SLOVENSKI STANDARD
SIST EN 50085-2-4:2009

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Sistemi kabelskih korit in sistemi kabelskih cevi za električne inštalacije - 2-4. del: Posebne zahteve za podporne drogove

Cable trunking systems and cable ducting systems for electrical installations - Part 2-4: Particular requirements for service poles

Elektroinstallationskanalsysteme für elektrische Installationen - Teil 2-4: Besondere Anforderungen für freistehende Installationseinheiten

Systèmes de goulottes et systèmes de conduits-profilés pour installations électriques - Partie 2-4: Règles particulières pour les colonnes de service

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English version

Cable trunking systems and cable ducting systems for electrical installations - Part 2-4: Particular requirements for service poles and service posts

Systèmes de goulottes et systèmes de conduits-profilés pour installations électriques - Partie 2-4: Règles particulières pour les colonnes et colonnettes

Elektroinstallationskanalsysteme für elektrische Installationen - Teil 2-4: Besondere Anforderungen für freistehende Installationseinheiten

This European Standard was approved by CENELEC on 2009-05-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 213, Cable management systems.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50085-2-4 on 2009-05-01.

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)	2010-05-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-05-01

This European Standard is a system standard for cable management products used for electro-technical purposes. It relates to Low Voltage Directive 2006/95/EC [1)] through consideration of the essential requirements of this directive.

This European Standard is supported by separate standards to which references are made.

This Part 2-4 is to be used in conjunction with EN 50085-1:2005 "*Cable trunking systems and cable ducting systems for electrical installations – Part 1: General requirements*".

This Part 2-4 supplements or modifies the corresponding clauses of EN 50085-1:2005. Where a particular clause or subclause of Part 1 is not mentioned in this Part 2-4, that clause or subclause of Part 1 applies as far as is reasonable. Where this Part 2-4 states "addition" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

NOTE The following numbering system is used:

– subclauses, tables and figures that are additional to those in Part 1 are numbered starting from 101;

– additional annexes are lettered AA, BB, etc.

1) *Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits*, OJ L 374, 27.12.2006, p. 10–19.

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1 Scope

Replacement:

This European Standard specifies requirements and tests for cable trunking systems (CTS) and cable ducting systems (CDS) intended for the accommodation, and where necessary for the electrically protective separation, of insulated conductors, cables and possibly other electrical equipment in electrical and/or communication systems installations. The maximum voltage of these installations is 1 000 V a.c. and 1 500 V d.c.

Service poles and service posts are intended to be mounted in free space and in contact with mounting surface(s) only at one or two ends, where the word “mounted” means fixed or placed on the floor with a weighted base or linked to a mounting surface through a flexible component.

NOTE Service poles and service posts can also be part of a CTS/CDS intended for wall or ceiling mounting covered by Part 2-1 or floor mounting covered by Part 2-2 and are then also tested according to Part 2-1 and/or Part 2-2 as appropriate.

This European Standard does not apply to conduit systems, cable tray systems, cable ladder systems, powertrack systems or equipment covered by other standards.

This European Standard shall be used in conjunction with EN 50085-1:2005 “*Cable trunking systems and cable ducting systems for electrical installations – Part 1: General requirements*” which is referred to in this document as Part 1.

2 Normative references

This clause of Part 1 is applicable except as follows:

Add the following references:

EN 20535	1994	Paper and board – Determination of water absorptiveness – Cobb method (ISO 535:1991)
EN 50085-1	2005	Cable trunking systems and cable ducting systems for electrical installations – Part 1: General requirements
EN 60068-2-75	1997	Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests (IEC 60068-2-75:1997)
EN 60695-11-2	2003	Fire hazard testing – Part 11-2: Test flames – 1 kW nominal pre-mixed flame – Apparatus, confirmatory test arrangement and guidance (IEC 60695-11-2:2003)
EN 62262	2002	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code) (IEC 62262:2002)
EN ISO 536	1996	Paper and board – Determination of grammage (ISO 536:1995)
ISO 9328-7	2004	Steel flat products for pressure purposes – Technical delivery conditions – Part 7: Stainless steels

3 Definitions

This clause of Part 1 is applicable except as follows:

Additional definitions:

3.101
service pole
CTS/CDS intended to be mounted in free space and in contact with mounting surfaces only at two ends

NOTE 1 Service pole can be part of a CTS/CDS intended for wall, ceiling or floor mounting.

NOTE 2 The word “mounted” means fixed or placed on the floor with a weighted base or linked to a mounting surface through a flexible component.

3.102
service post
CTS/CDS intended to be mounted in free space and in contact with mounting surface only at one end

NOTE 1 Service post can be part of a CTS/CDS intended for wall, ceiling or floor mounting.

NOTE 2 The word “mounted” means fixed or placed on the floor with a weighted base or linked to a mounting surface through a flexible component.

3.103
pre-equipped service pole / service post
service pole / service post already assembled by the manufacturer or responsible vendor with one or more electrical accessories and/or communication components

3.104
pre-wired service pole / service post
service pole / service post already assembled by the manufacturer or responsible vendor, wired by means of insulated conductors and/or cables connecting one or more electrical accessories and/or communication components

3.105
modular service pole / service post
service pole / service post which includes the assembly of two or more modules allowing to increase the height or width or depth of the product

3.106
rated current, rated voltage
value assigned to a pre-wired and/or pre-equipped service pole / service post by the manufacturer and to which operation and performances characteristics are referred

4 General requirements

This clause of Part 1 is applicable.

5 General conditions for tests

This clause of Part 1 is applicable except as follows:

5.1 *Replace by:*

5.1 Unless otherwise specified, tests according to this standard are type tests.

Additional subclause:

5.101 *Unless otherwise specified in the relevant test, service poles / service posts are tested on the longest version declared by the manufacturer and service poles / service posts which differ only by being shorter than one which complies with the requirements for a given test are deemed to comply with the requirements for the same test.*

6 Classification

This clause of Part 1 is applicable except as follows:

6.4.1

This subclause of Part 1 is not applicable.

Additional subclauses:

6.101 According to floor treatment for service poles / service posts placed on the floor

6.101.1 Service poles / service posts for dry-treatment of floor

6.101.2 Service poles / service posts for wet-treatment of floor

6.102 According to resistance to vertical load applied through small surface area

6.102.1 CTS/CDS for 500 N

6.102.2 CTS/CDS for 750 N

6.102.3 CTS/CDS for 1 000 N

6.102.4 CTS/CDS for 1 500 N

6.102.5 CTS/CDS for 2 000 N

6.102.6 CTS/CDS for 2 500 N

6.102.7 CTS/CDS for 3 000 N

6.103 Optional classification according to resistance to vertical load applied through large surface area

6.103.1 CTS/CDS for 2 000 N

6.103.2 CTS/CDS for 3 000 N

6.103.3 CTS/CDS for 5 000 N

6.103.4 CTS/CDS for 10 000 N

6.103.5 CTS/CDS for 15 000 N

7 Marking and documentation

This clause of Part 1 is applicable except as follows:

7.3 *Add the following three last indents:*

- for modular service poles / service posts the constraints concerning the number or configuration of assembled modules;
- whether non vertical mounting is allowed;
- whether the flexible component, if any, linking to the mounting surface is not part of the enclosure.

8 Dimensions

This clause of Part 1 is applicable except as follows:

Addition:

There are no dimensional requirements.

9 Construction

This clause of Part 1 is applicable except as follows:

9.1 Sharp edges

Replace the second paragraph by:

Compliance is checked by inspection using one sample, if necessary after cutting the samples apart.

Replace the fourth paragraph by:

Compliance is checked by inspection using one sample.

9.3 Means for protective separation and/or retention

Replace the second paragraph by:

Compliance is checked by the tests of 10.3 and 10.5.

Additional subclause:

9.101 Service poles / service posts which are likely to be moved during use shall be provided with means to relieve conductors from strain in terminals or terminations.

NOTE A service pole with a weighted base is an example of service pole likely to be moved during use. A clamped service pole is not considered likely to be moved during use.

When a cable anchorage is used, compliance is checked by inspection and by the test of 9.12.

Other means are checked by the following test.

After installation according to the manufacturer's instructions a pull force of 100 N ± 2 N is applied to this mean in the most unfavourable direction for 60 s ± 5 s.

During the application of the force there shall be no stress on insulated conductors.

