



# SLOVENSKI STANDARD

## SIST HD 21.10 S1:1998

01-februar-1998

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### **Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 10: Extensible leads**

Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V -- Part 10: Extensible leads

Leitungen mit einer Isolierung aus thermoplastischem Kunststoff auf basis von Polychlorid mit Nennspannungen bis 450/750 V -- Teil 10: Wendelleitungen

Conducteurs et câbles isolés au polychlorure de vinyle, de tension assignée au plus égale à 450/750 V -- Partie 10: Cordons extensibles

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**Ta slovenski standard je istoveten z: HD 21.10 S1:1993**

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#### **ICS:**

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HARMONIZATION DOCUMENT

HD 21.10 S1

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

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UDC 621.315.3.05:621.3.027.2:621.315.6-036.7

Descriptors: Electric cable, insulated conductor, insulated cable, polyvinyl chloride, extensible component, particular specification, designation, construction, dimension, test, marking

## ENGLISH VERSION

Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V  
Part 10: Extensible leads

Conducteurs et câbles isolés  
au polychlorure de vinyle, de  
tension assignée au plus égale à  
450/750 V

Dixième partie: Cordons extensibles

Leitungen mit einer Isolierung  
aus thermoplastischem Kunststoff  
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Nennspannungen bis 450/750 V

Teil 10: Wendelleitungen

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This Harmonization Document was approved by CENELEC on 1992-12-09. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

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

This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, 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

At the request of the CENELEC Technical Committee TC 20, Electric cables, a draft for a new part of HD 21 was submitted to the CENELEC Unique Acceptance Procedure (UAP) in January 1992.

The text of this draft was approved by CENELEC as HD 21.10 S1 on 9 December 1992.

The following dates were fixed:

- latest date of announcement  
of the HD at national level (doa) 1993-03-01
- latest date of publication of  
a harmonized national standard (dop) 1993-09-01
- latest date of withdrawal of  
conflicting national standards (dow) 1993-09-01

For products which have complied with the relevant national standard before 1993-09-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1994-09-01.

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POLYVINYL CHLORIDE INSULATED CABLES  
OF RATED VOLTAGES UP TO AND INCLUDING 450/750V

PART 10 : EXTENSIBLE LEADS

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1. Scope

This part (Part 10) of the HD details the particular specifications for polyvinyl chloride insulated extensible leads.

All cables shall comply with the appropriate requirements given in Part 1 and the individual types of cable shall each comply with the particular requirements of this Part.

2. Light PVC Insulated and Sheathed Extensible Leads

2.1 Code Designation

H03VVH8-F for extensible leads derived from circular cords  
H03VVH2H8-F for extensible leads derived from flat cords

2.2 Rated Voltage

300/300V

2.3 Construction: Pre-coiling

2.3.1 Conductor

Number of conductors: 2 or 3

The conductors shall be in accordance with the requirements of Class 5, given in HD 383.

2.3.2 Insulation

The insulation shall be polyvinyl chloride compound of Type TI2 applied around each conductor.

The insulation resistance shall be not less than the values given in Part 10, Table I, Column 4.

2.3.3 Assembly of cores

Circular cords for H03VVH8-F: the cores shall be twisted together

Flat cords for H03VVH2H8-F: the cores shall be laid parallel

2.3.4 Sheath

The sheath shall be polyvinyl chloride compound of Type TM2 applied around the cores.

The sheath may fill the spaces between the cores, thus forming a filling, but it shall not adhere to the cores. The assembly of cores may be surrounded by a separator, which shall not adhere to the cores.

#### 2.3.5 Overall dimensions

The mean overall diameter of circular cords and the mean overall dimensions of flat cords shall be within the upper limits given in Part 10, Table I, column 3. The lower limit given in Part 10, Table I, column 2 shall be regarded as an indicative value only and not a requirement for compliance with this specification.

### 2.4 Construction : Post-coiling

#### 2.4.1 Configuration

The cables shall be coiled in the form of a helical lead, and caused substantially to maintain this form during use.

#### 2.4.2 Dimensions

The thickness of insulation shall comply with the specified values given in Part 10, Table I, column 5. The requirements of sub-clause 5.2.3 of Part 1 shall apply.

The thickness of sheath shall comply with the specified values given in Part 10, Table I, column 6. The requirement of sub-clause 5.5.3 of Part 1 shall apply.

