

Power cables with extruded insulation and their accessories for rated voltages above 36 kV ($U_m = 42$ kV) up to 150 kV ($U_m = 170$ kV)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-HD 632 S3:2016 sisaldab Euroopa standardi HD 632 S3:2016 ingliskeelset teksti.	This Estonian standard EVS-HD 632 S3:2016 consists of the English text of the European standard HD 632 S3:2016.
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English Version

**Power cables with extruded insulation and their accessories for
rated voltages above 36 kV ($U_m = 42$ kV)
up to 150 kV ($U_m = 170$ kV)**

Câbles d'énergie à isolation extrudée et leurs accessoires
pour des tensions assignées supérieures à 36 kV
($U_m = 42$ kV) et jusqu'à 150 kV ($U_m = 170$ kV)

Starkstromkabel mit extrudierter Isolierung und ihre
Garnituren für Nennspannungen über 36 kV ($U_m = 42$ kV)
bis 150 kV ($U_m = 170$ kV)

This Harmonization Document was approved by CENELEC on 2016-06-27. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document at national level.

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

This Harmonization Document exists in three official versions (English, French, German).

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

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CONTENTS

EUROPEAN FOREWORD

PART 1 General test requirements

PART 2 Additional test methods

PART 3 Test requirements for cables with XLPE insulation and metallic screen and their accessories

- 3-D Cables with XLPE insulation and copper screen and their accessories (Test list 3D)
- 3-K Cables with XLPE insulation and copper screen and their accessories (Test list 3K)
- 3-L Cables with XLPE insulation and metallic screen and their accessories (Test list 3L)
- 3-M Cables with XLPE insulation, copper screen, aluminium-laminated sheath and metallic sheath and their accessories
- 3-N Cables with XLPE insulation and copper screen and their accessories (Test list 3N)

PART 4 Test requirements for cables with XLPE insulation, metallic screen and metal-laminated sheath and their accessories

- 4-A Cables with XLPE insulation and polyolefine compound sheath (Types 1, 2 and 3)
- 4-C Cables with XLPE insulation, copper or aluminium wires screen and aluminium- or copper-laminated sheath and their accessories (Test list 4C)
- 4-D Cables with XLPE insulation, copper screen and aluminium-laminated sheath and their accessories (Test list 4D)
- 4-F Cables with XLPE insulation, copper screen and aluminium-laminated sheath and their accessories (Test list 4F)
- 4-G Cables with XLPE insulation and metal-laminated screen and their accessories (Test list 4G)
- 4-K Cables with XLPE insulation, copper screen and aluminium-laminated sheath and their accessories (Test list 4K)
- 4-L Cables with XLPE insulation, copper screen and aluminium-laminated sheath and their accessories (Test list 4L)
- 4-M Cables with XLPE insulation, copper screen, aluminium-laminated sheath and metallic sheath and their accessories
- 4-N Cables with XLPE insulation, copper screen and metal-laminated sheath and their accessories (Test list 4N)
- 4-O Cables with XLPE insulation, copper or aluminium screen and copper- or aluminium-laminated sheath and their accessories (Test list 4O)
- 4-P Cables with XLPE insulation, copper screen and metal-laminated sheath

and their accessories (Test list 4P)

PART 5 **Test requirements for cables with XLPE insulation and metallic sheath and their accessories**

- 5-C Cables with XLPE insulation, lead or lead alloy sheath, or aluminium or copper sheath and their accessories (Test list 5C)
- 5-D Cables with XLPE insulation and metallic sheath and their accessories (Test list 5D)
- 5-F Cables with XLPE insulation and lead or lead alloy sheath and their accessories (Test list 5F)
- 5-H Cables with XLPE insulation and metallic sheath and their accessories
- 5-K Cables with XLPE insulation, and lead sheath or smooth aluminium sheath and their accessories (Test list 5K)
- 5-L Cables with XLPE insulation and metallic sheath and their accessories (Test list 5L)
- 5-M Cables with XLPE insulation, copper screen, aluminium-laminated sheath and metallic sheath and their accessories
- 5-O Cables with XLPE insulation and metallic sheath and their accessories (Test list 5O)
- 5-P Cables with XLPE insulation and lead alloy sheath and their accessories (Test list 5P)

PART 6 **Test requirements for cables with EPR insulation and metallic screen and their accessories**

- 6-A Cables with HEPR insulation and polyolefine compound sheath (Types 1, 2 and 3)
- 6-J Cables with HEPR insulation and copper screen and their accessories (Test list 6J)

