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BSI Standards Publication

Cable trunking systems and cable ducting systems for electrical installations

Part 2-3: Particular requirements for slotted
cable trunking systems intended for installation
in cabinets

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National foreword

This British Standard is the UK implementation of EN 50085-2-3:2010. It supersedes BS EN 50085-2-3:2001 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/213, Cable management.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Amendments/corrigenda issued since publication

Date	Text affected
31 July 2010	Correction to supersession text

English version

**Cable trunking systems and cable ducting systems
for electrical installations -
Part 2-3: Particular requirements for slotted cable trunking
systems intended for installation in cabinets**

Systèmes de goulottes et systèmes
de conduits-profilés pour installations
électriques -
Partie 2-3: Règles particulières
pour les systèmes de goulottes
de câblage pour installation
dans les armoires

Elektroinstallationskanalsysteme
für elektrische Installationen -
Teil 2-3: Besondere Anforderungen
an Verdrahtungskanäle zum Einbau
in Schaltschränke

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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. It was submitted to the formal vote and was approved by CENELEC as EN 50085-2-3 on 2010-03-01.

This document supersedes EN 50085-2-3:1999 and is aligned on EN 50085-1:2005.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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) 2011-03-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2013-03-01

This European Standard is a system standard for cable management products used for electro-technical purposes. It relates to the Council Directive on the approximation of laws, regulations and administrative provisions of the Member States relating to Low Voltage (Directive 2006/95/EC) through consideration of the essential requirements of this directive.

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

This Part 2-3 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 2-3 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, that clause or subclause applies as far as it is reasonable. Where this Part 2 states "addition", "modification" 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.
-

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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.

Slotted cable trunking systems are intended for mounting inside cabinets in electrical and/or communication system installations.

This European Standard does not apply to conduit systems, cable tray systems, cable ladder systems, power track 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. Wherever reference is made in this European Standard to EN 50085-1:2005 this does not apply to cable ducting systems.

2 Normative references

Replacement:

EN 50085-1	2005	Cable trunking systems and cable ducting systems for electrical installations – Part 1: General requirements
EN 50085-2-3	1999	Cable trunking systems and cable ducting systems for electrical installations – Part 2-3: Particular requirements for slotted cable trunking systems intended for installation in cabinets
EN 60695-11-5	2005	Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance (IEC 60695-11-5:2004)
HD 383 S2	1986 ¹⁾	Conductors of insulated cables – First supplement: Guide to the dimensional limits of circular conductors (IEC 60228:1978, mod. + IEC 60228A:1982, mod.)

3 Definitions

For the purposes of this document, the terms and definitions of Part 1 apply except as follows.

Addition:

3.101

slotted cable trunking system

system comprising a slotted trunking length and possibly other slotted cable trunking system components for the accommodation and laying in of insulated conductors or cables intended for use in a cabinet or similar

¹⁾ Superseded by EN 60228:2005, *Conductors of insulated cables* (IEC 60228:2004).

3.102**slotted cable trunking system component**

part of the system which includes

- a) slotted trunking length,
- b) trunking fitting,
- c) fixing device,
- d) system accessory

NOTE The above mentioned system components may not necessarily be included all together in a system. Different combinations of system components may be used.

3.103**slotted trunking length**

trunking length with slotted walls and with cover(s) which may be integral part of the base and/or may be slotted

3.104**slotted wall**

wall with openings allowing cables to pass through

NOTE The openings can be with open or closed boundary and may have different shapes, normally designed to maintain wiring in position.

3.105**wall finger**

part of a slotted wall between two consecutive slots with open boundary

3.106**break-out line**

line which may be available on the walls of a trunking length to facilitate the breaking of walls or parts thereof, such as a wall finger

4 General requirements

Replacement:

Slotted cable trunking systems shall be so designed and constructed that where required they ensure reliable support, accommodation and segregation of the insulated conductors and/or cables contained therein.

Equipment associated with or incorporated in a system component but which is not a system component, shall and need only comply with the relevant standard of this equipment, if any. However it may be necessary to include such equipment in a test arrangement for the purpose of testing its interface with the slotted cable trunking system.

Compliance is checked by carrying out all the tests specified.

5 General conditions for tests

This clause of Part 1 is applicable.

6 Classification

This clause of Part 1 is applicable except as follows.

