

**ELEKTRILISTE JA OPTILISTE KIUDKAABLITE  
KATSETAMINE TULEKAHJU TINGIMUSTES. OSA 1-2:  
KATSE TULE VERTIKAALSE LEVIKU MÄÄRAMISEKS  
ÜKSIKU ISOLEERITUD JUHTME VÕI KAABLI ULATUSES. 1  
KW EELSEGUNENUD LEEGI PUHUL KOHALDATAV  
PROTSEDUUR**

**Tests on electric and optical fibre cables under fire  
conditions Part 1-2: Test for vertical flame propagation  
for a single insulated wire or cable - Procedure for 1 kW  
pre-mixed flame (IEC 60332-1-2:2004 + IEC 60332-1-  
2:2004/A1:2015)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 60332-1-2:2004+A1+A11+A12:2020 sisaldab Euroopa standardi EN 60332-1-2:2004 ja selle muudatuste A1:2015, A11:2016 ja A12:2020 ingliskeelset teksti.	This Estonian standard EVS-EN 60332-1-2:2004+A1+A11+A12:2020 consists of the English text of the European standard EN 60332-1-2:2004 and its amendments A1:2015, A11:2016 and A12:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.11.2004, muudatused A1 30.10.2015, A11 05.08.2016 ja A2 04.12.2020.	Date of Availability of the European standard is 15.11.2004, for A1 30.10.2015, A11 05.08.2016 and A2 04.12.2020.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega $\boxed{A1}$ $\langle A1 \rangle$ .	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags $\boxed{A1}$ $\langle A1 \rangle$ .
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ICS 13.220.40; 29.020; 29.060.20

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English Version

**Tests on electric and optical fibre cables under fire conditions -  
Part 1-2: Test for vertical flame propagation for a single insulated  
wire or cable - Procedure for 1 kW pre-mixed flame (IEC 60332-  
1-2:2004 + IEC 60332-1-2:2004/A1:2015)**

Essais des câbles électriques et à fibres optiques soumis  
au feu - Partie 1-2: Essai de propagation verticale de la  
flamme sur conducteur ou câble isolé - Procédure pour  
flamme à prémélange de 1kW (CEI 60332-1-2:2004 + IEC  
60332-1-2:2004/A1:2015)

Prüfungen an Kabeln, isolierten Leitungen und  
Glasfaserkabeln im Brandfall - Teil 1-2: Prüfung der  
vertikalen Flammenausbreitung an einer Ader, einer  
isolierten Leitung oder einem Kabel - Prüfverfahren mit 1  
kW-Flamme mit Gas-/Luft-Gemisch (IEC 60332-1-2:2004 +  
IEC 60332-1-2:2004/A1:2015)

This European Standard was approved by CENELEC on 2004-09-01. Amendment A1 was approved by CENELEC on 2015-09-01. Amendment A11 was approved by CENELEC on 2016-05-23. Amendment A12 was approved by CENELEC on 2020-11-05. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard and its amendments the status of a national standard without any alteration.

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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**

## Foreword

The text of document 20/697/FDIS, future edition 1 of IEC 60332-1-2, prepared by IEC TC 20, Electric cables, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60332-1-2 on 2004-09-01.

This European Standard supersedes EN 50265-2-1:1998.

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) 2005-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2007-09-01

Annex ZA has been added by CENELEC

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## Endorsement notice

The text of the International Standard IEC 60332-1-2:2004 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

- |               |      |   |
|---------------|------|---|
| IEC 60332-1-3 | NOTE | Harmonized as EN 60332-1-3:2004 (not modified). |
| IEC 60332-2-2 | NOTE | Harmonized as EN 60332-2-2:2004 (not modified). |
-

**A1** Amendment A1 European foreword

The text of document 20/1591/FDIS, future IEC 60332-1-2:2004/A1, prepared by IEC/TC 20 "Electric cables" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60332-1-2:2004/A1:2015.

