



SLOVENSKI STANDARD
SIST HD 622 S1:1998/A1:2002
01-april-2002

Amendment to HD according to maintenance programme - Group 3

Power cables having rated voltages from 3,6/6 (7,2) kV up to and including 20,8/36 (42) kV with special fire performance for use in power stations

Starkstromkabel mit Nennspannungen von 3,6/6 (7,2) kV bis 20,8/36 (42) kV mit verbessertem Verhalten im Brandfall für Kraftwerke

Câbles d'énergie de tension assignée de 3,6/6 (7,2) kV à 20,8/36 (42) kV inclus, ayant un comportement au feu particulier et destinés aux centrales électriques

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Ta slovenski standard je istoveten z: HD 622 S1:1996/A1:2000

ICS:

29.060.20 Kabli Cables

SIST HD 622 S1:1998/A1:2002 en

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HARMONIZATION DOCUMENT

HD 622 S1/A1

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

December 2000

ICS 29.060.20

English version

**Power cables having rated voltages
from 3,6/6 (7,2) kV up to and including 20,8/36 (42) kV
with special fire performance for use in power stations**

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Kraftwerke

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This amendment A1 modifies the Harmonization Document HD 622 S1:1996; it was approved by CENELEC on 2000-01-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this amendment on a national level.

Up-to-date lists and bibliographical references concerning such national implementation may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists in two official versions (English, French).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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

FOREWORD

This amendment to HD 622 S1:1996 has been prepared by WG9 of the Technical Committee CENELEC TC 20 'Electric Cables'. CENELEC TC 20 confirmed at its Barcelona meeting (May 1998) that the amendment should go to the Unique Acceptance Procedure.

Part 1 has been amended, especially to remove the temporary inclusion of cables rated 1,9/3,3 kV, which are now in HD 604. A list of additions and amendments to the particular sections of Parts 3 and 4 is given in this Part 0.

NOTE: During the preparation of this amendment, IEC 502 (4th edition) has been replaced by IEC 60502-2, HD 405.1 and HD 405.2 have been superseded by EN 50265, and IEC 60754-1 and HD 602 have been superseded by EN 50267.

In general the updating of these references has not been included in this amendment unless a complete section has been replaced. Users should refer to these new editions for the most up-to-date information.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to HD 622 S1:1996 on 2000-01-01.

The following dates were fixed:

- latest date by which the existence of the amendment has to be announced at national level (doa) 2000-07-01
- latest date by which the amendment has to be implemented at national level by publication of a harmonized national standard or by endorsement (dop) 2001-05-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2003-01-01

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- 4-F⁽¹⁾ Single or three core cables with copper or aluminium conductors
- 4-G (Spare)
- 4-H⁽²⁾ Single and three core cables with non-halogenated materials and with aluminium or steel wire armouring
- 4-I Single core cables with halogen free materials and with aluminium alloy wire armouring

⁽¹⁾ Amendment A1 introduces some changes to the text

⁽²⁾ Amendment A1 completely revises the Particular Section

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PART 1 : GENERAL REQUIREMENTS

Replace pages 1-4, 1-5 and 1-6 by the following:

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1 General

1.1 Scope

HD 622 applies to rigid cables for fixed installations having rated voltages $U_0/U (U_m)$ from 3,6/6 (7,2) kV up to and including 20,8/36 (42) kV used in systems of voltages not exceeding the maximum r.m.s. value of the system voltage U_m .

The insulation and sheaths may be either thermoplastic or thermosetting, halogenated or halogen free. The cables are mainly intended for use in power generating plants and sub-stations. All cables have specific fire performance requirements. Cables designed to be installed within the containment area of nuclear power plants (LOCA cables), or cables specifically designed to be radiation resistant are not included in this HD.

This Part 1 specifies the general requirements applicable to these cables; additional or deviating requirements are given in the particular sections of this HD.

Test methods are specified in EN 60811, HD 21, HD 22, HD 383, HD 405, HD 602, HD 605 and HD 606, which are referenced in the particular sections where relevant.

The particular types of cables are specified in Parts 3 and 4.