6.2 Not applicable

6.3 Table 2 is not applicable.

6.5 Not applicable

6.6 Not applicable

6.7 Not applicable

6.9 Not applicable

6.10 Not applicable

Addition:

6.101 According to the intended installation positions

6.101.1 Mounted on vertical or horizontal surface

6.101.2 Mounted on vertical or horizontal surface except in a cover down position

7 Marking and documentation

This clause of Part 1 is applicable.

8 Dimensions

This clause of Part 1 is applicable except as follows.

Addition:

8.101 Preferred solution for fixing holes, if any, in the base of the slotted trunking lengths according to the different trunking widths as shown in Figure 101 is as follows:

- trunking lengths with a nominal width less or equal to 12,5 mm should preferably have one row of small holes only, as shown in Figure 102 b);
- trunking lengths with a nominal width greater than 12,5 mm and less or equal to 62,5 mm, should preferably have one row of holes only, alternately as shown in Figure 102 a) and in Figure 102 b);
- trunking lengths with a nominal width greater than 62,5 mm should preferably have two or more rows of holes alternately as shown in Figure 102 a) and in Figure 102 b), positioned at a distance of 25 mm or 50 mm apart, symmetrically located from the trunking centre line.

9 Construction

This clause of Part 1 is applicable except as follows.

9.2 Not applicable

9.5 Not applicable

9.6 Not applicable

9.7 Not applicable

9.8 Not applicable

9.9 Not applicable

9.10 Not applicable

9.11 Not applicable

9.12 Not applicable

10 Mechanical properties

This clause of Part 1 is applicable except as follows.

10.2 Cable support test

Replacement:

10.2.1 General test conditions

Each test is made on one new sample of slotted trunking length having a length of (250 ± 5) mm.

Before the test non metallic and composite slotted trunking lengths are aged at a temperature declared according to Table 3 for (168 ± 4) h continuously.

The sample is securely fixed, using 10 mm external diameter flat metallic washers and appropriate metallic screws to a rigid smooth support such as a plywood board 16 mm thick. When 10 mm external diameter is too large, suitable smaller washer and appropriate screw are used. Fixing(s) are positioned as shown in Figure 103 at (200 ± 5) mm centres along the length of the sample.

Within the width of the sample:

- for trunking with a width less than 50 mm, one fixing is used as shown in Figure 103 a);*
- for trunking with a width equal or greater than 50 mm, two fixings are used as shown in Figure 103 b).*

If the manufacturer's instructions require the use of cable retainers or dividers, these are fitted according to the manufacturer's instructions. Cable retainers, if any, are symmetrically fixed along the length.

The sample is subjected to an evenly distributed load of 0,8 g per mm² 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 S2:1986, 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 (300 ± 30) s. The measurement apparatus is then calibrated to zero.

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. Insulated conductors or cables of $2,5 \text{ mm}^2$ nominal cross section are placed on top of the larger cables to achieve the total load within a tolerance of $\pm 5 \text{ g}$. If the dimensions of the compartment do not permit the accommodation of 25 mm^2 insulated conductor or cable, $2,5 \text{ mm}^2$ nominal cross section insulated conductors or cables are used.

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

10.2.2 Slotted trunking lengths are mounted according to Figure 104 a).

After $(120 + 5/0)$ min with the load still applied the vertical deflection F is measured at approximately the middle of the length.

F shall not exceed 10 % of the height H with a maximum of 10 mm (see Figure 104 a)).

10.2.3 Slotted trunking lengths classified according to 6.101.1 are mounted according to Figure 104 b).

After $(120 + 5/0)$ min with the load still applied the vertical deflection F is measured at approximately the middle of the length.

F shall not exceed 10 % of the width W with a maximum of 10 mm (see Figure 104 b)).

10.3 Impact test

This clause of Part 1 is applicable except as follows.

10.3.1.3 Replace the last paragraph by:

This test is not applied to wall fingers, knockouts, membranes and the like, and within 50 mm of each end.

NOTE Break-out line, if any, is considered as knockout.

10.3.1.4 Add at the end of the first paragraph the following sentence:

Any cracks in or breaking of wall finger are ignored.

10.3.2 Not applicable

10.4 Not applicable

10.5 Not applicable

10.6 Not applicable

11 Electrical properties

This clause of Part 1 is not applicable.

12 Thermal properties

This clause of Part 1 is applicable.

13 Fire hazard

This clause of Part 1 is applicable except as follows.

13.1.3

Replacement:

Slotted cable trunking systems shall either not ignite or if ignited, shall not continue to burn when the source of ignition is removed.

