SLOVENSKI STANDARD

SIST EN 50085-2-1:2007

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Sistemi kabelskih korit in sistemi kabelskih cevi za električne instalacije – 2-1. del: Sistemi kabelskih korit in sistemi kabelskih cevi za montažo na stene in strope

Cable trunking systems and cable ducting systems for electrical installations -- Part 2-1: Cable trunking systems and cable ducting systems intended for mounting on walls and ceilings

Elektroinstallationskanalsysteme für elektrische Installationen -- Teil 2-1: Besondere Anforderungen für Elektroinstallationskanalsysteme für Wand und Decke

Systemes de goulottes et systemes de conduits-profilés pour installations électriques -- Partie 2-1: Systemes de goulottes et systemes de conduits-profilés prévus pour etre montés sur les murs et les plafonds

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29.120.10	Inštalacijske cevi za električne namene	Conduits for electrical purposes

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EUROPEAN STANDARD

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English version

Cable trunking systems and cable ducting systems for electrical installations Part 2-1: Cable trunking systems and cable ducting systems intended for mounting on walls and ceilings

Systèmes de goulottes et systèmes de conduits-profilés pour installations électriques
Partie 2-1: Systèmes de goulottes et systèmes de conduits-profilés prévus pour être montés sur les murs et les plafonds

Elektroinstallationskanalsysteme für elektrische Installationen
Teil 2-1: Besondere Anforderungen für Elektroinstallationskanalsysteme für Wand und Decke

This European Standard was approved by CENELEC on 2006-10-01. 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, 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

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

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Foreword

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

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50085-2-1 on 2006-10-01.

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)	2007-10-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-10-01

This standard is a system standard for cable management products used for electro-technical purposes. It relates to the Council Directives on the approximation of laws, regulations and administrative provisions of the Member States relating to Low Voltage Directive (73/23/EEC) through consideration of the essential requirements of this directive.

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

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

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

Subclauses and figures which are additional to those in Part 1 are numbered starting from 101.

Contents

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.

These systems are intended for mounting on walls and/or ceilings. They may be embedded, installed in a flush or semi-flush state, surface mounted or mounted away from the surface using fixing devices.

This standard does not apply to conduit systems, cable tray systems, cable ladder systems, power track systems or equipment covered by other standards.

This 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:

Addition:

EN 60068-2-75	1997	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests (IEC 60068-2-75:1997)
EN 20535	1994	Paper and board - Determination of water absorptiveness - Cobb method (ISO 535:1991)
EN ISO 536	1996	Paper and board – Determination of grammage (ISO 536:1995)

3 Definitions

This clause of Part 1 is applicable except as follows:

3.1 *Replace the note by:*

NOTE Different types of CTS are shown in Figure 101 and explained in Annex A.1.

3.2 *Replace the note by:*

NOTE Different types of CDS are shown in Figure 101 and explained in Annex A.1.

Addition:

3.101
type 2 CTS/CDS (Distribution CTS/CDS)
CTS/CDS which provides at least the following functions:

- in line junction between two trunking lengths or ducting lengths,
- internal and external changes of direction between two trunking lengths or ducting lengths,

- flat change of direction between two trunking lengths or ducting lengths with the exception of certain systems where such a function is not required e.g. skirting CTS/CDS,
- "T" function between three trunking lengths or ducting lengths with the exception of certain systems where such a function is not required e.g. Bench CTS,
- termination of a trunking length or a ducting length

3.102
type 3 CTS/CDS (Installation CTS/CDS)
distribution CTS/CDS which provides in addition apparatus mounting function

3.103
type 1 CTS/CDS
CTS/CDS that cannot be defined as a type 2 CTS/CDS (Distribution CTS/CDS) or as a type 3 CTS/CDS (Installation CTS/CDS)

3.104
surface mounting CTS/CDS
CTS/CDS which is intended for mounting on a surface

3.105
flush-mounting CTS/CDS
CTS/CDS which is intended for mounting flush with the surface so that at least 90 % of the product depth is recessed below the finished surface when installed according to manufacturer's instructions

3.106
semi-flush mounting CTS/CDS

CTS/CDS which is intended to fit within a mounting surface so that more than 10 % of the product depth projects from the finished surface

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:

Addition:

6.101 According to the intended installation positions

NOTE More than one classification can be declared.

