



SLOVENSKI STANDARD
SIST HD 21.5 S3:1998

01-februar-1998

Kabli s polivinilkloridno izolacijo za naznačene napetosti do vključno 450/750 V - 5. del: Zvijavi kabli (vrvice) (IEC 227-5:1979, spremenjen)

Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 5: Flexible cables (cords)

Polyvinylchlorid-isolierte Leitungen mit Nennspannungen bis 450/750 V - Teil 5: Flexible Leitungen

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Conducteurs et câbles isolés au polychlorure de vinyle, de tension assignée au plus égale à 450/750 V - Partie 5: Câbles souples

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Ta slovenski standard je istoveten z: HD 21.5 S3:1994

ICS:

29.060.20 Kabli Cables

SIST HD 21.5 S3:1998 **en**

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HARMONIZATION DOCUMENT

HD 21.5 S3

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

April 1994

UDC 621.315.342.027.43/.45-036.743.22-181.1.001.4.002.2

Supersedes
HD 21.5 S2 + A4

Descriptors: Conductor, cable, flexible cable, rigid cable, single core cable, multicore cable, conductor material, flat cable, tinsel cord, compound, polyvinyl chloride, insulation compound, type test, sample test, routine test, nominal voltage, mark, common marking, identification, colour scheme, construction, insulation, filler, sheath, covering, internal covering, extruded covering, thickness, mean value, specified value, electrical resistance, test, tensile strength, elongation at break, ageing, loss of mass, non contamination, heat shock, pressure, high temperature, low temperature, elongation at low temperature, complete cable, overall dimension, bending, flexing, voltage test, insulation resistance, absence of short circuits, spark (test), snatch (test), separation of cores, test (under fire (conditions), guide to use, test method, frequency of test, unsheathed cable, light sheath, ordinary sheath

ENGLISH VERSION

Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V
Part 5: Flexible cables (cords)
(IEC 227-5:1979, modified)

Conducteurs et câbles isolés au polychlorure de vinyle, de tension assignée au plus égale à 450/750 V
Cinquième partie: Câbles souples
(CEI 227-5:1979, modifiée)

Polyvinylchlorid-isolierte Leitungen mit Nennspannungen bis 450/750 V
Teil 5: Flexible Leitungen
(IEC 227-5:1979, modifiziert)

SIST HD 21.5 S3:1998

This Harmonization Document was approved by CENELEC on 1993-12-08. 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

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FOREWORD

HD 21 was originally adopted by CENELEC on 9th July 1975.

Edition 2 of HD 21 was implemented on 1st January 1984, and at that time contained five parts.

Since 1984, new parts have been published, original parts amended, and in addition HD 505 has superseded HD 385 as the cross-reference for test methods.

This Edition 3 of HD 21 has been introduced to cover the complete revision of the overall dimensions, in line with EN 60719, and was approved by TC20 at its Oslo meeting in June 1992.

HD 21 now has the following parts:

HD 21.1 S2	-	General requirements
HD 21.2 S2	-	Test methods
HD 21.3 S2	-	Non sheathed cables for fixed wiring
HD 21.4 S2	-	Sheathed cables for fixed wiring
HD 21.5 S3	-	Flexible cables (Cords)
HD 21.6	-	(Spare)
HD 21.7 S1	-	Single core non-sheathed cables for internal wiring (90°C conductor temperature)
HD 21.8 S1	-	Single core non-sheathed cables for decorative chains
HD 21.9 S1	-	Single core non-sheathed cables for installation at low temperatures
HD 21.10 S1	-	Extensible leads

References are made, in this Part 5 of HD 21, to other parts of this HD and to other Harmonisation Documents and European Standards as follows:

		SIST HD 21.5 S3:1998
HD 383	Conductors of insulated cables (Endorsing IEC 228 and 228A)	
HD 405.1	Tests on electric cables under fire conditions. Part 1: Test on a single vertical cable (Endorsing IEC 332-1)	
HD 505	Common test methods for insulating and sheathing materials of Electric Cables (Endorsing IEC 811)	
HD 516	Guide to the use of low voltage harmonised cables	
EN 60719	Calculation of the lower and upper limits for the average outer dimensions of cables with circular copper conductors and of rated voltages up to and including 450/750V	

In all cases a reference to another HD or International Standard implies the latest edition of that document

The draft of this Harmonization Document was submitted to the CENELEC Unique Acceptance Procedure (UAP) in March 1993 and was approved by CENELEC as HD 21.5 S3 on 8 December 1993.

The following dates were fixed:

- latest date of announcement of the HD at national level	(doa)	1994-06-01
- latest date of publication of a harmonized national standard	(dop)	1994-12-01
- latest date of withdrawal of conflicting national standards	(dow)	1994-12-01

For products which have complied with HD 21.5 S2:1990 and its amendment A4:1991 before 1994-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1995-12-01.

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

Part 5 : Flexible Cables (Cords)

1. Scope

This part (Part 5) of the HD details the particular specifications for polyvinyl chloride insulated flexible cables (cords).

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

NOTE: The overall dimensions of the cables in this Part of HD 21 have been calculated in accordance with EN 60719.

2. Flat tinsel cord(*)

2.1 Code designation

H03VH-Y.

