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REDLINE VERSION

Kraftkablar – Provning av skarvar och avslutningar för kablar med märkspänning från 6 kV ($U_m = 7,2$ kV) till 30 kV ($U_m = 36$ kV)

*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)*

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IEC 61442

Edition 3.0 2023-10
REDLINE VERSION

INTERNATIONAL STANDARD



**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)**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 19.080, 29.060.20

ISBN 978-2-8322-7726-3

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 61442:2005. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

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.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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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 60885-2:1987¹, *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

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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)*

Som svensk standard gäller europastandarden EN IEC 61442:2024. Den svenska standarden innehåller de officiella engelska språkversionerna av EN IEC 61442:2024 och EN IEC 61442:2024/A11:2024.

Nationellt förord

Europastandarden EN IEC 61442:2024

består av:

- europastandardens ikraftsättningsdokument, utarbetat inom CENELEC
- **IEC 61442, Third edition, 2023 - 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)**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61442, utg 1:2006 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2027-12-31.

ICS 19.080.00; 29.060.20

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English Version

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)
(IEC 61442:2023)

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)

Prüfverfahren für Starkstromkabelgarnituren mit einer
Nennspannung von 6 kV ($U_m = 7,2$ kV) bis 30 kV ($U_m = 36$
kV)
(IEC 61442:2023)

This European Standard was approved by CENELEC on 2024-12-09. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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European foreword

The text of document 20/2108/FDIS, future edition 3 of IEC 61442, prepared by TC 20 "Electric cables" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61442:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2025-12-31 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2027-12-31 document have to be withdrawn

This document supersedes EN 61442:2005 and all of its amendments and corrigenda (if any).

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Endorsement notice

The text of the International Standard IEC 61442:2023 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

- | | | |
|----------------|------|--|
| IEC 60228 | NOTE | Approved as EN IEC 60228 |
| IEC 60507:2013 | NOTE | Approved as EN 60507:2014 (not modified) |
| IEC 62475:2010 | NOTE | Approved as EN 62475:2010 (not modified) |

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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)

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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ICS 19.080, 29.060.20

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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

IEC 60230:2018, *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 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 60885-2:1987¹, *Electrical test methods for electric cables – Part 2: partial discharge tests*

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

¹ Withdrawn.