MADALPINGELISED SULAVKAITSMED. OSA 2: LISANÕUDED VOLITATUD ISIKUTE POOLT (PEAMISELT TÖÖSTUSRAKENDUSTES) KASUTATAVATELE SULAVKAITSMETELE. KAITSMETE STANDARDSÜSTEEMIDE A KUNI K NÄITED

Low-voltage fuses - Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to K (IEC 60269-2:2013, modified + IEC 60269-2:2013/A1:2016 + IEC 60269-2:2013/AMD2:2024)

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-HD 60269-2:2013+A1 +A2:2024 sisaldab Euroopa standardi HD 60269-2:2013 ja selle muudatuste A1:2022 ja A2:2024, ingliskeelset teksti.	This Estonian standard EVS-HD 60269-2:2013+A1+A2:2024 consists of the English text of the European standard HD 60269-2:2013 and its amendments A1:2022 and A2:2024.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 06.09.2013, muudatused A1 11.11.2022 ja A2 20.12.2024.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 06.09.2013, for A1 11.11.2022 and A2 20.12.2024.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega [A1⟩ ⟨A1]. Muudatusega A2 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega [A2⟩ ⟨A2]. Selles standardis on rahvusvahelise standardi ühismuudatused tähistatud püstkriipsuga teksti vasakul veerisel. Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags [A1⟩ ⟨A1]. The start and finish of text introduced or altered by amendment A2 is indicated in the text by tags [A2⟩ ⟨A2]. In this document, the common modifications to the International Standard are indicated by a vertical line in the left margin of the text. The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.120.50

HARMONIZATION DOCUMENT **HD 60269-2 + A1 + A2**

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

September 2013, November 2022, December 2024

ICS 29.120.50

Supersedes HD 60269-2:2010

English Version

Low-voltage fuses - Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to K (IEC 60269-2:2013, modified + IEC 60269-2:2013/A1:2016 + IEC 60269-2:2013/AMD2:2024)

Fusibles basse tension - Partie 2: Exigences supplémentaires pour les fusibles destinés à être utilisés par des personnes habilitées (fusibles pour usages essentiellement industriels) - Exemples de systèmes de fusibles normalisés A à K
(CEI 60269-2:2013, modifiée + IEC 60269-2:2013/A1:2016 + IEC 60269-2:2013/AMD2:2024)

Niederspannungssicherungen - Teil 2: Zusätzliche Anforderungen an Sicherungen zum Gebrauch durch Elektrofachkräfte bzw. elektrotechnisch unterwiesene Personen (Sicherungen überwiegend für den industriellen Gebrauch) - Beispiele für genormte Sicherungssysteme A bis K
(IEC 60269-2:2013, modifiziert + IEC 60269-2:2013/A1:2016 + IEC 60269-2:2013/AMD2:2024)

This Harmonization Document was approved by CENELEC on 2013-08-15. Amendment A1 was approved by CENELEC on 2016-09-09. Amendment A2 was approved by CENELEC on 2024-07-24. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document and its amendments at national level.

Up-to-date lists and bibliographical references concerning such national implementations may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This Harmonization Document and its Amendments A1 and A2 exist in three official versions (English, French, German).

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

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

Ref. No. HD 60269-2:2013 E + HD 60269-2:2013/A1:2022 E + HD 60269-2:2013/A2:2024 E

Foreword

The text of document 32B/611/FDIS, future edition 5 of IEC 60269-2:2013, prepared by SC 32B, "Low-voltage fuses", of IEC/TC 32, "Fuses" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as HD 60269-2:2013.

A draft amendment, which covers common modifications to IEC 60269-2:2013, was prepared by CLC/SR 32B "Low-voltage fuses" and approved by CENELEC.

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) 2014-08-15
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2016-08-15

This document supersedes HD 60269-2:2010.

HD 60269-2:2013 includes the following significant technical changes with respect to HD 60269-2:2010:

a) fuse systems A and B: modified values for the power dissipation of NH aM fuse-links;

b) fuse systems A and B: introduction of dimension *r* for NH fuse-links;

c) addition of new fuse system K: gK fuse-links with contacts for bolted connections.

This part is to be used in conjunction with EN 60269-1:2007 + A1:2009, *Low-voltage fuses – Part 1: General requirements*.

This Part 2 supplements or modifies the corresponding clauses or subclauses of Part 1.

Where no change is necessary, this Part 2 indicates that the relevant clause or subclause applies.

Tables and figures which are additional to those in Part 1 are numbered starting from 101 in fuse system A, from 201 in fuse system B, etc. Additional annexes are numbered AA, BB, etc.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60269-2:2013 are prefixed “Z”.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

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

The text of the International Standard IEC 60269-2:2013 was approved by CENELEC as a Harmonisation Document with agreed common modifications.

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

IEC 60060-1	NOTE	Harmonised as EN 60060-1.
IEC 60060-2	NOTE	Harmonised as EN 60060-2.
IEC 60060-3	NOTE	Harmonised as EN 60060-3.
IEC 60529	NOTE	Harmonised as EN 60529.
IEC 60672-1	NOTE	Harmonised as EN 60672-1.
IEC 60672-2	NOTE	Harmonised as EN 60672-2.
IEC 60672-3	NOTE	Harmonised as EN 60672-3.
IEC 62262	NOTE	Harmonised as EN 62262.
ISO 898-1	NOTE	Harmonised as EN ISO 898-1.
ISO 1207	NOTE	Harmonised as EN ISO 1207.
ISO 4589-1	NOTE	Harmonised as EN ISO 4589-1.

