SLOVENSKI STANDARD
SIST HD 60364-4-42:2011

01-maj-2011

Nadomešča:
SIST HD 384.4.42 S1:2000
SIST HD 384.4.42 S1:2000/A1:2000
SIST HD 384.4.42 S1:2000/A2:2000
SIST HD 384.4.482 S1:2002

Nizkonapetostne električne inštalacije - 4-42. del: Zaščitni ukrepi - Zaščita pred toplotnimi učinki (IEC 60364-4-42:2010, spremenjen)

Low voltage electrical installations - Part 4-42: Protection for safety - Protection against thermal effects

Errichten von Niederspannungsanlagen - Teil 4-42: Schutzmaßnahmen - Schutz gegen thermische Einflüsse

Installations électriques basse tension - Partie 4- 42: Protection pour assurer la sécurité - Protection contre les effets thermiques

Ta slovenski standard je istoveten z: **HD 60364-4-42:2011**

ICS:

29.120.50	Varovalke in druga nadtokovna zaščita	Fuses and other overcurrent protection devices
91.140.50	Sistemi za oskrbo z elektriko	Electricity supply systems

SIST HD 60364-4-42:2011 **en**

HARMONIZATION DOCUMENT

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

HD 60364-4-42

March 2011

ICS 29.120.50; 91.140.50

Supersedes HD 384.4.42 S1:1985 + A1:1992 + A2:1994

English version

Low voltage electrical installations - Part 4-42: Protection for safety - Protection against thermal effects

(IEC 60364-4-42:2010, modified)

Installations électriques basse tension - Partie 4- 42: Protection pour assurer la sécurité - Protection contre les effets thermiques (CEI 60364-4-42:2010, modifiée)

Errichten von Niederspannungsanlagen - Teil 4-42: Schutzmaßnahmen - Schutz gegen thermische Einflüsse (IEC 60364-4-42:2010, modifiziert)

This Harmonization Document was approved by CENELEC on 2011-02-14. 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 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, 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, 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. HD 60364-4-42:2011 E

Foreword

The text of the International Standard IEC 60364-4-42:2010, prepared by IEC TC 64, Electrical installations and protection against electric shock, together with common modifications prepared by the Technical Committee CENELEC TC 64, Electrical installations and protection against electric shock, was submitted to the formal vote and was approved by CENELEC as HD 60364-4-42 on 2011-02-14.

This European Standard supersedes HD 384.4.42 S1:1985 + A1:1992 + A2:1994.

The main changes with respect to HD 384.4.42 S1:1985 + A1:1992 + A2:1994 are listed below:

– The scope now includes protection against all thermal effects and flames in case of a fire hazard being propagated from electrical installations to other fire compartments segregated by barriers which are in the vicinity.

– Requirements associated with escape routes for evacuation in an emergency have been expanded/modified.

– Requirements associated with the nature of processed or stored materials have been expanded/modified.

– Requirements associated with combustible constructional materials have been expanded/modified.

– Requirements associated with fire propagating structures have been modified slightly.

– New requirements for the selection and erection of installations in locations which might endanger precious goods have been added.

– Protection against overheating now includes space heating appliances.

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

The following dates were fixed:

– latest date by which the HD has to be implemented at national level by publication of a harmonized national standard or by endorsement	(dop)	2012-02-14
– latest date by which the national standards conflicting with the HD have to be withdrawn	(dow)	2014-02-14

Annexes ZA to ZD have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60364-4-42:2010 was approved by CENELEC as a Harmonization Document with agreed common modifications as given below.

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

[2] IEC 60079-14:1996	NOTE	Harmonized as EN 60079-14:1997 (not modified).
[5] IEC 60332-1-2:2004	NOTE	Harmonized as EN 60332-1-2:2004 (not modified).
[6] IEC 60332-3-21:2000	NOTE	Harmonized as EN 60332-3-21:2009 (modified).
[7] IEC 60332-3-22:2000	NOTE	Harmonized as EN 60332-3-22:2009 (not modified).

