Distribution cables with extruded insulation for rated voltages from 3,6/6 (7,2) kV up to 20,8/36 (42) kV

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-HD 620 S2:2010 sisaldab Euroopa standardi HD 620 S2:2010 ingliskeelset teksti.	This Estonian standard EVS-HD 620 S2:2010 consists of the English text of the European standard HD 620 S2:2010.
Standard on kinnitatud Eesti Standardikeskuse 31.03.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 15.01.2010.	Date of Availability of the European standard text 15.01.2010.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 29.060.20

HARMONIZATION DOCUMENT **HD 620 S2**

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT January 2010

ICS 29.060.20 Supersedes HD 620 S1:1996 + A1:2001 + A2:2003 + A3:2007 + corr. Dec.2007

English version

Distribution cables with extruded insulation for rated voltages from 3,6/6 (7,2) kV up to and including 20,8/36 (42) kV

Câbles de distribution à isolation extrudée, pour des tensions assignées de 3,6/6 (7,2) kV à 20,8/36 (42) kV inclus

Energieverteilungskabel mit extrudierter Isolierung für Nennspannungen von 3,6/6 (7,2) kV bis einschließlich 20,8/36 (42) kV

This Harmonization Document was approved by CENELEC on 2009-12-01. 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 Central Secretariat or to any CENELEC member.

This Harmonization Document was established by CENELEC in English only.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Ref. No. HD 620 S2:2010 E

Foreword

This Harmonization Document was prepared by WG 9 of the Technical Committee CENELEC TC 20, Electric cables.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as HD 602 S2 on 2009-12-01.

It supersedes HD 620 S1:1996, A1:2001, A2:2003 and A3:2007 plus its corrigendum of Dec. 2007.

In this revision of HD 620 the previous Parts 5 and 6 have been consolidated to become Part 10, and Parts 7 and 8 likewise to become Part 11.

Users of HD 620 should note that, in accordance with the decision of the Technical Board (D130/040), national standards implementing one or more particular sections of HD 620 may be further updated in advance of future amendments to the published version of the HD. This is explained more fully in document TC20/Sec1596/R. This document is available via National Committees and will be updated on an annual basis.

The following dates were fixed:

- latest date by which the HD has to be implemented at national level by publication of a harmonized national standard or by endorsement (dop) 2010-12-01
- latest date by which the national standards conflicting with the HD have to be withdrawn (dow) 2012-12-01

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

Contents

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10-I1 Triplexed medium voltage cables, aluminium conductor with XLPE insulation of reduced thickness, aluminium tape screen and PE outer sheath for direct burying

10-I2 Triplexed medium voltage cables with XLPE insulation of reduced thickness, aluminium tape screen and PE sheath, laid up around an aluminium clad steel messenger

10-I3 Triplexed medium voltage cables, aluminium conductor with XLPE insulation of reduced thickness, aluminium tape screen and PE outer sheath with improved impact performance

10-J Single core and three core cables with PE sheath (Type 10J-1) or PVC sheath (Type 10J-2) or PVC-flame retardant sheath (Type 10J-3)

10-K Cables with PE sheath (Type 10K-1) or PVC sheath (Type 10K-2)

10-L Cables with PVC sheath, laid-up (Type 10L-1) or not (Type 10L-2) around an additional conductor

10-M Single and three core cables with PE sheath (Type 10M-1) and PVC sheath (Type 10M-2)

10-N Cables with PE sheath (Type 10N)

10-O XLPE insulated cables: 11 kV and 33 kV copper wire screened with PE or polyolefine sheath, and 33 kV lead sheathed with PE oversheath

10-P Cables with PVC sheath laid up around an earth conductor (Type 10P-1 and Type 10P-2), cables with PVC sheath laid around a messenger (Type 10P-3)

PART 11 EPR insulated single core and 3 core cables

11-N EPR insulated cables with PE sheath (Type 11N)

11-O EPR insulated cables: 11 kV and 33 kV copper wire screened with PE or polyolefine sheath

HD 620 S2:2010

DISTRIBUTION CABLES WITH EXTRUDED INSULATION FOR RATED VOLTAGES FROM 3,6/6 (7,2) kV UP TO AND INCLUDING 20,8/36 (42) kV

PART 1: GENERAL REQUIREMENTS

Contents

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References

The following referenced documents are indispensable for the application 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.

