

SLOVENSKI STANDARD

SIST HD 22.13 S1:1998

01-februar-1998

Rubber insulated cables of rated voltages up to and including 450/750 V - Part 13: Single and multicore flexible cables, insulated and sheathed with crosslinked polymer and having low emission of smoke and corrosive gases

Rubber insulated cables of rated voltages up to and including 450/750 V -- Part 13: Single and multicore flexible cables, insulated and sheathed with crosslinked polymer and having low emission of smoke and corrosive gases

Gummi-isolierte Leitungen mit Nennspannungen bis 450/750 V -- Teil 13: Ein-, mehr- und vieladrige Schlauchleitungen mit Isolierhülle und Mantel aus vernetztem Polymer, mit geringer Entwicklung von Rauch und korrosiven Gasen im Brandfall

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Conducteurs et câbles isolés au caoutchouc de tension assignée au plus égale à 450/750 V -- Partie 13: Câbles souples monoconducteurs et multiconducteurs, sous gaine et isolation polymère réticulé, à faible émission de fumées et de gaz corrosifs

Ta slovenski standard je istoveten z: HD 22.13 S1:1996

ICS:

29.060.20 Kabli Cables

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HARMONIZATION DOCUMENT

HD 22.13 S1

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

April 1996

ICS 29.060.20

Descriptors: Insulated conductor, insulated cable, flexible cable, rubber, fire resistance, specification, designation, constitution, insulation, protective sheath, polymer, dimension, test, colour code, marking

English version

**Rubber insulated cables of rated voltages up to
and including 450/750 V
Part 13: Single and multicore flexible cables, insulated
and sheathed with crosslinked polymer and 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 13: Câbles souples monoconducteurs et multiconducteurs, sous gaine et isolation polymère réticulé, à faible émission de fumées et de gaz corrosifs

Isolierte Starkstromleitungen mit einer Isolierhülle aus Gummi mit Nennspannungen bis 450/750 V

Teil 13: Ein-, mehr und- vieladrige Schlauchleitungen mit Isolierhülle und Mantel aus vernetztem Polymer, mit geringer Entwicklung von Rauch und korrosiven Gasen im Brandfall

This Harmonization Document was approved by CENELEC on 1996-03-05. 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 such 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

HD 22 was originally adopted by CENELEC on 9th July 1975.

Edition 2 of HD 22 was implemented on 1st January 1984, and at that time contained four 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 new Part 13 of HD 22 introduces flexible cables having low emission of smoke and corrosive gases when burned. A first draft approved by TC 20 at its Helsinki meeting in May 1994 to go to the Unique Acceptance Procedure. By decision of the CENELEC Technical Board, a second draft was made to incorporate missing data.

HD 22 now has the following parts:

- | | | |
|-------------|---|--|
| HD 22.1 S2 | - | General requirements (with A1 to A10 inclusive) |
| HD 22.2 S2 | - | Test methods (with A1 to A4 inclusive) |
| HD 22.3 S3 | - | Heat resistant silicone rubber insulated cables |
| HD 22.4 S3 | - | Cords and flexible cables |
| HD 22.5 | - | (Spare) |
| HD 22.6 S2 | - | Arc welding cables |
| HD 22.7 S2 | - | Cables with increased heat resistance for internal wiring for a conductor temperature of 110 °C |
| HD 22.8 S2 | - | Polychloroprene or equivalent synthetic elastomer sheathed cable for decorative chains |
| HD 22.9 S2 | - | Single core non-sheathed cables for fixed wiring having low emission of smoke and corrosive gases |
| HD 22.10 S1 | - | EPR insulated and polyurethane sheathed flexible cables |
| HD 22.11 S1 | - | EVA cords and flexible cables |
| HD 22.12 S1 | - | Heat resistant EPR cords and flexible cables |
| HD 22.13 S1 | - | Single and multicore flexible cables, insulated and sheathed with crosslinked polymer and having low emission of smoke and corrosive gases |
| HD 22.14 S1 | - | Cords for applications requiring high flexibility |

This Harmonization Document was prepared by the Technical Committee CENELECTC 20, Electric cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as HD 22.13 S1 on 1996-03-05.

The following dates were fixed:

- | | |
|--|-----------------|
| - latest date by which the existence of the HD has to be announced at national level | (doa)1996-09-01 |
| - latest date by which the HD has to be implemented at national level by publication of a harmonized national standard or by endorsement | (dop)1997-03-01 |
| - latest date by which the national standards conflicting with the HD have to be withdrawn | (dow)1997-03-01 |

For products which have complied with the relevant national standard before 1997-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-03-01.

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1. Scope

This part (Part 13) of the HD details the particular specifications for single and multicore flexible cables of rated voltage 450/750 volts, insulated and sheathed with cross-linked compound having low emission of smoke and corrosive gases when they are involved in a fire.

All non-metallic materials in this part of this HD, must comply with requirements of HD 602.

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 22 have been calculated in accordance with EN 60719.