[8] IEC 60332-3-23:2000	NOTE	Harmonized as EN 60332-3-23:2009 (not modified).
[9] IEC 60332-3-24:2000	NOTE	Harmonized as EN 60332-3-24 (not modified).
[10] IEC 60332-3-25:2000	NOTE	Harmonized as EN 60332-3-25:2009 (not modified).
[11] IEC 60364-4-43	NOTE	Harmonized as HD 60364-4-43.
[13] IEC 60364-5-52	NOTE	Harmonized as HD 60364-5-52.
[16] IEC 60598 series	NOTE	Harmonized in EN 60598 series (partially modified).
[17] IEC 60598-1:2003	NOTE	Harmonized as EN 60598-1:2004 (modified).
[18] IEC 60598-1:2008	NOTE	Harmonized as EN 60598-1:2008 (modified).
[19] IEC 60670-1	NOTE	Harmonized as EN 60670-1.
[20] IEC 60695-4	NOTE	Harmonized as EN 60695-4.
[21] IEC 60702-1	NOTE	Harmonized as EN 60702-1.
[22] IEC 60947-2	NOTE	Harmonized as EN 60947-2.
[23] IEC 61034-2	NOTE	Harmonized as EN 61034-2.
[25] IEC 61386-1	NOTE	Harmonized as EN 61386-1.
[26] IEC 61439-1	NOTE	Harmonized as EN 61439-1.
[27] IEC 62020	NOTE	Harmonized as EN 62020.
[28] IEC 62305 series	NOTE	Harmonized in EN 62305 series (partially modified).

COMMON MODIFICATIONS

422 Precautions where particular risks of fire exist

422.3
Add the following note:

NOTE 3 Other locations having similar risk as those mentioned in IEC 60364-5-51, Table 51A, BE2 should also be considered, for example commercial kitchens.

422.3.1
Modify the Note as follows:

Luminares marked ⓕ in accordance with EN 60598-1 are suitable for mounting on a normally flammable surface.

422.3.9
Modify first line as follows:

Final circuits supplying or traversing the location and current using equipment, shall be protected against insulation faults as follows:

422.3.12
Modify text as follows:

PEN conductors are not allowed in locations where condition BE2 applies, except for circuits traversing such locations and having no connection between their traversing PEN conductor and any conductive part in this location and erected in such a way as to reduce the risk of a fault between the pen conductor and any conductive part in the location to a minimum.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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

Publication	Year	Title	EN/HD	Year
IEC 60332	Series	Tests on electric and optical fibre cables under fire conditions	EN 60332	Series
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41 + corr. July	2007 2007
IEC 60364-5-51 (mod)	2005	Electrical installations of building - Part 5-51: Selection and erection of electrical equipment - Common rules	HD 60364-5-51	2009
IEC 60598-2-24 (mod)	-	Luminaires - Part 2: Particular requirements - Section 24: Luminaires with limited surface temperatures	EN 60598-2-24	-
IEC 61084	Series	Cable trunking and ducting systems for electrical installations	-	-
IEC 61386	Series	Conduit systems for cable management	EN 61386	Series
IEC 61534	Series	Powertrack systems	EN 61534	Series
IEC 61537	-	Cable management - Cable tray systems and cable ladder systems	EN 61537	-

Annex ZB
(normative)

Special national conditions

Special national condition: National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions.

NOTE If it affects harmonization, it forms part of the Harmonization Document.

For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.