PART 7 **Test requirements for cables with EPR insulation, metallic screen and metal-laminated sheath and their accessories**

Void

PART 8 **Test requirements for cables with EPR insulation and metallic sheath and their accessories**

- 8-J Cables with HEPR insulation and metallic sheath and their accessories (Test list 8J)

PART 9 **Test requirements for cables with PE or
HDPE insulation and metallic screen
and their accessories**

Void

PART 10 **Test requirements for cables with PE or
HDPE insulation, metallic screen and
metal-laminated sheath and their accessories**

Void

PART 11 **Test requirements for cables with PE or
HDPE insulation and metallic sheath and
their accessories**

Void

European foreword

This document (HD 632 S3:2016) has been prepared by CLC/TC 20 "Electric cables".

The following dates are fixed:

- latest date by which the existence of this document has to be announced at national level (doa) 2016-12-27
- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-06-27
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2019-06-27

This document supersedes HD 632 S2:2008.

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.

The major technical change with respect to HD 632 S2:2008 is the unmodified adoption of the current edition of IEC 60840 (ed.4, 2011-11) as Part 1 of this European Standard. The test sections in Part 2 have been revised and updated in accordance to the changes to Part 1 and to the sections of Part 3 to Part 11. The sections in Part 3 to Part 11 have been updated and adapted to the new Part 1 content. Generally, all references to EN 60811 have been updated to the new EN 60811 series (2012-06).

By decision of the Technical Board (D81/139 extended by D104/118 & D114/076), this HD exists only in English.

Page numbering reflects the arrangements into parts and particular sections, e.g. Page 4-C-3 is page 3 of particular Section C of Part 4.

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HD 632 S3:2016

**POWER CABLES WITH EXTRUDED INSULATION AND
THEIR ACCESSORIES FOR RATED VOLTAGES
ABOVE 36 kV ($U_m = 42$ kV) UP TO 150 kV ($U_m = 170$ kV)**

PART 1: GENERAL TEST REQUIREMENTS

CONTENTS

1	Scope	6
2	Normative references	6
3	Terms and definitions	7
3.1	Definitions of dimensional values (thicknesses, cross-sections, etc.)	7
3.2	Definitions concerning tests	7
3.3	Other definitions	8
4	Voltage designations and materials	8
4.1	Rated voltages	8
4.2	Cable insulating materials	8
4.3	Cable metal screens/sheaths	8
4.4	Cable oversheathing materials	9
5	Precautions against water penetration in cables	9
6	Cable characteristics	9
7	Accessory characteristics	10
8	Test conditions	11
8.1	Ambient temperature	11
8.2	Frequency and waveform of power frequency test voltages	11
8.3	Waveform of lightning impulse test voltages	11
8.4	Relationship of test voltages to rated voltages	11
8.5	Determination of the cable conductor temperature	11
9	Routine tests on cables and on the main insulation of prefabricated accessories	11
9.1	General	11
9.2	Partial discharge test	12
9.3	Voltage test	12
9.4	Electrical test on oversheath of the cable	12
10	Sample tests on cables	12
10.1	General	12
10.2	Frequency of tests	13
10.3	Repetition of tests	13
10.4	Conductor examination	13
10.5	Measurement of electrical resistance of conductor and metal screen	13
10.6	Measurement of thickness of cable insulation and oversheath	14
10.6.1	General	14
10.6.2	Requirements for the insulation	14
10.6.3	Requirements for the cable oversheath	14
10.7	Measurement of thickness of metal sheath	14
10.7.1	Lead or lead alloy sheath	14
10.7.2	Plain or corrugated aluminium sheath	15
10.8	Measurement of diameters	15
10.9	Hot set test for XLPE, EPR and HEPR insulations	16
10.9.1	Procedure	16
10.9.2	Requirements	16
10.10	Measurement of capacitance	16
10.11	Measurement of density of HDPE insulation	16