2. Normative references

HD 22.13 incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to HD 22.13 only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

HD 186	Marking by inscription for the identification of cores of electric cables having more than five cores
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 405.3	Tests on electric cables under fire conditions. Part 3 : Tests on bunched wires or cables. (Endorsing IEC 332-3)
HD 602	Test on gases evolved during the combustion of materials from cables. Determination of degree of acidity (corrosivity) of gases by measuring pH and conductivity. (Endorsing IEC 754-2)
HD 606	Measurement of smoke density of electric cables burning under defined conditions. (Endorsing IEC 1034)
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
EN 60811	Common test methods for insulating and sheathing materials of Electric Cables

3. Cables with one to five cores

3.1 Code designation

H07ZZ-F

3.2 Rated voltage

450/750V

Note: 600/1000V when this cable is used in fixed installations (see HD 516)

3.3 Construction

3.3.1 Conductor

Number of conductors : 1, 2, 3, 4 or 5.

The conductors shall comply with the requirements given in HD 383 for Class 5 conductors. The wires may be plain or tinned.

3.3.2 Separator

A separator of suitable material may be applied around each conductor. If any, it shall comply with the requirements of HD 602.

3.3.3 Insulation

The insulation shall be a cross-linked compound, Type EI 8 applied around each conductor. It shall comply with the requirements of HD 602.

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 must meet the requirements for Type EI 8.

The insulation thickness shall comply with the specified value given in Part 13 Table I, column 2.

3.3.4 Assembly of cores and filler, if any

The cores of cables having two to five cores shall be twisted together.

A centre filler may be used. If any, it shall comply with the requirements of HD 602.

In the case of cores having conductors of large cross-section a textile tape may be applied around the core assembly before application of the sheath, provided that the finished cables shall not have any substantial cavity in the outer interstices between the cores. If any, the textile tape shall comply with the requirements of HD 602.

3.3.5 Sheath

The cores shall be covered with a sheath.

The sheath shall be a cross-linked compound, applied by extrusion, type EM 8. It shall comply with the requirements of HD 602.

The thickness of sheath shall comply with the specified value given in Part 13, Table I, column 3.

The sheath shall fill the spaces between the cores.

The sheath shall be capable of being removed without damage to the cores.

3.3.6 Overall diameter

The mean overall diameter shall be within the limits given in Part 13 Table I, columns 4 and 5.

3.3.7 Outer markings

The designatory marking ZZ shall be printed or embossed on, or indented into, the sheath.

The marking shall be continuous, in accordance with Part 1, sub-clause 3.1.1.

3.4 Tests

Compliance with the requirements of Part 13, sub-clause 3.3 shall be checked by inspection and by the tests given in Part 13, Table II.

The tests at low temperature shall be restricted to cables having conductor(s) not exceeding 16mm².

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3.5 Guide to use (informative)

See HD 516.

TABLE I
DIMENSIONS OF TYPE H07ZZ-F

1	2	3	4		5	6
			Mean overall diameter			
Number & nominal cross sectional area of conductors	Thickness of insulation Specified value	Thickness of sheath Specified value	Lower limit	Upper limit	Minimum insulation resistance at 70°C	
(mm ²)	(mm)	(mm)	(mm)	(mm)	MQ.km	
1 x 1.5	0.8	1.4	5.7	7.1	0.012	
1 x 2.5	0.9	1.4	6.3	7.9	0.010	
1 x 4	1.0	1.5	7.2	9.0	0.0094	
1 x 6	1.0	1.6	7.9	9.8	0.0081	
1 x 10	1.2	1.8	9.5	11.9	0.0076	
1 x 16	1.2	1.9	10.8	13.4	0.0062	
1 x 25	1.4	2.0	12.7	15.8	0.0058	
1 x 35	1.4	2.2	14.3	17.9	0.0049	
1 x 50	1.6	2.4	16.5	20.6	0.0048	
1 x 70	1.6	2.6	18.6	23.3	0.0041	
1 x 95	1.8	2.8	20.8	26.0	0.0040	
1 x 120	1.8	3.0	22.8	28.6	0.0036	
1 x 150	2.0	3.2	25.2	31.4	0.0036	
1 x 185	2.2	3.4	27.6	34.4	0.0036	
1 x 240	2.4	3.5	30.6	38.3	0.0034	
1 x 300	2.6	3.6	33.5	41.9	0.0033	
1 x 400	2.8	3.8	37.4	46.8	0.0031	
1 x 500	3.0	4.0	41.3	52	0.0030	
2 x 1	0.8	1.3	7.7	10.0	0.013	
2 x 1.5	0.8	1.5	8.5	11.0	0.012	
2 x 2.5	0.9	1.7	10.2	13.1	0.010	
2 x 4	1.0	1.8	11.8	15.1	0.0094	
2 x 6	1.0	2.0	13.1	16.8	0.0081	
2 x 10	1.2	3.1	17.7	22.6	0.0076	
2 x 16	1.2	3.3	20.2	25.7	0.0062	
2 x 25	1.4	3.6	24.3	30.7	0.0058	