BS EN IEC 60332-3-25:2018

BSI Standards Publication

Tests on electric and optical fibre cables under fire conditions

Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category D

bsi.

National foreword

This British Standard is the UK implementation of EN IEC 60332-3-25:2018. It is identical to IEC 60332-3-25:2018. It supersedes BS EN 60332-3-25:2009, which will be withdrawn on 17 August 2021.

The UK participation in its preparation was entrusted to Technical Committee GEL/20/18, Electric Cables - Fire testing.

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.

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

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Amendments/corrigenda issued since publication

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EUROPEAN STANDARD

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EN IEC 60332-3-25

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English Version

Tests on electric and optical fibre cables under fire conditions - Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category D (IEC 60332-3-25:2018)

Essais des câbles électriques et des câbles à fibres optiques soumis au feu - Partie 3-25: Essai de propagation verticale de la flamme des fils ou câbles montés en nappes en position verticale - Catégorie D
(IEC 60332-3-25:2018)

Prüfungen an Kabeln, isolierten Leitungen und Glasfaserkabeln im Brandfall - Teil 3-25: Prüfung der Flammenausbreitung von vertikal angeordneten Bündeln von Kabeln und isolierten Leitungen - Prüfart D
(IEC 60332-3-25:2018)

This European Standard was approved by CENELEC on 2018-08-17. 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.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 20/1802/FDIS, future edition 2 of IEC 60332-3-25, prepared by IEC/TC 20 "Electric cables" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60332-3-25:2018.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2019-05-17
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2021-08-17

This document supersedes EN 60332-3-25:2009.

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

Endorsement notice

The text of the International Standard IEC 60332-3-25:2018 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

ISO 13943:2017 NOTE Harmonized as EN ISO 13943:2017 (not modified)

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60332-3-10	-	Tests on electric and optical fibre cables under fire conditions - Part 3-10: Test for vertical flame spread of vertically-mounted bunched wires or cables - Apparatus	EN IEC 60332-3-10	-
IEC 60811-606	-	Electric and optical fibre cables - Test methods for non-metallic materials - Part 606: Physical tests - Methods for determining the density	EN 60811-606	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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TESTS ON ELECTRIC AND OPTICAL FIBRE CABLES UNDER FIRE CONDITIONS –

Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category D

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.
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International Standard IEC 60332-3-25 has been prepared by IEC technical committee 20: Electric cables.

This second edition cancels and replaces the first edition published in 2000 and Amendment 1:2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) adjustments have been made to the title, and elsewhere, to emphasise the standard is applicable to optical fibre cables as well as metallic conductor types;
b) details of the way in which cables are mounted on the ladder have been better defined in order to improve repeatability and reproducibility.

It has the status of a group safety publication in accordance with IEC Guide 104.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
20/1802/FDIS	20/1819/RVD

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

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

A list of all parts in the IEC 60332 series, published under the general title *Tests on electric and optical fibre cables under fire conditions*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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.

INTRODUCTION

IEC 60332-3-25 is part of a series of publications dealing with tests on electric and optical fibre cables under fire conditions.

The IEC 60332-1 and IEC 60332-2 series specify methods of test for flame spread characteristics for a single vertical insulated wire or cable. It cannot be assumed that, because a cable or wire meets the requirements of the IEC 60332-1 and IEC 60332-2 series, a vertical bunch of similar cables or wires will behave in a similar manner. This is because flame spread along a vertical bunch of cables depends on a number of features, such as

a) the volume of combustible material exposed to the fire and to any flame which may be produced by the combustion of the cables;
b) the geometrical configuration of the cables and their relationship to an enclosure;
c) the temperature at which it is possible to ignite the gases emitted from the cables;
d) the quantity of combustible gas released from the cables for a given temperature rise;
e) the volume of air passing through the cable installation;
f) the construction of the cable, for example armoured or unarmoured, multi- or single-core.

All of the foregoing assume that the cables are able to be ignited when involved in an external fire.

The IEC 60332-3 series gives details of a test where a number of cables are bunched together to form various test sample installations. For easier use and differentiation of the various test categories, the parts are designated as follows:

Part 3-10: Apparatus
Part 3-21: Category A F/R
Part 3-22: Category A
Part 3-23: Category B
Part 3-24: Category C
Part 3-25: Category D

Parts from 3-21 onwards define the various categories and the relevant procedures. The categories are distinguished by test duration, the volume of non-metallic material of the test sample and the method of mounting the sample for the test. In all categories, cables having at least one conductor of cross-sectional area greater than 35 mm^2 are tested in a spaced configuration, whereas cables of conductor cross-sectional area of 35 mm^2 or smaller and optical fibre cables are tested in a touching configuration.

The categories are not necessarily related to different safety levels in actual cable installations. The actual installed configuration of the cables may be a major determinant in the level of flame spread occurring in an actual fire.

The method of mounting described as category A F/R (Part 3-21) is intended for special cable designs used in particular installations.

Categories A, B, C and D (Part 3-22 to Part 3-25 respectively) are for general use where different non-metallic volumes are applicable.

TESTS ON ELECTRIC AND OPTICAL FIBRE CABLES UNDER FIRE CONDITIONS –

Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category D

1 Scope

This part of IEC 60332 covers category D for methods of test for the assessment of vertical flame spread of vertically mounted bunched wires or cables, electrical or optical, under defined conditions.

This document relates only to small cables of overall diameter 12 mm or smaller and cross-section of 35 mm^2 or smaller installed on the test ladder to achieve a nominal total volume of non-metallic material of 0,5 l/m of test sample. The flame application time is 20 min. The method of mounting uses the front of the standard ladder in touching formation only. The category is intended for use with small cables where very low volumes of non-metallic material are required to be evaluated.

The test is intended for type approval testing. The requirements for the selection of cables for testing are given in Annex A. The flame spread is measured as the extent of damage of the cable sample. This procedure can be used to demonstrate the cable's ability to limit flame spread.

A recommended performance requirement is given in Annex B.

NOTE For the purposes of this document the term "electric wire or cable" covers all insulated metallic conductor cables used for the conveyance of energy or signals.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60332-3-10, *Tests on electric and optical fibre cables under fire conditions – Part 3-10: Test for vertical flame spread of vertically-mounted bunched wires or cables – Apparatus*

IEC 60811-606, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 606: Physical tests – Methods for determining the density*

3 Terms and definitions

For the purposes of this document the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp