

SLOVENSKI
STANDARD

SIST HD 22.12
S1:1998/A1:1999

prva izdaja
november 1999

Rubber insulated cables of rated voltages up to and including 450/750 V – Part 12:
Heat resistant EPR cords and flexible cables - Amendment A1

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[SIST HD 22.12 S1:1998/A1:1999](https://standards.iteh.ai/catalog/standards/sist/8ba44e24-20f5-4033-9c29-6c12432e3c60/sist-hd-22-12-s1-1998-a1-1999)
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ICS 29.060.20

Referenčna številka
SIST HD 22.12 S1:1998/A1:1999(en)

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ICS 29.060.20

Descriptors: Insulated conductor, insulated cable, flexible cable, rubber, ethylene-propylene, heat resistant material, protective sheath, insulation, designation, construction, dimension, test, data table

English version

**Rubber insulated cables of rated voltages up to and
including 450/750 V
Part 12: Heat resistant EPR cords and flexible cables**

Conducteurs et câbles isolés au
caoutchouc de tension assignée
au plus égale à 450/750 V

Partie 12: Câbles souples à isolation
EPR résistant à la chaleur

Gummi-isolierte Leitungen mit
Nennspannungen bis 450/750 V
Teil 12: Wärmebeständige

Schlauchleitungen mit EPR Isolierhülle

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This amendment A1 modifies the Harmonization Document HD 22.12 S1:1996; it was approved by CENELEC on 1998-08-01. 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 three official versions (English, French, German).

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 was prepared by the Technical Committee CENELEC TC20, Electric cables, and agreed at the Dublin meeting (April 1997) to go forward to the Unique Acceptance Procedure.

This amendment has been prepared within the regular maintenance programme which covers all Parts of HD 22. Attention is especially drawn to Annex X and Annex Y, which will be incorporated into HD 22.1 and HD 516 at a later date.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to HD 22.12 S1:1996 on 1998-08-01.

The following dates were fixed:

- latest date by which the existence of the amendment has to be announced at national level (doa) 1996-12-01
- latest date by which the amendment has to be implemented at national level by publication of a harmonized national standard or by endorsement (dop) 1999-06-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2000-06-01

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Amendment A1 to HD 22.12 S1

Clause 2

Delete HD 405.1

Insert:

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 - 1kW pre-mixed flame

Clause 3

Amend title to read:

"Ordinary heat-resistant and low-temperature resistant EPR"

Sub-clause 3.3.3

In line 1, amend "EI 7" to "EI 6"

Sub-clause 3.3.7

Amend the end of the sub-clause to read:

" Part 1, sub-clause 3.2"

<https://standards.iteh.ai/catalog/standards/sist/8ba44e24-20f5-4033-9c29-6c12432e3c60/sist-hd-22-12-s1-1998-a1-1999>

Clause 4

Amend title to read:

"Heavy heat-resistant and low-temperature resistant EPR "

Sub-clause 4.3.3

In line 1, amend "EI 7" to "EI 6"

Sub-clause 4.3.8

Amend the end of the sub-clause to read:

" Part 1, sub-clause 3.2"

Sub-clause 5.3.7

Amend the end of the sub-clause to read:

" Part 1, sub-clause 3.2"

Table VI

Against Ref No.6 put "50265-2-1" in column 4 in place of "405.1"

Sub-clause 6.3.8

Amend the end of the sub-clause to read:

" Part 1, sub-clause 3.2"

Table VIII

Against Ref No.6 put "50265-2-1" in column 4 in place of "405.1"

Sub-clause 7.3.8

Amend the end of the sub-clause to read:

" Part 1, sub-clause 3.2"

Table IX

Amend the reference in Note (1) to read "IEC 60502-1, Annex A".

Table X

Delete existing Table X and replace as attached.

