BS EN IEC 60331-1:2019

BSI Standards Publication

Tests for electric cables under fire conditions — Circuit integrity

Part 1: Test method for fire with shock at a temperature of at least 830°C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding 20 mm

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Full document details: BS EN IEC 60331-1:2019

National foreword

This British Standard is the UK implementation of EN IEC 60331-1:2019. It is identical to IEC 60331-1:2018. It supersedes BS EN 50362:2003, which will be withdrawn on 19 July 2022.

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.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2019.

Amendments/corrigenda issued since publication

Date	Text affected

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60331-1

August 2019

ICS 13.220.40; 29.020; 29.060.20

Supersedes EN 50362:2003 and all of its amendments and corrigenda (if any)

English Version

Tests for electric cables under fire conditions - Circuit integrity - Part 1: Test method for fire with shock at a temperature of at least 830°C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding 20 mm (IEC 60331-1:2018)

Essais pour câbles électriques soumis au feu - Intégrité des circuits - Partie 1: Méthode d'essai au feu avec chocs pour les câbles de tension assignée au plus égale à 0,6/1,0 kV et de diamètre externe supérieur à 20 mm, à une température d'au moins 830 °C
(IEC 60331-1:2018)

Prüfungen an Kabeln und isolierten Leitungen im Brandfall - Isolationserhalt - Teil 1: Prüfverfahren für Brand mit Erschütterung bei einer Temperatur von mindestens 830 °C für Kabel und isolierte Leitungen mit einer Nennspannung bis einschließlich 0,6/1,0 kV und einem Außendurchmesser größer 20 mm
(IEC 60331-1:2018)

This European Standard was approved by CENELEC on 2019-07-19. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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European foreword

This document (EN IEC 60331-1:2019) consists of the text of document IEC 60331-1:2018, prepared by IEC/TC 20 "Electric cables"

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-07-19
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2022-07-19

This document supersedes EN 50362:2003 and all of its amendments and corrigenda (if any).

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 60331-1:2018 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:

IEC 61034-1 NOTE Harmonized as EN 61034-1 (not modified).

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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 When 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 60269-3	-	Low-voltage fuses - Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household or similar applications) - Examples of standardized systems of fuses A to F	HD 60269-3	-
IEC 60584-1	-	Thermocouples - Part 1: EMF specifications and tolerances	EN 60584-1	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

TESTS FOR ELECTRIC CABLES UNDER FIRE CONDITIONS – CIRCUIT INTEGRITY –

Part 1: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding 20 mm

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 60331-1 has been prepared by IEC technical committee 20: Electric cables.

This bilingual version (2018-11) corresponds to the monolingual English version, published in 2018-03.

This second edition cancels and replaces the first edition published in 2009. It constitutes a technical revision.

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The significant technical changes with respect to the previous edition are as follows:

– extension of the scope to include metallic data and telecom cables and optical fibre cables, although details for the specific point of failure, continuity checking arrangement, test sample, test procedure and test report relevant to metallic data and telecom cables and optical fibre cables are not given by IEC 60331-1;
– improved description of the test environment;
– modified steel test ladder with two extra vertical elements to accommodate the modified testing of single core cables without concentric metal layer and the testing of cables with a bending radius in normal use larger than approximately 400 mm;
– mandatory use of mass flow meters/controllers as the means of controlling accurately the input flow rates of fuel and air to the burner;
– improved description of the information to be included in the test report.

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

FDIS	Report on voting
20/1781A/FDIS	20/1792/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.

The French version of this document has not been voted upon.

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

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

A list of all parts of the IEC 60331 series, published under the title: *Tests for electric cables under fire conditions – Circuit integrity*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site 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.

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INTRODUCTION

IEC 60331 consists of the following parts under the general title: *Tests for electric cables under fire conditions – Circuit integrity:*

Part 1: *Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter exceeding 20 mm*

Part 2: *Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter not exceeding 20 mm*

Part 3: *Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV tested in a metal enclosure*

Part 11: *Apparatus – Fire alone at a flame temperature of at least 750 °C*

Part 21: *Procedures and requirements – Cables of rated voltage up to and including 0,6/1,0 kV*

Part 23: *Procedures and requirements – Electric data cables*

Part 25: *Procedures and requirements – Optical fibre cables*

NOTE 1 Parts 21, 23 and 25 relate to fire-only conditions at a flame temperature of at least 750 °C.

NOTE 2 Parts 11, 21, 23 and 25 are no longer subject to maintenance. IEC 60331 Parts 1 and 2 are the recommended test procedures.

Since its first edition (1970), IEC 60331 has been extended and has introduced a range of test apparatus in order that a test may be carried out on large and small power, control, data and optical fibre cables.

Successful tests carried out in accordance with this standard will enable an identification to be marked on the product.

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