6.101.1 CDS embedded in the wall or ceiling.

6.101.2 CTS/CDS flush in the wall or ceiling.

6.101.2.1 CTS/CDS flush in the wall.

6.101.2.2 CTS/CDS flush in the ceiling.

6.101.3 CTS/CDS semi flush or surface mounted on the wall or ceiling.

6.101.3.1 CTS/CDS semi flush or surface mounted on the wall.

6.101.3.2 CTS/CDS semi flush or surface mounted on the ceiling.

6.101.3.3 CTS/CDS wall fixed and supported by the floor.

6.101.3.4 CTS/CDS wall fixed and supported by a horizontal surface other than the floor.

6.101.4 CTS/CDS mounted away from the wall or ceiling using fixing devices.

6.102 According to the prevention of contact between liquids and insulated conductors and live parts in case of CTS/CDS mounted in a skirting position and wet-treatment of floor

6.102.1 Not declared.

6.102.2 Relying completely on manufacturer's instructions restricting the installation position of the CTS/CDS.

6.102.3 Relying on manufacturer's instructions allowing all installation positions of the CTS/CDS but restricting the position of insulated conductors and live parts in CTS/CDS.

6.102.4 Relying on manufacturer's instructions allowing all installation positions of the CTS/CDS and all positions of insulated conductors and live parts in CTS/CDS.

NOTE Installation position refers to the distance between CTS/CDS and the floor.

6.103 According to the Type

6.103.1 Type 1 CTS/CDS.

6.103.2 Type 2 CTS/CDS (Distribution CTS/CDS).

6.103.3 Type 3 CTS/CDS (Installation CTS/CDS).

6.104 According to resistance to compression for CDS

6.104.1 CDS for compression 125 N.

6.104.2 CDS for compression 320 N.

6.104.3 CDS for compression 750 N.

6.104.4 CDS for compression 1 250 N.

6.104.5 CDS for compression 4 000 N.

7 Marking and documentation

This clause of Part 1 is applicable except as follows:

7.3 *Replacement:*

7.3 The manufacturer shall provide in his documentation all information necessary for the proper and safe installation and use. It shall include

- components of the system,
- function of the system components and their assemblies,
- classification of the system in accordance with Clause 6,
- for type 1 CTS/CDS the list of functions,
- linear impedance, in Ω/m, of trunking length or ducting length of system declared according to 6.5.1,
- rated voltage of CTS/CDS declared according to 6.6.2,
- usable cross sectional area, in mm^2, for cables of the CTS/CDS,

  NOTE Certain system components when mounted can reduce the usable cross sectional area for cables.

- instructions to reach the declared classification and functions of the system. These instructions shall include the recommended installation positioning for the CTS/CDS to ensure that the declared IP classification is maintained after installation.

Compliance is checked by inspection.

8 Dimensions

This clause of Part 1 is applicable except as follows:

Addition:

There are no dimensions requirements.

9 Construction

This clause of Part 1 is applicable except as follows:

Addition:

9.101 Assembling

System components shall fit correctly.

Compliance is checked by inspection.

9.102 Contact between liquids and insulated conductors and live parts

CTS/CDS declared according to 6.102.2, 6.102.3 or 6.102.4 shall prevent liquids coming into contact with insulated conductors and live parts during wet-treatment of floor.

Compliance is checked by inspection and measurement when the area intended to accommodate insulated conductors is at least 10 mm above the floor due to

- *design, or*
- *manufacturer's instructions restricting the installation position of the CTS/CDS, or*
- *manufacturer's instructions allowing all installation positions of the CTS/CDS but restricting the position of insulated conductors and live parts in CTS/CDS.*

In all other cases compliance is checked by the following test carried out on an assembly or assemblies.