Country	Clause No.	Wording
Germany	420.1	In Germany the following additional requirements to the scope apply to the second indent of clause 420.1 - against flames and smoke in case of a fire hazard being propagated from electrical installations to other fire compartments segregated by barriers which are in the vicinity, and
	421.3	In Germany the following additional requirements for protection against arcing apply: 421.3 Protective devices shall be installed for protection in case of arcing where the electrical installation shall meet a high degree of reliability. Protective devices for the protection against arcing shall detect the light effect of the arc and the increase of current in the line conductors. Furthermore, they shall extinguish the arc within a time of 5 ms and disconnect the electrical installation from the supply. The extinguishing of the arc may not be generated before the set limiting values regarding the light and current detection are exceeded. Slowly acting protective devices are not able to prevent damage of goods and that can make it impossible to put the electrical installation in to operation again within a short time. In general a separation by use of a metal sheet does not provide the required arc withstand capability.
	421.7	Where in case of a fire hazard from switchgear assemblies heavy smoke generation in escape corridors may be assumed a sealed fire barrier for the erection of the switchgear assembly is necessary. This requirement is fulfilled if the switchgear assembly is placed in an enclosure of non-combustible material or in a separate location. Ceilings and walls of the separating location shall have a fireresisting capability for a time of at least 90 min and doors for a time of at least 30 min.
	422.1.2	Additional requirements apply in Germany: "In Germany for the selection and erection of electrical equipment Chapter 53 "Erection of low voltage installations – Part 530: Selection and erection of electrical equipment – Switchgear and controlgear" applies in addition."
	422.3	Section 422.3 includes, for example, the selection and erection of installations in locations with risks of fire due to the nature of processed or stored materials like the manufacturing, processing, storage of combustible materials, including the accumulation of dust in barns, wood working factories, paper mills, textile factories or similar. NOTE The nature and allowed quantities of combustible materials, or surface or volume of the locations may be regulated by national authorities.

<table>
<tr><th>Country</th><th>Clause No.</th><th>Wording</th></tr>
<tr><td></td><td>422.3</td><td>Additional requirements apply in Germany:

In Germany the classification in fire-hazard areas is in the response of the operator/user of the electrical installation, taking into account, if necessary, the accident prevention regulation BGV A1 by the employers' liability insurance association/EU-directive 89/654/EWG.
He should consult an expert for the classification. The publication VdS 2033 „Feuergefährdete Betriebsstätten und diesen gleichzustellende Risiken“, published by the German Insurance Association (GDV), contains suitable case studies. Thereafter fire hazard areas are rooms or places in the rooms or outside in which the danger insists that after local and operational relations easily flammable materials in hazardous amount comes closer to the electrical equipment in such a way, that higher temperatures or arcs form a fire hazard. These can be areas like work rooms, dry rooms and storerooms, hay camps, straw camps, jute camps and flax camps as well as such sites outside, e.g., in paper, textiles or wooden processing companies.

„Easily flammable“ are ignitable firm materials which burn, exposed to the flame of a match for 10 s, and after removing the ignition source burn and glow further by itself. Those materials are like hay or straw, straw dust, shavings, loose wood-wool, magnesium filings, brushwood, loose paper, tree and cell woollen fibres.</td></tr>
<tr><td></td><td>422.3.4</td><td>Additional requirements apply in Germany:

NOTE 3 PVC-jacketed cables, e.g., NYM and NYY, and the cable types in Table 1 fulfil the requirements.

NOTE 4 The recommendation to use cable with improved fire characteristics, is fulfilled, if the types are according to Table 1. This cable types have also an improved protection against corrosion damages with halogens and smoke damages.

Table 1 – Halogen-free cable with improved fire characteristics
<table>
<tr><th>Type short-sign</th><th>Standard</th></tr>
<tr><td></td><td></td></tr>
<tr><td>NHXMH</td><td>DIN VDE 0250-214 (VDE 0250 Teil 214)</td></tr>
<tr><td>NHMH</td><td>DIN VDE 0250-215 (VDE 0250 Teil 215)</td></tr>
<tr><td>NSHXA</td><td>DIN VDE 0250-606 (VDE 0250 Teil 606)</td></tr>
<tr><td>H05Z-U</td><td rowspan="5">DIN VDE 0282-9 (VDE 0282 Teil 9)</td></tr>
<tr><td>H05Z-K</td></tr>
<tr><td>H07Z-U</td></tr>
<tr><td>H07Z-R</td></tr>
<tr><td>H07Z-K</td></tr>
<tr><td>H07ZZ-F</td><td>DIN VDE 0282-13 (VDE 0282 Teil 13)</td></tr>
<tr><td>NHXH</td><td rowspan="7">DIN VDE 0266 (VDE 0266)</td></tr>
<tr><td>NHXHX</td></tr>
<tr><td>NHXH FE 180</td></tr>
<tr><td>NHXCHX FE 180</td></tr>
<tr><td>NHXCH</td></tr>
<tr><td>NHXCHX</td></tr>
<tr><td>NHXCH FE 180</td></tr>
<tr><td>N2XH</td><td rowspan="2">DIN VDE 0276-604 (VDE 0276 Teil 604)</td></tr>
<tr><td>N2XCH</td></tr>
</table>
</td></tr>
</table>

