



SLOVENSKI STANDARD
SIST HD 586.2 S1:1998

01-februar-1998

**Mineral insulated cables with a rated voltage not exceeding 750 V - Part 2:
Terminations (IEC 702-2:1986 (Related))**

Mineral insulated cables with a rated voltage not exceeding 750 V -- Part 2: Terminations

Mineralisierte Leitungen mit einer Nennspannung bis 750 V -- Teil 2: Endverschlüsse

Câbles à isolant minéral, de tension assignée ne dépassant pas 750 V -- Partie 2:
Extrémités

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Ta slovenski standard je istoveten z: **HD 586.2 S1:1994**

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HARMONIZATION DOCUMENT

HD 586.2 S1

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HARMONISIERUNGSDOKUMENT

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Descriptors: Termination, electric cable, insulated cable, solid electric insulation, specification, dimension, test

ENGLISH VERSION

Mineral insulated cables with a rated voltage not exceeding 750 V
Part 2: Terminations



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO
Urad RS za standardizacijo in meroslovje
LJUBLJANA

SIST.....HD 586.2 S1.....
PREVZET PO METODI RAZGLASITVE

-02- 1998

Câbles à isolant minéral, de tension assignée ne dépassant pas 750 V
Partie 2: Extrémités

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This Harmonization Document was approved by CENELEC on 1994-03-08. 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

Central Secretariat: rue de Ştassart 35, B-1050 Brussels

FOREWORD

This Harmonization Document was prepared by CENELEC Technical Committee TC 20, Electric cables.

It was submitted to the CENELEC Unique Acceptance Procedure (UAP) in May 1993 and was approved by CENELEC as HD 586.2 S1 on 1994-03-08.

The following dates were fixed:

- latest date of announcement
of the HD at national level (doa) 1994-10-01
- latest date of publication of
a harmonized national standard (dop) 1995-04-01
- latest date of withdrawal of
conflicting national standards (dow) 1995-04-01

For products which have complied with the relevant national standard before 1995-04-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1996-04-01.

This Part 2 of HD 586 is to be used in conjunction with HD 586.1 S1:1994.

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SIST HD 586.2 S1:1998

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1. Scope

This standard specifies requirements for terminations for use with mineral insulated cables complying with the requirements of CENELEC harmonised publication HD 586.1.

2. Definitions

The following definitions apply for the purpose of this standard.

2.1 Termination

A complete end fitting for a mineral insulated cable, normally comprising a seal and a gland or a composite seal/gland device, but excluding the locknut and any associated junction box or accessory.

2.2 Seal

The part of a termination designed to seal the end of the cable against entry of moisture. The design must be such as to provide insulation between conductors and between conductors and sheath and provide conductor insulation external to the seal. It may also have a means of providing a protective conductor.

2.3 Gland

The part of a termination designed to secure the cable in a cable entry. It may or may not be used to ensure earth continuity depending upon the type of construction and material used.

3. Marking

3.1 Marking of packages

Packages in which terminations or parts of terminations are supplied shall be marked with the following particulars if applicable.

The manufacturer or supplier.

The maximum and minimum operating temperature of the seals.

A mark or means of identifying the cables or cables for which it is intended.

Whether a protective conductor is provided.

Gland thread form and size.

3.2 Marking of seals and glands

Seals and glands shall be marked with a mark or means of identifying the cable or cables for which they are intended. In addition, glands certified for use in hazardous areas shall be marked in accordance with EN50 014, 015, 016, 017, 018, 019, 020.

4. Construction

4.1 Seals

- 4.1.1 A seal shall consist of a moisture resistant material contained if necessary within a suitable enclosure, and shall provide electrical insulation for the cable conductors.
- 4.1.2 A protective conductor may be connected to a metallic sealing enclosure by any suitable method (e.g. welding, brazing, crimping or soldering) or it may be connected directly to the metal sheath by any suitable attachment (e.g. clip or clamp). The size of the protective conductor shall be in accordance with publication HD 384 and the attachment shall meet the electrical continuity test requirement specified in sub-clause 5.4.
- 4.1.3 A seal for use in potentially explosive atmospheres shall comply with the requirements of this standard and the appropriate requirements specified in EN50 014, 015, 016, 017, 018, 019, 020.
- 4.1.4 A seal or enclosure shall be made from material which will ensure freedom from corrosion arising from electrolytic action.
- 4.1.5 The sealing material used in the termination shall be such that the completed seal is capable of meeting the test requirements specified in clause 5.
- 4.1.6 Sleeving for conductor insulation shall be suitable for the range of operating temperatures stated for the seal by the manufacturer.

4.2 Glands

- <https://standards.iteh.ai/catalog/standards/sist/1980dc02-54f8-4b91-8851-9c8e2c0567/sist-hd-586-2-s1-1994>
- 4.2.1 A gland may be of any suitable material providing that it ensures freedom from corrosion arising from electrolytic action and meets the test requirements specified in clause 5.
- 4.2.2 The gland entry threads shall have a preferred thread form in accordance with those specified for conduit in IEC publication 423: Outside Diameters of Conduits for Electrical Installations and Threads for Conduits and Fittings. Other threads are permitted provided that the gland complies with all the other requirements of this standard.
- 4.2.3 The length of gland entry threads shall be not less than 8mm.
- 4.2.4 Glands for use in potentially explosive atmospheres shall comply with the requirements of this standard and also the appropriate requirements specified in EN50 014, 015, 016, 017, 018, 019, 020.

5. Type tests

5.1 General

The tests in this standard are type tests intended to establish termination design characteristics. Unless otherwise specified all tests shall be carried out at an ambient temperature of $20 \pm 10^\circ\text{C}$.

