC Guide 104:1984, Guide to the drafting of safety publications, and the role of committees with safety pilot functions and safety group functions

IEC 60038:1983, IEC standard voltages

IEC 60050(151):1978, International Electrotechnical Vocabulary (IEV) - Chapter 151: Electrical and magnetic devices

IEC 60050(604):1987, International Electrotechnical Vocabulary (IEV) - Chapter 604: Generation, transmission and distribution of electricity - Operation

IEC 60060-1:1989, High-voltage test techniques – Part 1: General definitions and test requirements

IEC 60068-1:1988, Environmental testing – Part 1: General and guidance

IEC 60068-2-2:1974, Environmental testing - Part 2: Tests, Tests B: Dry heat

IEC 60068-2-3:1969, Environmental testing - Part 2: Tests, Test Ca: Damp heat, steady state

IEC 60068-2-14: 1984, Environmental testing - Part 2: Tests, Test N: Change of temperature

IEC 60085:1984, Thermal evaluation and classification of electrical insulation

IEC 60099-1:1991, Lightning arresters - Part 1: Non-linear resistor type arresters for a.c. systems

IEC 60112:1979, Method for determining the comparative and the proof-tracking indices of solid insulating materials under moist conditions

IEC 60216, Guide for the determination of thermal endurance properties of electrical insulating materials

IEC 60243-1:1988, Methods of test for electric strength of solid insulating materials - Part 1 : Tests at power frequencies

IEC 60335-1:1991, Safety of household and similar electrical appliances - Part f: General requirements

IEC 60364-4-41:1982, Electrical installations of buildings - Part 4: Protection for safety - Chapter 41: Protection against electric shock

IEC 60364-4-442:1992, Electrical installations of buildings - Part 4: Protection for safety - Chapter 44: Protection against overvoltages - Section 442: Protection of low-voltage installations against faults between high-voltage systems and earth

IEC 60364-4-443:1990, Electrical installations of buildings - Part 4: Protection for safety - Chapter 44: Protection against overvoltages - Section 443: Protection against overvoltage of atmospheric origin or due to switching

IEC 60364-5-537:1981, Electrical installations of buildings - Part 5: Selection and erection of electrical equipment - Chapter 53: Switchgear and controlgear - Section 537: Devices for isolation and switching. Amendment No. 1 1989)

IEC 60529:1989, Degrees of protection provided by enclosures (IP Code)

IEC 60536:1976, Classification of electrical and electronic equipment with regard to protection against electric shock

IEC 60664-4:1997, Insulation coordination for equipment within low-voltage systems - Part 4: Considerations of high-frequency voltage stress

IEC 60664-5, Insulation coordination for equipment within low-voltage systems – Part 5: A comprehensive method for determining clearance and creepage distances equal to or less than 2 mm¹

IEC 60669-1:1981, Switches for household and similar fixed electrical installations - Part 1: General requirements

IEC 60730-1:1990, Automatic electrical controls for electrical household appliances - Part f: General requirements

IEC 61180-1:1992, High-voltage test techniques for low-voltage equipment - Part 1: Definitions, test and procedure requirements

IEC 61180-2:1994, High-voltage test techniques for low-voltage equipment - Part 2: Test equipment

¹⁾ To be published