A1 Amendment A1 European foreword

The text of document 32B/641/CDV, future IEC 60269-2/A1, prepared by SC 32B "Low-voltage fuses" of IEC/TC 32 "Fuses" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as HD 60269-2:2013/A1:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-05-11
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-11-11

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Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60269-2:2013/A1:2016 was approved by CENELEC as a European Standard without any modification. A1

A2 Amendment A2 European foreword

The text of document 32B/743/FDIS, future IEC 60269-2/AMD2, prepared by SC 32B "Low-voltage fuses" of IEC/TC 32 "Fuses" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as HD 60269-2:2013/A2:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2025-06-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-12-20

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.

This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZZ, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60269-2:2013/AMD2:2024 was approved by CENELEC as a European Standard without any modification. A2

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LOW-VOLTAGE FUSES –

Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) – Examples of standardized systems of fuses A to K

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 60269-2 has been prepared by subcommittee 32B: Low-voltage fuses, of IEC technical committee 32: Fuses.

This fifth edition of IEC 60269-2 cancels and replaces the fourth edition published in 2010. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition:

a) fuse systems A and B: modified values for the power dissipation of NH aM fuse-links;

b) fuse systems A and B: introduction of dimension *r* for NH fuse-links;

c) addition of new fuse system K: gK fuse-links with contacts for bolted connections.

This part is to be used in conjunction with IEC 60269-1:2006, *Low-voltage fuses – Part 1: General requirements* and its Amendment 1 (2009).

This Part 2 supplements or modifies the corresponding clauses or subclauses of Part 1.

Where no change is necessary, this Part 2 indicates that the relevant clause or subclause applies.

Tables and figures which are additional to those in Part 1 are numbered starting from 101 in fuse system A, from 201 in fuse system B, etc. Additional annexes are numbered AA, BB, etc.

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

FDIS	Report on voting
32B/611/FDIS	32B/615/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.

A list of all parts in the IEC 60269 series, published under the general title *Low-voltage fuses*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

〈A1〉 Amendment A1 FOREWORD

This amendment has been prepared by subcommittee 32B: Low Voltage Fuses, of IEC technical committee 32: Fuses.

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

CDV	Report on voting
32B/641/CDV	32B/648/RVC

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website 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. 〈A1〉

Amendment A2 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.
2) The formal decisions or agreements of 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 IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 2 to IEC 60269-2:2013 and IEC 60269-2:2013/AMD1:2016 has been prepared by subcommittee 32B: Low-voltage fuses, of IEC technical committee 32: Fuses.

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

Draft	Report on voting
32B/743/FDIS	32B/755/RVD

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

The language used for the development of this Amendment is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications/.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised. 〈A2〉

INTRODUCTION

IEC 60269 consists of the following parts, under the general title *Low-voltage fuses*:

Part 1: General requirements

Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) – Examples of standardized systems of fuses A to K

Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household or similar application) – Examples of standardized systems of fuses A to F

Part 4: Supplementary requirements for fuse-links for the protection of semiconductor devices

Part 5: Guidance for the application of low-voltage fuses

Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems

LOW-VOLTAGE FUSES –

Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) – Examples of standardized systems of fuses A to K

1 General scope

1.1 Scope

Fuses for use by authorized persons are generally designed to be used in installations where the fuse-links are accessible to, and may be replaced by, authorized persons only.

Fuses for use by authorized persons according to the following fuse systems also comply with the requirements of the corresponding subclauses of IEC 60269-1, unless otherwise defined in this standard.

This standard is divided into fuse systems, each dealing with a specific example of standardized fuses for use by authorized persons:

Fuse system A:	Fuses with fuse-links with blade contacts (NH fuse system)
Fuse system B:	Fuses with striker fuse-links with blade contacts (NH fuse system)
Fuse system C:	Fuse-rails (NH fuse system)
Fuse system D:	Fuse-bases for busbar mounting (NH fuse system)
Fuse system E:	Fuses with fuse-links for bolted connections (BS bolted fuse system)
Fuse system F:	Fuses with fuse-links having cylindrical contact caps (NF cylindrical fuse system)
Fuse system G:	Fuses with fuse-links with offset blade contacts (BS clip-in fuse system)
Fuse system H:	A1 Fuses with fuse-links having "gD" and "gN" characteristic (class J class L and class T time delay and non time delay fuse types) A1
Fuse system I:	gU fuse-links with wedge tightening contacts
Fuse system J:	Fuses with fuse-links having "gD class CC" and "gN class CC" characteristics (class CC time delay and non-time delay fuse types)
Fuse system K:	gK fuse-links with blade for bolted connections – High fuse-link ratings from 1 250 A up to 4 800 A (master fuse-links)

The following fuse systems are standardized systems in respect to their safety aspects. The National Committees shall select at least one complete fuse system of this European Standard for their national standards. The time current characteristics "gD" and "gN" are only relevant for the fuse system H.

1.2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60269-1, *Low-voltage fuses – Part 1: General requirements*

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60999 (all parts), *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units*

IEC 60999-1, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm^2 up to 35 mm^2 (included)*

IEC 60999-2, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 2: Particular requirements for clamping units for conductors above 35 mm^2 up to 300 mm^2 (included)*

〖A2〗 *deleted text* 〖/A2〗

〖A2〗 ISO 22479, *Corrosion of metals and alloys – Sulfur dioxide test in a humid atmosphere (fixed gas method)* 〖/A2〗