SLOVENSKI STANDARD
SIST EN 50086-2-4:1999

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Kanalski sistemi za urejanje kablov - 2-4. del: Posebne zahteve za sisteme kanalov, zakopane v zemljo

Conduit systems for cable management - Part 2-4: Particular requirements for conduit systems buried underground

Installationsrohrsysteme zum Führen von Leitungen für elektrische Energie und für Information - Teil 2-4: Besondere Anforderungen für erdverlegte Elektroinstallationsrohrsysteme

Systèmes de conduits pour la gestion du câblage - Partie 2-4: Règles particulières pour les systèmes de conduits enterrés dans le sol

Ta slovenski standard je istoveten z: **EN 50086-2-4:1994**

ICS:

29.120.10	Inštalacijske cevi za električne namene	Conduits for electrical purposes

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English version

Conduit systems for electrical installations Part 2-4: Particular requirements for conduit systems buried underground

Systèmes de conduits pour installations électriques
Partie 2-4: Règles particulières pour les systèmes de conduits enterrés dans le sol

Elektroinstallationsrohrsysteme für elektrische Installationen
Teil 2-4: Besondere Anforderungen für erdverlegte Elektroinstallationsrohrsysteme

This European Standard was approved by CENELEC on 1993-09-22. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Foreword

This European Standard has been prepared by CENELEC Technical Committee TC 113, Cable Management Systems.

This Part 2-4 specifies particular requirements for conduit systems buried undergound.

A conduit system which conforms to this standard, is deemed safe for use.

The text of this standard was submitted to the formal vote and was approved by CENELEC as EN 50086-2-4 on 1993-09-22.

The following dates were fixed.

- latest date of publication of an identical national standard (dop) 1994-10-01

- latest date of withdrawal of conflicting national standards (dow) 1994-10-01

For products which have complied with the relevant national standard before 1994-10-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1999-10-01.

This Part 2-4 supplements or modifies the corresponding clauses of EN 50086-1:1993, Conduit systems for electrical installations, Part 1: General requirements.

Where a particular clause or subclause of Part 1 is not mentioned in this Part 2-4, that clause or subclause applies as far as is reasonable. Where this Part 2-4 states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

Subclauses and figures which are in addition to those in Part 1 are numbered starting with 101.

Contents

1 Scope

Replacement:

This standard specifies requirements and tests for conduit systems buried underground including conduits and conduit fittings for the protection and management of insulated conductors and/or cables in electrical installations or in communication systems. This standard applies to metallic, non-metallic and composite systems including threaded and non-threaded entries which terminate the system.

Conduit systems which are used as an integral part of other equipment shall also be tested according to the relevant specification for that equipment.

2 Normative references

This clause of part 1 is applicable except as follows:

EN 60423 (in process)	Not applicable
IEC 670	Not applicable

Addition:

ISO 161-1:1978	Thermoplastic pipes for the transport of fluids - Nominal outside diameters and nominal pressures - Part 1: Metric series

3 Definitions

This clause of part 1 is applicable except as follows:

Addition:

3.101 multiwall conduit: A conduit consisting of several walls which may be a combination of plain and / or corrugated walls.

4 General requirements

This clause of part 1 is applicable.

5 General conditions for tests

This clause of part 1 is applicable.

6 Classification

This clause of part 1 is applicable except as follows:

6.1 *According to mechanical properties*

Replacement:

6.1.1 Resistance to impact:

1 Normal duty

2 Light duty

6.1.2 Resistance to bending:

1 Rigid

2 Pliable

6.2, 6.3 are not applicable.

Addition:

6.4.101 *Resistance against chemical attack*:

1 Without protection.

2 With protection.

6.5.3 is not applicable.

7 Marking and documentation

This clause of part 1 is applicable except as follows:

7.1 Addition:

c) the type of conduit N (Normal duty) or L (Light duty).

