SLOVENSKI STANDARD

SIST HD 22.9 S2:1998/A1:1999

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Rubber insulated cables of rated voltages up to and including 450/750 V – Part 3: Single core non-sheathed cables for fixed wiring having low emmision of smoke and corrosive gases - Amendment A1

ICS 29.060.20

Referenčna številka
SIST HD 22.9 S2:1998/A1:1999(en)

HARMONIZATION DOCUMENT

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

HD 22.9 S2/A1

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ICS 29.060.20
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Descriptors: Insulated cable, insulated conductor, rubber, fire performance, test, specification, construction

English version

Rubber insulated cables of rated voltages up to and including 450/750 V
Part 9: Single core non-sheathed cables for fixed wiring having low emission of smoke and corrosive gases

Conducteurs et câbles isolés au caoutchouc de tension assignée au plus égale à 450/750 V
Partie 9: Câbles monoconducteurs sans gaine pour installation fixe, ayant une faible émission de fumée et de gaz corrosifs

Gummi-isolierte Leitungen mit Nennspannungen bis 450/750 V
Teil 9: Einadrige Leitungen ohne Mantel für feste Verlegung mit geringer Entwicklung von Rauch und korrosiven Gasen im Brandfall

This amendment A1 modifies the Harmonization Document HD 22.9 S2:1995; 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

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Foreword

This amendment was prepared by the Technical Committee CENELEC TC20, Electric cables, and agreed at the Copenhagen meeting (June 1996) 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.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to HD 22.9 S2:1995 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) 1998-12-01
- 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

Amendment A1 to HD 22.9 S2

Sub-clause 2.3.3

Delete paragraph 1 and insert the following:

"The insulation shall be a polyolefin cross-linked material, Type EI 5, applied around the conductor. The insulation shall be applied by extrusion. It may consist of one or two layers. All tests shall be applied to the complete insulation, which shall meet the requirements for Type EI 5. The insulation thickness shall comply with the specified value given in Part 9 Table I column 3".

Sub-clause 3.3.3

Delete paragraph 1 and insert the following:

"The insulation shall be a polyolefin cross-linked material, Type EI 5, applied around the conductor. The insulation shall be applied by extrusion. It may consist of one or two layers. All tests shall be applied to the complete insulation, which shall meet the requirements for Type EI 5. The insulation thickness shall comply with the specified value given in Part 9 Table III column 2".

Sub-clause 4.3.3

Delete paragraph 1 and insert the following:

"The insulation shall be a polyolefin cross-linked material, Type EI 5, applied around the conductor. The insulation shall be applied by extrusion. It may consist of one or two layers. All tests shall be applied to the complete insulation, which shall meet the requirements for Type EI 5. The insulation thickness shall comply with the specified value given in Part 9 Table V column 2".

Sub-clause 5.3.3

Delete paragraph 1 and insert the following:

"The insulation shall be a polyolefin cross-linked material, Type EI 5, applied around the conductor. The insulation shall be applied by extrusion. It may consist of one or two layers. All tests shall be applied to the complete insulation, which shall meet the requirements for Type EI 5. The insulation thickness shall comply with the specified value given in Part 9 Table VII column 2".

Tables II, IV, VI and VIII

Delete existing Tables II, IV, VI and VIII and replace as attached.

Annex A

Delete HD 405.1, HD 405.2, HD 505 and HD 602.

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 - 1 kW pre-mixed flame

EN 50265-2-2 Common test methods for cables under fire conditions - Test for resistance to vertical flame propagation for a single insulated conductor or cable -- Part 2-2: Procedures - Diffusion flame

EN 50267-2-2 Common test methods for cables under fire conditions - Tests on gases evolved during combustion of materials from cables -- Part 2-2: Procedures - Determination of degree of acidity of gases for materials by measuring pH and conductivity

EN 60811 Insulating and sheathing materials of electric cables - Common test methods

