SLOVENSKI STANDARD
SIST HD 405.3 S1:1999

01-julij-1999

Tests on electric cables under fire conditions -- Part 3: Tests on bunched wires or cables (IEC 60332-3:1992)

Tests on electric cables under fire conditions -- Part 3: Tests on bunched wires or cables

Prüfungen an Kabeln und isolierten leitungen unter Brandeinwirkungen -- Teil 3: Prüfungen an gebündelten Aderleitungen oder Kabeln

Essais des câbles électriques soumis au feu -- Partie 3: Essais sur des fils ou câbles en nappes

Ta slovenski standard je istoveten z: HD 405.3 S1:1993

ICS:

29.020	Elektrotehnika na splošno	Electrical engineering in general
29.060.20	Kabli	Cables

SIST HD 405.3 S1:1999 **en**

HARMONIZATION DOCUMENT

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

HD 405.3 S1

August 1993

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Descriptors: Electrical installation, electric cable, fire behaviour test, flame propagation

ENGLISH VERSION

Tests on electric cables under fire conditions
Part 3: Tests on bunched wires or cables
(IEC 332-3:1992)

Essais des câbles électriques soumis au feu
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Prüfungen an Kabeln und isolierten Leitungen unter Brandeinwirkungen
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(IEC 332-3:1992)

This Harmonization Document was approved by CENELEC on 1993-07-06. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

Up-to-date lists and bibliographical references concerning national implementation may be obtained on application to the Central Secretariat or to any CENELEC member.

This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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

Ref. No. HD 405.3 S1:1993 E

FOREWORD

At the request of the CENELEC Technical Committee TC 20, Electric cables, the International Standard IEC 332-3:1992 was submitted to the CENELEC Unique Acceptance Procedure (UAP) in September 1992 for acceptance as a Harmonization Document.

The text of the International Standard was approved by CENELEC as HD 405.3 S1 on 6 July 1993.

The following dates were fixed:

- latest date of announcement of the HD at national level	(doa)	1993-09-01
- latest date of publication of a harmonized national standard	(dop)	1994-03-01
- latest date of withdrawal of conflicting national standards	(dow)	1994-03-01

For products which have complied with the relevant national standard before 1994-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1999-03-01.

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given only for information.
In this standard, annexes A and B are informative and annex ZA is normative.

ENDORSEMENT NOTICE

The text of the International Standard IEC 332-3:1992 was approved by CENELEC as a Harmonization Document without any modification.

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

This Harmonization Document incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Harmonization Document only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

NOTE : When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
332-1	1979	Tests on electric cables under fire conditions - Part 1: Test on a single vertical insulated wire or cable	HD 405.1 S1 HD 405.1 S1/A1	1983 1992
332-2	1989	Part 2: Test on a single small vertical insulated copper wire or cable	HD 405.2 S1	1991
811-1-3	1985	Common test methods for insulating and sheathing materials of electric cables Part 1: Methods for general application Section Three - Methods for determining the density - Water absorption tests - Shrinkage test	HD 505.1.3 S2*	1988

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* HD 505.1.3 S2 includes A1:1990 to IEC 811-1-3

RAPPORT TECHNIQUE

TECHNICAL REPORT

CEI
IEC
332-3

Deuxième édition
Second edition
1992-03

Essais des câbles électriques soumis au feu

Partie 3:
Essais sur des fils ou câbles en nappes

Tests on electric cables under fire conditions

Part 3:
Tests on bunched wires or cables

Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembé Genève, Suisse

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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AND FLAME APPLICATION TIMES,
FOR CATEGORY C, DESIGNATION F

INTERNATIONAL ELECTROTECHNICAL COMMISSION

TESTS ON ELECTRIC CABLES UNDER FIRE CONDITIONS

Part 3: Tests on bunched wires or cables

FOREWORD

1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.

3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

This Technical Report has been prepared by Sub-Committee 20C: Burning characteristics of electric cables, of IEC Technical Committee No. 20: Electric cables.

This second edition of IEC 332-3 replaces the first edition issued in 1982 and Amendment 2 (1987).

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

Six Months' Rule	Report on Voting
20C(CO)3	20C(CO)8

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

This report is a Technical Report of type 2. It is not to be regarded as an International Standard.

A review of this Technical Report will be carried out not later than three years after its publication with the options of: extension for another three years, conversion into an International Standard, or withdrawal.

INTRODUCTION

Parts 1 and 2 of IEC 332 specify methods of test for flame propagation characteristics for a single vertical insulated wire or cable. It cannot be assumed that, because a cable or wire meets the requirements of parts 1 and 2, a bunch of similar cables or wires will behave in a similar manner. This is because the propagation of flame along a 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, e.g. armoured or unarmoured.

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

This report gives details of a test where a number of cables are bunched together to form various test sample installations. Three sections, 3 to 5, provide details of different test categories having varying volumes of non-metallic material per metre of the test sample subjected to the test.

The method of mounting described as category A, designation F/R in section 3 is intended for special cable designs used in particular installations, e.g. power stations.

The method of mounting described as category A, designation F in section 3 is introduced so that a consistent comparison with sections 4 and 5 can be made on the effect of increased volume of non-metallic material and test duration.

TESTS ON ELECTRIC CABLES UNDER FIRE CONDITIONS

Part 3: Tests on bunched wires or cables

SECTION 1 : GENERAL

1.1 Scope

This Technical Report describes a method of type approval testing to define the ability of bunched cables to restrain flame propagation in defined conditions regardless of their application, i.e. power, telecommunications (including data transmission and optical fibre cables), etc.

Three categories are defined and distinguished by test duration, and the volume of non-metallic material of the sample under test (see table 1); they are not necessarily related to different safety levels in actual cable installations. Category A has two designations for the method of mounting.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this Technical Report. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this Technical Report are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 332-1: 1979, *Tests on electric cables under fire conditions - Part 1: Test on a single vertical insulated wire or cable.*

IEC 332-2: 1989, *Tests on electric cables under fire conditions - Part 2: Test on a single small vertical insulated copper wire or cable.*

IEC 811-1-3: 1985, *Common test methods for insulating and sheathing materials of electric cables - Part 1: Methods for general application - Section 3: Methods for determining the density - Water absorption tests - Shrinkage test.*

SECTION 2 : GENERAL DETAILS OF TEST PROCEDURES

2.1 Test sample and categories

The test sample should comprise a number of test pieces of cable from the same length, each having a minimum length of 3,5 m.

The total number of 3,5 m test pieces in the test sample should be in accordance with one of the three categories as follow: