Electrical insulation systems – Thermal evaluation of modifications to an established wire-wound EIS

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 61858:2008 sisaldab Euroopa standardi EN 61858:2008 ingliskeelset teksti.	This Estonian standard EVS-EN 61858:2008 consists of the English text of the European standard EN 61858:2008.
Standard on kinnitatud Eesti Standardikeskuse 24.11.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 24.11.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 09.10.2008.	Date of Availability of the European standard text 09.10.2008.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 29.080.30

Võtmesõnad: changes, electrical insulation system, established, evaluation, thermal

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Electrical insulation systems - Thermal evaluation of modifications to an established wire-wound EIS

(IEC 61858:2008)

Systèmes d'isolation électriques - Evaluation thermique des modifications apportées à un système d'isolation électrique éprouvé à enroulements à fil (CEI 61858:2008)

Elektrische Isoliersysteme - Thermische Bewertung von Veränderungen an einem erprobten, drahtgewickelten EIS (IEC 61858:2008)

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 112/90/CDV, future edition 3 of IEC 61858, prepared by IEC TC 112, Evaluation and qualification of electrical insulating materials and systems, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61858 on 2008-09-01.

This European Standard supersedes EN 61858:2005.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2009-06-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2011-09-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61858:2008 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60317-24 NOTE Harmonized as EN 60317-24:1995 (not modified).

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60085	2007	Electrical insulation - Thermal evaluation and designation	EN 60085	2008
IEC 60172	-[1)]	Test procedure for the determination of the temperature index of enamelled winding wires	EN 60172	1994[2)]
IEC 60216-5	-[1)]	Electrical insulating materials - Thermal endurance properties - Part 5: Determination of relative thermal endurance index (RTE) of an insulating material	EN 60216-5	2008[2)]
IEC 60317-3	-[1)]	Specifications for particular types of winding wires - Part 3: Polyester enamelled round copper wire, class 155	-	-
IEC 60317-4	-[1)]	Specifications for particular types of winding wires - Part 4: Solderable polyurethane enamelled round copper wire, class 130	EN 60317-4	1994[2)]
IEC 60317-7	-[1)]	Specifications for particular types of winding wires - Part 7: Polyimide enamelled round copper wire, class 220	HD 555.7 S2	1992[2)]
IEC 60317-8	-[1)]	Specifications for particular types of winding wires - Part 8: Polyesterimide enamelled round copper wire, class 180	EN 60317-8	1994[2)]
IEC 60317-13	-[1)]	Specifications for particular types of winding wires - Part 13: Polyester or polyesterimide overcoated with polyamide-imide enamelled round copper wire, class 200	EN 60317-13	1994[2)]
IEC 60317-15	-[1)]	Specifications for particular types of winding wires - Part 15: Polyesterimide enamelled round aluminium wire, class 180	EN 60317-15	2004[2)]
IEC 60317-16	-[1)]	Specifications for particular types of winding wires - Part 16: Polyester enamelled rectangular copper wire, class 155	HD 555.16 S2	1992[2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

Publication	Year	Title	EN/HD	Year
IEC 60317-19	-[1)]	Specifications for particular types of winding wires - Part 19: Solderable polyurethane enamelled round copper wire overcoated with polyamide, class 130	EN 60317-19	1995[2)]
IEC 60317-20	-[1)]	Specifications for particular types of winding wires - Part 20: Solderable polyurethane enamelled round copper wire, class 155	EN 60317-20	1995[2)]
IEC 60317-21	-[1)]	Specifications for particular types of winding wires - Part 21: Solderable polyurethane enamelled round copper wire overcoated with polyamide, class 155	EN 60317-21	1995[2)]
IEC 60317-22	-[1)]	Specifications for particular types of winding wires - Part 22 : Polyester or polyesterimide enamelled round copper wire overcoated with polyamide, class 180	EN 60317-22	2004[2)]
IEC 60317-23	-[1)]	Specifications for particular types of winding wires - Part 23: Solderable polyesterimide enamelled round copper wire, class 180	EN 60317-23	1995[2)]
IEC 60317-25	-[1)]	Specifications for particular types of winding wires - Part 25: Polyester or polyesterimide overcoated with polyamide-imide enamelled round aluminium wire, class 200	EN 60317-25	1996[2)]
IEC 60317-29	-[1)]	Specifications for particular types of winding wires - Part 29: Polyester or polyesterimide overcoated with polyamide-imide enamelled rectangular copper wire, class 200	EN 60317-29	1996[2)]
IEC 60317-30	-[1)]	Specifications for particular types of winding wires - Part 30: Polyimide enamelled rectangular copper wire, class 220	EN 60317-30	1996[2)]
IEC 60317-34	-[1)]	Specifications for particular types of winding wires - Part 34: Polyester enamelled round copper wire, class 130 L	-	-
IEC 60317-42	-[1)]	Specifications for particular types of winding wires - Part 42: Polyester-amide-imide enamelled round copper wire, class 200	EN 60317-42	1997[2)]
IEC 60317-46	-[1)]	Specifications for particular types of winding wires - Part 46: Aromatic polyimide enamelled round copper wire, class 240	EN 60317-46	1997[2)]
IEC 60317-47	-[1)]	Specifications for particular types of winding wires - Part 47: Aromatic polyimide enamelled rectangular copper wire, class 240	EN 60317-47	1997[2)]