TABLE II

Tests for Types H07Z-U and H07Z-R

1	2	3	4	5
Ref. No.	Tests	Category of Test	Test method described in	
			HD / EN	Clause
1.	**Electrical tests**			
1.1	Resistance of conductors	T, S	22.2	2.1
1.2	Voltage test on completed cable at 2500V	T, S	22.2	2.2
1.3	Insulation resistance at 90°C	T, S	22.2	2.4.1
1.4	Absence of faults in insulation	R	22.2	2.6
2.	**Provisions covering constructional and dimensional characteristics**			
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 overall diameter	T, S	22.2	1.11
3.	**Mechanical properties of insulation**			
3.1	Tensile test before ageing	T	60811-1-1	9.1
3.2	Tensile test after ageing	T	60811-1-2	8.1.3.1
4.	**Hot set test**	T	60811-2-1	9
5.	**Tests at low temperature**			
5.1	Bending test for insulation (+)	T	60811-1-4	8.1
5.2	Elongation test for insulation (*)	T	60811-1-4	8.3
5.3	Impact test	T	60811-1-4	8.5
6.	**Pressure test at high temperature**	T	60811-3-1	8.1
7.	**Tests under fire conditions**			
7.1	Test on a single vertical cable	T & S	50275-2-1	-
7.2	Test for acidic (corrosive) gases evolved from combustion of insulation	T & S	50267-2-2	-
7.3	Smoke emission of cable	T & S	606	-
8.	**Ozone resistance test for insulation** (either method may be used)	T	60811-2-1 or 22.2	8 7.3

(+) only applicable to cables having mean overall diameters up to and including 12,5mm

(*) only applicable if the mean overall outer diameter of the core exceeds 12,5mm

TABLE IV

Tests for Type H07Z-K

1	2	3	4	5
Ref. No.	Tests	Category of test	Test method described in	
			HD / EN	Clause
1.	**Electrical test**			
1.1	Resistance of conductors	T, S	22.2	2.1
1.2	Voltage test on completed cable at 2500V	T, S	22.2	2.2
1.3	Insulation resistance at 90°C	T, S	22.2	2.4.1
1.4	Absence of faults in insulation	R	22.2	2.6
2.	**Provisional covering constructional and dimensional characteristics**			
2.1	Checking of compliance with constructional provisions	T, S	22.1	Inspection & Manual tests
2.2	Measurement of thickness of insulation	T, S	22.2	1.9
2.3	Measurement of overall diameter	T, S	22.2	1.11
3.	**Mechanical properties of insulation**			
3.1	Tensile test before ageing	T	60811-1-1	9.1
3.2	Tensile test after ageing	T	60811-1-2	8.1.3.1
4.	**Hot set test**	T	60811-2-1	9
5.	**Tests at low temperature**			
5.1	Bending test for insulation (+)	T	60811-1-4	8.1
5.2	Elongation test for insulation (*)	T	60811-1-4	8.3
5.3	Impact test	T	60811-1-4	8.5
6.	**Pressure test at high temperature**	T	60811-3-1	8.1
7.	**Test under fire conditions**			
7.1	Test on a single vertical cable	T & S	50275-2-1	-
7.2	Test for acidic (corrosive) gases evolved from combustion of insulation	T & S	50267-2-2	-
7.3	Smoke emission of cable	T & S	606	-
8.	**Ozone resistance test for insulation** (either method may be used)	T	60811-2-1 or 22.2	8 7.3

(+) only applicable to cables having mean overall diameters up to and including 12,5mm.
(*) only applicable if the mean overall outer diameter of the core exceeds 12,5mm.

TABLE VI

Tests for Type H05Z-U

1	2	3	4	5
Ref. No.	Tests	Category of test	Test method described in	
			HD / EN	Clause
1.	**Electrical tests**			
1.1	Resistance of conductors	T, S	22.2	2.1
1.2	Voltage test on completed cable at 2000V	T, S	22.2	2.2
1.3	Insulation resistance at 90°C	T, S	22.2	2.4.1
1.4	Absence of faults in insulation	R	22.2	2.6
2.	**Provisions covering constructional and dimensional characteristics**			
2.1	Checking of compliance with constructional provisions	T, S	22.1	Inspection & manual tests
2.2	Measurement of thickness of insulation	T, S	22.2	1.9
2.3	Measurement of overall diameter	T, S	22.2	1.11
3.	**Mechanical properties of insulation**			
3.1	Tensile test before ageing	T	60811-1-1	9.1
3.2	Tensile test after ageing	T	60811-1-2	8.1.3.1
4.	**Hot set test**	T	60811-2-1	9
5.	**Tests at low temperature**			
5.1	Bending test for insulation	T	60811-1-4	8.1
6.	**Pressure test at high temperature**	T	60811-3-1	8.1
7.	**Tests under fire conditions**			
7.1	Test on a single vertical cable	T & S	50265-2-2	-
7.2	Test for acidic (corrosive) gases evolved from combustion of insulation	T & S	50267-2-2	-
7.3	Smoke emission of cable	T & S	606	-
8.	**Ozone resistance test for insulation** (either method may be used)	T	60811-2-1 or 22.2	8 7.3