10.11.1 Procedure.....	16
10.11.2 Requirements	16
10.12 Lightning impulse voltage test.....	16
10.13 Water penetration test	17
10.14 Tests on components of cables with a longitudinally applied metal tape or foil, bonded to the oversheath	17
11 Sample tests on accessories.....	17
11.1 Tests on components	17
11.2 Tests on complete accessory.....	17
12 Type tests on cable systems	18
12.1 General.....	18
12.2 Range of type approval.....	18
12.3 Summary of type tests	19
12.4 Electrical type tests on complete cable systems	19
12.4.1 Test voltage values	19
12.4.2 Tests and sequence of tests	20
12.4.3 Bending test	20
12.4.4 Partial discharge tests	21
12.4.5 Tan δ measurement.....	21
12.4.6 Heating cycle voltage test	21
12.4.7 Lightning impulse voltage test followed by a power frequency voltage test.....	22
12.4.8 Examination.....	22
12.4.9 Resistivity of semi-conducting screens	23
12.5 Non-electrical type tests on cable components and on complete cable	23
12.5.1 Check of cable construction	24
12.5.2 Tests for determining the mechanical properties of insulation before and after ageing.....	24
12.5.3 Tests for determining the mechanical properties of oversheaths before and after ageing	24
12.5.4 Ageing tests on pieces of complete cable to check compatibility of materials	25
12.5.5 Loss of mass test on PVC oversheaths of type ST ₂	25
12.5.6 Pressure test at high temperature on oversheaths.....	25
12.5.7 Test on PVC oversheaths (ST ₁ , ST ₂) at low temperature	26
12.5.8 Heat shock test for PVC oversheaths (ST ₁ and ST ₂).....	26
12.5.9 Ozone resistance test for EPR and HEPR insulations	26
12.5.10 Hot set test for EPR, HEPR and XLPE insulations	26
12.5.11 Measurement of density of HDPE insulation	26
12.5.12 Measurement of carbon black content of black PE oversheaths (ST ₃ and ST ₇)	26
12.5.13 Test under fire conditions.....	27
12.5.14 Water penetration test	27
12.5.15 Tests on components of cables with a longitudinally applied metal tape or foil, bonded to the oversheath	27
12.5.16 Shrinkage test for PE, HDPE and XLPE insulations	27
12.5.17 Shrinkage test for PE oversheaths (ST ₃ and ST ₇).....	27
12.5.18 Determination of hardness of HEPR insulation	27
12.5.19 Determination of the elastic modulus of HEPR insulation	28

13	Prequalification test of the cable system.....	28
13.1	General and range of prequalification test approval.....	28
13.2	Prequalification test on complete system.....	29
13.2.1	Summary of prequalification tests	29
13.2.2	Test voltage values	29
13.2.3	Test arrangement	29
13.2.4	Heating cycle voltage test	30
13.2.5	Lightning impulse voltage test	31
13.2.6	Examination.....	31
13.3	Tests for the extension of the prequalification of a cable system.....	31
13.3.1	Summary of the extension of prequalification test.....	31
13.3.2	Electrical part of the extension of prequalification tests on complete cable system.....	31
14	Type tests on cables	33
14.1	General	33
14.2	Range of type approval	34
14.3	Summary of type tests	34
14.4	Electrical type tests on completed cables	34
15	Type tests on accessories.....	35
15.1	General	35
15.2	Range of type approval	35
15.3	Summary of type tests	36
15.4	Electrical type tests on accessories.....	36
15.4.1	Test voltage values	36
15.4.2	Tests and sequence of tests	36
16	Electrical tests after installation.....	37
16.1	General	37
16.2	DC voltage test of the oversheath	37
16.3	AC voltage test of the insulation.....	37
	Annex A (informative) Determination of the cable conductor temperature.....	45
	Annex B (normative) Rounding of numbers.....	50
	Annex C (informative) List of type, prequalification and extension of prequalification tests for cable systems, cables and accessories	51
	Annex D (normative) Method of measuring resistivity of semi-conducting screens.....	54
	Annex E (normative) Water penetration test	57
	Annex F (normative) Tests on components of cables with a longitudinally applied metal tape or foil, bonded to the oversheath	59
	Annex G (normative) Tests of outer protection for joints	62
	Annex H (normative) Determination of hardness of HEPR insulations	65
	Bibliography	67

