BS IEC 61084-2-3:2017

BSI Standards Publication

Cable trunking systems and cable ducting systems for electrical installations

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

bsi.

National foreword

This British Standard is the UK implementation of IEC 61084-2-3:2017.

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.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2017

ISBN 978 0 580 89674 3
ICS 29.060.01; 29.120.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 April 2017.

Amendments/corrigenda issued since publication

Date	Text affected

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

CABLE TRUNKING SYSTEMS AND CABLE DUCTING SYSTEMS FOR ELECTRICAL INSTALLATIONS –

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

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61084-2-3 has been prepared by subcommittee 23A: Cable management systems, of IEC technical committee 23: Electrical accessories.

This International standard is to be used in conjunction with IEC 61084-1:2017.

The text of this standard is based on the following documents:

FDIS	Report on voting
23A/829/FDIS	23A/835/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part of the IEC 61084 series supplements or modifies the corresponding clauses of IEC 61084-1:2017 as follows:

– where no particular clause or subclause of IEC 61084-1 is mentioned, the corresponding clause or subclause applies as far as it is reasonable;
– where "addition", "modification" or “replacement” is stated, the relevant text of IEC 61084-11 is to be adapted accordingly;
– subclauses, figures and tables which are additional to those in IEC 61084-1 are numbered starting from 101.

In this standard, the following print types are used:

– requirements and definitions: roman type;
– *compliance statements: italic type.*

A list of all parts in the IEC 61084 series, published under the general title *Cable trunking and cable ducting systems for electrical installations*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

• reconfirmed,
• withdrawn,
• replaced by a revised edition, or
• amended.

CABLE TRUNKING SYSTEMS AND CABLE DUCTING SYSTEMS FOR ELECTRICAL INSTALLATIONS –

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

1 Scope

This part of the IEC 61084 series 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 AC and 1 500 V DC.

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

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

NOTE Wherever reference is made in this document to IEC 61084-1:2017, this does not apply to cable ducting systems.

2 Normative references

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

Addition:

IEC 60228:2004, *Conductors of insulated cables*

IEC 60695-11-5:2004, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*[1]

IEC 61084-1:2017, *Cable trunking systems and cable ducting systems for electrical installations – Part 1: General requirements*

3 Terms and definitions

This clause of Part 1 is applicable, 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 This publication was withdrawn.

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 1 to entry: The above mentioned system components are not necessarily included all together in a system. Different combinations of system components can 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 1 to entry: 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

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

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 According to resistance to impact for installation and application

Not applicable.

6.1 According to temperatures

Table 2 of Part 1 is not applicable.

6.5 According to electrical continuity characteristic

Not applicable.

6.6 According to electrical insulating characteristic

Not applicable.

6.7 According to degrees of protection provided by enclosure according to IEC 60529:1989

Not applicable.

6.9 According to the system access cover retention

Not applicable.

Additional subclauses:

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.

Additional subclause:

8.101 The 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 Apparatus mounting

Not applicable.

9.5 Accessible conductive parts

Not applicable.

9.6 Equipotential bonding

Not applicable.

9.7 Access to live parts

Not applicable.

9.8 Inlet openings

Not applicable.

9.9 Membranes

Not applicable.

9.10 Cable restrainer

Not applicable.

9.11 Cable anchorage

Not applicable.

10 Mechanical properties

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

10.2 Cable support test

Replacement by the following additional subclauses:

10.2.101 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 the temperature declared according to Table 3 of Part 1 with a tolerance of ± 2°C 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/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 IEC 60228:2004, 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 mm^2 nominal cross section are placed on top of the larger cables to achieve the total load within a tolerance of ± 5 g. 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.

Non-metallic and composite slotted trunking lengths are tested at the maximum application temperature declared by the manufacturer according to Table 3 of Part 1 with a tolerance of ± 2 °C.

10.2.102 Mounting arrangements for slotted trunking lengths

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)).

10.2.103 Mounting arrangements for slotted trunking lengths classified according to 6.101.1

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 *Replacement of the last paragraph by:*

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

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

10.3.1.4 *Addition of the following sentence at the end of the first paragraph:*

Any cracks in or breaking of wall finger are ignored.

