



# SLOVENSKI STANDARD

## SIST HD 22.2 S2:1998/A10:1998

01-februar-1998

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### Rubber insulated cables of rated voltages up to and including 450/750 V - Part 2: Test methods - Amendment A10

Rubber insulated cables of rated voltages up to and including 450/750 V -- Part 2: Test methods

Gummi-isolierte Leitungen mit Nennspannungen bis 450/750 V -- Teil 2: Prüfverfahren

Conducteurs et câbles isolés au caoutchouc de tension assignée au plus égale à 450/750 V -- Partie 2: Méthodes d'essais

[SIST HD 22.2 S2:1998/A10:1998](https://standards.iteh.ai/catalog/standards/sist/de670e2f-946b-4c22-92ee-7a72dbaddc45/sist-hd-22-2-s2-1998-a10-1998)

Ta slovenski standard je istoveten z: [HD 22.2 S2:1992/A10:1995](https://standards.iteh.ai/catalog/standards/sist/de670e2f-946b-4c22-92ee-7a72dbaddc45/sist-hd-22-2-s2-1998-a10-1998)

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#### **ICS:**

29.060.20      Kabli      Cables

**SIST HD 22.2 S2:1998/A10:1998**      en

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HARMONIZATION DOCUMENT  
DOCUMENT D'HARMONISATION  
HARMONISIERUNGSDOKUMENT

**HD 22.2 S2/A10**

June 1995

UDC 621.315.211.2.027.475.001.4  
ICS 29.060.20

Descriptors: See HD 22.2 S2:1992

English version

**Rubber insulated cables of rated voltages  
up to and including 450/750 V  
Part 2: Test methods**

Conducteurs et câbles isolés au  
caoutchouc, de tension assignée au plus  
égale à 450/750 V  
Partie 2: Méthodes d'essais

Isolierte Starkstromleitungen mit einer  
Isolierung aus Gummi mit  
Nennspannungen bis 450/750 V  
Teil 2: Prüfverfahren

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This amendment A10 modifies the Harmonization Document HD 22.2 S2:1992; it was approved by CENELEC on 1995-05-15. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this amendment 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 amendment 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

This amendment was prepared by the Technical Committee CENELEC TC 20, Electric cables.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A10 to HD 22.2 S2:1992 on 1995-05-15.

The following dates were fixed:

- latest date by which the existence of the amendment has to be announced at national level (doa) 1996-01-01
- latest date by which the amendment has to be implemented at national level by publication of a harmonized national standard or by endorsement (dop) 1996-07-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1996-07-01

For products which have complied with HD 22.2 S2:1992 and its amendments A5:1992, A6:1992, A7:1992, A8:1993 and A9:1993 before 1996-07-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1997-07-01.

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Insert new sub-clauses 3.4 and 3.5

### 3.4 Three pulley flexing test

#### 3.4.1 Test method

The test shall be carried out in accordance with sub-clause 3.1 except for the following modifications to the apparatus described therein.

(i) Carrier

The apparatus described in sub-clause 3.1.2 shall have a modified carrier C, as shown in Figure 3a.

(ii) Pulley wheels

The three pulley wheels of modified carrier C shall be of equal diameter to each other in accordance with the table C.

Table C

Diameter of pulley wheels

Cable type (number and nominal cross sectional area of conductors)	Diameter of pulley wheels (mm)
2 x 0.75mm <sup>2</sup>	40
2 x 1mm <sup>2</sup>	40
3 x 0.75mm <sup>2</sup>	40
2 x 1.5mm <sup>2</sup>	45
3 x 1 mm <sup>2</sup>	45
3 x 1.5mm <sup>2</sup>	50

(iii) Speed of carrier

The constant speed of the modified carrier C shall be approximately 0.1m/s.

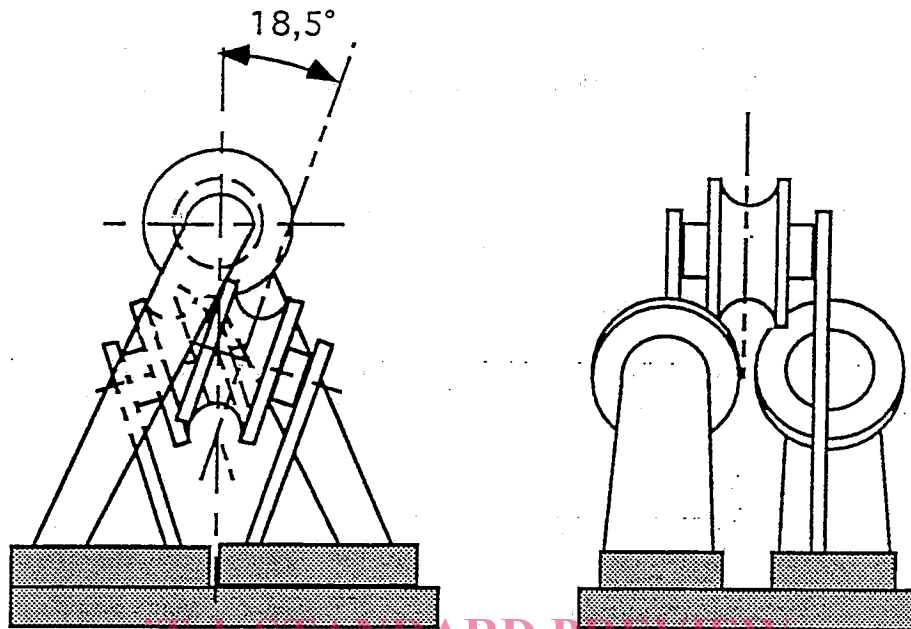
(iv) Weight

The applied weight to stress the conductor as described in sub-clause 3.1.3 of shall be calculated on the basis of 28N/mm<sup>2</sup> of conductor cross section.