Country	Clause No.	Wording
Germany	422.3.9a	Where an RCD may not be used, e.g. in the case of high operating currents, it is recommended to apply an equivalent protective measure, e.g. a power switch with a coordinated RCD independent of the supply voltage according to IEC 60947-2 - Residual current monitoring (RCM) according to IEC 60020. NOTE 1 This requirement is generally fulfilled if the disconnection occurs in a time not exceeding 5 s. In electrical installations with a rated voltage 230/400 V AC for this purpose RCD with a rated residual operating current not exceeding 300 mA are used. NOTE 2 In the case of panel heating systems this requirement is fulfilled if the disconnection occurs at a power of not more than 7 W at the place of the insulation fault. In electrical installations with a rated voltage 230/400 V AC for this purpose, RCDs with a rated residual operating current not exceeding 30 mA are used.
	422.3.9c	Disconnection is not necessary where provisions are taken to prevent the occurrence of a fire hazard by short circuits or earth faults caused by external influences like mechanical stresses.
	422.3.9d	Disconnection is not required for circuits which are erected in a short-circuit and earth leakage proof manner. NOTE 3 For short-circuit and earth leakage proof installation methods of wiring systems see IEC 60364-5-52 and IEC 60439-1.
	422.3.9e	In every circuit the protective conductor shall be installed in close proximity to the live conductors and shall be introduced in equipment of class II construction. NOTE 4 For further requirements for floor and ceiling heating systems see IEC 60364-7-753.
	422.3.13	Delete Subclause 422.3.13
Norway	422.3.9	In Norway, RCDs with a rated residual operating current not exceeding 30 mA shall be used in IT installations connected to a public low voltage distribution network.
	424.1	In Norway, the following additional requirements apply: In Norway it is required that one of the temperature limiting devices is a thermal release. The thermal release shall disconnect all live conductors and shall have manual resetting.
Czech Republic	422.3.9	Additional requirements apply in the Czech Republic: the first sentence of 422.3.9 is as follows: “Final circuits and current-using equipment, with the exception of wiring systems enclosed in enclosures having degree of protection at least IP4X, shall be protected against insulation faults as follows:”
Ireland	422.4.1	Connections in junction boxes in a hollow combustible wall shall comply with 526, and shall in addition be provided with a means of strain-relief:
Ireland	422.2	Not applicable in Ireland
Ireland	422.4.1	In Ireland, the following applies: Connections in junction boxes in a hollow wall shall comply with 526, and in addition shall be provided with a means of strain-relief.
Sweden	422.3.9	"In Sweden the common modification of 422.3.9 does not apply."
Italy	422.2.1	In Italy, the following additional requirement applies to 422.2.1: Transfer the content of the subclause into a subclause of 422.1.