10.3.2 Impact test for installation and application

Not applicable.

10.4 Linear deflection test

Not applicable.

10.5 External load test

Not applicable.

10.6 System access cover retention

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 Spread of fire

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 of Part 1 at the temperature of 650 °C.*

System components, which have already been tested at 650 °C or 850 °C according to 13.1.1 of Part 1, are not tested again at this temperature.

The test shall be performed according to Clauses 1 to 5, 8, 10, 11 and 13 of IEC 60695-11-5:2004 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 of Part 1. 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 Resistance to fire

Not applicable

14 External influences

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

14.1 Degree of protection provided by enclosure

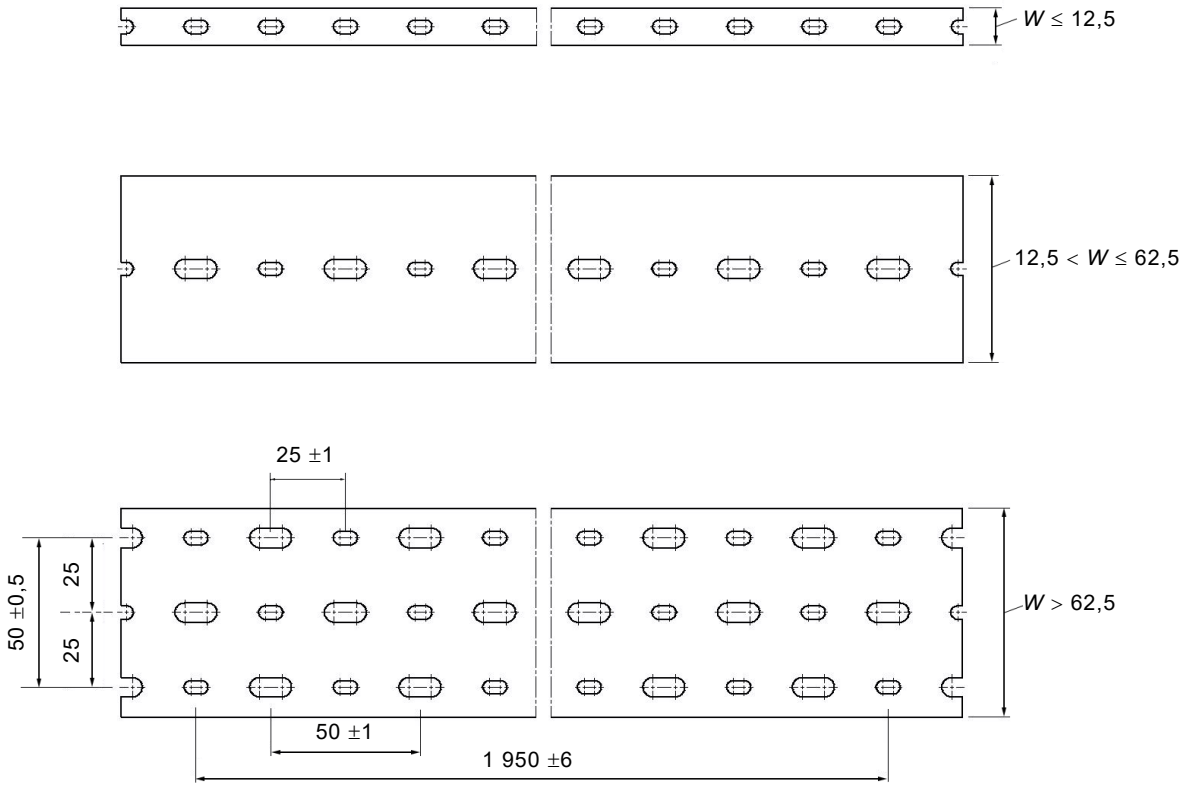
Not applicable

15 Electromagnetic compatibility

This clause of Part 1 is applicable.

