
Kabli s polivinilkloridno izolacijo za naznačene napetosti do vključno 450/750 V - 13. del: Kabli z dvema ali več vodniki, s polivinilkloridnim plaščem, odpornim proti olju - Dopnilo 1

Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 13: Oil resistant PVC sheathed cables with two or more conductors

Polyvinylchlorid-isolierte Leitungen mit Nennspannungen bis 450/750 V - Teil 13: Ölbeständige PVC-Steuerleitungen mit zwei oder mehr Adern

Conducteurs et câbles isolés au polychlorure de vinyle, de tension assignée au plus égale à 450/750 V - Partie 13: Câbles souples avec gaine de polychlorure de vinyle, résistant à l'huile, à deux âmes ou plus

Ta slovenski standard je istoveten z: HD 21.13 S1:1995/A1:2001

ICS:

29.060.20 Kabli Cables

SIST HD 21.13 S1:1998/A1:2002 en

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<https://standards.iteh.ai/catalog/standards/sist/61dffd32-c45f-4c2d-b3af-77ee43c45830/sist-hd-21-13-s1-1998-a1-2002>

HARMONIZATION DOCUMENT

HD 21.13 S1/A1

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

August 2001

ICS 29.060.20

English version

**Polyvinyl chloride insulated cables of rated voltages
up to and including 450/750 V
Part 13: Oil resistant PVC sheathed cables
with two or more conductors**

Conducteurs et câbles isolés au
polychlorure de vinyle, de tension
assignée au plus égale à 450/750 V
Partie 13: Câbles souples avec gaine de
polychlorure de vinyle, résistant à l'huile,
à deux âmes ou plus

Polyvinylchlorid-isolierte Leitungen mit
Nennspannungen bis 450/750 V
Teil 13: Ölbeständige PVC-
Steuerleitungen mit zwei oder
mehr Adern

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This amendment A1 modifies the Harmonization Document HD 21.13 S1:1995; it was approved by CENELEC on 2001-06-01. 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 TC 20, Electric cables, and agreed at the Stresa meeting (April 1999) to go forward to the Unique Acceptance Procedure.

This amendment has been prepared within the regular maintenance programme which covers all Parts of HD 21.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to HD 21.13 S1:1995 on 2001-06-01.

The following dates were fixed:

- latest date by which the existence of the amendment
has to be announced at national level (doa) 2002-02-01
- latest date by which the amendment has to be
implemented at national level by publication of
a harmonised national standard or by endorsement (dop) 2002-08-01
- latest date by which the national standards conflicting
with the amendment have to be withdrawn (dow) 2003-08-01

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Clause 2**Add** new reference:

HD 308	Identification of cores in cables and flexible cords
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Delete references to HD 405.1, HD 505 and IEC 502 and **insert** the following:

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 premixed flame
EN 60811	Series Insulating and sheathing materials of electric and optical cables - Common test methods
IEC 60502-1	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 1: Cables for rated voltages of 1 kV ($U_m = 1,2$ kV) and 3 kV ($U_m = 3,6$ kV)

Subclauses 3.3.5 and 4.3.7**Add** a new paragraph to the above mentioned subclauses to read:

Alternatively for cables with up to 5 cores, identification may be by colours in accordance with HD 308.

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Subclause 3.3.4In paragraph 5, **amend** the cross-reference to: IEC 60502-1, annex A.**Subclauses 3.3.7 and 4.3.9**

SIST HD 21.13 S1:1998/A1:2002

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Add new subclauses to read:**3.3.7 (4.3.9) Outer marking**

In order to distinguish these oil-resistant PVC cables from other PVC cables of similar size, the sheath shall be marked with at least the designatory marking VV5. The marking shall be continuous in the sense of 3.2 of Part 1.

Table 1 and Table 2**Delete** the existing Tables 1 and 2 and **replace** as attached.**Subclauses 4.3.4 and 4.3.6**In 4.3.4 (twice) and 4.3.6 (once) **amend** the cross-reference to: IEC 60502-1, annex A.**Table 3 and Table 4****Delete** the existing Tables 3 and 4 and **replace** as attached.