The test voltage shall be either a.c. of approximately sinusoidal waveform at a frequency in the range 49Hz to 61Hz, or d.c. equal to the peak value of the alternating voltage, and shall be applied gradually.

The seals and glands to be tested shall be fitted in accordance with the manufacturer's recommendations to both ends of 300 ± 50 mm lengths of MI cable complying with Harmonised CENELEC publication HD 586.1 of a size and rated voltage appropriate to the seals/glands under test. Each seal shall be fitted as soon as possible after the end of the cable has been prepared to minimise the ingress of moisture.

New seals/glands shall be taken for each electrical and mechanical test.

5.2 Seals

5.2.1 Voltage test

The sample shall withstand the following test voltage applied between each conductor and every other conductor, and between each conductor and sheath, for five minutes.

Seals for 500V rated cable - 2000V rms

Seals for 750V rated cable - 2500V rms

5.2.2 Insulation resistance test

The insulation resistance measured with a d.c. voltage between 80V and 500V applied between the conductor, or conductors bunched together, and the sheath shall be not less than 100 Mohms.

5.2.3 Insulation integrity test

This test shall be carried out in addition to the insulation resistance test after environmental tests specified in sub-clauses 5.2.4 and 5.2.5 as an indirect check that the insulation has not deteriorated.

The insulation integrity test is a voltage test applied between each conductor and every other conductor and between each conductor and sheath. The voltage equal to the rated voltage of the cable shall be applied for five minutes. No insulation breakdown shall occur.

5.2.4 Maximum operating temperature test

The sample shall be heated to a temperature at least 5K and not more than 10K higher than the maximum operating temperature specified by the manufacturer.

At this temperature it shall pass the insulation integrity test specified in 5.2.3, and the insulation resistance measured with a d.c. voltage between 80V and 500V applied between a conductor, or conductors bunched together, and the sheath shall be not less than 1 Mohm.

5.2.5 Temperature cycle test

The sample shall be heated to at least 5K and not more than 10K higher than the maximum operating temperature specified by the manufacturer and maintained at this temperature for 16 ± 1 h. Then it shall be transferred to a refrigerated compartment and maintained at the minimum operating temperature specified by the manufacturer (± 5 k), for 8 ± 1 h. This cycle shall be repeated 20 times.

5.2.6 Tensile test

This test is applicable only to those seals which are intended to be used as a means of attachment of cables to supporting structures or enclosures. For the purpose of this test one seal may be fitted to the cable sample.

The assembly shall be tested in a suitable tensile testing machine in such a way that the load is applied without imparting any crushing force. The load shall be increased gradually to the proof value specified in Table I, and maintained at that value for 5s.

After testing the seal shall show no splits or cracks or movement relative to the cable when examined with normal or corrected vision without magnification.

TABLE 1
iTeh STANDARD PREVIEW
Proof Loads for Sealing Pots or Glands
(standards.iteh.ai)

Nominal diameter of cable (mm)		Proof Load (N)
Above	Up to and including	
-	6	35
6	9	70
9	-	100

5.3 Glands

5.3.1 Tensile test

The gland shall be fitted to one end of a cable sample in accordance with the manufacturer's recommendations.

The entry thread on the body of the gland shall be screwed into an appropriate thread cut in a block of metal attached to one of the members of a suitable tensile testing machine. The load shall be increased gradually to the proof value in Table I and maintained at that value for 5s.

After testing, the gland shall show no splits or cracks or movement relative to the cable when examined with normal or corrected vision without magnification.

5.4 Electrical earth continuity test

The samples, prepared as described in 5.4.1 or 5.4.2, shall be heated in an oven to a temperature at least 5K and not more than 10K higher than the maximum temperature specified by the manufacture, and then allowed to return to room temperature. The electrical potential difference shall be measured as specified in 5.4.1 or 5.4.2 and recorded. The initial potential difference shall not exceed 10mV.

The temperature cycle and potential measurement shall be repeated until the variation in three successive voltage measurements is less than 2% or for 10 cycles whichever is the greater.

The final reading shall not be greater than the original reading by more than 10%.

5.4.1 Glands and seals with integral protective conductors or other protective conductor attachments

The test shall be carried out on an assembly incorporating two protective conductors and a sample of cable assembled in accordance with the manufacturer's recommendations. Only those components concerned with electrical continuity need be incorporated, and all parts shall be in a clean new condition and shall not be adjusted during the test.

A current of 25A d.c. or a.c. r.m.s. at a frequency of 49Hz to 61Hz shall be passed between the free ends of the protective conductors. The potential difference shall be measured at each end of the assembly between a point on the protective conductor not more than 1.5mm distant from the attachment and a point on the cable sheath not more than 1.5mm distant from the attachment.

5.4.2 Glands intended to provide earth continuity without integral protective conductors

The test shall be carried out on an assembly incorporating two glands screwed into appropriate threads cut in two blocks of metal. A current of 25A d.c. or a.c. r.m.s. at a frequency of 49Hz to 61Hz shall be passed between the two blocks. The potential difference shall be measured at each end of the assembly between a point on the gland body and a point on the cable sheath no more than 1.5mm distant from the gland.

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**Câbles à isolant minéral et leurs terminaisons
de tension nominale ne dépassant pas 750 V**

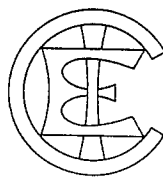
Deuxième partie: Terminaisons

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**Mineral insulated cables and their terminations
with a rated voltage not exceeding 750 V**

Part 2: Terminations



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