



SLOVENSKI STANDARD

SIST EN 60684-2:1998

01-junij-1998

Gibke izolacijske cevi - 2. del: Preskusne metode (IEC 60684-2:1997)

Flexible insulating sleeving -- Part 2: Methods of test

Isolierschläuche -- Teil 2: Prüfverfahren

Gaines isolantes souples -- Partie 2: Méthodes d'essai

Ta slovenski standard je istoveten z: **EN 60684-2:1997**

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ICS:

29.035.20	Plastični in gumeni izolacijski materiali	Plastics and rubber insulating materials
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60684-2

August 1997

ICS 29.035.01

Supersedes HD 523.2 S2:1993

Descriptors: Solid insulating material, flexible insulating sleeving, methods of test

English version

Flexible insulating sleeving
Part 2: Methods of test
(IEC 60684-2:1997)

Gaines isolantes souples
Partie 2: Méthodes d'essai
(CEI 60684-2:1997)

Isolierschläuche
Teil 2: Prüfverfahren
(IEC 60684-2:1997)

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This European Standard was approved by CENELEC on 1997-07-01. 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, 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

Foreword

The text of document 15C/657/FDIS, future edition 2 of IEC 60684-2, prepared by SC 15C, Specifications, of IEC TC 15, Insulating materials, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60684-2 on 1997-07-01.

This European Standard supersedes HD 523.2 S2:1993.

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) 1998-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1998-04-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annex A is informative.
Annex ZA has been added by CENELEC.

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Endorsement notice
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The text of the International Standard IEC 60684-2:1997 was approved by CENELEC as a European Standard without any modification.

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

- | | |
|----------------|---|
| IEC 60068-2 | NOTE: Harmonized as HD 323.2 and EN 60068-2 series. |
| IEC 60068-2-10 | NOTE: Harmonized as HD 323.2.10 S3:1988 (not modified). |
| IEC 60216-2 | NOTE: Harmonized as HD 611.2 S1:1992 (not modified). |
| IEC 60304 | NOTE: Harmonized as HD 402 S2:1984 (not modified). |
-

Annex ZA (normative)

Normative references to international publications
with their corresponding European publications

This European Standard 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 European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-20	1979	Basic environmental testing procedures Part 2: Tests - Test T: Soldering	HD 323.2.20 S3 ¹⁾	1988
IEC 60093	1980	Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials	HD 429 S1	1983
IEC 60212	1971	Standard conditions for use prior to and during the testing of solid electrical insulating materials	HD 437 S1	1984
IEC 60216	series	Guide for the determination of thermal endurance properties of electrical insulating materials	HD 611	series
IEC 60216-4-1	1990	Part 4: Ageing ovens Section 1: Single-chamber ovens	HD 611.4.1 S1	1992
IEC 60243-1 (mod)	1988	Methods of test for electric strength of solid insulating materials Part 1: Tests at power frequencies	HD 559.1 S1	1991
IEC 60250	1969	Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths	-	-
IEC 60426	1973	Test methods for determining electrolytic corrosion with insulating materials	-	-
IEC 60587	1984	Test methods for evaluating resistance to tracking and erosion of electrical insulating materials used under severe ambient conditions	HD 380 S2	1987

1) HD 323.2.20 S3 includes A2:1987 to IEC 60068-2-20.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60589	1977	Methods of test for the determination of ionic impurities in electrical insulating materials by extraction with liquids	HD 381 S1	1979
IEC 60684-3	series	Specification for flexible insulating sleeving Part 3: Specification requirements for individual types of sleeving	HD 523.3	series
IEC 60695-6-30	1996	Fire hazard testing Part 6: Guidance and test methods on the assessment of obscuration hazard of vision caused by smoke opacity from electrotechnical products involved in fires Section 30: Small scale static method - Determination of smoke opacity - Description of the apparatus	-	-
IEC 60754-1	1994	Test on gases evolved during combustion of materials from cables Part 1: Determination of the amount of halogen acid gas	-	-
IEC 60754-2 (mod)	1991	Part 2: Determination of the amount of halogen acid gas evolved during the combustion of polymeric materials taken from cables ²⁾	HD 602 S1	1992
ISO 5-1	1984	Photography - Density measurements Part 1: Terms, symbols and notations	-	-
ISO 5-2	1991	Part 2: Geometric conditions for transmission density	-	-
ISO 5-3	1995	Part 3: Spectral conditions	-	-
ISO 5-4	1995	Part 4: Geometric conditions for reflection density	-	-
ISO 37	1994	Rubber, vulcanized or thermoplastic Determination of tensile stress-strain properties	-	-
ISO 62	1980	Plastics - Determination of water absorption	-	-
ISO 105	series	Textiles - Tests for colour fastness	EN ISO 105 EN 20105	series series
ISO 105-A02	1993	Part A02: Grey scale for assessing change in colour	EN 20105-A02	1994
ISO 105-B01	1994	Part B01: Colour fastness to light: Daylight	-	-

