SLOVENSKI STANDARD

SIST HD 22.3 S4:2004

december 2004

Kabli z gumijasto izolacijo za naznačene napetosti do vključno 450/750 V – 3. del: Kabli s toplotno odporno silikonsko gumijasto izolacijo

Cables of rated voltages up to and including 450/750 V and having cross-linked insulation – Part 3: Heat resistant silicone rubber insulated cables

ICS 29.060.20

Referenčna številka
SIST HD 22.3 S4:2004(en)

HARMONIZATION DOCUMENT

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

HD 22.3 S4

March 2004

ICS 29.060.20

Supersedes HD 22.3 S3:1995 + A1:1999

English version

Cables of rated voltages up to and including 450/750 V and having crosslinked insulation Part 3: Heat resistant silicone rubber insulated cables

Conducteurs et câbles isolés avec des matériaux réticulés de tension assignée au plus égale à 450/750 V Partie 3: Conducteurs isolés au silicone résistant à la chaleur

Starkstromleitungen mit vernetzter Isolierhülle für Nennspannungen bis 450/750 V Teil 3: Wärmebeständige Silikonaderleitungen

This Harmonization Document was approved by CENELEC on 2004-02-01. 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).

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Ref. No. HD 22.3 S4:2004 E

Foreword

This edition 4 of HD 22.3 has been prepared by Technical Committee CLC/TC 20, Electric cables. It provides a full updating of edition 3, including incorporation of amendment No 1, and introduces other improvements.

HD 22.3 S4 is related to IEC 60245-3:1994, but is not directly equivalent.

HD 22 now has the following parts:

HD 22.1 S4	-	Cables of rated voltages up to and including 450/750 V and having cross-linked insulation - Part 1: General requirements
HD 22.2 S3	-	Test methods
HD 22.3 S4	-	Heat resistant silicone rubber insulated cables
HD 22.4 S4	-	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 S2	-	Cords for applications requiring high flexibility
HD 22.15 S1	-	Multicore cables insulated and sheathed with heat resistant silicone rubber
HD 22.16 S1	-	Water resistant polychloroprene or equivalent synthetic elastomer sheathed flexible cables

In order that this revision of Part 3 of HD 22 does not introduce unnecessary changes to long-established clause numbers, the normative references (which would otherwise be inserted as Clause 2) are given in Annex A.

The draft Harmonization Document was submitted to the Unique Acceptance Procedure and approved by CENELEC as HD 22.3 S4 on 2004-02-01.

This Harmonization Document supersedes HD 22.3 S3:1995 + A1:1999.

The following dates were fixed:

- latest date by which the existence of the HD has to be announced at national level	(doa)	2004-08-01
- latest date by which the HD has to be implemented at national level by publication of a harmonized national standard or by endorsement	(dop)	2005-02-01
- latest date by which the national standards conflicting with the HD have to be withdrawn	(dow)	2006-02-01

Contents

1 Scope

This Part 3 of the HD details the particular specifications for single core silicone rubber insulated cables, with or without silicone rubber sheath, of rated voltage up to and including 300/500 V.

Each cable shall comply with the appropriate requirements given in Part 1 and the particular requirements of this part.

NOTE The overall dimensions of the cables of this part of HD 22 have been calculated in accordance with EN 60719.

2 Heat resistant silicone rubber insulated cable for a maximum conductor temperature of 180 °C [1)]

2.1 Code designation

H05SJ-U, H05SJ-K

2.2 Rated voltage

300/500 V

2.3 Construction

2.3.1 Conductor

Number of conductors: 1

The conductors shall comply with the requirements given in HD 383: Conductors of Insulated Cables, for Class 1 conductors or Class 5 conductors.

The wires may be plain or metal-coated.

2.3.2 Separator

A separator of suitable material applied around the conductor is optional, even if the wires are not protected by tin or by a metal other than tin.

2.3.3 Insulation

The insulation shall be silicone rubber compound of Type EI 2, applied around the conductor by extrusion in a single layer.

The thickness of insulation shall comply with the specified value given in Part 3, Table 1, column 3.

2.3.4 Outer braid

The core shall be covered by a treated glass fibre braid complying with Part 1, Subclause 5.4.2.

2.3.5 Overall diameter

The mean overall diameter shall be within the limits given in Part 3, Table 1, columns 4 and 5.