EN 60228	Conductors of insulated cables (IEC 60228)
EN 60229	Electric cables – Tests on extruded oversheaths with a special protective function (IEC 60229)
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 series	Insulating and sheathing materials of electric and optical cables – Common test methods (IEC 60811 series)
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 605	Electric cables – Additional test methods
HD 632	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)
IEC 60183	Guide to the selection of high-voltage cables
IEC 60287 series	Electric cables – Calculation of the current rating

1 General

1.1 Scope

HD 620 applies to cables with extruded insulation and for rated voltages $U_o/U(U_m)$ from 3,6/6 (7,2) kV up to 20,8/36(42) kV used in power distribution systems of voltages not exceeding the maximum r.m.s. value of the system voltage U_m.

This Part (Part 1) specifies the general requirements applicable to these cables, unless otherwise specified in the particular sections of this HD.

Test methods specified are given EN 60228, EN 60229, EN 60332-1-2, EN 60811, EN 60885-3, HD 605 and HD 632.

Attention should be drawn to the fact that a significant number of sections include references to long term tests which are collected in HD 605. These long-term tests are considered as necessary and reflect the best available knowledge for the existing cable design. They are related to specific designs and different philosophies concerning adequate measures against the influence of water. However it is the firm intention to reduce this large number of different tests, but more experience should be gained before starting to rationalise this important matter.

The particular types of cables are specified in Parts 9 to 11.

NOTE Cables originally in Parts 3, 4, 5, 6, 7 and 8 have now been withdrawn.

1.2 Object

The objects of this Harmonisation Document are:

- to standardise cables that are safe and reliable when properly used, in relation to the technical requirements of the system of which they form apart;
- to state the characteristics and manufacturing requirements which have a direct or indirect bearing on safety;
- and to specify methods for checking conformity with those requirements.

2 Definitions

2.1 Definitions concerning the insulating and sheathing compounds

2.1.1 Insulating and sheathing compounds

The types of insulating and sheathing compounds covered by this HD are listed below, together with their abbreviated designations:

Table 2.1.1 – Insulating and sheathing compounds

	Insulating and sheathing compounds		See:
Insulation	a) *Thermoplastic:*		
	(spare)		
	b) *Cross-linked:*		
	Insulating compounds based on:		
	- Cross-linked polyethylene	(XLPE)	Table 2A
	- Ethylene propylene rubber	(EPR)	Table 2B
	- Hard ethylene propylene rubber	(HEPR)	Table 2C
Sheathing	a) Elastomeric		
	(under consideration)		(Table 3)
	b) *Thermoplastic:*		
	Sheathing compounds based on:		
	- Polyvinyl chloride	(PVC)	Table 4A
	- Polyethylene	(PE)	Table 4B
	- Polyolefine	(PO)	Table 4C

2.1.2 Type of compound

The category in which a compound is placed according to its properties is determined by specific tests. The type designation is not directly related to the composition of the compound.

2.2 Definitions relating to the tests

NOTE Tests classified as Sample (S) or Routine (R) may be required as part of any type approval schemes.

2.2.1 Type tests (Symbol T)

Tests required to be made before supplying a type of cable covered by this HD on a general commercial basis in order to demonstrate satisfactory performance characteristics to meet the intended application.

NOTE These tests are of such a nature that, after they have been made, they need not be repeated unless changes are made in the cable material, design or type of manufacturing process which might change the performance characteristics.

2.2.2 Sample tests (Symbol S)

Tests made on samples of completed cable, or components taken from a completed cable adequate to verify that the finished product meets the design specifications.

2.2.3 Routine tests (Symbol R)

Tests made on all production cable lengths to demonstrate their integrity.

2.2.4 Tests after installation

Test intended to demonstrate the integrity of the cable and its accessories as installed.

2.3 Rated voltage

The rated voltage of a cable is the reference voltage for which the cable is designed, and which serves to define the electrical tests.