Table 1 - General data for H05VV5-F

1	2	3	4	5	6
Number and nominal cross-sectional area of conductors	Insulation thickness	Sheath thickness	Mean overall diameter		Minimum insulation resistance at 70 °C
	Specified value	Specified value	Lower limit	Upper limit	
mm ²	mm	mm	mm	mm	MΩ • km
2 x 0,5	0,6	0,7	5,2	6,6	0,013
2 x 0,75	0,6	0,8	5,7	7,2	0,011
2 x 1	0,6	0,8	5,9	7,5	0,010
2 x 1,5	0,7	0,8	6,8	8,6	0,010
2 x 2,5	0,8	1,0	8,4	10,6	0,0095
3 x 0,5	0,6	0,7	5,5	7,0	0,013
3 x 0,75	0,6	0,8	6,0	7,6	0,011
3 x 1	0,6	0,8	6,3	8,0	0,010
3 x 1,5	0,7	0,9	7,4	9,4	0,010
3 x 2,5	0,8	1,1	9,2	11,4	0,0095
4 x 0,5	0,6	0,8	6,2	7,9	0,013
4 x 0,75	0,6	0,8	6,6	8,3	0,011
4 x 1	0,6	0,8	6,9	8,7	0,010
4 x 1,5	0,7	0,9	8,2	10,2	0,010
4 x 2,5	0,8	1,1	10,1	12,5	0,0095
5 x 0,5	0,6	0,8	6,8	8,6	0,013
5 x 0,75	0,6	0,9	7,4	9,3	0,011
5 x 1	0,6	0,9	7,8	9,8	0,010
5 x 1,5	0,7	1,0	9,1	11,4	0,010
5 x 2,5	0,8	1,2	11,2	13,9	0,0095
6 x 0,5	0,6	0,9	7,6	9,6	0,013
6 x 0,75	0,6	0,9	8,1	10,1	0,011
6 x 1	0,6	1,0	8,7	10,8	0,010
6 x 1,5	0,7	1,1	10,2	12,6	0,010
6 x 2,5	0,8	1,2	12,2	15,1	0,0095
7 x 0,5	0,6	0,9	8,3	10,4	0,013
7 x 0,75	0,6	1,0	9,0	11,3	0,011
7 x 1	0,6	1,0	9,5	11,8	0,010
7 x 1,5	0,7	1,2	11,3	14,1	0,010
7 x 2,5	0,8	1,3	13,6	16,8	0,0095
12 x 0,5	0,6	1,1	10,4	12,9	0,013
12 x 0,75	0,6	1,1	11,0	13,7	0,011
12 x 1	0,6	1,2	11,8	14,6	0,010
12 x 1,5	0,7	1,3	13,8	17,0	0,010
12 x 2,5	0,8	1,5	16,8	20,6	0,0095
18 x 0,5	0,6	1,2	12,3	15,3	0,013
18 x 0,75	0,6	1,3	13,2	16,4	0,011
18 x 1	0,6	1,3	14,0	17,2	0,010
18 x 1,5	0,7	1,5	16,5	20,3	0,010
18 x 2,5	0,8	1,8	20,2	24,8	0,0095

Table 1 - General data for H05VV5-F (continued)

