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Flat polyvinylchloride sheathed lift cables

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Descriptors: Electric cable, insulated cable, electrical installation, lift, specification, test method, polyvinyl chloride

## FLAT POLYVINYLCHLORIDE SHEATHED LIFT CABLES

Cables méplats sous gaines en  
polychlorure de vinyle, pour  
ascenseurs

PVC-Flachleitungen für  
Aufzüge

### BODY OF THE HD

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The Harmonization Document consists of:

- Text prepared by CLC/TC 20

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This Harmonization Document was approved by CENELEC on 1989-09-11.

All texts prepared by CENELEC exist in three official versions (English, French and German).

According to the CENELEC Internal Regulations the CENELEC member National Committees are bound:

to announce the existence of this Harmonization Document at national level

by or before 1990-03-01

to publish their new harmonized national standard

by or before 1990-12-01

to withdraw all conflicting national standards

by or before 1990-12-01 <https://standards.iteh.ai/catalog/standards/sist/5a1a72d2-24e7-46c4-a0b4-652a7d759bea/sist-hd-359-s2-1998>

Harmonized national standards are listed on the HD information sheet, which is available from the CENELEC National Committees from the CENELEC Central Secretariat.

The CENELEC National Committees 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.

## FOREWORD

The revised edition S2 of HD 359 replaces the original HD adopted by CENELEC on the 18th November, 1976.

This editorial revision has become necessary due to the agreement on HD 21.S2 which is cross referred to in this document.

This revision differs from the original version in that it is re-arranged into 3 sections:

Section 1 : General Requirements

Section 2 : Test Methods

Section 3 : Particular Specifications

References are made in this HD, to other Harmonisation Documents as follows:

HD 21.S2	:	PVC Insulated Cables of rated voltage up to 450/750V
HD 186	:	Marking by Inscription for Identification of Cores of Electric Cables
HD 308	:	Identification and Use of Cores of Flexible Cables
HD 383	:	Conductors of Insulated Cables
HD 405 Part 1	:	Tests on Electric Cable Under Fire Conditions : Part 1 - Single Vertical Cable
HD 505	:	Common test methods for insulating and sheathing materials of Electric Cables

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CONTENTS

	<u>PAGE</u>
<u>Section 1 - General Requirements</u>	
1.1 General	4
1.2 Definitions	4
1.3 Marking	4
1.4 Core Identification	4
1.5 General Requirements for the Construction of cables	5
<u>Section 2 - Test Methods</u>	
2.1 General	6
2.2 Pressure Test at High Temperature on Sheath	6
2.3 Impact test at low temperature for Sheath	6
2.4 Heat Shock test for Sheath.	6
2.5 Static Flexibility Test	6
2.6 Non Twisting Test	7
2.7 Test under Fire Conditions	7
<u>Section 3 - Particular Specifications</u>	
3.1 Code Designation	9
3.2 Rated Voltage	9
3.3 Construction	9
3.4 Tests	11
3.5 Guide to Use	11
Appendix 1	15

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Flat Polyvinyl Chloride Sheathed Flexible Cables

Section 1 : General Requirements

1.1 General

1.1.1 Scope

The requirements of this HD apply to flat PVC insulated and PVC sheathed flexible cables of rated voltages  $U_0/U$  up to and including 450/750 V, used for lifts and similar applications.

Cables with composite construction (for instance, cables with cores of different sizes) are not specified.

1.1.2 Object

The objects of this Harmonisation Document are to standardise cables and cords that are safe and reliable when properly used, to state the characteristics and manufacturing requirements directly or indirectly bearing on safety and to specify methods for checking conformity with those requirements.

1.1.3 Common Marking

The requirements are as specified in HD 21.S2, Part 1, Clause 1.3 and Appendix 2.

1.2 Definitions

The definitions are as specified in HD 21.S2, Part 1, Clause 2.

1.3 Marking

Requirements are as specified in HD 21.S2, Part 1, Clause 3.

1.4 Core Identification

Both cables with or without a green/yellow core are harmonised. The identification of the remaining cores shall be either by colours, in accordance with a) below, or by numbers in accordance with b) below.

a) Identification by Colours

For cables with 5 cores or less the identification system of HD308 shall be used.

For cables with 6 cores or more any single colour may be used with the exception of green or yellow.

b) Identification by Numbers

If required by the purchaser a green/yellow core shall be included. Except for the green/yellow core, if any, all the cores shall be identified by printed numbers.

Identification by numbers shall be in accordance with HD 186. For the purposes of this document cables with 5 cores or fewer are not excluded.

1.5 General Requirements for the Construction of Cables

The cables shall comply with the general requirements as specified in HD 21.S2, Part 1, Clause 5, unless otherwise indicated in the particular specifications of this HD, Section 3.

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## Section 2 - Test Methods

### 2.1 General

The tests and test methods are those specified in HD 21.S2, Part 2 which also cross refers to HD 405 Part 1 and HD 505, subject to the following modifications and/or additions.

### 2.2 Pressure Test at High Temperature on Sheath (HD 505-3-1, Sub-clause 8.2)

This test shall be carried out with the cable laid on its flat side.

### 2.3 Impact Test at Low Temperature for Sheath (HD 505-1-4, Sub-clause 8.5)

The values of the mass of the hammer, specified in Sub-clause 8.5.4. of HD 505-1-4 shall be chosen by reference to the minor dimension of the cable instead of the overall diameter.

### 2.4 Heat Shock test for Sheath (HD 505-3-1, Sub-clause 9.2)

This test shall be carried out on a strip of the sheath.

### 2.5 Static Flexibility Test

This test shall be applied to cables with conductor cross sections up to and including 2.5 mm<sup>2</sup>.

Before the test, the cable shall be conditioned at  $20 \pm 5^\circ\text{C}$  for 24 hours in a vertical position.

A sample with a length of  $3 \pm 0.05\text{m}$  shall be tested in an apparatus similar to that shown in Fig. 1. Two clamps, A and B, shall be located at a height of at least 1.5m above ground level.

Clamp A shall be fixed and clamp B shall move horizontally at the level of clamp A. The sample shall be mounted in the one clamp with the flat side towards the other clamp.

The ends of the sample shall be clamped vertically (and remain vertical during the test), one end in clamp A, the other in the movable clamp B which shall be at a distance  $l = 0.20\text{m}$  from clamp A. The cable takes roughly the shape indicated in Fig. 1 by the dotted lines.

The movable clamp B shall then be moved away from the fixed clamp A until the loop formed by the cable takes the shape, indicated in Fig. 1 by the heavy outline, of the U enclosed wholly between two plumb lines through the clamps and set up tangentially to the external side of the cable. The distance between the plumb lines,  $l_1'$ , shall be measured. The cable shall then be turned in the clamps through  $180^\circ\text{C}$  and the test repeated. The new distance between the plumb lines,  $l_2'$ , shall be measured.

The mean  $l'$ , of  $l_1'$ , and  $l_2'$  shall be calculated.  $l'$  shall not exceed 0.70 m.



If the results of the test are unfavourable, the sample shall be pre-conditioned by winding it twice on and off a reel with a diameter approximately 20 times the lower dimension of the cable with the flat side against the reel. In this case, the sample shall be turned each time through 180°. After this pre-conditioning, the sample shall be subjected to the test described above and shall meet the specified requirements.

2.6 Non Twisting Test

A test is under consideration to check that under normal conditions of service, the installed cable loop will hang beneath the suspension points without twisting.

2.7 Test under Fire Conditions  
(HD 405 Part 1)

The flame shall impinge on the flat side of the cable.

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