Annex A

Delete reference to IEC 502 and insert: [SIST HD 22.12 S1:1998/A1:1999](https://standards.iteh.ai/catalog/standards/sist/8ba44e24-20f5-4033-9c29-)

<https://standards.iteh.ai/catalog/standards/sist/8ba44e24-20f5-4033-9c29->

"IEC 60502-1 "Power Cables with extruded insulation and their accessories for rated voltages 1kV ($U_m = 1,2kV$) up to 30kV ($U_m = 36kV$) -- Part 1: Cables for rated voltages of 1kV ($U_m = 1,2kV$) and 3kV ($U_m = 3,6kV$)"

Annex B

Add new Annex B as attached.

Annex C

Add new Annex C as attached.

Table X

Tests for Type H07BN4-F

1	2	3	4	5
Ref. No.	Tests	Category of test	Test method described in	
			HD/EN	Clause
1.	<u>Electrical tests</u>			
1.1	Resistance of conductors	T, S	22.2	2.1
1.2	Voltage test on cores at 2500V	T	22.2	2.3
1.3	Voltage test on completed cable at 2500V	T, S	22.2	2.2
1.4	Absence of faults on insulation	R	22.2	2.6
1.5	Surface resistance of sheath	T	22.2	2.7
2.	<u>Provisions covering constructional and dimensional characteristics</u>			
2.1	Checking of compliance with constructional provisions	T, S	22.1	Inspection and manual tests
2.2	Measurement of thickness of insulation	T, S	22.2	1.9
2.3	Measurement of thickness of sheath	T, S	22.2	1.10
2.4	Measurement of overall diameter			
2.4.1	Mean value	T, S	22.2	1.11
2.4.2	Ovality	T, S	22.2	1.11
2.5	Solderability test (Plain conductors)	T	22.2	1.12
3.	<u>Mechanical properties of insulation</u>			
3.1	Tensile test before ageing	T	60811-1-1	9.1
3.2	Tensile test after ageing in the air oven	T	60811-1-2	8.1.3.2a
3.3	Tensile test after ageing in the air bomb	T	60811-1-2	8.2
3.4	Hot set test	T	60811-2-1	9
4.	<u>Mechanical properties of sheath</u>			
4.1	Tensile test before ageing	T	60811-1-1	9.2
4.2	Tensile test after ageing in the air oven	T	60811-1-2	8.1.3.1
4.3	Tensile test after immersion in oil	T	60811-2-1	10
4.4	Hot set test	T	60811-2-1	9
5.	<u>Mechanical strength of completed cable</u>			
5.1	Flexing test (*) followed after immersion in water by a voltage test at 2000V on cores	T	22.2	3.1 and 2.3
6.	<u>Test under fire conditions</u>	T	50265-2-1	-
7.	<u>Tests at low temperature</u>			
7.1	Bending test for insulation	T	60811-1-4	8.1
7.2	Elongation test for sheath	T	60811-1-4	8.4
8.	<u>Ozone resistance test for insulation and sheath</u> (either method may be used)	T		
	(a) Method A		60811-2-1	8
	(b) Method B		22.2	7.3
9.	<u>Compatibility test</u>	T	60811-1-2	8.1.4

(*) Not applicable to cables with more than 18 cores laid up in more than two concentric layers

Annex X to HD 22.12 S1/A1 (Normative)

Amendment to HD 22.1 S3

(This annex is Normative. It will be incorporated into HD22.1 S3 for the next amendment.)

Sub-clause 5.5.1

Amend wording for Type EM 6 to read:

"Type EM 6 for cables insulated with compound EI 6 and sheathed with a compound of ethylene-propylene rubber or equivalent synthetic elastomer for use down to -40°C ."

Table II

For EM 6 (column 10) amend the following values:

Ref No. 1.1.2	(elongation at break (%) before ageing - median, min.), change from "250" to "200".
Ref No. 5.1.1	(low temperature bending test), change temperature of test from " $-35 \pm 2^{\circ}\text{C}$ " to " $-50 \pm 3^{\circ}\text{C}$ ".
Ref No. 5.2.1	(low temperature elongation test), change temperature of test from " $-35 \pm 2^{\circ}\text{C}$ " to " $-50 \pm 3^{\circ}\text{C}$ ".

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