
Conduit systems for electrical installations -- Part 2-2: Particular requirements for pliable conduit systems

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ICS 29.120.10

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English version

Conduit systems for electrical installations
Part 2-2: Particular requirements for pliable conduit systems

Systèmes de conduits pour installations
électriques
Partie 2-2: Règles particulières pour
systèmes de conduits cintrables

Elektroinstallationsrohrsysteme für
elektrische Installationen
Teil 2-2: Besondere Anforderungen
für biegsame
Elektroinstallationsrohrsysteme

This European Standard was approved by CENELEC on 1994-12-06. 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.

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.

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

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50086-2-2 on 1994-12-06.

This Part 2-2 specifies particular requirements for pliable conduit systems.

A conduit system which complies with this standard, is deemed safe for use.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1995-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1996-12-01

For products which have complied with the relevant national standard before 1996-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2001-12-01.

This Part 2-2 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 2-2, that clause or subclause applies as far as is reasonable. Where this Part 2-2 states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

Subclauses, tables and figures which are in addition to those in Part 1 are numbered starting with 101. Annexes which are in addition to those in Part 1 are labelled AA, BB, etc.

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1 Scope

This clause of Part 1 is applicable, except as follows:

Addition:

This standard specifies the requirements for pliable conduit systems including self-recovering conduit systems.

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

2 Normative references

This clause of Part 1 is applicable.

3 Definitions

This clause of Part 1 is applicable.

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:

6.1.1.1, 6.1.2.1, 6.1.3.1, 6.1.3.4, 6.1.4.1 and 6.1.5.1 are not applicable.

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7 Marking and documentation

This clause of Part 1 is applicable, except as follows:

Addition:

7.1.101 The conduit shall be marked in accordance with 7.1 at regular intervals along its length of preferably 1 m but not longer than 3 m. Where this is technically impractical, the mark shall be on a label attached to the product at each end.

Compliance is checked by inspection.

7.1.102 The manufacturer shall document for the system the minimum inside diameter and the classification in accordance with clause 6.

Compliance is checked by inspection.

8 Dimensions

Replacement:

8.1 Threads shall comply with EN 60423.

Outside diameters of non-metallic conduits shall comply with EN 60423.

Outside diameters of metallic and composite conduits need not comply with EN 60423, providing they are used with terminating fittings with threads complying with EN 60423.

Compliance is checked by means of the gauges specified in EN 60423.

8.2 Threadable conduits and threadable conduit fittings shall comply with table 101. Non-threadable conduit fittings shall comply with table 102. The minimum inside diameter of the conduit system shall be declared by the manufacturer.

Compliance is checked by measurement.

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Table 101: Thread lengths

Size	External thread	Internal thread
	Minimum length (mm)	Minimum length (mm)
6	05,5	06,5
8	06,5	07,5
10	08,5	09,5
12	10,5	11,5
16	12,5	13,5
20	14,0	15,0
25	17,0	18,0
32	19,0	20,0
40	19,0	20,0
50	19,0	20,0
63	19,0	20,0
75	19,0	20,0

Table 102: Maximum entry diameter and minimum entry length details

Size	Maximum entry diameter (mm)	Minimum entry length (mm)
6	06,5	06,0
8	08,5	08,0
10	10,5	10,0
12	12,5	12,0
16	16,5	16,0
20	20,5	20,0
25	25,5	25,0
32	32,6	30,0
40	40,7	32,0
50	50,8	42,0
63	63,9	50,0
75	75,9	50,0

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9 Construction

This clause of Part 1 is applicable.

10 Mechanical properties

This clause of Part 1 is applicable, except as follows:

10.2 Compression test

For self-recovering conduits, instead of 10.2.4, 10.2.5, 10.2.6, 10.2.7 and 10.2.8, the following applies:

10.2.101 The intermediate piece shall be submitted to a constantly increasing compression force (N) determined in such a way as to flatten the sample by an amount exceeding 25 % but not exceeding 50 % of its initial outside diameter within 30 s. The compression force shall not be less than the values given in table 4.

The force and the intermediate piece shall then be removed. Fifteen minutes after removal, the outside diameter of the sample, where it has flattened, shall be measured again.

After the test, the difference between the initial outside diameter and the outside diameter of the flattened sample shall not exceed 10 % of the outside diameter, as measured before the test and the sample shall show no cracks visible to normal or corrected vision without magnification.

10.4 Bending test

10.4.101 Conduits shall be subjected to a bending test by means of the apparatus shown in figure 101.

10.4.102 The test shall be made on six samples of conduit, the length of each sample being at least:

- a) 30 times the nominal outside diameter for plain conduits;
- b) 12 times the nominal outside diameter for corrugated conduits.

Three of the samples shall be tested at the ambient temperature; the other three shall be tested at the declared transport, permanent application and installation temperature in accordance with table 1 with a tolerance of $\pm 2^\circ\text{C}$.

10.4.103 For the test at ambient temperature, the sample shall be clamped vertically in the bending apparatus in accordance with figure 101. The sample shall be slowly bent by hand to the left through approximately 90° , back to the vertical position, to the right through approximately 90° , and back to the vertical position. This sequence of operations shall be repeated three more times but at the end the sample shall not be bent back to the vertical position. The sample shall be maintained in the bent position for 5 min, after which it shall be placed in such a position that the straight portions are at 45° to the vertical, one end of the sample pointing upwards and the other downwards.