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Slight deformation of the cord, created by the coil forming process, is acceptable provided that the thicknesses of the insulation and sheath meet the requirements.

#### 2.4.3 Marking

The original marking, if any, on the pre-coiled cord may be affected by the coiling process, but this is acceptable provided that traceability is not impaired. The inclusion of the Common Marking (◀HAR▶) as part of any original marking is not to be taken as evidence that the extensible lead complies with Clause 2 of Part 10 of this HD.

The producer of the extensible lead, if different from the producer of the pre-coiled cord, must apply an additional mark, as indication of origin, as required by sub-clause 3.1 of Part 1 of this HD.

### 2.5 Tests

Compliance with the requirements of Part 10, sub-clauses 2.3 and 2.4 shall be checked by inspection and by the tests given in Part 10, Tables II and III.

### 2.6 Guide to Use

See HD 516

TABLE I

General data for Types H03VVH8-F and H03VVH2H8-F

1	2	3	4	5	6
PRE-COILING			POST COILING		
Number and nominal cross-sectional area of conductors	Mean overall dimensions		Minimum insulation resistance at 70°C	Thickness of insulation specified value	Thickness of sheath specified value
	lower limit	upper limit			
(mm <sup>2</sup> )	(mm)	(mm)	(Mohm.km)	(mm)	(mm)
2 x 0.5	4.8 or 3.0 x 4.8	6.0 or 3.6 x 6.0	0.012	0.5	0.6
2 x 0.75	5.2 or 3.2 x 5.2	6.4 or 3.9 x 6.4	0.010	0.5	0.6
3 x 0.5	5.0	6.2	0.012	0.5	0.6
3 x 0.75	5.4	6.8	0.010	0.5	0.6

TABLE II

Pre-coiling Tests for Types H03VVH8-F and H03VVH2H8-F

1 Ref. No.	2 Tests	3 Category of test	4 Test Method described in		5
			HD	Clause	
			1.	<u>Electrical tests</u>	
1.1	Resistance of conductors	T, S	21.2		2.1
1.2	Voltage test on cores at 1500V	T	21.2		2.3
1.3	Insulation resistance at 70°C	T, S	21.2		2.4
1.4	Long term resistance of insulation to d.c.	T	21.2		2.5
1.5	Absence of faults on insulation	R	21.2		2.5
2.	<u>Provisions covering constructional and dimensional characteristics</u>				
2.1	Checking of compliance with constructional provisions	T, S	21.2		Inspection and manual tests
2.2	Measurement of overall dimensions				
2.2.1	Mean value	T, S	21.2		1.11
2.2.2	Ovality	T, S	21.2		1.11
3.	<u>Mechanical properties of insulation</u>				
3.1	Tensile test before ageing	T	505.1.1		9.1
3.2	Tensile test after ageing	T	505.1.2		8.1.3.1
3.3	Loss of mass test	T	505.3.2		8.1
4.	<u>Mechanical properties of sheath</u>				
4.1	Tensile test before ageing	T	505.1.1		9.2
4.2	Tensile test after ageing	T	505.1.2		8.1.3.1
4.3	Loss of mass	T	505.3.2		8.2
5.	<u>Pressure test at high temperature</u>				
5.1	Insulation	T	505.3.1		8.1
5.2	Sheath	T	505.3.1		8.2
6.	<u>Tests at low temperature</u>				
6.1	Bending test for insulation	T	505.1.4		8.1
6.2	Bending test for sheath	T	505.1.4		8.2
6.3	Impact test	T	505.1.4		8.5
7.	<u>Heat shock test</u>				
7.1	Insulation	T	505.3.1		9.1
7.2	Sheath	T	505.3.1		9.2



TABLE III

Post-coiling Tests for Types H03VVH8-F and H03VVH2H8-F

1	2	3	4	5
Ref. No.	Tests	Category of test	Test Method described in	
			HD	Clause
1.	<u>Electrical test</u>			
1.1	Voltage test of complete cable at 2000V	T, S	21.2	2.2
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
3.	<u>Mechanical Tests on completed cable</u>			
3.1	Extension test before ageing	T	21.2	3.5.1
3.2	Extension test after ageing	T	21.2	3.5.2
3.3	Endurance test	T	21.2	3.6
4.	<u>Test under Fire Conditions</u>	T	21.2	4.1