Addition:

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

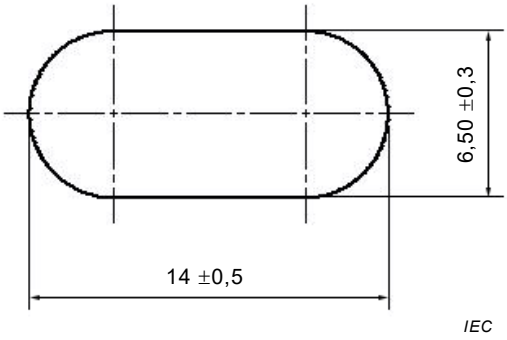


Figure 102a) – Example of big hole

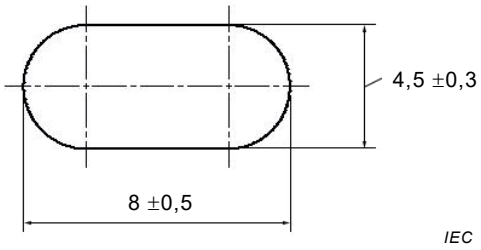
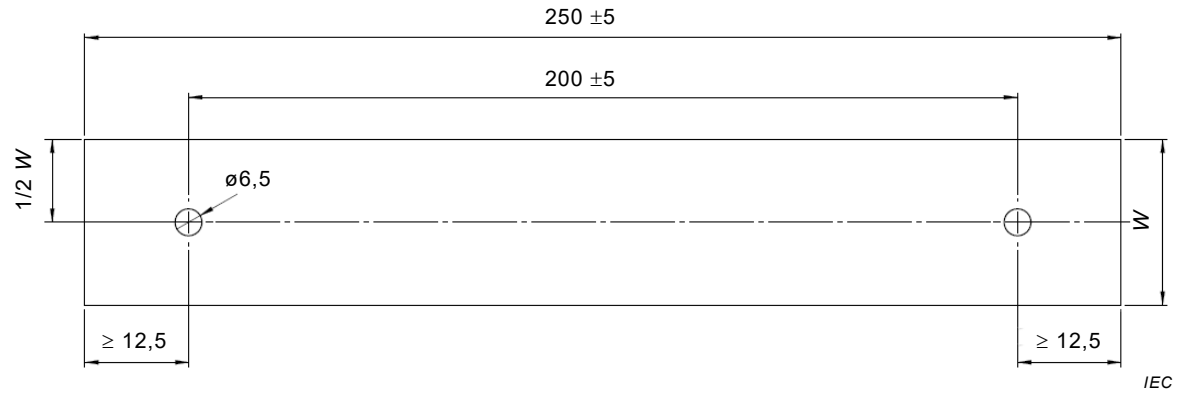