2.2 Rated voltage

300/300V

2.3 Construction

2.3.1 Conductor

Number of conductors : 2

Each conductor shall comprise a number of strands or groups of strands, twisted together, each strand being composed of one or more flattened wires of copper alloy, helically wound on a thread of cotton, polyamide or similar material.

The conductor resistance shall not exceed the value given in Part 5, Table I, column 5.

2.3.2 Insulation

The insulation shall be polyvinyl chloride compound of Type TI 2 applied around each conductor.

The insulation thickness shall comply with the specified value given in Part 5, Table I, column 1.

The insulation resistance shall be not less than the value given in Part 5, Table I, column 4.

(*) This type is similar to type 227 IEC 41 but has modified requirements.

2.3.3 Assembly of cores

The conductors shall be laid parallel and covered with the insulation.

The insulation shall be provided with a groove on both sides, between the conductors, to facilitate separation of the cores.

2.3.4 Overall dimensions

The mean overall dimensions shall be within the limits given in Part 5, Table I, columns 2 and 3.

2.4 Tests

Compliance with the requirements of Part 5, sub-clause 2.3 shall be checked by inspection and by the tests given in Part 5, Table II.

2.5 Guide to use

See HD 516.

Table I

iTeh STANDARD PREVIEW
General data for Type H03VH-Y
(standards.iteh.ai)

1	2	3	4	5
Thickness of insulation specified value	Mean overall dimensions		Minimum insulation resistance at 70°C	Maximum conductor resistance at 20°C
	lower limits	upper limits		
(mm)	(mm)	(mm)	(Mohm.km)	(ohm/km)
0.8	2.2 x 4.4	3.5 x 7.0	0.019	270

Table II

Tests for Type H03VH-Y

1 Ref. No.	2 Tests	3 Category of test	4 Test method described in		5 Clause
			HD	Clause	
1.	<u>Electrical tests</u>				
1.1	Resistance of conductors	T, S	21.2		2.1
1.2	Voltage test on completed cable at 2000V	T, S	21.2		2.2
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		2.6
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 overall dimensions	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>Pressure test at high temperature</u>	T	505.3.1		8.1
5.	<u>Test at low temperature</u>				
5.1	Bending test for insulation	T	505.1.4		8.1
6.	<u>Heat shock test</u>	T	505.3.1		9.1
7.	<u>Mechanical strength of completed cable</u>				
7.1	Bending test	T	21.2		3.2
7.2	Snatch test	T	21.2		3.3
8.	<u>Test under fire conditions</u>	T	405.1		-

3. Flat non-sheathed cord(*)

3.1 Code designation

H03VH-H

3.2 Rated voltage

300/300V

3.3 Construction

3.3.1 **Conductor**

Number of conductors : 2

The conductors shall be in accordance with the requirements of Class 6 given in HD 383.

3.3.2 **Insulation**

The insulation shall be polyvinyl chloride compound of Type T1 2 applied around each conductor.

The insulation thickness shall comply with the specified value given in Part 5, Table III, column 2.

The insulation resistance shall be not less than the value given in Part 5, Table III, column 5.

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3.3.3 **Assembly of cores**

The conductors shall be laid parallel and covered with the insulation.

The insulation shall be provided with a groove on both sides, between the conductors, to facilitate separation of the cores.

3.3.4 **Overall dimensions**

The mean overall dimensions shall be within the limits given in Part 5, Table III, columns 3 and 4.

(*) This type is similar to type 227 IEC 42 but has modified requirements.

Table III

General data for Type H03VH-H

1	2	3	4	5
Nominal cross-sectional area of conductors	Thickness of insulation Specified value	Mean overall dimensions		Minimum insulation resistance at 70°C
		lower limits	upper limits	
(mm ²)	(mm)	(mm)	(mm)	(M Ω m.km)
0.5	0.8	2.4 x 4.9	3.0 x 5.9	0.016
0.75	0.8	2.6 x 5.2	3.1 x 6.3	0.014

3.4 Tests

Compliance with the requirements of Part 5, sub-clause 3.3 shall be checked by inspection and by the tests given in Part 5, Table IV.

3.5 Guide to use

See HD 516.

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Table IV
Tests for Type H03VH-H

1	2	3	4	5
Ref. No.	Tests	Category of test	Test method described in	
			HD	Clause
1.	<u>Electrical tests</u>			
1.1	Resistance of conductors	T, S	21.2	2.1
1.2	Voltage test on completed cable at 2000V	T, S	21.2	2.2
1.3	Voltage test on cores at 2000V	T	21.2	2.3
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 overall dimensions	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>Pressure test at high temperature</u>	T	505.3.1	8.1
5.	<u>Tests at low temperature</u>			
5.1	Bending test for insulation	T	505.1.4	8.1
5.2	Impact test for insulation	T	505.1.4	8.5
6.	<u>Heat shock test</u>	T	505.3.1	9.1
7.	<u>Mechanical strength of completed cable</u>	T	505.3.1	9.1
7.1	Flexing test	T	21.2	3.1 and 2.3
7.2	Test of separation of cores	T	21.2	3.4
8.	<u>Test under fire conditions</u>	T	405.1	-