#### 3.4.2 Requirements

During the test with 1000 cycles, ie 2000 single movements, neither interruption of the current, short circuit between the conductors nor short circuit between the cable and the pulleys (the flexing apparatus) shall occur.

After the required number of cycles the sheath of the cable, if any, shall be removed. The cores shall then withstand the voltage test carried out in accordance with sub-clause 2.3, but with a test voltage not exceeding 2,000V.



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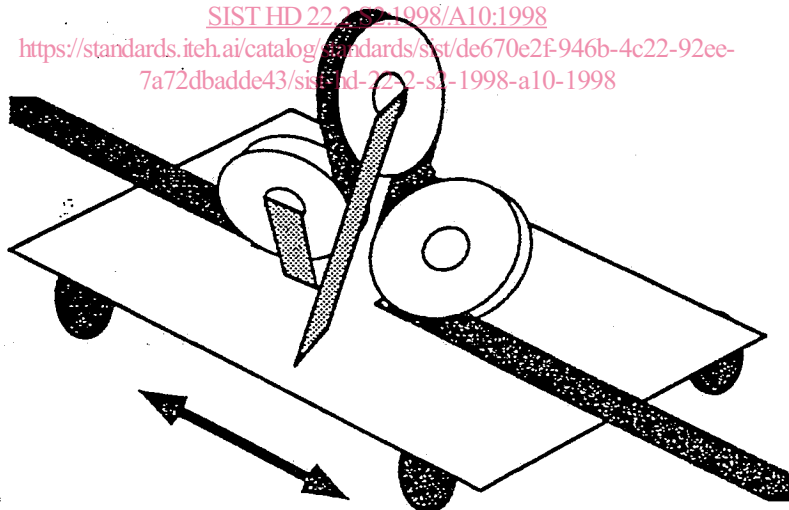


Figure 3a : Modified carrier "C"

### 3.5 Kink test

#### 3.5.1 Applicability

The test is applicable to 2 and 3 core sheathed cords, with conductor cross-sectional areas up to and including 1.5mm<sup>2</sup>.

#### 3.5.2 Apparatus

The test shall be carried out by means of a tensile strength testing machine or equivalent apparatus.

There shall be two clamps for fixing the cord. The upper clamp shall be capable of upwards and downwards movement. The lower clamp shall allow free movement in the vertical direction, but shall be prevented from twisting about its vertical axis so that no change to the torsion in the cord is introduced during the test. The arrangement is shown in Figure 3b.

#### 3.5.3 Sample

The test cord sample shall have a length of approximately one metre. The cord shall be twisted three times, as shown in Position 1 (starting position only) of Figure 3b, and then fixed in the upper and lower clamps such that the starting distance between the clamps is 200mm. The total extended length of cord between the two clamps is approximately 800mm, as shown in position 2 (extended position) of Figure 3b.

Four samples shall be prepared for testing, two with the twists applied in a clockwise direction and two in an anticlockwise direction.

#### 3.5.4 Test procedure

The lower clamp shall be loaded with a weight, sufficient to exert the tensile force given in Table D.

Each conductor of the cord shall be loaded with a current, as specified in Table E. The current may be at a low voltage.

The moveable upper clamp shall make upwards and downwards movements at the rate of nine complete cycles per minute (one complete cycle equals one upwards and downwards movement). The distance of travel for each movement (up or down) shall be 650mm.

When the upper clamp is fully raised the weight attached to the bottom clamp shall have been raised by about 50mm (see Figure 3b, position 2).

A total of 3000 cycles shall be made on each sample.

#### 3.5.5 Requirements

During the test neither interruption of the current, nor short circuit between the conductors shall occur.

Also there shall be no damage (cracking or tearing) to the sheath or any outer covering (textile braid). Textile braids shall have no gap bigger than 2mm.

At the conclusion of the test the sheath and any outer covering shall be removed, and the cores shall be subjected to the voltage test at 2000V in accordance with sub-clause 2.3.

**TABLE D****Tensile force exerted by the weight**

Nominal cross-sectional area of conductor (mm <sup>2</sup> )	Tensile force (N) exerted by the weight for cords having:	
	2 cores	3 cores
0.75	30	50
1.0	50	70
1.5	70	100

**iTeh STANDARD PREVIEW****TABLE E****(standards.iteh.ai)****Test currents**

Nominal cross-sectional area of conductor (mm <sup>2</sup> )	Test current (amps)
0.75	6
1.0	10
1.5	16