An assembly is made of one or more trunking lengths or ducting lengths with the relevant system component, if any, to fulfil the various functions of the system and prepared according to the manufacturer's instructions. More than one assembly may be necessary to fulfil the various functions of the system. In each direction, the length L of trunking length or ducting length coming out of the functional area associated with the function of the system is as long as the width W of the trunking length or ducting length, or 250 mm, whichever is the greater. The tolerance of L is ± 25 mm.

NOTE 1 Functional area refers, for example, to a fitting, an apparatus mounting device, a junction as shown in Figure 106

The assembly is fixed according to manufacturer's instructions to an appropriate support. The ends of the assembly are closed according to manufacturer's instructions.

A (5 ± 1) mm wide strip of absorbent paper is placed on the lowest internal surface of CTS/CDS intended for the accommodation of insulated conductors. If this lowest internal surface is horizontal, the strip is placed approximately on the centre line of the surface. 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 length of the strip is such that it covers the whole length of the assembly.

NOTE 2 When the tested function of the system includes a change of direction, the length of paper can be made of more than one strip.

Provisions are made such that the absorbent paper makes contact with the lowest internal surface of CTS/CDS intended for the accommodation of insulated conductors along the whole length of the assembly. These provisions shall not influence absorption by the paper.

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

NOTE 3 For easy measurement of wet area coloured water can be used.

After (15 ± 1) s the assembly is removed from the tray and the exterior of the assembly is immediately wiped.

After careful removal of the access covers, if any, the absorbent paper is removed. Within 5 min after the removal of the assembly from the tray, the lengths of the wet areas are measured on the centre line of the strips.

For each tested function, the length of any wet area in the strip of absorbent paper shall be shorter than 50 mm.

10 Mechanical properties

This clause of Part 1 is applicable except as follows:

10.2 Cable support test

Replacement:

10.2 Cable support test

10.2.1 General test conditions

Each test is made on one new sample of trunking length or ducting length having a length of 250 mm ± 5 mm.

Trunking length or ducting length having a usable cross sectional area lower than or equal to 500 mm^2 do not need to be tested.

The sample is securely fixed, using 10 mm external diameter flat metallic washers and metallic screws to a rigid smooth support such as a plywood board 16 mm thick. When 10 mm external diameter is too large, a suitable smaller washer is used. Fixing(s) are positioned at (200 ± 5) mm centres along the length of the sample.

Within the width of the sample the fixing is made as close as possible to each side wall. For triangular or similar cross section CTS/CDS, the sample is fixed only to the wall.

If the manufacturer's instructions require the use of cable retainers, the test is carried out using the cable retainers and if possible symmetrically fixed along the length.

The sample is subjected to an evenly distributed load of 1,0 g per mm^2 of the declared usable area for cables, per metre length. The load is distributed between the compartments proportionally to the declared usable area. The load consists of copper insulated conductors or cables complying with class 5, Table 3 of HD 383 S2 or flexible insulated conductors or cables of similar mass per meter.

To allow for settlement of the sample, a pre-load of 10 % of the load is applied and removed after 5 min ± 30 s. The measurement apparatus is then calibrated to zero. No pre-load is necessary for CTS/CDS classified in accordance with 6.101.3.3.

Insulated conductors or cables of 25 mm^2 nominal cross section are placed in the sample so that approximately 50 % of the load is achieved. If the dimensions of the compartment do not permit the accommodation of 25 mm^2 insulated conductor or cable, 2,5 mm^2 nominal cross section insulated conductors or cables are used. Insulated conductors or cables of 2,5 mm^2 nominal cross section are placed on top of the larger cables to achieve the total load within a tolerance of ± 5 g.

Non metallic and composite trunking lengths or non metallic and composite ducting lengths are tested at the maximum application temperature declared by the manufacturer according to Table 3.

The load is applied for 120 min (+5/0) min. After this period the deflection is measured at approximately the middle of the length.

10.2.2 Test for wall fixed CTS/CDS

This test applies to CTS/CDS declared according to 6.101.3.1 and/or 6.101.3.3.