2) The title of HD 602 S1 is: Test on gases evolved during combustion of materials from cables - Determination of degree of acidity (corrosivity) of gases by measuring pH and conductivity.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 182-1	1990	Plastics - Determination of the tendency of compounds and products based on vinyl homopolymers and copolymers to evolve hydrogen chloride and any other acidic products at elevated temperature Part 1: Congo red method	-	-
ISO 182-2	1990	Part 2: pH method	-	-
ISO 974	1980	Plastics - Determination of the brittleness temperature by impact	-	-
ISO 1431-1	1989	Rubber, vulcanized or thermoplastic Resistance to ozone cracking Part 1: Static strain test	-	-
ISO 2921	1982	Rubber, vulcanized - Determination of low temperature characteristics Temperature-retraction procedure (TR test)	-	-
ISO 3261	1975	Fire tests - Vocabulary	-	-
ISO 4589-2-2	1994	Plastics - Determination of flammability Part 2: Oxygen index (OI) at room temperature	-	-
ISO 4589-3	1996	Part 3: Elevated temperature test https://standards.iteh.ai/catalog/standards/sist/c748c036-9e7c-4d07-a9c2-f2ef0691ce08/sist-en-60684-2-1998	EN ISO 4589-3	1996

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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC**

60684-2

Deuxième édition
Second edition
1997-07

Gaines isolantes souples –

**Partie 2:
Méthodes d'essai**

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Flexible insulating sleeving –
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**Part 2:
Methods of test**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

XB

Pour prix, voir catalogue en vigueur
For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**FLEXIBLE INSULATING SLEEVING –
Part 2: Methods of test**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60684-2 has been prepared by subcommittee 15C: Specifications, of IEC technical committee 15: Insulating materials.

This second edition cancels and replaces the first edition published in 1984 and amendment 1 (1992). This edition constitutes a technical revision.

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

FDIS	Report on voting
15C/657/FDIS	15C/790/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.

Annex A is for information only.

The contents of the corrigendum of December 1997 have been included in this copy.

INTRODUCTION

This International Standard is one of a series which deals with flexible insulating sleeving. The series consists of three parts:

Part 1: Definitions and general requirements (IEC 60684-1)

Part 2: Methods of test (IEC 60684-2)

Part 3: Specification requirements for individual types of sleeving (IEC 60684-3)

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FLEXIBLE INSULATING SLEEVING – Part 2: Methods of test

1 General

1.1 Scope

This part of IEC 60684 gives methods of test for flexible insulating sleeving, including heat-shrinkable sleeving, intended primarily for insulating electrical conductors and connections of electrical apparatus, although they may be used for other purposes.

The tests specified are designed to control the quality of the sleeving but it is recognized that they do not completely establish the suitability of sleeving for impregnation or encapsulation processes or for other specialized applications. Where necessary, the test methods in this part will need to be supplemented by appropriate impregnation or compatibility tests to suit the individual circumstances.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60684. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 60684 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 60068-2-20: 1979, *Environmental testing – Part 2: Tests, Test T: Soldering*

IEC 60093: 1980, *Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials*

IEC 60212: 1971, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60216, *Guide for the determination of thermal endurance properties of electrical insulating materials*

IEC 60216-4-1: 1990, *Guide for the determination of thermal endurance properties of electrical insulating materials – Part 4: Ageing ovens – Section 1: Single-chamber ovens*

IEC 60243-1, 1988, *Methods of tests for electric strength of solid insulating materials – Part 1: Tests at power frequencies*

IEC 60250: 1969, *Recommended methods for the determination of the permittivity and dielectric dissipation factor of electrical insulating materials at power, audio and radio frequencies including metre wavelengths*

IEC 60426: 1973, *Test methods for determining electrolytic corrosion with insulating materials*

IEC 60587: 1984, *Test methods for evaluating resistance to tracking and erosion of electrical insulating materials used under severe ambient conditions*

IEC 60589: 1977, *Methods of test for the determination of ionic impurities in electrical insulating materials by extraction with liquids*

IEC 60684-3, *Flexible insulating sleeving – Part 3: Specification requirements for individual types of sleeving*

IEC 60695-6-30: 1996, *Fire hazard testing – Part 6: Guidance and test methods for the assessment of obscuration hazard of vision caused by smoke opacity from electrotechnical products involved in fires – Section 30: Small scale static method. Determination of smoke opacity*

IEC 60754-1: 1994, *Tests on gases evolved during combustion of materials from cables – Part 1: Determination of the amount of halogen acid gas evolved during the combustion of polymeric materials taken from cables*

IEC 60754-2: 1991, *Tests on gases evolved during combustion of materials from cables – Part 2: Determination of degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity*

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ISO 5-1: 1984, *Photography – Density measurements – Part 1: Terms, symbols and notations*

ISO 5-2: 1991, *Photography – Density measurements – Part 2: Geometric conditions for transmission density*

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ISO 5-3: 1995, *Photography – Density measurements – Part 3: Spectral conditions*

ISO 5-4: 1995, *Photography – Density measurements – Part 4: Geometric conditions for reflection density*

ISO 37: 1994, *Rubber, vulcanized or thermoplastic – Determination of tensile stress-strain properties*

ISO 62: 1980, *Plastic – Determination of water absorption*

ISO 105: *Textiles – Tests for colour fastness*

ISO 105-A02: 1993, *Textiles – Tests for colour fastness – Part A02: Grey scale for assessing change in colour*

ISO 105-B01: 1994, *Textiles – Tests for colour fastness – Part B01: Colour fastness to light: Daylight*

ISO 182-1: 1990, *Plastics – Determination of the tendency of compounds and products based on vinyl chloride homopolymers and copolymers to evolve hydrogen chloride and any other acidic products at elevated temperature – Part 1: Congo red method*

ISO 182-2: 1990, *Plastics – Determination of the tendency of compounds and products based on vinyl chloride homopolymers and copolymers to evolve hydrogen chloride and any other acidic products at elevated temperature – Part 2: pH method*