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BSI Standards Publication

Electrical insulation systems (EIS) — Thermal evaluation of combined liquid and solid components

Part 3: Hermetic motor-compressors

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National foreword

This Published Document is the UK implementation of IEC/TS 62332-3:2016.

The UK participation in its preparation was entrusted to Technical Committee GEL/112, Evaluation and qualification of electrical insulating materials and systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Electrical insulation systems (EIS) – Thermal evaluation of combined liquid and solid components – Part 3: Hermetic motor-compressors

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRICAL INSULATION SYSTEMS (EIS) – THERMAL EVALUATION OF COMBINED LIQUID AND SOLID COMPONENTS –

Part 3: Hermetic motor-compressors

FOREWORD

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Technical Specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62332-3, which is a Technical Specification, has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems.

The text of this Technical Specification is based on the following documents:

Enquiry draft	Report on voting
112/353/DTS	112/362/RVC

Full information on the voting for the approval of this Technical Specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62332 series, published under the general title *Electrical insulation systems (EIS) – Thermal evaluation of combined liquid and solid components*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- transformed into an International Standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 62332, which is a Technical Specification, describes a method for the thermal evaluation of electrical insulation systems (EIS) for electrotechnical products with combined liquid and solid components. IEC TS 62332-1 covers general test requirements. IEC TS 62332-2 covers a simplified test method which can be used as a screening test prior to conducting IEC TS 62332-1 testing or can be used as a quality control test to evaluate minor product changes. This part of IEC 62332 covers the evaluation and qualification of electrical insulation materials (EIM) and EIS which are applied to motor-compressors for the refrigerator or air conditioner. This document contains the evaluation items which are important to maintain the equipment performances in the refrigerator oil and refrigerant at high temperature and high pressure.

This document has been prepared in conjunction with IEC 60335-2-34.

IEC TS 62332-3 is applicable to EIM and EIS evaluation for hermetic motor-compressors which are applied to the refrigerator and the air conditioner. The main procedures consist in the evaluation of EIM and EIS endurance for refigerator and oil at high temperature and high pressure. It describes how to evaluate the mechanical, thermal and chemical degradation of the performances of EIM which have deep relation to keep the sound condition of the equipment.

This simplified Technical Specification provides a test method for sealed tube testing. The sealed tube should contain all the primary EIM elements in relative component ratios which compare with the actual electrotechnical device.

ELECTRICAL INSULATION SYSTEMS (EIS) – THERMAL EVALUATION OF COMBINED LIQUID AND SOLID COMPONENTS –

Part 3: Hermetic motor-compressors

1 Scope

This part of IEC 62332, which is a Technical Specification, is applicable to EIM and EIS containing solid and liquid components where the refrigerant, oil and thermal stresses are the dominant ageing factor, without restriction to voltage class.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60216-1, *Electrical insulating materials – Thermal endurance properties – Part 1: Ageing procedures and evaluation of test results*

IEC 60216-3, *Electrical insulating materials – Thermal endurance properties – Part 3: Instructions for calculating thermal endurance characteristics*

IEC 60216-4-1:2006, *Electrical insulating materials – Thermal endurance properties – Part 4-1: Ageing ovens – Single-chamber ovens*

IEC 60216-5, *Electrical insulating materials – Thermal endurance properties – Part 5: Determination of relative thermal endurance index (RTE) of an insulating material*

IEC 60247, *Insulating liquids – Measurement of relative permittivity, dielectric dissipation factor (tan δ) and d.c. resistivity*

IEC 60250, *Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths*

IEC 60317-0-1, *Specifications for particular types of winding wires – Part 0-1: General requirements – Enamelled round copper wire*

IEC 60505, *Evaluation and qualification of electrical insulation systems*

IEC 60674-2, *Specification for plastic films for electrical purposes. Part 2: Methods of test*

IEC 60684-2, *Flexible insulating sleeving – Part 2: Methods of test*

IEC 60851-5, *Winding wires – Test methods – Part 5: Electrical properties*

IEC 61857-1:2008, *Electrical insulation systems– Procedures for thermal evaluation – Part 1: General requirements – Low voltage*