

SLOVENSKI STANDARD

SIST HD 60269-2:2013

01-november-2013

Nadomešča:
SIST HD 60269-2:2010

Nizkonapetostne varovalke - 2. del: Dodatne zahteve za varovalke, ki jih uporabljajo strokovne osebe (uporaba varovalk zlasti v industriji) - Primeri tipov standardiziranih varovalk od A do K (IEC 60269-2:2013, spremenjen)

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)

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 (IEC 60269-2:2013, modifié)

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)

Ta slovenski standard je istoveten z: HD 60269-2:2013

ICS:

29.120.50	Varovalke in druga medtokovna zaščita	Fuses and other overcurrent protection devices
-----------	---------------------------------------	--

SIST HD 60269-2:2013

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST HD 60269-2:2013

<https://standards.iteh.ai/catalog/standards/sist/b5f2fc23-0974-476d-9823-1b21c58a8807/sist-hd-60269-2-2013>

HARMONIZATION DOCUMENT
DOCUMENT D'HARMONISATION
HARMONISIERUNGSDOKUMENT

HD 60269-2

September 2013

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)**

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)

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)

[SIST HD 60269-2:2013](https://standards.iteh.ai/catalog/standards/sist/b52fc23-0974-476d-9823-1b21c58a8807/sist-hd-60269-2-2013)

<https://standards.iteh.ai/catalog/standards/sist/b52fc23-0974-476d-9823-1b21c58a8807/sist-hd-60269-2-2013>

This Harmonization Document was approved by CENELEC on 2013-08-15. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document 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 exists 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Contents

Page

Foreword	3
1 Modification to 1.1 "Scope"	4
2 Modification to 6.2 "Marking of fuse-links" in 'Fuse system A – Fuses with fuse-links with blade contacts (NH fuse system)'	4
3 Modification to 8.5.5.1 "Verification of the peak withstand current of a fuse-base" in 'Fuse system A – Fuses with fuse-links with blade contacts (NH fuse system)'	4
Annex ZA (normative) Normative references to international publications with their corresponding European publications	5

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST HD 60269-2:2013](https://standards.iteh.ai/catalog/standards/sist/b5f2fc23-0974-476d-9823-1b21c58a8807/sist-hd-60269-2-2013)

<https://standards.iteh.ai/catalog/standards/sist/b5f2fc23-0974-476d-9823-1b21c58a8807/sist-hd-60269-2-2013>

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.

iTeh STANDARD PREVIEW

COMMON MODIFICATIONS

1 Modification to 1.1 "Scope" (standards.iteh.ai)

Replace the note by the following:

SIST HD 60269-2:2013

<https://standards.iteh.ai/catalog/standards/sist/b512fc23-0974-476d-9823-1021c30a790/iec-60269-2-2013>

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.

2 Modification to 6.2 "Marking of fuse-links" in 'Fuse system A – Fuses with fuse-links with blade contacts (NH fuse system)'

Replace the first sentence after the table by the following:

Fuse-links with isolated gripping-lugs shall be marked in a place visible at the front with the graphical symbol of a gripping-lug in a square.

3 Modification to 8.5.5.1 "Verification of the peak withstand current of a fuse-base" in 'Fuse system A – Fuses with fuse-links with blade contacts (NH fuse system)'

Add the following at the end of the first sentence:

... or if the minimum withdrawal forces according to 8.11 are exceeded.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

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 60112	-	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	-
IEC 60269-1	-	Low-voltage fuses Part 1: General requirements	EN 60269-1	-
IEC 60664-1	-	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	EN 60664-1	-
IEC 60999	Series	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units	EN 60999	Series
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)	EN 60999-1	-
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)	EN 60999-2	-
ISO 6988	-	Metallic and other non-organic coatings - Sulfur dioxide test with general condensation of moisture	EN ISO 6988	-

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST HD 60269-2:2013

<https://standards.iteh.ai/catalog/standards/sist/b5f2fc23-0974-476d-9823-1b21c58a8807/sist-hd-60269-2-2013>



