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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 16935.3-2016

**Insulation coordination for equipment within low-voltage
systems -- Part 3: Use of coating, potting or moulding for
protection against pollution**

(English Translation)

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Foreword

GB/T 16935 "Insulation coordination for equipment within low-voltage systems" is expected to consist of the following parts.

- Part 1.Principles, requirements and tests;
- Part 2-1.Application guide. Explanation of the application of the GB/T 16935 series, dimensioning examples and dielectric testing;
- Part 2-2.Interface considerations - Application guide;
- Part 3.Use of coating, potting or moulding for protection against pollution;
- Part 4.Consideration of high-frequency voltage stress;
- Part 5.Comprehensive method for determining clearances and creepage distances equal to or less than 2 mm.

This Part is Part 3 of GB/T 16935.

This Part is drafted in accordance with the rules given GB/T 1.1-2009.

This Part replaces GB/T 16935.3-2005 "Insulation coordination for equipment within low-voltage systems - Part 3.Use of coating, potting or moulding for protection against pollution". Compared with GB/T 16935.3-2005, main technical differences are as

follows.

- In 4.4 "Dimensioning procedures", it is clearly state that the specified values of minimum spacing of type 2 protection may also be applied to functional insulation;
- In 5.5 "Scratch resistance test", modify the content of the first paragraph and add a note, and detail the description for the specific parts of scratch resistance test;
- REPLACE 5.6 "Visual examination", 5.8.3 "Insulation resistance between conductors", 5.8.4 "AC withstand voltage test", 5.9.1 "Resistance to soldering heat", 5.9.2 "Flammability" and the reference standard IEC 60326-2 "Printed boards; Part 2.test methods" in Annex A WITH IEC 61189-3 "Test methods for electrical materials, printed boards and other interconnection structures and assemblies. Part 3.Test methods for interconnection structures (printed boards)", and UPDATE the test basis and method;
- In 5.9.3 "Solvent resistance" and Annex A, modify the solvent resistance requirement from "According to 8.5 in IEC 60326-2, use methylene chloride" to "Solvent as agreed between purchaser and supplier".

This Part uses the translation method to identically adopt IEC 60664-3:2010 (2.1 edition) "Insulation coordination for equipment within low-voltage systems - Part 3.Use of coating, potting or moulding for protection against pollution".

This Part shall be used together with GB/T 16935.1-2008 "Insulation coordination for equipment within low-voltage systems - Part 1.Principles, requirements and tests" (IEC 60664-1:2007, IDT).

China's national document that correspond in a consistent manner to the International document normatively referenced in this Part is as follows.

- GB/T 4677-2002 Test methods of printed boards (eqv IEC 60326-2:1990).

This Part has made the following editorial modification.

- "93" in 5.7.4.1 and 5.8.1 is wrong, which is modified to "93 % $\pm$ 3 %".

This Part is proposed by China Electrical Equipment Industry Association.

This Part is under the jurisdiction of National Technical Committee on Low Voltage

Equipment Insulation Coordination of Standardization Administration of China
(SAC/TC 417).

Responsible drafting organization of this Part. Shanghai Electric Apparatus Research
Institute.

Participating drafting organizations of this Part. Delixi Electric Co., Ltd., Changshu
Switch Manufacturing Co., Ltd. (formerly Changshu Switch Factory).

Main drafters of this Part. Huang Jingye, Bao Ge, Wu Qingyun, Zhang Lili, Lin Chuan,
Zhou Jianxing.

The historical edition of the standard replaced by this Part is.

- GB/T 16935.3-2005.

1 Scope

This Part of GB/T 16935 applies to assemblies protected against pollution by the use
of coating, potting or moulding, thus allowing a reduction of clearance and creepage
distances as described in Part 1 or Part 5.

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.

GB/T 2423.1-2008 Environmental testing - Part 2. Test methods - Tests A. Cold (IEC
60068-2-1:2007, IDT)

3 Definitions

For the purposes of this document, the definitions given in GB/T 16935.1-2008 as well
as the following definitions apply.

Any kind of measure which reduces the influence of the environment.

4 Design requirements

For type 1 protection, the dimensioning requirements of 5.1 and 5.2 of Part 1 or Part 5
apply.

For type 2 protection, the spacing between the conductors before the protection is applied shall not be less than the values as specified in Table 1.T

5.1 General

The suitability of protection is evaluated by carrying out all the tests described in 5.8 after the conditioning described in 5.7.

Printed boards shall be cleaned and coated using the normal procedure of the manufacturer. The soldering procedure is carried out but without components being in place. Moulded and potted specimens shall be tested without further preparation.

Annex A

(normative)

Test sequence

The following flow-chart shows the order in which the tests of Clause 5 have to be carried out. No failure of any specimen under test is permitted.

Annex B

(normative)

Technical committees' decisions

When referring to the standard, technical committees are required to decide on the severity levels for some of the tests and are allowed to vary some of the test conditions.

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