1.2 Object

The objects of this Harmonisation Document are:

- to standardise cables that are safe and reliable when properly used;
- to state the characteristics and manufacturing requirements directly or indirectly bearing on safety;
- to specify methods for checking conformity with those requirements.

2 Definitions

2.1 Definitions relating to insulating and sheathing compounds

2.1.1 Insulating and sheathing compounds

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

2.1.1.1 Thermoplastic polyvinyl chloride compound (PVC)

Combinations of materials suitably selected, proportioned and treated, of which the characteristic constituent is polyvinyl chloride or one of its copolymers. The same term also designates compounds containing both polyvinyl chloride and certain of its copolymers.

2.1.1.2 Cross-linked ethylene propylene rubber (EPR)

A compound based on ethylene propylene rubber or similar (EPM or EPDM) which when cross-linked complies with the requirements given in the particular sections.

2.1.1.3 Cross-linked polyethylene (XLPE)

A thermosetting material formed by the cross-linking of thermoplastic polyethylene compound either by chemical or irradiation methods so as to comply with the requirements given in the particular sections.

2.1.1.4 Ethylene copolymers

Thermoplastic or cross-linked materials in which the characteristic constituent is a copolymer of ethylene such as EVA, EEA, EMA, compound so as to comply with the requirements given in the particular sections.

2.1.1.5 Chlorinated synthetic elastomeric compound

A vulcanised compound in which the characteristic constituent is polychloroprene rubber (PCP) or other chlorinated synthetic elastomer, such as CSP, CPE or NBR/PVC, compounded so as to comply with the requirements given in the particular sections.

NOTE: The abbreviations PCP, CSP and CPE are those in common use. Equivalent codings according to ASTM are CR, CSM and CM.

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2.1.2 Type of compound

The category in which a compound is placed according to its properties, as 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 scheme.

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 selected lengths of completed cable, 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

Tests 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 insulated conductor and earth (metal covering of the cable or the surrounding medium); e.g. $U_o = 3,6$ kV.

U is the r.m.s. value between any two phase conductors of a multicore cable or of a system of single-core cables; e.g. $U = 6,0$ kV.

U_m is the maximum r.m.s. value of the highest system voltage for which the equipment may be used; e.g. $U_m = 7,2$ kV.

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)	6/6(7,2)
		6/10(12)	6,35/11(12)	8,7/15(17,5)
		12/20(24)	18/30(36)	

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.

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:

SECTION F: SINGLE OR THREE-CORE CABLES WITH COPPER OR ALUMINIUM CONDUCTORS

Replace pages 3-F-3, 3-F-5, 3-F-6, 3-F-7, 3-F-8, 3-F-9, 3-F-21 and 3-F-25 by the following:

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1 Scope

This standard specifies the construction, dimensions and test requirements of power cables with XLPE insulation and PVC sheath having reduced fire propagation performance, for rated voltages of 6, 10 and 15 kV.

1.1 Rated voltage

3,6/6 (7,2), 6/10 (12), and 8,7/15 (17,5) kV

- a) Definitions see HD 620.1, sub-clause 2.3.
- b) Cables covered by this standard are suitable for the system voltages stated in the table below.

Highest system voltage, U_m kV	Duration of single-phase short circuit in system	
	< 8 h per event < 125 h in total per year	> 8 h per event > 125 h in total per year
	Rated voltage U_0/U kV	
7,2	3,6/6	6/10
12	6/10	8,7/15

NOTE: Under normal operation conditions U_0 and U may be 10 % higher indefinitely and 20 % higher during a brief period of time.

1.2 Highest rated temperatures for the insulating compound

- a) Normal operation 90°C;
- b) Short-circuit (5 s maximum duration) 250°C.

2 Additional general requirements

The following general requirements shall be read in conjunction with those given in Part 1.

2.1 Identification of cores

No identification of the individual cores in a three-core cable is necessary.

2.2 Cable marking

The method of cable marking shall comply with clause 3 of Part 1 of this HD and the following requirements.

2.2.1 External markings

- a) Indication of origin - Manufacturer's identification;
- b) Code designation - Type designation (see annex B); with addition "AL" in case of aluminium conductor(s).