Addition:

7.1.101 Conduits shall be marked in accordance with 7.1 at regular intervals along their length of preferably 1 m but not longer than 3 m.

7.1.102 The manufacturer shall provide in his literature all information necessary for the proper and safe installation and use.

7.2 Replacement:

Conduit fittings shall be marked in accordance with 7.1 on the product.

7.3, 7.4 are not applicable.

7.5 Addition:

An alternative test is under consideration.

8 Dimensions

Replace the text of this clause by:

Conduits should be preferably according to table 101.

Compliance of the minimum inside diameter shall be checked by measurement according to two perpendicular diameters on the same section and calculating the average value.

Compliance of the outside diameter shall be checked using a ring gauge or any suitable method.

9 Construction

This clause of part 1 is applicable except as follows:

9.3 and 9.4 are not applicable.

10 Mechanical properties

This clause of part 1 is applicable except as follows:

10.1.4 Replacement:

Compliance is checked by the tests of 10.2 to 10.4

10.2 *Compression test*

Replacement:

10.2.1 Conduits and bends are subjected to a compression test.
The test for conduits and bends containing non-metallic materials shall not be started until 10 days after manufacture.

10.2.2 Samples shall be (200 ± 5) mm long.

10.2.3 Before the test, the outside and inside diameters of the samples shall be measured as described in clause 8.

10.2.4 The samples shall be compressed between two flat steel plates having minimum dimensions (100 x 200 x 15) mm, the length 200 mm being along the length of the sample. The samples shall be compressed at a rate of (15 ± 0,5) mm/min and the load recorded at the vertical deflection equivalent to 5% of the average value of the original inside diameter of the sample.

10.2.5 When reaching the deflection of 5%, the applied force shall be at least 450 N.

NOTE: The deflection is calculated with the inner diameter but the measurement of the outside diameter may be sufficient. In case of doubt, it will be necessary to measure the inner diameter.

10.2.6 After the test, there shall be no crack allowing the ingress of light or water between the inside and the outside.

10.3 *Impact test*

Replacement:

10.3.1 Twelve samples of conduits each (200 ± 5) mm in length or conduit fittings are subjected to an impact test by means of the apparatus shown in figure 101.

Conduits are tested alone.

Fittings are tested when assembled with conduits by using a suitably shaped 120° vee-block.

10.3.2 The test apparatus shall be placed on a firm flat surface.

The samples shall be conditioned in a cold chamber at the temperature of (-5 ± 1)°C for 2 h.

The samples shall be removed from the cold chamber and placed on the vee-block holder as shown in figure 101.

The striker shall fall once on each sample. The time between removal of the sample from the cold chamber and completion of impact shall not exceed 10 s. The energy values are specified in table 102.

The test shall be made on the weakest part of the conduit fitting except that it shall not be applied within 5 mm of any sample entry. Samples of conduit are tested on the centre of their length.

10.3.3 After the test, at least in nine of the samples, there shall be no crack allowing the ingress of light or water between the inside and the outside.

10.4 *Bending test*

Replacement:

10.4.1 This test shall be carried out on pliable conduits.

10.4.2 The test is made on six samples having an appropriate length. Three samples are tested at room temperature, the other three are tested at (-5 ± 1)°C.

For the test at - 5°C, the samples shall be conditioned in a cold chamber for 2 hours.

The test apparatus consists of a device as shown in figure 102 allowing to bend the conduit with a bending radius equal to the minimum bending radius specified by the manufacturer.

One of the ends of the samples shall be fixed on the test apparatus by means of an appropriate device. The sample is then bent to approximately 90° and hold.

10.4.3 During the test, the samples shall not flatten.

Compliance shall be checked by passing a ball having a diameter equal to (95 +1/-0)% of the minimum inner diameter of the sample declared by the manufacturer, through the sample whilst it is bent around the test apparatus.

10.5, 10.6, 10.7 and 10.8 are not applicable.