Non-metallic system component or metallic system component coated in paint or any other substance which is likely to affect its resistance to flame propagation is to be considered as a composite system component and tested accordingly.

Compliance is checked as follows:

- *for slotted trunking lengths of non-metallic or composite material by the following flame test;*
- *for other system components of non-metallic or composite material by the test of 13.1.1 at a temperature of 650 °C.*

System components, which have already been tested at 650 °C or 850 °C according to 13.1.1, are not tested again at this temperature.

The test is performed according to Clauses 1 to 5, 8, 10, 11 and 13 of EN 60695-11-5:2005 and the following conditions:

- *the test is carried out on two sets of samples (675 ± 10) mm long. If partitions are not integral with the sample, a partition shall be mounted on the slotted trunking length. Other parts may be added to the sample at the request of the manufacturer;*
- *the slotted trunking length is placed vertically with its lower extremity (100 ± 5) mm above the tissue covered wooden board as shown in Figure 105 in a rectangular metal enclosure with an open face as shown in Figure 4. It is securely fixed to a rigid support through the fixing holes, if any, in the base of the slotted trunking length, according to the manufacturer's instructions;*
- *the burner is positioned on the samples of the first set in such a way that the axis forms an angle of 45° ± 2° with the horizontal one and the flame is applied centrally to the boundary of an opening of the wall approximately 200 mm above the wrapping tissue covered wooden board, the end of the burner tube being distanced (5 ± 1) mm from the sample;*
- *the test is repeated on the samples of the second set but with the burner applied to one extremity of the cover preferably on the edge with the thinnest wall thickness or to the boundary of a slot, if there is any;*
- *a severity of 60 s is used.*

13.2 Not applicable

14 External influences

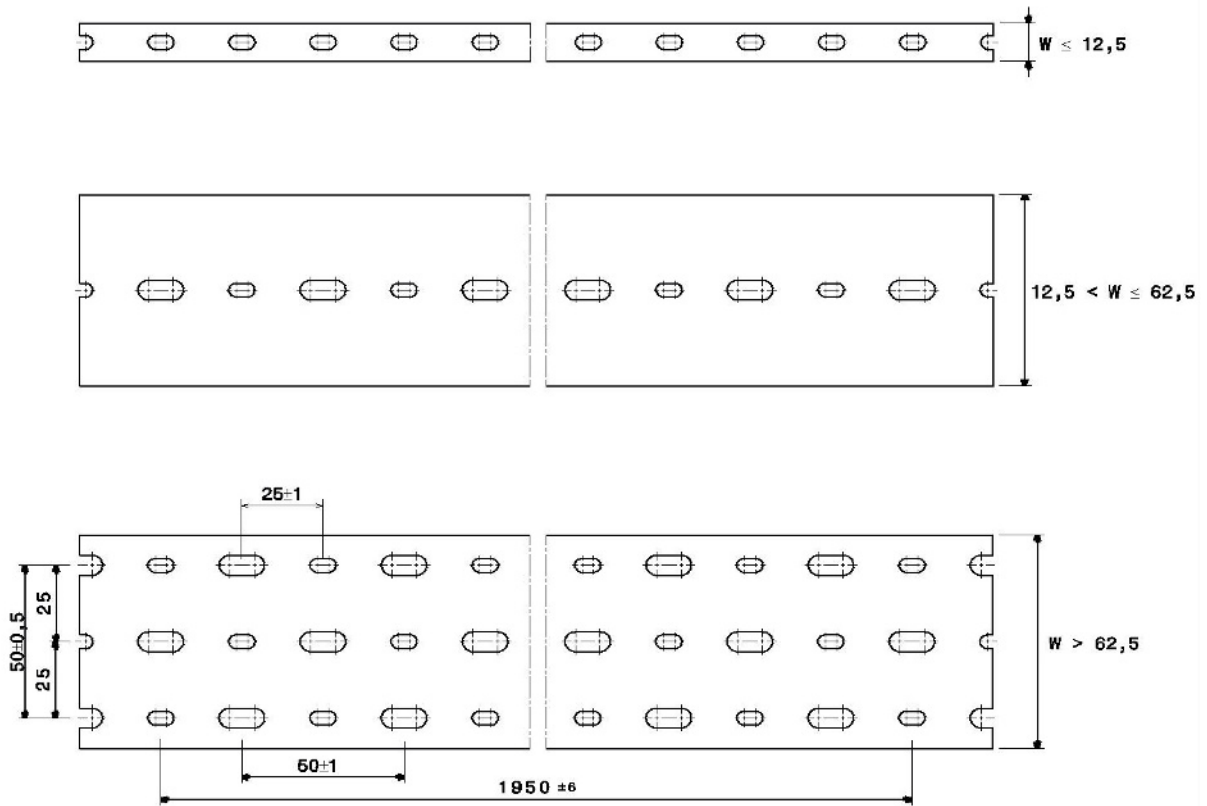
This clause of Part 1 is applicable except as follows.