The following dates are fixed:

- latest date by which the document has to be implemented (dop) 2016-06-01  
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2018-09-01  
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This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

**Endorsement notice**

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In the Bibliography of EN 60332-1-2:2004, the following note has to be added for the standard indicated:

ISO 13943                      NOTE                      Harmonized as EN ISO 13943.

## **A11** Amendment A11 European foreword

This document [EN 60332-1-2:2004/A11:2016] has been prepared by CLC/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) 2017-05-23
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2019-05-23

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**A12 Amendment A12 European foreword**

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**Tests on electric and optical fibre cables under fire conditions –  
Part 1-2: Test for vertical flame propagation for a single insulated wire or cable –  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## TESTS ON ELECTRIC AND OPTICAL FIBRE CABLES UNDER FIRE CONDITIONS –

### Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame

#### FOREWORD

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International Standard IEC 60332-1-2 has been prepared by IEC technical committee 20: Electric cables.

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

This first edition of International Standard IEC 60332-1-2, together with IEC 60332-1-1, cancel and replace the third edition of IEC 60332-1, published in 1993, and constitute a technical revision, calling for the re-structurization of the standard into two separate parts.

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

FDIS	Report on voting
20/697/FDIS	20/711/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.

IEC 60332 consists of the following parts, under the general title *Tests on electric and optical fibre cables under fire conditions*:

Part 1-1: Test for vertical flame propagation for a single insulated wire or cable – Apparatus

Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1kW pre-mixed flame

Part 1-3: Test for vertical flame propagation for a single insulated wire or cable – Procedure for determination of flaming droplets/particles

Part 2-1: Test for vertical flame propagation for a single small insulated wire or cable – Apparatus

Part 2-2: Test for vertical flame propagation for a single small insulated wire or cable - Procedure for diffusion flame

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

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## **A1** AMENDMENT A1 FOREWORD

This amendment has been prepared by IEC technical committee 20: Electric cables.

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

FDIS	Report on voting
20/1591/FDIS	20/1598/RVD

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

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## TESTS ON ELECTRIC AND OPTICAL FIBRE CABLES UNDER FIRE CONDITIONS –

### Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame

#### 1 Scope

This part of IEC 60332 specifies the procedure for testing the resistance to vertical flame propagation for a single vertical electrical insulated conductor or cable, or optical fibre cable, under fire conditions. The apparatus is given in IEC 60332-1-1.

NOTE 1 Testing to IEC 60332-1-2 may be performed simultaneously with that to IEC 60332-1-3 if required.

Recommended requirements for performance are given in Annex A.

IEC 60332-1-2 specifies the use of a 1 kW pre-mixed flame and is for general use, except that the procedure specified may not be suitable for the testing of small single insulated conductors or cables of less than 0,5 mm<sup>2</sup> total cross-section because the conductor melts before the test is completed, or for the testing of small optical fibre cables because the cable is broken before the test is completed. In these cases, the procedure given in IEC 60332-2-2 is recommended.

NOTE 2 Since the use of insulated conductor or cable which retards flame propagation and complies with the recommended requirements of this standard is not sufficient by itself to prevent propagation of fire under all conditions of installation, it is recommended that wherever the risk of propagation is high, for example in long vertical runs of bunches of cables, special installation precautions should also be taken. It cannot be assumed that because the sample of cable complies with the performance requirements recommended in this standard, that a bunch of cables will behave in a similar manner. (See IEC 60332-3 series.)

#### 2 Normative references

The following referenced documents are indispensable for the application 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 60332-1-1, *Tests on electric and optical fibre cables under fire conditions – Part 1-1: Test for vertical flame propagation for a single insulated wire or cable – Apparatus*

IEC 60695-4, *Fire hazard testing – Part 4: Terminology concerning fire tests*

IEC 60811-203, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 203: General tests – Measurement of overall dimensions*

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*

#### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. The definitions are taken from IEC 60695-4.

##### 3.1

##### ignition source

source of energy that initiates combustion