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colour inside

Test methods for accessories for power cables with rated voltages from 6 kV (U_m = 7,2 kV) up to 36 kV (U_m = 42 kV)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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TEST METHODS FOR ACCESSORIES FOR POWER CABLES WITH RATED VOLTAGES FROM 6 kV (U_m = 7,2 kV) UP TO 30 kV (U_m = 36 kV)

FOREWORD

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IEC 61442 has been prepared by IEC technical committee 20: Electric cables. It is an International Standard.

This third edition cancels and replaces the second edition published in 2005. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) 4.6 – the option to start tests immediately has been included;
b) 4.11 – methods for testing on belted cables have been included;
c) 5.3.2 and 10.3 – details of insulation resistance testing has been added;
d) 8.2 – pre-stress with slightly increased test voltage before applying the partial discharge test has been included;
e) 11.2 – testing of accessories with external earthing devices has been included;
f) 11.2 – short-circuit duration and maximum kA levels have been added;
g) 11.2 – temperature measurement is not required if the time between short-circuits > 1 h.

The text of this International Standard is based on the following documents:

Draft	Report on voting
20/2108/FDIS	20/2132/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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TEST METHODS FOR ACCESSORIES FOR POWER CABLES WITH RATED VOLTAGES FROM 6 kV (U_m = 7,2 kV) UP TO 30 kV (U_m = 36 kV)

1 Scope

This document specifies the test methods applicable for type testing accessories for power cables with rated voltages from 3,6/6 (7,2) kV up to 18/30 (36) kV. The test methods specified in this document apply to accessories for extruded and paper insulated cables according to IEC 60502-2 and IEC 60055-1 respectively.

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 60055-1: *Paper-insulated metal-sheathed cables for rated voltages up to 18/30 kV (with copper or aluminium conductors and excluding gas-pressure and oil-filled cables) – Part 1: Tests on cables and their accessories*~~

IEC 60060-1:~~1989~~2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60230:~~1966~~2018, *Impulse tests on cables and their accessories*
IEC 60230:2018/AMD1:2021

IEC 60270:2000, *High-voltage test techniques – Partial discharge measurements*
IEC 60270:2000/AMD1:2015

~~IEC 60502-2:2005, *Power cables with extruded insulation and their accessories for rated voltages from 1 kV (U_m = 1,2 kV) up to 30 kV (U_m = 36 kV) – Part 2: Cables for rated voltages from 6 kV (U_m = 7,2 kV) up to 30 kV (U_m = 36 kV)*~~

~~IEC 60811-1-2:1985, *Common test methods for insulating and sheathing materials of electric and optical cables – Part 1: Methods for general application – Section Two: Thermal ageing methods*~~

IEC 60811-401:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 401: Miscellaneous tests – Thermal ageing methods – Ageing in an air oven*
IEC 60811-401:2012/AMD1:2017

IEC 60885-2:1987[1], *Electrical test methods for electric cables – Part 2: partial discharge tests*

~~IEC 60885-3:1988, *Electrical test methods for electric cables – Part 3: Test methods for partial discharge measurements on lengths of extruded power cables*~~

~~IEC 60986:2000, *Short-circuit temperature limits of electric cables with rated voltages from 6 kV (U_m = 7,2 kV) up to 30 kV (U_m = 36 kV)*~~

[1] Withdrawn.

~~IEC 61238-1:2003, *Compression and mechanical connectors for power cables for rated voltages up to 30 kV (U_m = 36 kV) – Part 1: Test methods and requirements*~~

IEC 61238-1-3:2018, *Compression and mechanical connectors for power cables – Part 1-3: Test methods and requirements for compression and mechanical connectors for power cables for rated voltages above 1 kV (U_m = 1,2 kV) up to 30 kV (U_m = 36 kV) tested on non-insulated conductors*

IEC 60949:1988, *Calculation of thermally permissible short-circuit currents, taking into account non-adiabatic heating effects*
IEC 60949:1988/AMD1:2008

IEC 61442

Edition 3.0 2023-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Test methods for accessories for power cables with rated voltages from 6 kV (U_m = 7,2 kV) up to 36 kV (U_m = 42 kV)

Méthodes d'essais des accessoires de câbles d'énergie de tensions assignées de 6 kV (U_m = 7,2 kV) à 36 kV (U_m = 42 kV)



IEC 61442:2023-10(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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IEC 60230:2018/AMD1:2021

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[1] Withdrawn.