1	2	3	4	5	6
Number and nominal cross-sectional area of conductors	Insulation thickness	Sheath thickness	Mean overall diameter		Minimum insulation resistance at 70 °C
	Specified value	Specified value	Lower limit	Upper limit	
mm ²	mm	mm	mm	mm	MΩ • km
27 x 0,5	0,6	1,4	15,1	18,6	0,013
27 x 0,75	0,6	1,5	16,2	19,9	0,011
27 x 1	0,6	1,5	17,0	21,0	0,010
27 x 1,5	0,7	1,8	20,3	24,9	0,010
27 x 2,5	0,8	2,1	24,7	30,2	0,0095
36 x 0,5	0,6	1,5	17,0	20,9	0,013
36 x 0,75	0,6	1,6	18,2	22,4	0,011
36 x 1	0,6	1,7	19,4	23,8	0,010
36 x 1,5	0,7	2,0	23,0	28,2	0,010
36 x 2,5	0,8	2,3	28,0	34,2	0,0095
48 x 0,5	0,6	1,7	19,8	24,3	0,013
48 x 0,75	0,6	1,8	21,2	25,9	0,011
48 x 1	0,6	1,9	22,5	27,6	0,010
48 x 1,5	0,7	2,2	26,6	32,5	0,010
48 x 2,5	0,8	2,4	32,1	39,1	0,0095
60 x 0,5	0,6	1,8	21,7	26,6	0,013
60 x 0,75	0,6	2,0	23,4	28,7	0,011
60 x 1	0,6	2,1	24,9	30,5	0,010
60 x 1,5	0,7	2,4	29,4	35,8	0,010
60 x 2,5	0,8	2,4	35,0	42,6	0,0095

Table 2 - Tests for H05VV5-F

1	2	3	4	5
Ref. No.	Tests	Category of test	Described in	
			HD/EN	Clause
1	<u>Electrical tests</u>			
1.1	Resistance of conductors	T, S	21.2	2.1
1.2	Voltage test on cores according to specified insulation thickness			
1.2.1	- at 1 500 V up to and including 0,6 mm	T	21.2	2.3
1.2.2	- at 2 000 V exceeding 0,6 mm	T	21.2	2.3
1.3	Voltage test on completed cable at 2 000 V	T, S	21.2	2.2
1.4	Insulation resistance at 70 °C	T, S	21.2	2.4
1.5	Long term resistance of insulation to d.c.	T	21.2	2.5
1.6	Absence of faults on insulation	R	21.2	2.6
2	<u>Provisions covering constructional and dimensional characteristics</u>			
2.1	Checking of compliance with constructional provisions	T, S	21.1	Inspection and manual tests
2.2	Measurement of thickness of insulation	T, S	21.2	1.9
2.3	Measurement of thickness of sheath	T, S	21.2	1.10
2.4	Measurement of overall diameter			
2.4.1	Mean value	T, S	21.2	1.11
2.4.2	Ovality	T, S	21.2	1.11
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	T	60811-1-2	8.1.3.1
3.3	Loss of mass test	T	60811-3-2	8.1
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	T	60811-1-2	8.1.3.1
4.3	Loss of mass test	T	60811-3-2	8.2

Table 2 - Tests for H05VV5-F (continued)

1	2	3	4	5
Ref. No.	Tests	Category of test	Described in	
			HD/EN	Clause
5	<u>Compatibility test</u>	T	60811-1-2	8.1.4
6	<u>Pressure test at high temperature</u>			
6.1	Insulation	T	60811-3-1	8.1
6.2	Sheath	T	60811-3-1	8.2
7	<u>Tests at low temperature</u>			
7.1	Bending test for insulation	T	60811-1-4	8.1
7.2	Bending test for sheath ¹⁾	T	60811-1-4	8.2
7.3	Elongation test for sheath ²⁾	T	60811-1-4	8.4
7.4	Impact test	T	60811-1-4	8.5
8	<u>Heat shock test</u>			
8.1	Insulation	T	60811-3-1	9.1
8.2	Sheath	T	60811-3-1	9.2
9	<u>Mechanical strength of completed cable</u>			
9.1	Flexing test ³⁾	T	21.2	3.1
10	<u>Test under fire conditions</u>	T	50265-2-1	
11	<u>Mineral oil resistance of sheath</u>	T	60811-2-1	10
¹⁾ Only applicable to cables having mean overall diameters up to and including 12,5 mm. ²⁾ Only applicable if the mean overall diameter of the cable exceeds 12,5 mm. ³⁾ Not applicable to cables with more than 18 cores laid up in more than two concentric layers.				