Publication	Year	Title	EN/HD	Year
IEC 60317-51	-[1)]	Specifications for particular types of winding wires - Part 51: Solderable polyurethane enamelled round copper wire, class 180	EN 60317-51	2001[2)]
IEC 60505	-[1)]	Evaluation and qualification of electrical insulation systems	EN 60505	2004[2)]
IEC 61033	-[1)]	Test methods for the determination of bond strength of impregnating agents to an enamelled wire substrate	EN 61033	2006[2)]
IEC 61857	Series	Electrical insulation systems - Procedures for thermal evaluation	EN 61857	Series
IEC 61857-1	-[1)]	Electrical insulation systems - Procedures for thermal evaluation - Part 1: General requirements - Low-voltage	EN 61857-1	2005[2)]

CONTENTS

INTRODUCTION

This International Standard describes procedures for the evaluation of changes to an established electrical insulation system (EIS) for wire-wound electrotechnical devices and the effect of these changes on the thermal classification of the established EIS.

General principles for evaluation and qualification of EIS can be found in IEC 60505. Unless the procedures of this standard indicate otherwise, the principles of IEC 60505 should be followed.

The thermal classification of an EIS is established either by known service life, in accordance with IEC 60505, or evaluated in accordance with IEC 61857 (all parts).

ELECTRICAL INSULATION SYSTEMS – THERMAL EVALUATION OF MODIFICATIONS TO AN ESTABLISHED WIRE-WOUND EIS

1 Scope

This International Standard lists the required test procedures for qualification of modifications of an established electrical insulation system (EIS) with respect to its thermal classification. This standard is applicable to EIS used in wire-wound electrotechnical devices. The test procedures are comparative in that the performance of a candidate EIS is compared to that of a reference EIS, which has proven service experience in accordance with IEC 60505 or has been evaluated by one of the procedures given in the IEC 61857 series.

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 60085:2007, *Electrical insulation – Thermal evaluation and designatio*n

IEC 60172, *Test procedure for the determination of the temperature index of enamelled winding wires*

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

IEC 60317-3, *Specifications for particular types of winding wires – Part 3: Polyester enamelled round aluminium wire, class 155*

IEC 60317-4, *Specifications for particular types of winding wires – Part 4: Solderable polyurethane enamelled round copper wire, class 130*

IEC 60317-7, *Specifications for particular types of winding wires – Part 7: Polyimide enamelled round copper wire, class 220*

IEC 60317-8, *Specifications for particular types of winding wires – Part 8: Polyesterimide enamelled round copper wire, class 180*

IEC 60317-13, *Specifications for particular types of winding wires – Part 13: Polyester or polyesterimide overcoated with polyamide-imide enamelled round copper wire, class 200*

IEC 60317-15, *Specifications for particular types of winding wires – Part 15: Polyesterimide enamelled round aluminium wire, class 180*

IEC 60317-16, *Specifications for particular types of winding wires – Part 16: Polyester enamelled rectangular copper wire, class 155*

IEC 60317-19, *Specifications for particular types of winding wires – Part 19: Solderable polyurethane enamelled round copper wire, overcoated with polyamide, class 130*

IEC 60317-20, *Specifications for particular types of winding wires – Part 20: Solderable polyurethane enamelled round copper wire, class 155*

IEC 60317-21, *Specifications for particular types of winding wires – Part 21: Solderable polyurethane enamelled round copper wire overcoated with polyamide, class 155*

IEC 60317-22, *Specifications for particular types of winding wires – Part 22: Polyester or polyesterimide enamelled round copper wire overcoated with polyamide, class 180*

IEC 60317-23, *Specifications for particular types of winding wires – Part 23: Solderable polyesterimide enamelled round copper wire, class 180*

IEC 60317-25, *Specifications for particular types of winding wires – Part 25: Polyester or polyesterimide overcoated with polyamide-imide enamelled round aluminium wire, class 200*

IEC 60317-29, *Specifications for particular types of winding wires – Part 29: Polyester or polyesterimide overcoated with polyamide-imide enamelled rectangular copper wire, class 200*

IEC 60317-30, *Specifications for particular types of winding wires – Part 30: Polyimide enamelled rectangular copper wire, class 220*

IEC 60317-34, *Specifications for particular types of winding wires – Part 34: Polyester enamelled round copper wire, class 130 L*

IEC 60317-42, *Specifications for particular types of winding wires – Part 42: Polyester-amide-imide enamelled round copper wire, class 200*

IEC 60317-46, *Specifications for particular types of winding wires – Part 46: Aromatic polyimide enamelled round copper wire, class 240*

IEC 60317-47, *Specifications for particular types of winding wires – Part 47: Aromatic polyimide enamelled rectangular copper wire, class 240*

IEC 60317-51, *Specifications for particular types of winding wires – Part 51: Solderable polyurethane enamelled round copper wire, class 180*

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

IEC 61033, *Test methods for the determination of bond strength of impregnating agents to an enamelled wire substrate*

IEC 61857 (all parts), *Electrical insulation systems – Procedures for thermal evaluation*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
electrical insulation system
EIS
insulating structure containing one or more electrical insulating materials (EIM) together with associated conducting parts employed in an electrotechnical device