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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MÉTHODES D'ESSAIS DES ACCESSOIRES DE CÂBLES D'ÉNERGIE DE TENSIONS ASSIGNÉES DE 6 kV (U_m = 7,2 kV) À 30 kV (U_m = 36 kV)

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L'IEC 61442 a été établie par le comité d'études 20 de l'IEC: Câbles électriques. Il s'agit d'une Norme internationale.

Cette troisième édition annule et remplace la deuxième édition parue en 2005. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) 4.6 – la possibilité de démarrer les essais immédiatement a été incluse;
b) 4.11 – des méthodes d'essais sur câbles à ceinture ont été incluses;
c) 5.3.2 et 10.3 – des informations sur les essais de résistance d'isolement ont été ajoutées;
d) 8.2 – une précontrainte avec légère augmentation de la tension d'essai avant l'application de l'essai de décharge partielle a été incluse;

e) 11.2 – l'essai des accessoires avec des dispositifs de mise à la terre externes ont été inclus;

f) 11.2 – la durée de court-circuit et les niveaux d'intensité maximaux, exprimés en kA, ont été ajoutés;

g) 11.2 – la mesure de la température n'est pas exigée si la durée entre courts-circuits est supérieure à 1 h.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
20/2108/FDIS	20/2132/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La version française de la norme n'a pas été soumise au vote.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications.

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MÉTHODES D'ESSAIS DES ACCESSOIRES DE CÂBLES D'ÉNERGIE DE TENSIONS ASSIGNÉES DE 6 kV (U_m = 7,2 kV) À 30 kV (U_m = 36 kV)

1 Domaine d'application

Le présent document définit les méthodes d'essais applicables aux essais de type des accessoires de câbles d'énergie de tensions assignées de 3,6/6 (7,2) kV à 18/30 (36) kV inclus. Les méthodes d'essais spécifiées dans le présent document s'appliquent aux accessoires pour câbles à isolant extrudé et pour câbles isolés au papier imprégné, conformément à l'IEC 60502- 2 et l'IEC 60055-1, respectivement.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60060-1:2010, *Technique des essais à haute tension – Partie 1: Définitions et exigences générales*

IEC 60230:2018, *Essais de choc des câbles et de leurs accessoires*
IEC 60230:2018/AMD1:2021

IEC 60270:2000, *Techniques des essais à haute tension – Mesures des décharges partielles*
IEC 60270:2000/AMD1:2015

IEC 60811-401:2012, *Câbles électriques et à fibres optiques – Méthodes d'essai pour les matériaux non métalliques – Partie 401: Essais divers – Méthodes de vieillissement thermique – Vieillissement en étuve à air*
IEC 60811-401:2012/AMD1:2017

IEC 60885-2:1987[1], *Méthodes d'essais électriques pour les câbles électriques – Partie 2: Essais de décharges partielles*

IEC 61238-1-3:2018, *Raccords sertis et à serrage mécanique pour câbles d'énergie – Partie 1- 3: Méthodes et exigences d'essai relatives aux raccords sertis et à serrage mécanique pour câbles d'énergie de tensions assignées supérieures à 1 kV (U_m = 1,2 kV) jusqu'à 30 kV (U_m = 36 kV) soumis à essai sur des conducteurs non isolés*

IEC 60949:1988, *Calcul des courants de court-circuit admissibles au plan thermique, tenant compte des effets d'un échauffement non adiabatique*
IEC 60949:1988/AMD1:2008

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1 Supprimée.