

Method of test for resistance to fire of unprotected small cables for use in emergency circuits

Method of test for resistance to fire of unprotected
small cables for use in emergency circuits

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50200:2006 sisaldab Euroopa standardi EN 50200:2006 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 28.08.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50200:2006 consists of the English text of the European standard EN 50200:2006.</p> <p>This document is endorsed on 28.08.2006 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p>Käsitlusala:</p> <p>This European Standard specifies the test method for cables designed to have intrinsic resistance to fire and intended for use as emergency circuits for alarm, lighting and communication purposes. This standard is applicable to cables, for emergency circuits, of rated voltage not exceeding 600/1 000 V, including those of rated voltage below 80 V, and for emergency circuit optical cables.</p>	<p>Scope:</p> <p>This European Standard specifies the test method for cables designed to have intrinsic resistance to fire and intended for use as emergency circuits for alarm, lighting and communication purposes. This standard is applicable to cables, for emergency circuits, of rated voltage not exceeding 600/1 000 V, including those of rated voltage below 80 V, and for emergency circuit optical cables.</p>
--	--

ICS 13.220.40, 29.060.20

Võtmesõnad: alarm systems, electric cables, emergency lighting, environments, fire resistance, fire safety, fire tests, test equipment, tests, verification

English version

**Method of test for resistance to fire
of unprotected small cables
for use in emergency circuits**

Méthode d'essai de résistance au feu
des câbles de petites dimensions
sans protection pour utilisation
dans les circuits de secours

Prüfung des Isolationserhaltes im
Brandfall von Kabeln mit kleinen
Durchmessern für die Verwendung in
Notstromkreisen bei ungeschützter
Verlegung

This European Standard was approved by CENELEC on 2006-03-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard was prepared by Working Group 10 of the Technical Committee CENELEC TC 20, Electric cables. This edition is a consolidation of the original text of EN 50200:2000 approved on 1999-08-01 and the text of the draft amendment prepared by WG 10 and agreed at 115 BT (D115/055, confirmed by D116/162 at 116th Technical Board (BT)) to go forward to the Unique Acceptance Procedure at which a positive vote was achieved.

This consolidated text was submitted to the formal vote and was approved by CENELEC as EN 50200 on 2006-03-01.

This European Standard supersedes EN 50200:2000.

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) 2007-03-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-03-01

This European Standard was originally prepared under Mandate M/117, given jointly to CEN and CENELEC by the Commission of the European Communities and the European Free Trade Association, and supports Essential Requirement No.2 "Safety in case of fire" of the Construction Products Directive.

The cable is tested in a representative installed condition, under conditions of minimum bending radius, and the test is based upon a constant temperature attack at a minimum test temperature of 830 °C. This is typical of the gas temperature reached after 30 min exposure to the time/temperature conditions prescribed in EN 1363-1.

The test method in this document includes exposure to fire with mechanical shock under specified conditions and satisfies the requirements of Mandate M/117 for the PH classification. The standard also includes (Annex E) a means of applying a water spray to the cable during the test, which is not required under Mandate M/117.

Contents

1	Scope	4
2	Normative references	4
3	Definitions	4
4	Duration of survival.....	5
4.1	Time.....	5
4.2	Point of failure.....	5
5	Test environment.....	5
6	Test apparatus.....	6
6.1	Test equipment	6
6.2	The wall and its mounting.....	6
6.3	Continuity checking arrangement	6
6.4	Source of heat.....	7
6.5	Shock producing device	7
7	Verification procedure for source of heat	8
8	Test sample.....	8
8.1	Sample preparation	8
8.2	Sample mounting	9
9	Cable test procedure	9
9.1	General.....	9
9.2	Procedure for different cable types.....	9
9.3	Ignition and shock production	11
9.4	Electrification or optical monitoring.....	11
9.5	End-point	11
10	Test report	11
Annex A (informative) Guidance on the choice of test equipment		20
Annex B (informative) Flowmeter calibration correction factors		22
Annex C (normative) Fuse characteristic curve		24
Annex D (informative) Guidance for range of classification		25
Annex E (informative) Guidance for using optional water spray protocol		26
Bibliography.....		29
Figure 1 - Schematic of test wall		12
Figure 2 - Plan view of fire test equipment (not to scale).....		13
Figure 3 - End elevation of fire test equipment (not to scale).....		14
Figure 4 - Typical rubber bush (hardness: 50-60 shore A) for fastening wall		15
Figure 5 - Burner face.....		15
Figure 6 - Schematic diagram of an example of a fuel control system using rotameters		16
Figure 7 - Temperature measuring arrangement		17
Figure 8 - Example of method of mounting a sample for test.....		17
Figure 9a - Basic circuit diagram - Electric power and control cables with rated voltage up to 600/1 000 V.....		18
Figure 9b - Basic circuit diagram - Electric data and communication cables with no rated voltage		19
Figure E.1 – Water spray tube		27
Figure E.2 – Water spray application		28

1 Scope

This European Standard specifies the test method for cables designed to have intrinsic resistance to fire and intended for use as emergency circuits for alarm, lighting and communication purposes.

This standard is applicable to cables, for emergency circuits, of rated voltage not exceeding 600/1 000 V, including those of rated voltage below 80 V, and for emergency circuit optical cables.

NOTE Although test procedures for electronic data and communication cables and optical fibre cables are given in this document, these areas are under active development and the given procedures may be subject to future review.

This standard is not applicable to cables intended for use in public telecommunications networks.

The test method is limited to cables with an overall diameter not exceeding 20 mm.

The test method, which is based on the direct impingement of flame from a propane burner giving a constant temperature attack of a notional 842 °C, can be used for cables for emergency circuits required to comply with Subclause 4.3.1.4.6 (a) of the Interpretative Document for Essential Requirement No. 2 'Safety in Case of Fire' (94/C62/01) of the Construction Products Directive (89/106/EEC). In such cases the test method only applies, for metallic conductor cables, to those with conductor sizes up to and including 2,5 mm². For optical cables, only the 20 mm diameter limit applies.

This standard includes (Annex D) a means of linking the measured survival time to the fire resistance classification for these cables, as required by Subclause 4.3.1.4.6(a) of 94/C62/01.

The standard also includes (Annex E) a means of applying a water spray to the cable during the test. Although there is no requirement under the Construction Products Directive for cables to withstand water spray when assessing resistance to fire, such a requirement may be a feature of particular product standards.

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.

HD 60269-3-1	Low-voltage fuses Part 3-1: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household and similar applications) Sections I to IV: Examples of types of standardized fuses (IEC 60269-3-1:2004, modified)
EN 60584-1	Thermocouples - Part 1: Reference tables (IEC 60584-1)
EN 60695-4	Fire hazard testing - Part 4: Terminology concerning fire tests (IEC 60695-4)
IEC 60793-1-4	1995 Optical fibres - Part 1: Generic specification - Section 4: Measuring methods for transmission and optical characteristics

3 Definitions

For the purposes of this standard the definitions given in EN 60695-4 apply.