SLOVENSKI STANDARD
SIST HD 620 S1:1998/A3:2007

01-julij-2007

Distribucijski kabli z ekstrudirano izolacijo za naznaļ ene napetosti od 3,6/6 (7,2) kV do 20,8/36 (42) kV

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

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

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

Ta slovenski standard je istoveten z: **HD 620 S1:1996/A3:2007**

ICS:

29.060.20 Kabli Cables

SIST HD 620 S1:1998/A3:2007 **en**

HARMONIZATION DOCUMENT

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

HD 620 S1/A3

March 2007

EICS 29.060.20

English version

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

This amendment A3 modifies the Harmonization Document HD 620 S1:1996; it was approved by CENELEC on 2006-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this amendment 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 amendment exists in one official version (English).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, 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: rue de Stassart 35, B - 1050 Brussels

Ref. No. HD 620 S1:1996/A3:2007 E

Foreword

This amendment to HD 620 S1:1996 has been prepared by WG 9 of the Technical Committee CENELEC TC 20, Electric cables.

Part 1 has been revised, especially to include a Guide to use and Selection of cables. A list of additions and amendments to the particular sections of Parts 5 to 9 is given in this Part 0.

Users of HD 620 should note that, in the particular sections, cross-references have only been updated where the complete section has been re-issued. This Part 0 of HD 620 contains a list of relevant changes to cross-references, which should be consulted in conjunction with the particular section. National standards implementing one or more particular sections of HD 620 may update cross-references in advance of changes to the published version of the HD.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A3 to HD 620 S1:1996 on 2006-11-01.

- latest date by which the existence of the amendment has to be announced at national level (doa) 2007-05-01

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2007-11-01

- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2009-11-01

Contents

(HD 620 S1:1996 + A1 + A2 + A3)

PART 7	EPR insulated single core cables, and single core pre-assembled cables
7-E-1 (2)(5) (10)	Cables with polyolefine compound sheath (Type 7E-1)
7-E-2	Bundle assembled cables with steel messenger core for overhead distribution and service MV (Type 7E-2)
7-I (2) (9)	Cables with PVC sheath (Type 7I)
7-N (1) (10)	Cables with PE sheath (Type 7N-1) or PVC sheath (Type 7N-2)
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8-O-1(1)(7)	(Spare)
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PART 9	HEPR insulated single core cables, and single core pre-assembled cables
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9-I-1 (2) (9)	Cables with HEPR insulation, PE sheath and Alumoweld messenger (Aerial cables, Type 9I-1)
9-I-2 (9)	Cables with HEPR insulation and PVC sheath, single core and pre-assembled type (Type 9I-2)

(1) A1 introduces some changes to the text.
(2) A1 completely revises the particular section.
(3) Item withdrawn by A1.
(4) A1 introduces new section.
(5) A2 introduces some changes to the text.
(6) A2 completely revises the particular section.
(7) Item withdrawn by A2.
(8) A2 introduces new section.
(9) A3 introduces some changes to the text.
(10) A3 completely revises the particular section.
(11) Item withdrawn by A3.

List of updated cross-references

Original ref.	Original title	New ref.	New title
HD 48	Impulse tests on cables and their accessories	EN 60230	Impulse tests on cables and their accessories
HD 186	Marking by inscription for the identification of cores of electric cables having more than 5 cores	EN 50334	Marking by inscription for the identification of cores of electric cables
HD 383	Conductors of insulated cables	EN 60228	Conductors of insulated cables
HD 405.1	Tests on electric cables under fire conditions - Part 1: Test on a single vertical insulated wire or cable	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
EN 50265-2-1	Common test methods for cables under fire conditions - Test for resistance to vertical flame propagation for a single insulated conductor or cable - Part 2-1: Procedures – 1 kW pre-mixed flame	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 502	Extruded solid dielectric insulated power cables for rated voltages from 1 kV to 30 kV	IEC 60502-2	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)

HD 620 S1:1996/A3:2007

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

Replace *the complete part by the following:*

Contents

References

Part 1 of HD 620 S1 incorporates by dated or undated reference, provisions from other publications. These references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to Part 1 of HD 620 S1 only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 60228	Conductors of insulated cables
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
EN 60811	Insulating and sheathing materials of electric cables - Common test methods
HD 605	Electric cables - Additional test methods
IEC 60229	Tests on cable oversheaths which have a special protective function and are applied by extrusion
IEC 60287	Electric cables - Calculation of the current rating
IEC 60840	Tests for power cables with extruded insulation for rated voltages above 30 kV (U_m = 36 kV) up to 150 kV (U_m = 170 kV)
IEC 60885	Electrical test methods for electric cables

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

Test methods specified are given in EN 60228, EN 60332-1-2, EN 60811, HD 605 and in IEC 60229, IEC 60840, IEC 60885-2 and IEC 60885-3.

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 5 to 9.

NOTE Cables originally in Parts 3 and 4 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 a part;
- 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. 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.

The rated voltage is expressed by the combination of the following values $U_o/U(U_m)$ expressed in kV.

U_o is the r.m.s value between any phase conductor and earth (metal covering of the cable).

U is the r.m.s value between any two phase conductors of a multicore cable or of a system of single-core cables.

U_m is the maximum r.m.s value of the highest system voltage for which the equipment may be used.

The standard rated voltages $U_o/U(U_m)$, in kV r.m.s., of the cables in this HD are as follows:

$U_o/U(U_m)$	=	3,6/6(7,2)	- 3,8/6,6(7,2)	-	6/10(12)
		6,35/11(12)	- 8,7/15(17,5)	-	12/20(24)
		12,7/22(24)	- 15/20(24)	-	15/25(30)
		18/30(36)	- 19/33(36)	-	20,8/36(42)

In an alternating current system, the rated voltage of a cable shall be at least equal to the nominal voltage of the system for which it is intended. If used in d.c. systems, the maximum voltage has to be specified in the particular sections.

3 Marking

3.1 Indication of origin

Cables shall be provided with an identification of origin consisting of the continuous marking of the manufacturer's name or trademark, or (if legally protected) identification number by one of the two following alternative methods:

a) printed tape within the cable;

b) printing, indenting;

c) or embossing on the outer surface of the cable.

3.1.1 Continuity of marks

Unless otherwise specified in the particular sections, each specified mark shall be regarded as continuous if the distance between the end of the mark and the beginning of the next identical mark does not exceed:

550 mm if the marking is on the outer surface of the cable,

275 mm if the marking is on a tape.

NOTE A 'specified mark' is any mandatory mark covered by this part of the HD or by the particular requirements of Part 5 onwards of this HD.