14.1 Not applicable

15 Electromagnetic compatibility

This clause of Part 1 is applicable.

Dimensions in mm



Key

W Width of slotted trunking length

Figure 101 – Examples of pattern of fixing holes in the base of the slotted trunking length

Dimensions in mm

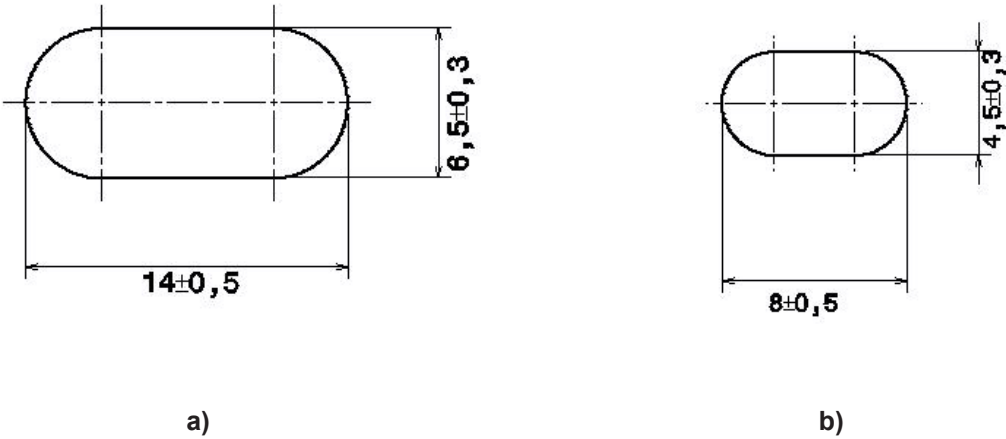
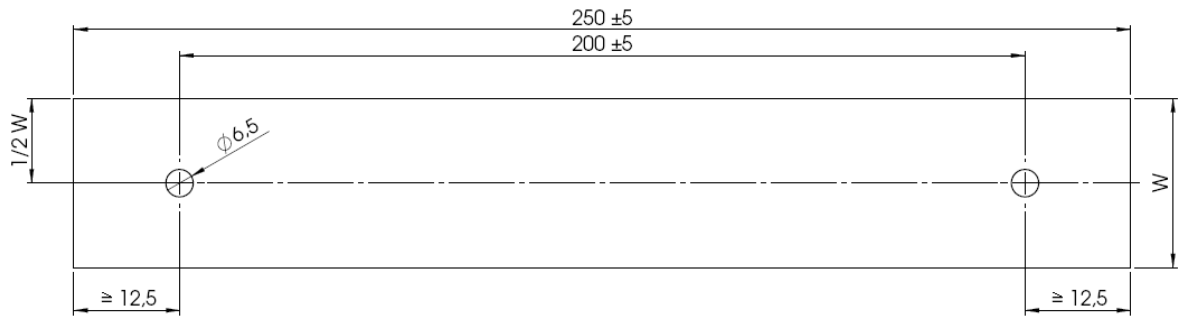