IEC 60269-2

Edition 5.0 2013-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Low-voltage fuses – Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) – Examples of standardized systems of fuses A to K

[SIST HD 60269-2:2013
https://standards.iteh.ai/catalog/standards/sist/b512fc23-0974-476d-9823-1b21c58a8807/sist-hd-60269-2-2013](https://standards.iteh.ai/catalog/standards/sist/b512fc23-0974-476d-9823-1b21c58a8807/sist-hd-60269-2-2013)

Fusibles basse tension – Exemples de systèmes de fusibles normalisés A à K
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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE **XH**
CODE PRIX

ICS 29.120.50

ISBN 978-2-8322-0898-4

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	16
INTRODUCTION.....	18
1 General scope.....	19
1.1 Scope.....	19
1.2 Normative references	20
Fuse system A – Fuses with fuse-links with blade contacts (NH fuse system)	21
1 General	21
1.1 Scope.....	21
2 Terms and definitions	21
3 Conditions for operation in service.....	22
4 Classification.....	22
5 Characteristics of fuses	22
5.2 Rated voltage	22
5.3.1 Rated current of the fuse-link.....	22
5.3.2 Rated current of the fuse-holder	22
5.5 Rated power dissipation of a fuse-link and rated acceptable power dissipation of a fuse-holder	22
5.6 Limits of time-current characteristics	22
5.6.1 Time-current characteristics, time-current zones and overload curves	22
5.6.2 Conventional times and currents.....	22
5.6.3 Gates	23
5.7.2 Rated breaking capacity	23
6 Markings	23
6.1 Markings of fuse-holders	23
6.2 Markings of fuse-links.....	24
7 Standard conditions for construction.....	24
7.1 Mechanical design.....	24
7.1.2 Connections, including terminals	24
7.1.3 Fuse-contacts.....	25
7.1.6 Construction of fuse-bases	25
7.1.7 Construction of a fuse-link	25
7.2 Insulating properties and suitability for insulation	26
7.7 I^2t characteristics	26
7.8 Overcurrent discrimination of fuse-links	27
7.9 Protection against electric shock	27
8 Tests	28
8.1.4 Arrangement of the fuse and dimensions	28
8.1.6 Testing of fuse-holders	28
8.2.4 Acceptability of test results.....	29
8.2.5 Resistance to tracking	29
8.3 Verification of temperature rise and power dissipation	29
8.3.1 Arrangement of the fuse	29
8.3.2 Measurement of the temperature rise	29
8.5.5 Test method	30

8.5.8	Acceptability of test results	31
8.7.4	Verification of overcurrent discrimination	31
8.9	Verification of resistance to heat	32
8.9.1	Fuse-base	33
8.9.2	Fuse-links with gripping-lugs of moulded material or of metal fixed in moulded material	33
8.10	Verification of non-deterioration of contacts	34
8.10.1	Arrangement of the fuse	34
8.10.2	Test method	36
8.10.3	Acceptability of test results	37
8.11	Mechanical and miscellaneous tests	39
FIGURES	42
Annex AA (informative)	Special test for cable overload protection	61
AA.1	Arrangement of the fuse	61
AA.2	Test method and acceptability of test results	61
Fuse system B – Fuses with striker fuse-links with blade contacts (NH fuse system)	62
1	General	62
1.1	Scope	62
2	Terms and definitions	62
3	Conditions for operation in service	62
4	Classification	62
5	Characteristics of fuses	62
5.2	Rated voltage	62
5.3.1	Rated current of the fuse-link	63
5.3.2	Rated current of the fuse-holder	63
5.5	Rated power dissipation of a fuse-link and rated acceptable power dissipation of a fuse-holder	63
5.6	Limits of time-current characteristics	63
5.7.2	Rated breaking capacity	63
6	Markings	63
7	Standard conditions for construction	63
7.1	Mechanical design	63
7.1.2	Connections, including terminals	63
7.1.3	Fuse-contacts	63
7.1.7	Construction of a fuse-link	64
7.2	Insulating properties and suitability for insulation	64
7.7	I^2t characteristics	64
7.8	Overcurrent discrimination of "gG" fuse-links	64
7.9	Protection against electric shock	64
8	Tests	64
8.1.6	Testing of fuse-holders	64
8.3	Verification of temperature rise and power dissipation	64
8.7.4	Verification of overcurrent discrimination	65
8.9	Verification of resistance to heat	65
8.9.1	Fuse-base	65