Country	Clause No.	Wording
	422.2.2	In Italy, the following additional requirement applies: to 422.2.2: Transfer the content of the subclause into a subclause of 422.1.
	422.2.3	In Italy, the following additional requirement applies to 422.2.3: Transfer the content of the subclause, except for the first paragraph, with the addition of the words "BD 2" conditions", into a subclause of 422.1. In Italy, the following additional requirements applies to 422.3: Transfer the content of the subclause, except for the first paragraph, into a subclause of 422.1.
	422.3.3	Add the following: This clause applies also to SELV and PELV systems. The requirement concerning IP degrees of protection does not refer to socket-outlets for household and similar use, to switches for circuits for lighting and similar applications neither to circuit-breakers having rated current not higher than 16 A and rated short-circuit capacity not higher than 3 000 A, in the case where they are used in a location where a particular risk of fire exists.
	422.3.4	In Italy, the following additional requirements apply to 422.3.4: Precautions may be one of the following: a) wiring with cable enclosed in a metal conduit or other metal enclosures, having a degree of protection of at least IP 4X; or wiring with mineral insulated cables without external non-metallic sheath; b) wiring with multicore cables provided with concentric metallic sheath, or metallic screen, or with cores provided with metallic sheaths, suitable to perform the protective conductors function; or wiring with mineral insulated cables with external non metallic sheath; c) wiring with multicore cables incorporating a protective conductor; or wiring with cables enclosed in metal conduit or other metal enclosures without a particular degree of protection, or wiring with cables enclosed in insulating enclosures having a degree of protection at least IP 4X.
	422.3.4	In Italy, the following additional requirement applies to 422.3.4: Transfer the content of the subclause into a subclause of 422.1,deleting Note 1 and introducing, after the first indent, the following text: "In particular for wiring described under b) and c), cables shall satisfy the test under the conditions specified in IEC 60332-1 where installed individually or at adequate distance within them. Alternatively, the cables shall meet the flame propagation characteristics as defined in IEC 60332-3, provided that the quantity of non-metallic materials does not exceed that specified in the above-mentioned standard: otherwise, adequate fire barriers shall be provided. In the case where the above precautions are not applied, fire barriers shall be used".
	422.3.5	In Italy, the following additional requirement applies to 422.3.5: **Transfer the content of the subclause into a subclause of 422.1.**
	422.3.10	In Italy, the following additional requirement applies to 422.3.10: Transfer into a subclause of 422.1 the content of the subclause, modified to read as follows: "Circuits supplying or traversing locations with a particular risk of danger of fire shall be protected against overloads and short-circuits by overcurrent protective devices located outside and on the supply side of these locations. Circuits originating inside these locations shall be protected against overcurrent by protective devices located at their origin."
	422.3.12	In Italy, transfer the content of the subclause into a subclause of 422.1.
Spain	**421.1**	In Spain, UNE 201006 and its standard sheaths require the use of screws as the only fixing means of the accessory with its enclosure.

Annex ZC
(informative)

A-deviations

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CENELEC national member.

This Harmonization Document does not fall under any Directive of the EC.

In the relevant CENELEC countries these A-deviations are valid instead of the provisions of the Harmonization Document until they have been removed.

Germany	**422.2**	**Additional requirements apply in Germany:** **For wiring in escape routes there are special conditions established by federal state authorities on the basis of the "Muster-Richtlinie über brandschutztechnische Anforderungen an Leitungsanlagen (Muster-Leitungsanlagen-Richtlinien MLAR)"**
	422.4	**In Germany the following additional requirements for highly fire-retarding components in timber-frame construction manner apply to 422.4.** **For wiring in connection with highly fire-retarding components in timber-frame construction manner, special conditions established by federal state authorities on the basis of the Muster-Richtlinie über "Brandschutztechnische Anforderungen an hochfeuerhemmende Bauteile in Holzbauweise" – M-HFHHolzR.**

Annex ZD
(informative)

B-deviations

B-deviation: National deviation from an HD due to particular technical requirements, permitted for a specified transitional period.

Germany	**422.3.1**	**Additional requirements apply in Germany:** **Luminaires marked D in accordance with IEC 60598-1 are suitable for mounting on normally flammable surfaces. For luminaires marked with the symbol D, protection against deposition of dust and other substances shall be provided also inside the luminaire. For compliance with this requirement the luminaire is covered in the direction of the spot light with a protective glass cover or a tube of IP5X.** **Table ZB.1 in HD 60364-5-559 deals with the selection of luminaires and lamp control gear in dependency of the location and surface of installation.**
	422.5	**Additional requirements apply in Germany:** **422.5.2 Electrical equipment like outlets and switches, shall not be fastened with claws.**