Figure 102 – Examples of sizes for the fixing holes

Dimensions in mm

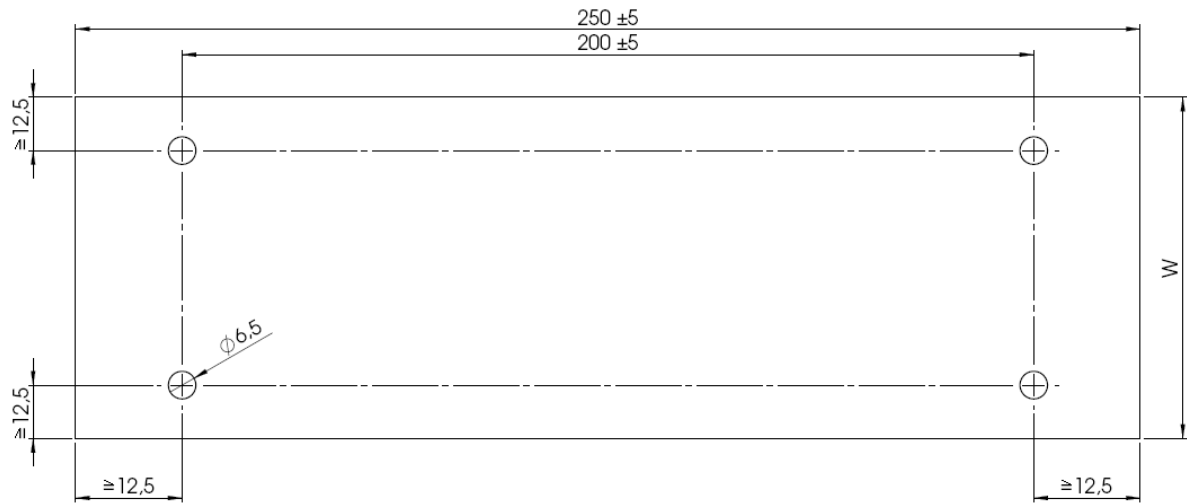


Key

W External width of the slotted trunking

a)

Dimensions in mm

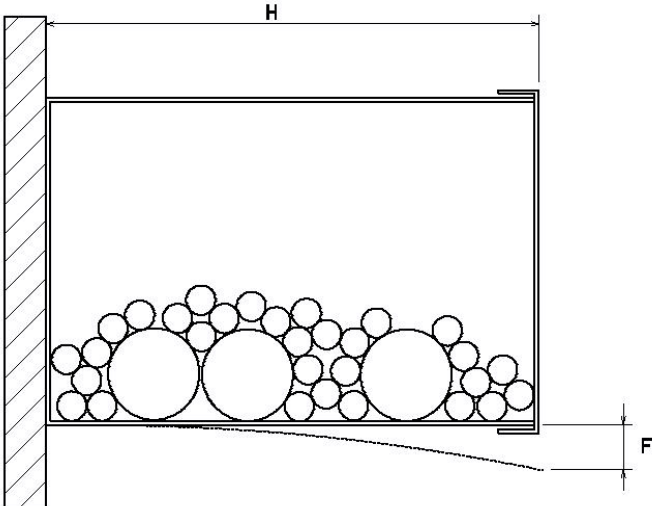


Key

W External width of the slotted trunking

b)

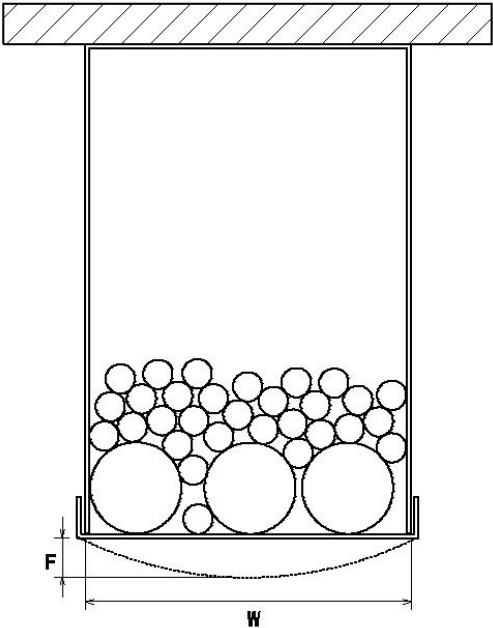
Figure 103 – Fixing distances for cable support test of 10.2



Key

- H External height of the slotted trunking
- F Vertical deflection

a)



