BS EN IEC 61442:2024+A11:2024



BSI Standards Publication

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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National foreword

This British Standard is the UK implementation of EN IEC 61442:2024+A11:2024. It is derived from IEC 61442:2023. It supersedes BS EN 61442:2005, which will be withdrawn on 31 December 2027.

The start and finish of text introduced or altered by amendment A11 is indicated in the text by tags. Tags indicating changes to text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A11 is indicated by ⟦A11⟩ ⟨A11⟩.

The UK participation in its preparation was entrusted to Technical Committee GEL/20/11, Electric Cable accessories.

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

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Published by BSI Standards Limited 2024

ISBN 978 0 539 19209 4

ICS 19.080; 29.060.20

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 December 2024.

Amendments/corrigenda issued since publication

Date	Text affected

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61442:2024+A11

December 2024

ICS 19.080; 29.060.20

Supersedes EN 61442:2005

English Version

Test methods for accessories for power cables with rated voltages from 6 kV (Um = 7,2 kV) up to 36 kV (Um = 42 kV) (IEC 61442:2023)

Méthodes d'essais des accessoires de câbles d'énergie de tensions assignées de 6 kV (Um = 7,2 kV) à 36 kV (Um = 42 kV)
(IEC 61442:2023)

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

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• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2027-12-31

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

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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)

European foreword to amendment A11

This document (EN IEC 61442:2024/A11:2024) has been prepared by CLC/TC 20 "Electric cables".

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60060-1	2010	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	2010
IEC 60230	2018	Impulse tests on cables and their accessories	EN IEC 60230	2018
+ A1	2021		+ A1	2023
IEC 60270	2000	High-voltage test techniques - Partial discharge measurements	EN 60270	2001
+ A1	2015		+ A1	2016
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	EN 60811-401	2012
+ A1	2017		+ A1	2017
IEC 60885-2	1987[1]	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 (Um = 1,2 kV) up to 30 kV (Um = 36 kV) tested on non-insulated conductors	EN IEC 61238-1-3	2019
IEC 60949	1988	Calculation of thermally permissible short-circuit currents, taking into account non-adiabatic heating effects	-	-
+ A1	2008		-	-

[1] Withdrawn.

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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 〚A11〛 36 kV (U_m = 42 kV) 〚A11〛

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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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;

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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 [A11] 36 kV (U_m = 42 kV) [A11]

1 Scope

This document specifies the test methods applicable for type testing accessories for power cables with rated voltages [A11] from 6 kV (U_m = 7,2 kV) up to 36 kV (U_m = 42 kV) [A11]. 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 60885-2:1987[1], *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.

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3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

4 Test installations and conditions

4.1 The test methods described in this document are intended to be used for type tests.

4.2 The test arrangements and the number of test samples are given in the relevant standard.

4.3 The test conditions are specified in Clause 5 to Clause 21. When they are not, they shall be as specified in the relevant standards.

4.4 The testing parameters and the requirements are given in the relevant standard, unless otherwise stated.

4.5 For transition joints (either extruded insulation to extruded insulation or extruded insulation to paper insulation), the testing parameters (voltage and conductor temperature) are those of the lower rated cable.

4.6 The tests can be started immediately after installation of accessories on the cable test loops, unless otherwise specified by the manufacturer. The time interval between installation of the accessories and the start of the tests shall be recorded in the test report.

4.7 Cable screens, and armour if any, shall be bonded and earthed at one end only to prevent circulating currents.

4.8 All parts of an accessory which are normally earthed shall be connected to the cable screen. Any supporting metalwork shall also be earthed.

4.9 The ambient temperature shall be (20 ± 15) °C.

4.10 Tap water shall be used for all tests in water.

4.11 Tests on belted cables:

When conducting AC voltage tests and heating cycle voltage tests, a three-phase test voltage and current system shall be used.

When conducting DC voltage tests and the impulse tests, the test voltage shall be applied to one cable conductor and the other two cable conductors and the screen shall be earthed. All cable conductors shall be tested separately.

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