FIGURES	67
Fuse system C – Fuse-rails (NH fuse system)	74
1 General.....	74
1.1 Scope.....	74
2 Terms and definitions.....	74
3 Conditions for operation in service.....	74
4 Classification.....	74
5 Characteristics of fuses.....	74
5.2 Rated voltage.....	74
5.3.2 Rated current.....	74
5.5.1 Rated acceptable power dissipation.....	74
6 Markings.....	75
7 Standard conditions for construction.....	75
7.1 Mechanical design.....	75
7.1.2 Connections, including terminals.....	75
7.2 Insulating properties.....	75
8 Tests.....	75
8.1.6 Testing of fuse-holders.....	75
8.3 Verification of temperature rise and power dissipation.....	76
8.3.1 Arrangement of the fuse.....	76
8.9 Verification of resistance to heat.....	77
8.9.1 Fuse-base.....	77
8.10 Verification of non-deterioration of contacts.....	77
8.10.1 Arrangement of the fuse.....	77
FIGURES	79
Fuse system D – Fuse-bases for busbar mounting (40 mm system) (NH fuse system)	84
1 General.....	84
1.1 Scope.....	84
2 Terms and definitions.....	84
3 Conditions for operation in service.....	84
4 Classification.....	84
5 Characteristics of fuses.....	84
5.2 Rated voltage.....	84
5.3.2 Rated current.....	85
5.5.2 Rated acceptable power dissipation of tandem fuse-bases.....	85
6 Markings.....	85
7 Standard conditions for construction.....	85
7.1 Mechanical design.....	85
7.1.2 Connections, including terminals.....	85
7.1.5 Construction of a fuse-base for busbar mounting.....	86
7.2 Insulating properties and suitability for insulation.....	86
8 Tests.....	86

8.3	Verification of temperature rise and power dissipation	86
8.3.1	Arrangement of the fuse	86
8.9.1	Fuse-base	87
8.10	Verification of non-deterioration of contacts	87
8.10.1	Arrangement of the fuse	87
8.10.2	Test method	88
8.11	Mechanical and miscellaneous tests	88
FIGURES	89

Fuse system E – Fuses with fuse-links for bolted connections (BS bolted fuse system)	96
1	General	96
1.1	Scope	96
2	Terms and definitions	96
3	Conditions for operation in service	96
4	Classification	96
5	Characteristics of fuses	96
5.3.1	Rated current of the fuse-link	96
5.3.2	Rated current of the fuse-holder	96
5.5	Rated power dissipation of a fuse-link and rated acceptable power dissipation of a fuse-holder	97
5.6	Limits of time-current characteristics	97
5.6.1	Time-current characteristics, time-current zones and overload curves	97
5.6.2	Conventional times and currents	97
5.6.3	Gates	97
5.7.2	Rated breaking capacity	97
6	Markings	97
6.1	Markings of fuse-holders	98
6.2	Markings of fuse-links	98
7	Standard conditions for construction	98
7.1	Mechanical design	98
7.1.2	Connections including terminals	98
7.2	Insulating properties and suitability for insulation	98
7.9	Protection against electric shock	98
8	Tests	98
8.3	Verification of temperature rise and power dissipation	98
8.3.1	Arrangement of the fuse	98
8.3.3	Measurement of the power dissipation of the fuse-link	98
8.4	Verification of operation	99
8.4.1	Arrangement of the fuse	99
8.5	Verification of breaking capacity	99
8.5.1	Arrangement of the fuse	99
8.5.8	Acceptability of test results	99
8.9	Verification of resistance to heat	99
8.10	Verification of non-deterioration of contacts	99
8.10.1	Arrangement of the fuse	99
8.10.2	Test method	99