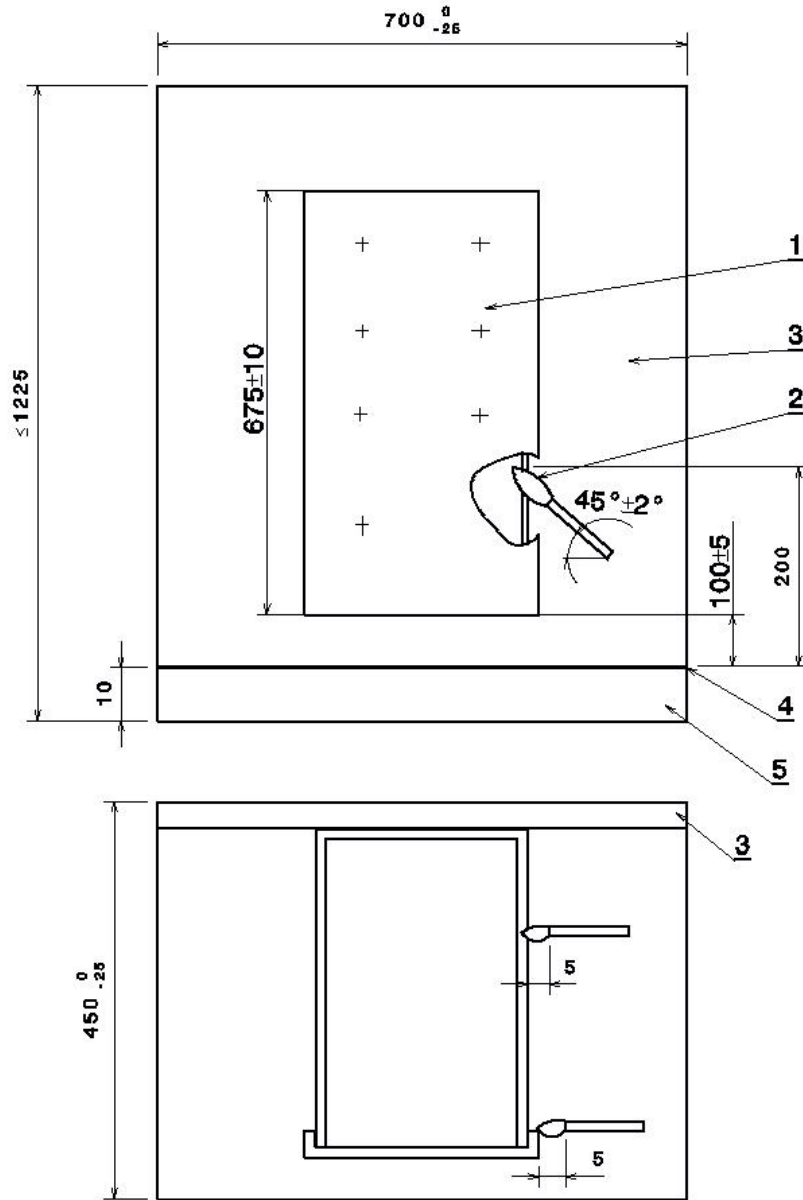
Key

- W External width of the slotted trunking
- F Vertical deflection

b)

Figure 104 – Arrangements for cable support test of 10.2

Dimensions in mm



Key

- 1 Sample centrally located
- 2 Flame
- 3 Back face
- 4 Wrapping tissue
- 5 Smooth wooden board

This drawing is not intended to govern design except as regards the dimensions shown.

Figure 105 – Arrangement for flame test of 13.1.3

Annex A (informative)

Types of cable trunking systems (CTS) and cable ducting systems (CDS)

This annex of Part 1 is not applicable.

Annex B (informative)

A-deviations

This annex of Part 1 is applicable.

Annex AA (normative)

Compliance checks to be carried out for slotted cable trunking systems intended for installation in cabinets complying with EN 50085-2-3:1999

This normative annex relates to changed requirements. It informs where compliance checks are not required and where compliance checks are required to be carried out in order that a slotted cable trunking system intended for installation in cabinets can be declared to meet the requirements of this EN 50085-2-3 if it already complies with EN 50085-2-3:1999.

No compliance check is required.

Addition:

Bibliography

EN 22768-1	1993	General tolerances – Part 1: Tolerances for linear and angular dimensions without individual tolerance indications (ISO 2768-1:1989)
HD 384.5.54 S1	1988 ²⁾	Electrical installation of buildings – Part 5: Selection and erection of electrical equipment – Chapter 54: Earthing arrangements and protective conductors (IEC 60364-5-54:1980, mod.)
IEC 60050-826	1982 ³⁾	International Electrotechnical Vocabulary (IEV) – Chapter 826: Electrical installations of buildings

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.

²⁾ Superseded by HD 60364-5-54:2007, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements, protective conductors and protective bonding conductors* (IEC 60364-5-54:2002, mod.).

³⁾ Superseded by IEC 60050-826:2004, *International Electrotechnical Vocabulary – Part 826: Electrical installations*.

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