9.102 Areas of service poles / service posts shall have adequate resistance to vertical load when both following conditions are fulfilled:

- these areas are reasonably subjected to vertical load during installation and/or application. Some areas of service poles or service posts are considered not to be subjected to vertical load due to their dimensions or shape or height at least 100 mm above the floor;
- damage to these areas would impair mechanical or electrical safety.

Compliance is checked by the test of 10.5.103 and, when a resistance to vertical load through large surface area is declared, by the test of 10.5.104.

9.103 Insulated conductors and/or cables used to connect electrical accessories and/or communication components in pre-wired service poles / service posts shall be selected in accordance with the rated voltage of the connected equipment and, in case of electrical accessories, its rated current.

Compliance is checked by inspection.

9.104 Service poles / service posts placed on the floor declared according to 6.101.2 shall avoid water coming into contact with insulated conductors and live parts during wet-treatment of floor by one or a combination of the following methods:

- method 1: ensuring by design that water does not come into contact with insulated conductors and live parts when the water level is 10 mm above the upper level of the floor covering;
- method 2: providing manufacturer's instructions which require that insulated conductors and live parts are positioned not less than 10 mm above the upper level of the floor covering;
- method 3: providing appropriate sealing.

For method 1, compliance is checked by measurement. For method 2, compliance is checked by inspection. For method 3, compliance is checked by the following test.

The test is made using the lower part of the service pole / service post fixed on a plywood board 16 mm thick, with a 50 mm minimum spacing between the sample and the edge of the support.

Ingress of water is detected by the use of dry absorbent paper positioned between the plywood board and the sample. The absorbent paper is placed only in areas intended to accommodate insulated conductors or live parts.

The absorbent paper has a water absorptive height longitudinal of 75 mm per 10 min according to EN 20535 and a basis weight of 250 g per m² according to EN ISO 536.

The sample is placed carefully into a tray containing water to simulate a (10, 0/-1) mm height of water on the floor.

NOTE For easy detection of water absorption, coloured water can be used.

After 15 s ± 1 s the sample is removed carefully from the tray and the exterior of the sample is immediately wiped.

The service pole / service post is removed from the plywood board.

The absorbent paper shall show no trace of water absorption.

10 Mechanical properties

This clause of Part 1 is applicable except as follows:

10.2 Cable support test

This subclause of Part 1 is not applicable.

10.3 Impact test

10.3.2 Impact test for installation and application

This subclause of Part 1 is applicable except as follows:

Replace the first paragraph by:

The test is carried out with the impact test values declared according to Table 6.

Replace in the last paragraph EN 50102 by EN 62262.

Addition:

10.3.2.101 *The resistance to impact is checked on service poles / service posts including a flexible component, if any, used to link the service pole / service post to the mounting surface if the flexible component provides a safety function.*

NOTE 1 Examples of safety function are retaining the service pole / service post or relieving conductors from strain or providing an enclosure.

The test is carried out on an assembly consisting of

- *for a service pole / service post not longer than 1 000 mm: a complete service pole / service post;*

  NOTE 2 The length to be considered does not take into account the flexible component if any.

- *for a service pole / service post longer than 1 000 mm: one or more sections 1 000 mm ± 5 mm long to simulate the various characteristics (function, design, material, …) within the service pole / service post.*

For service poles / service posts which differ only in length the test is carried out on the shortest and the longest ones. Other service poles / service posts within the range are deemed to comply with the requirements for this test.

For a service pole intended for vertical mounting, the test is carried out only on parts of the service pole which will be lower than 1 500 mm above the floor when installed in accordance with manufacturer's instructions.

The assembly includes system components, if any, to simulate normal use.

Before the test, non-metallic system components and composite system components are aged at a temperature declared according to Table 3 for 168 h ± 4 h continuously.

The test is carried out with the impact test values declared according to Table 6.

The impact test apparatus according to Clause 4 of EN 60068-2-75:1997, is mounted on a solid wall or structure providing sufficient support.

For service poles, the assembly is placed horizontally in the impact test apparatus. In order to prevent any movement of the ends, the assembly is secured at both ends. This method of securing should not introduce a compressive force in the longitudinal axis of the assembly which would not exist in normal application. Between both ends, the assembly is not supported and is free to move in the impact direction.

Service posts are tested in their normal mounting position. The assembly is secured at the appropriate end to prevent any movement of this end without any additional support. Products intended to be mounted vertically are tested vertically whenever possible, otherwise they are tested horizontally.