Figure 1 – Example of the test arrangement for the prequalification test.....	30
Figure 2 – Example of extension of prequalification test arrangement for the prequalification of a system with another joint, designed for rigid and flexible installation	32
Figure A.1 – Typical test set-up for the reference loop and the main test loop	46
Figure A.2 – Example of an arrangement of the temperature sensors on the conductor of the reference loop	47
Figure D.1 – Preparation of samples for measurement of resistivity of conductor and insulation screens	56
Figure E.1 – Schematic diagram of apparatus for water penetration test	58
Figure F.1 – Adhesion of metal foil	59
Figure F.2 – Example of overlapped metal foil	60
Figure F.3 – Peel strength of overlapped metal foil	60
Figure H.1 – Test on surfaces of large radius of curvature	66
Figure H.2 – Test on surfaces of small radius of curvature.....	66
Table 1 – Insulating compounds for cables	38
Table 2 – Oversheathing compounds for cables.....	38
Table 3 – Tan δ requirements for insulating compounds for cables.....	38
Table 4 – Test voltages	39
Table 5 – Non-electrical type tests for insulating and oversheathing compounds for cables.....	40
Table 6 – Test requirements for mechanical characteristics of insulating compounds for cables (before and after ageing).....	41
Table 7 – Test requirements mechanical characteristics of oversheathing compounds for cables (before and after ageing).....	42
Table 8 – Test requirements for particular characteristics of insulating compounds for cables.....	43
Table 9 – Test requirements for particular characteristics of PVC oversheathing for cables.....	44
Table C.1 – Type tests on cable systems, on cables and on accessories	52
Table C.2 – Prequalification tests on cable systems with a calculated nominal conductor electric stress above 8,0 kV/mm or a calculated nominal insulation electric stress above 4,0 kV/mm.....	52
Table C.3 – Extension of prequalification tests on cable systems with a calculated nominal conductor electric stress above 8,0 kV/mm or a calculated nominal insulation electric stress above 4,0 kV/mm.....	53
Table G.1 – Impulse voltage tests	63

1 Scope

This Part 1 of HD 632 specifies test methods and requirements for power cable systems, cables alone and accessories alone, for fixed installations and for rated voltages above 36 kV ($U_m = 42$ kV) up to and including 150 kV ($U_m = 170$ kV).

Depending on the design and the system conditions, additional or even fewer tests or other requirements which are not described in the Part 1 can be specified in the particular sections of Parts 3 to 11.

In these parts each section is either:

- 1) A full tabulation showing how the particular section either agrees, or deviates from, each clause of Part 1; or
- 2) A reduced tabulation showing only those places where the particular section deviates from Part 1.

The requirements apply to single-core cables and to individually screened three-core cables and to their accessories for usual conditions of installation and operation, but not to special cables and their accessories, such as submarine cables, for which modifications to the standard tests may be necessary or special test conditions may need to be devised.

This standard does not cover transition joints between cables with extruded insulation and paper insulated cables.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 60228, *Conductors of insulated cables (IEC 60228)*

EN 60229:2008, *Electric cables – Tests on extruded oversheaths with a special protective function (IEC 60229:2007)*

EN 60230, *Impulse tests on cables and their accessories (IEC 60230)*

EN 60332-1-2, *Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame (IEC 60332-1-2)*

EN 60811 (all parts), *Electric and optical fibre cables – Test methods for non-metallic materials (IEC 60811, all parts)*

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

HD 588.1, *High voltage test techniques – Part 1: General definitions and test requirements (IEC 60060-1)*

IEC 60183, *Guidance for the selection of high-voltage A.C. cable systems*

IEC 60287-1-1:2006, *Electric cables – Calculation of the current rating – Part 1-1: Current rating equations (100 % load factor) and calculation of losses – General*

ISO 48, *Rubber, vulcanized or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

3 Terms and definitions

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

3.1 Definitions of dimensional values (thicknesses, cross-sections, etc.)

3.1.1

nominal value

value by which a quantity is designated and which is often used in tables

Note 1 to entry: Usually, in this standard, nominal values give rise to values to be checked by measurements taking into account specified tolerances.

3.1.2

median value

when several test results have been obtained and ordered in an increasing (or decreasing) succession, middle value if the number of available values is odd, and mean of the two middle values if the number is even

3.2 Definitions concerning tests

3.2.1

routine test

tests made by the manufacturer on each manufactured component (length of cable or accessory) to check that the component meets the specified requirements

3.2.2

sample test

tests made by the manufacturer on samples of completed cable or components taken from a completed cable or accessory, at a specified frequency as to verify that the finished product meets the specified requirements

3.2.3

type test

tests made before supplying on a general commercial basis a type of cable system or cable or accessory covered by this standard, in order to demonstrate satisfactory performance characteristics to meet the intended application

Note 1 to entry: Once successfully completed, these tests need not be repeated, unless changes are made in the cable or accessory with respect to materials, manufacturing process, design or design electrical stress levels, which might adversely change the performance characteristics.

3.2.4

prequalification test

test made before supplying on a general commercial basis a type of cable system covered by this standard, in order to demonstrate satisfactory long term performance of the complete cable system