8.10.3	Acceptability of the results	100
8.11	Mechanical and miscellaneous tests	100
FIGURES		101

Fuse system F – Fuses with fuse-links having cylindrical contact caps (NF cylindrical fuse system)			110
1	General		110
1.1	Scope		110
2	Terms and definitions		110
3	Conditions for operation in service		110
4	Classification		110
5	Characteristics of fuses		110
5.2	Rated voltage		110
5.3.1	Rated current of the fuse-link		111
5.3.2	Rated current of the fuse-holder		111
5.5	Rated power dissipation of a fuse-link and rated acceptable power dissipation of a fuse-holder		111
5.6	Limits of time-current characteristics		112
5.6.1	Time-current characteristics, time-current zones and overload curves		112
5.6.2	Conventional times and currents		112
5.6.3	Gates		113
5.7.2	Rated breaking capacity		113
6	Markings		113
6.1	Markings of fuse-holders		113
6.2	Markings of fuse-links		114
7	Standard conditions for construction		114
7.1	Mechanical design		114
7.1.2	Connections including terminals		114
7.2	Insulating properties and suitability for insulation		114
7.7	I^2t characteristics		115
7.8	Overcurrent discrimination of "gG" fuse-links		115
7.9	Protection against electric shock		115
8	Tests		115
8.1.6	Testing of fuse-holders		116
8.3.1	Arrangement of the fuse		116
8.7.4	Verification of overcurrent discrimination		118
8.9	Verification of resistance to heat		119
8.10	Verification of non-deterioration of contacts		119
8.10.1	Arrangement of the fuse		119
8.10.2	Test method		119
8.10.3	Acceptability of test results		120
FIGURES			121

Fuse system G – Fuses with fuse-links with offset blade contacts (BS clip-in fuse system)			125
1	General		125
1.1	Scope		125

2	Terms and definitions	125
3	Conditions for operation in service	125
4	Classification	125
5	Characteristics of fuses	125
5.2	Rated voltage	126
5.3.1	Rated current of the fuse-link	126
5.3.2	Rated current of the fuse-holder	126
5.5	Rated power dissipation of a fuse-link and rated acceptable power dissipation of a fuse-holder	126
5.6.1	Time-current characteristics, time-current zones	126
5.6.2	Conventional times and currents	126
5.6.3	Gates	126
5.7.2	Rated breaking capacity	127
6	Markings	127
6.1	Markings of fuse-holders	127
6.2	Markings of fuse-links	127
7	Standard conditions for construction	127
7.1	Mechanical design	127
7.1.2	Connections including terminals	127
7.2	Insulating properties and suitability for insulation	128
7.7	I^2t characteristics	128
7.9	Protection against electric shock	128
8	Tests	128
8.3.3	Measurement of the power dissipation of the fuse-link	128
8.4.1	Arrangement of the fuse	129
8.5.1	Arrangement of the fuse	129
8.7.4	Verification of overcurrent discrimination	129
8.9	Verification of resistance to heat	129
8.10	Verification of non-deterioration of contacts	129
8.10.1	Arrangement of the fuse	129
8.10.2	Test method	130
8.10.3	Acceptability of test results	130
8.11	Mechanical and miscellaneous tests	130
FIGURES		131
Fuse system H – Fuses with fuse-links having "gD" and "gN" characteristics (class J, class T, and class L time delay and non time delay fuse types)		
1	General	136
1.1	Scope	136
2	Terms and definitions	136
3	Conditions for operation in service	136
4	Classification	136
5	Characteristics of fuses	136
5.2	Rated voltage	136
5.3.1	Rated current of the fuse-link	137
5.3.2	Rated current of the fuse-holder	137