Figure 102b) – Example of small hole

Figure 102 – Examples of sizes for the fixing holes

Dimensions in mm

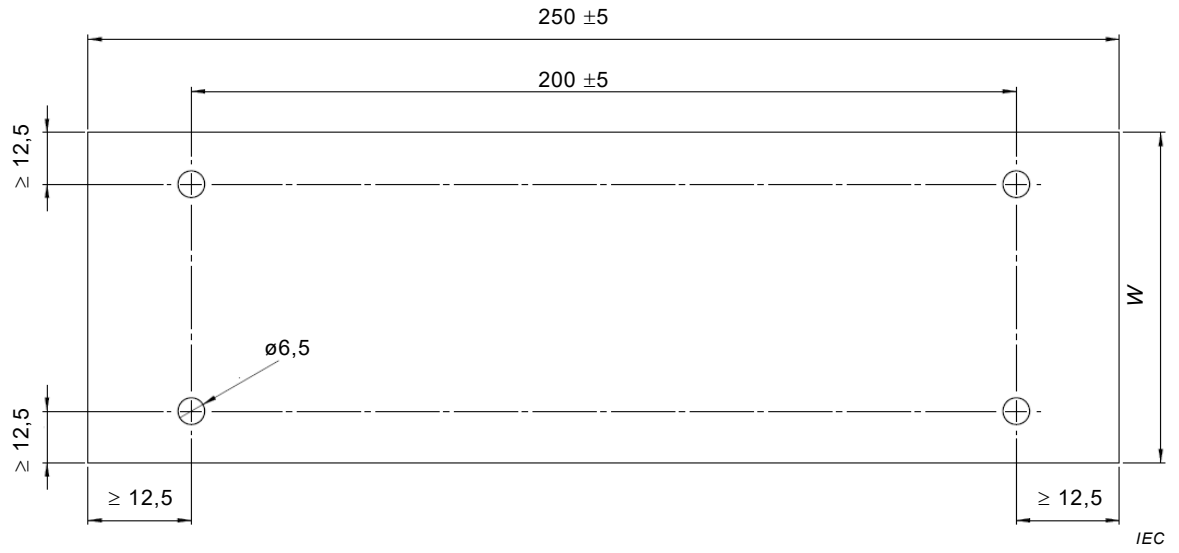


Key

W external width of the slotted trunking

a) Fixing distances for cable support test for trunking with a width less than 50 mm

Dimensions in mm

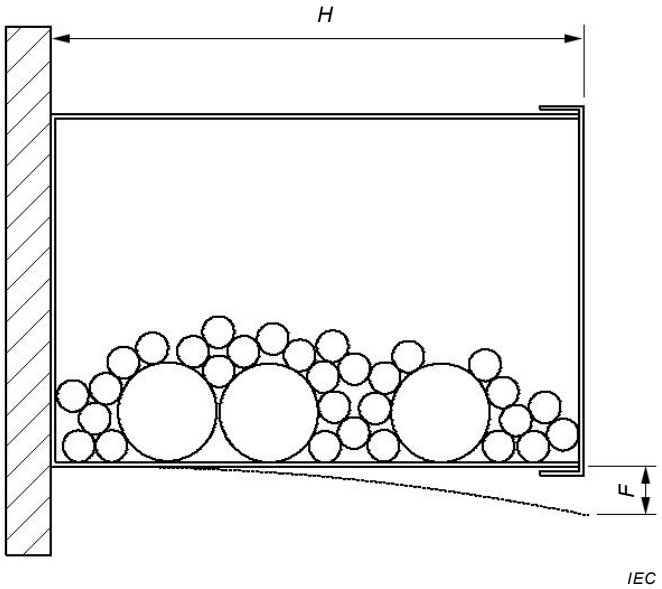


Key

W external width of the slotted trunking

b) Fixing distances for cable support test for trunking with a width equal or greater than 50 mm

