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

GB/T 17948-2003

Replacing GB/T 17948.1-2000

**Rotating electrical machines -- Functional evaluation of
insulation systems -- Test procedures for wire-wound windings
-- Thermal evaluation and classification
(English Translation)**

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Foreword

GB/T 17948 "Rotor motor insulation structure functional assessment" is divided into the following parts.

--- Thermal evaluation and classification of test procedures for loose windings (GB/T 17948.1);

--- Change of test procedure for loose winding and replacement of insulation components (GB/T 17948.2);

--- Forming winding test procedure Thermal evaluation and classification of rotating

electrical insulation structure (GB/T 17948.3);

---Formed winding test procedures voltage durability assessment (GB/T 17948.4);

---Formed Winding Test Procedures Multi-factor evaluation of thermal and electrical comprehensive stress durability (GB/T 17948.5);

---Formed Winding Test Procedures Thermal Mechanical Durability Assessment of Insulation Structures (GB/T 17948.6);

--- General (GB/T 17948.7).

This part is the first part of GB/T 17948.

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

This part replaces GB/T 17948.1-2000 "Rotating electrical machine insulation structure functional evaluation of the winding test specification heat evaluation and Classification, the main technical changes compared with GB/T 17948.1-2000 are as follows.

--- Added "recommended aging temperature and aging cycle exposure time" (see Table 2);

--- Modified the withstand voltage test (see 8.4.4, 2000 version 4.4.3, 5.4.2, 6.4.3, 7.4.3, 8.4.3);

--- Increased eligibility criteria in different situations (see Chapter 7).

This part uses the translation method equivalent to IEC 60034-18-21:2012 "Rotating electrical machines Part 18-21. Functional evaluation of insulation structures Thermal Evaluation and Classification of Test Procedures for Decentralized Winding Windings.

The documents of our country that have a consistent correspondence with the international documents referenced in this part are as follows.

---GB/T 755-2008 Rotating electrical machine rating and performance (IEC 60034-1:2004, IDT)

---GB/T 11021-2014 Electrical insulation heat resistance and indication method (IEC 60085:2007, IDT) GB/T 11026.1-2016 Thermal insulation of electrical insulating materials - Part 1 . Assessment of aging procedures and test results (IEC 60216-1:2013, IDT) Thermal insulation of electrical insulating materials - Part 7. Determination of relative thermal index of insulating materials (RTE) (IEC 60216-5:2008, IDT)

---GB/T 15022 (all parts) resin-based reactive composite for electrical insulation [IEC 60455 (all parts)]

---GB/T 20112-2015 Assessment and identification of electrical insulation systems (IEC 60505:2011, IDT) this section has made the following editorial changes.

--- In order to be consistent with China's existing standard system, the name of this part

was changed to "Rotating electrical machine insulation structure functional evaluation loose winding Test Procedure Thermal Assessment and Classification.

This part was proposed by China Electrical Equipment Industry Association.

This part is under the jurisdiction of the National Rotating Electric Machine Standardization Technical Committee (SAC/TC26).

This section drafted by. Shanghai Electric Apparatus Research Institute (Group) Co., Ltd., Shanghai Motor System Energy Conservation Engineering Technology Research Center Limited Company, Shandong Huali Motor Group Co., Ltd., Shanghai Dexuchi Electric Co., Ltd., Kaifeng Shengda Motor Technology Co., Ltd., Haidian Electric Research Institute, Shanghai Electrical Equipment Testing Co., Ltd., Zhejiang Rongtai Electrical Equipment Co., Ltd., Zhejiang Hulong Technology Co., Ltd.

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Introduction

IEC 60034-18 contains several parts, giving functional evaluation and special test procedures for the insulation structure of rotating electrical machines.

General rules for these procedures and qualification criteria are given in IEC 60034-18-1.

IEC 60034-18-21, IEC 60034-18-31, IEC 60034-18-32, IEC 60034-18-33, IEC 60034-18-34, Detailed procedures for different types of windings are given in IEC 60034-18-41 and IEC 60034-18-42.

Thermal evaluation and classification of the insulated structure of the wound winding is given in IEC 60034-18-21.

The relevant parts are as follows.

---IEC 60034-18-1. General;

---IEC 60034-18-31. test procedure for forming windings;

---IEC 60034-18-41. Identification and type test of type I insulation structure of rotary electric machines powered by voltage type inverters;

---IEC 60034-18-42. Identification and identification of electrical insulation structures (type II) for partial discharge electric motors can be tested.

Functional Evaluation of Insulation Structure of Rotating Electric Machine Winding test procedure for thermal evaluation and grading

1 Scope

This part of GB/T 17948.1 specifies the thermal evaluation of the winding insulation structure for AC or DC rotating electrical machines or for application.

Test procedures for determination and grading.

The test performance of the insulation structure to be evaluated is compared with the test performance of the reference insulation structure which has been proved by operational experience.

GB/T 17948.7-2016 describes the basic test principles for the heat resistance test of rotating electrical insulation structures. Except as otherwise provided in this section in addition, follow the principles of GB/T 17948.7-2016.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 17948.7-2016 General rules for functional evaluation of insulating structures for rotating electrical machines (IEC 60034-18-1:2010, IDT) IEC 60034-1 Rotating electrical machines - Part 1. Quantitative and performance (Rotating electrical machines - Part 1 . Rating Andperformance) IEC 60085 Electrical Insulation Heat Resistance and Representation (ElectricalInsulation-Thermalevaluationanddesig-Nation) Thermal insulation of electrical insulating materials - Part 1 . Assessment of aging procedures and test results (Electricalinsulatingmaterials-Propertiesofthermalendurance-Part 1: Ageingproceduresandevaluationof Testresults) Thermal insulation of electrical insulating materials - Part 5. Determination of relative heat index (RTE) of insulating materials [Electricalinsulatingmaterials-Thermalenduranceproperties-Part 5: Determinationofrelative Thermalenduranceindex(RTE)ofaninsulatingmaterial] IEC 60455 (all parts) Resin based reactive active compound for electrical insulation (Resinbasedreactivecompoundsusedfor Electricalinsulation) IEC 60464 (all parts) Varnishes for electrical insulation (Varnishesusedforelectricalinsulation) IEC 60505 Electrical Insulation System Assessment and Identification (Evaluationandqualificationofelectricalinsulationsys-Tems)

3.1 Reference insulation structure

The reference insulation structure described in 4.3 of GB/T 17948.7-2016 shall be tested using the same procedure as the insulation structure to be evaluated.