[1)] This cable type is similar to 60245 IEC 03 but has modified requirements.

2.3.6 Outer marking

The cable shall have the marking H05SJ-U or H05SJ-K as appropriate printed or embossed on, or indented into, the insulation. The marking, which shall meet the requirements of 3.2 and 3.3 of Part 1, shall be legible.

2.4 Tests

Compliance with the requirements of Part 3, Subclause 2.3 shall be checked by inspection and by the tests given in Part 3, Table 2.

2.5 Guide to use (informative)

See HD 516.

Table 1 - Dimensions of types H05SJ-U and H05SJ-K [a)]

1	2	3	4	5
Type	Nominal cross-sectional area of conductors	Thickness of insulation	Mean overall diameter	
		Specified value	Lower limit	Upper limit
	mm²	mm	mm	mm
H05SJ-U	1	0,6	2,2	2,8
	1,5	0,7	2,7	3,4
	2,5	0,8	3,3	4,1
	4	0,8	3,6	4,6
	6	0,8	4,1	5,2
	10	1,0	5,3	6,6
H05SJ-K	0,5	0,6	2,6	3,3
	0,75	0,6	2,8	3,5
	1	0,6	2,9	3,7
	1,5	0,7	3,4	4,2
	2,5	0,8	4,0	5,0
	4	0,8	4,5	5,6
	6	0,8	5,0	6,2
	10	1,0	6,2	7,8
	16	1,0	7,3	9,1
	25	1,2	8,4	10,6
	35	1,2	9,7	12,1
	50	1,4	11,5	14,4
	70	1,4	13,2	16,6
	95	1,6	15,1	18,8

[a)] Two cores of H05SJ-K may be twisted together to form a “Twisted twin” cable.

Table 2 - Tests for types H05SJ-U and H05SJ-K

1	2	3	4	5
Ref. No.	Tests	Category of test	Test method described in	
			HD / EN	Clause
1	**Electrical tests**			
1.1	Resistance of conductors	T, S	22.2	2.1
1.2	Voltage test at 2 000 V	T, S	22.2	2.2
1.3	Absence of faults on insulation	R	22.2 [a]	2.6
2	**Provisions covering constructional and dimensional characteristics**			
2.1	Checking of compliance with constructional provisions	T, S	22.1	Inspection and manual tests
2.2	Measurement of thickness of insulation	T, S	22.2	1.9
2.3	Measurement of overall diameter			
2.3.1	Mean value	T, S	22.2	1.11
2.3.2	Ovality	T, S	22.2	1.11
2.4	Solderability test (Plain conductors)	T	22.2	1.12
3	**Mechanical properties of insulation**			
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	Hot set test	T	60811-2-1	9
4	**Tests at low temperature**			
4.1	Bending test for insulation [b]	T	60811-1-4	8.1
4.2	Elongation test for insulation [c]	T	60811-1-4	8.3
4.3	Impact test on cable at –25 °C	T	60811-1-4	8.5

[a] Where the spark test is used for checking absence of faults on insulation, EN 50356 may be used in place of the method in HD 22.2.

[b] Only applicable to cables having mean overall diameters up to and including 12,5 mm

[c] Only applicable if the mean overall diameter of the cable exceeds 12,5 mm

3 Unbraided heat resistant silicone rubber insulated cable for a maximum conductor temperature of 180 °C

3.1 Code designation

H05S-U, H05S-K

3.2 Rated voltage

300/500 V

3.3 Construction

3.3.1 Conductor

Number of conductors: 1

The conductors shall comply with the requirements given in HD 383: Conductors of Insulated Cables, for Class 1 conductors or Class 5 conductors.

The wires may be plain or metal-coated.

3.3.2 Separator

A separator of suitable material applied around the conductor is optional.

3.3.3 Insulation

The insulation shall be silicone rubber compound of type E12 applied around the conductor by extrusion.

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

3.3.4 Overall diameter

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

3.3.5 Outer marking

The cable shall have the marking H05S-U or H05S-K as appropriate printed or embossed on, or indented into, the insulation. The marking, which shall meet the requirements of 3.2 and 3.3 of Part 1, shall be legible.

3.4 Tests

Compliance with requirements of Part 3, Subclause 3.3 shall be checked by inspection and by the tests given in Part 3, Table 4.

3.5 Guide to use (informative)

See HD 516