

SLOVENSKI STANDARD SIST EN IEC 61442:2025

01-marec-2025

Preskusne metode za pribor energetskih kablov za naznačene napetosti od 6 kV (Um = 7,2 kV) do 30 kV (Um = 36 kV) (IEC 61442:2023)

Test methods for accessories for power cables with rated voltages from 6 kV (Um = 7.2 kV) up to 30 kV (Um = 36 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)

Méthodes d'essais des accessoires de câbles d'énergie de tensions assignées de 6 kV (Um = 7,2 kV) à 30 kV (Um = 36 kV) (IEC 61442:2023)

Ta slovenski standard je istoveten z: EN IEC 61442:2024

ICS:

19.080 Električno in elektronsko Electrical and electronic

preskušanje testing

29.060.20 Kabli Cables

SIST EN IEC 61442:2025 en

iTeh Standards (https://standards.iteh.ai) Document Preview

SIST EN IEC 61442:2025

https://standards.iteh.ai/catalog/standards/sist/eb3880c1-c2c7-433f-8b77-c31713001485/sist-en-jec-61442-2025

EUROPEAN STANDARD NORME EUROPÉENNE FUROPÄISCHE NORM

EN IEC 61442

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)

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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

https://standards.iteh.ai/catalog/standards/sist/eb3880c1-c2c7-433f-8b77-c31713001485/sist-en-iec-61442-2025



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 61442:2024 (E)

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

(https://standards.iteh.ai)

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)



IEC 61442

Edition 3.0 2023-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Test methods for accessories for power cables with rated voltages from 6 kV ($U_{\rm m}$ = 7,2 kV) up to 30 kV ($U_{\rm m}$ = 36 kV)

Méthodes d'essais des accessoires de câbles d'énergie de tensions assignées de 6 kV ($U_{\rm m}$ = 7,2 kV) à 30 kV ($U_{\rm m}$ = 36 kV)

SIST EN IEC 61442:202:

https://standards.iteh.ai/catalog/standards/sist/eb3880c1-c2c7-433f-8b77-c31713001485/sist-en-jec-61442-2025

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 19.080, 29.060,20 ISBN 978-2-8322-7637-2

Warning! Make sure that you obtained this publication from an authorized distributor.

Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

FC	REWORI	D	5
1	Scope.		7
2	Normat	tive references	7
3	Terms	and definitions	8
4	Test in	stallations and conditions	8
5		tage tests	
•		ry test for all accessories	
	5.1.1	Installation	
	5.1.2	Method	
	-	/et test for outdoor terminations	
	5.2.1	Installation	
	5.2.2	Method	
		est in water for stop ends	
	5.3.1	Installation	
	5.3.2	Method	9
6	DC volt	tage tests	9
	6.1 Ir	nstallation	9
		lethod	
7		e voltage tests	
		nstallation	
	7.2 M	lethod	10
		est at elevated temperature	
8		discharge test	
		eneralstst.phv.phc.nr442.2023	
		SIST EN IEC 61442:2025 lethod	
		est at elevated temperature	
9	Tests a	it elevated temperature	11
	9.1 Ir	nstallation and connection	11
		leasurement of temperature	
	9.2.1	Cable conductor temperature	11
	9.2.2	Thermocouple position	
10	Heating	g cycle voltage test	15
	10.1 In	nstallation and method	15
	10.2 T	est in air	16
	10.3 T	est in water	16
	10.4 In	nmersion test for outdoor terminations	17
	10.4.1	Installation	17
	10.4.2	Method	17
11	Therma	al short-circuit test (screen)	17
	11.1 In	nstallation	17
	11.2 M	lethod	17
12	Therma	al short-circuit test (conductor)	18
	12.1 In	nstallation	18
	12.2 M	lethod	18
13	Dynam	ic short-circuit test	19

13.1	General	19
13.2 lı	nstallation	19
13.3 N	lethod	19
14 Humidi	ty and salt fog tests	19
14.1 A	pparatus	19
	nstallation	
14.3 N	1ethod	20
15 Impact	test at ambient temperature	20
16 Screen	resistance measurement	21
16.1	Seneral	21
	nstallation	
	lethod	
	leakage current measurement	
	Seneral	
	nstallation	
	lethod	
_	fault current initiation test	
	General	
	nstallation	
	lethod	
18.3.1	Solidly earthed system	24
	Unearthed or impedance earthed system	24
10.0.2 19 Onerat	Unearthed or impedance earthed systeming force test	25
19.1	Seneral	25
	nstallation	
20 Operat	lethodSIST EN TEC 01442:2025	
	ing eye test	
	Seneral	_
	nstallation	
	lethod	
•	tive test point performance	
	General	
	nstallation	
	est method	
•	formative) Determination of the cable conductor temperature	
	urpose	
	Calibration of the test cable conductor temperature	27
A.2.1	General	
A.2.2	Installation of cable and thermocouples	
A.2.3	Method	
	leating for accessory test	
A.3.1	General	
A.3.2	Method 1: Test based on measurement of ambient temperature	29
A.3.3	Method 2: Test based on measurement of the external surface	20
A 2 4	temperature	
A.3.4	Method 3: Test using a control cableformative) Details of the test chamber and spray equipment for humidity	31
•	tests	32

B.1	lest chamber	32
B.2	Spray equipment for humidity and salt fog tests	32
B.3	High voltage transformers	33
Bibliogra	aphy	34
_	– Terminations tested in air	
Figure 2	2 – Joints tested in air	12
Figure 3	B – Separable connectors tested in air	12
Figure 4	l – Joints tested under water	13
Figure 5	5 – Separable connectors tested under water	14
Figure 6	6 – Outdoor terminations tested under water	15
Figure 7	′ – Heating cycle	16
Figure 8	B – Typical impact test apparatus for joints	21
Figure 9	9 – Test arrangement for the screen leakage current measurement	23
Figure 1	0 – Test arrangement for screen fault current initiation test	24
Figure A	A.1 – Reference cable	28
Figure <i>F</i>	A.2 – Arrangement of the thermocouples	28
Figure A	A.3 – Current and temperatures curves	31

SIST EN IEC 61442:2025

https://standards.iteh.ai/catalog/standards/sist/eb3880c1-c2c7-433f-8b77-c31713001485/sist-en-iec-61442-2025

INTERNATIONAL ELECTROTECHNICAL COMMISSION

TEST METHODS FOR ACCESSORIES FOR POWER CABLES WITH RATED VOLTAGES FROM 6 kV ($U_{\rm m}$ = 7,2 kV) UP TO 30 kV ($U_{\rm m}$ = 36 kV)

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.
- The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international
 consensus of opinion on the relevant subjects since each technical committee has representation from all
 interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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;

-6-

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.

iTeh Standards

Document Preview

SIST EN IEC 61442:2025

https://standards.iteh.ai/catalog/standards/sist/eb3880c1-c2c7-433f-8b77-c31713001485/sist-en-iec-61442-2025

TEST METHODS FOR ACCESSORIES FOR POWER CABLES WITH RATED VOLTAGES FROM 6 kV ($U_{\rm m}$ = 7,2 kV) UP TO 30 kV ($U_{\rm m}$ = 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 ($U_{\rm m}$ = 1,2 kV) up to 30 kV ($U_{\rm m}$ = 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.