Figure 103 – Fixing distances for cable support test

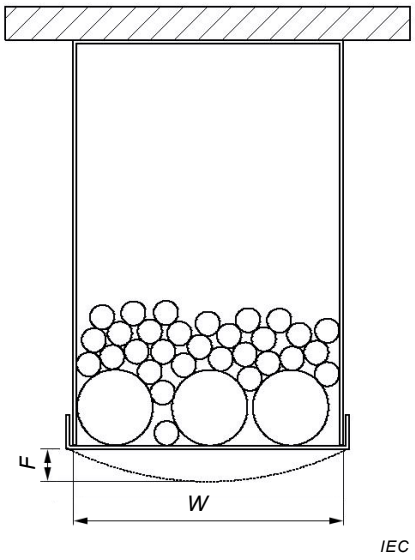


Key

H external height of the slotted trunking

F vertical deflection

a) Arrangements for cable support test for slotted trunking lengths



Key

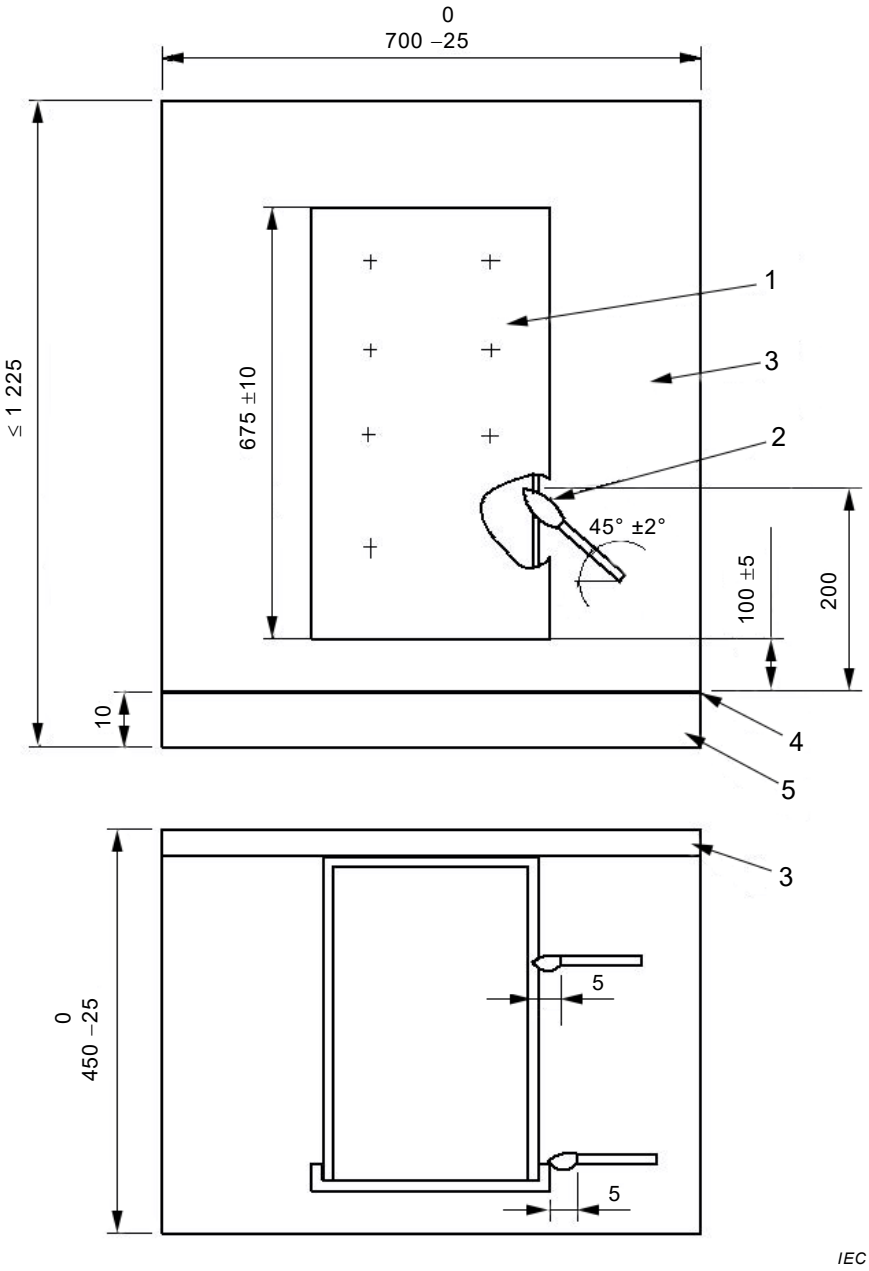
W external width of the slotted trunking

F vertical deflection

b) Arrangements for cable support test for slotted trunking lengths classified according to 6.101.1

Figure 104 – Arrangements for cable support test

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

Annex A
(informative)

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

This annex of Part 1 is not applicable.

Bibliography

ISO 2768-1:1989, *General tolerances – Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

_____

This page deliberately left blank

This page deliberately left blank

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Copyright in BSI publications

All the content in BSI publications, including British Standards, is the property of and copyrighted by BSI or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use.

Save for the provisions below, you may not transfer, share or disseminate any portion of the standard to any other person. You may not adapt, distribute, commercially exploit, or publicly display the standard or any portion thereof in any manner whatsoever without BSI's prior written consent.

Storing and using standards

Standards purchased in soft copy format:

- A British Standard purchased in soft copy format is licensed to a sole named user for personal or internal company use only.
- The standard may be stored on more than 1 device provided that it is accessible by the sole named user only and that only 1 copy is accessed at any one time.
- A single paper copy may be printed for personal or internal company use only.

Standards purchased in hard copy format:

- A British Standard purchased in hard copy format is for personal or internal company use only.
- It may not be further reproduced – in any format – to create an additional copy. This includes scanning of the document.

If you need more than 1 copy of the document, or if you wish to share the document on an internal network, you can save money by choosing a subscription product (see 'Subscriptions').

Reproducing extracts

For permission to reproduce content from BSI publications contact the BSI Copyright & Licensing team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email subscriptions@bsigroup.com.

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Useful Contacts

Customer Services
Tel: +44 345 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 345 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

bsi.