SLOVENSKI STANDARD
SIST HD 60364-5-52:2011/A12:2023

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Nizkonapetostne električne inštalacije - 5-52. del: Izbira in namestitev električne opreme - Inštalacijski sistemi - Dopolnilo A12

Low-voltage electrical installations - Part 5-52: Selection and erection of electrical equipment - Wiring systems

Errichten von Niederspannungsanlagen - Teil 5-52: Auswahl und Errichtung elektrischer Betriebsmittel - Kabel- und Leitungsanlagen

Installations électriques à basse-tension - Partie 5-52: Choix et mise en oeuvre des matériels électriques - Canalisations

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ICS:

91.140.50 Sistemi za oskrbo z elektriko Electricity supply systems

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HARMONIZATION DOCUMENT

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English Version

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This amendment A12 modifies the Harmonization Document HD 60364-5-52:2011; it was approved by CENELEC on 2022-07-18. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this amendment 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 amendment exists in three official versions (English, French, German).

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

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European foreword

This document (HD 60364-5-52:2011/A12:2022) has been prepared by CLC/TC 64 “Electrical installations and protection against electric shock”.

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) 2023-05-25
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2025-11-25

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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.

1 Addition to “Foreword”

Add the following after the end of the 3rd paragraph:

“The main changes with respect to the previous edition are listed below:

– For cables, the provisions of the Construction Products Regulation ((EU) No. 305/2011 (CPR)) came fully into force on 1 July 2017 in respect of Reaction to Fire. These requirements are now expressed by reference to the relevant Classes according to EN 13501-6.

NOTE The CPR harmonises the methods of assessment and test, the means of declaration of product performance and the system of conformity assessment of construction products, but NOT national building regulations. The choice of required classes for the particular intended use is left to the regulators and public / private sector procurers at the national level. However, it is essential that such required classes are expressed in a consistent manner (technical language) as used in the harmonized technical specifications.”

2 Additions to 520.1, “Scope”

Add the following after NOTE 2:

“Requirements for the selection of cables with respect to the classification provided in EN 13501-1 on reaction to fire in order to comply with the Construction Products Regulation (CPR) of the EU are also provided.

NOTE 3 Whilst the CPR requires the manufacturer to declare the reaction to fire performance of the cable in accordance with procedures and classification that are common across the EU, it is the responsibility of the Member State to determine which class according to EN 13501-6 is required for any particular application or installation. National statutory requirements could therefore override the classes required by this publication.”

3 Additions to 520.2, “Normative references”

Add the following reference:

“EN 13501-6, *Fire classification of construction products and building elements - Part 6: Classification using data from reaction to fire tests on electric cables”*

4 Modifications to Clause 527, “Selection and erection of wiring systems to minimize the spread of fire”

Add the following note at the end of Clause 527.1.1:

“

NOTE Fire hazards can be limited by appropriate selection of insulated conductors and cables providing improved behaviour in case of fire. Such products can limit the fire propagation, can offer lower smoke emission and can, in case of fire, even provide a continuous service of important functions for a certain period of time.

To limit the fire hazard by applying insulated conductors and cables with improved fire behaviour is especially important for installations where a particular risk of fire is identified as described in BD2, BD3 and BD4 of HD 60364-5-51.

All cables permanently installed in Construction Work, are expected to comply with the European Construction Product Regulation (CPR) which requests to inform about the fire performance of insulated conductors and cables by only referring to classes as defined in EN 13501-6, and comply with the provisions of EN 50575.”

Replace the entire text of 527.1.3 with the following:

“**527.1.3** Cables complying with, at least, the requirements of Class E_{ca} as defined in EN 13501-6 and products classified as non-flame propagating according to Clause 527.1.5 may be installed without special precautions.

NOTE In installations where particular risk of fire is identified, cables complying with class C_{ca}-s1,d2,a1 or $B2_{ca}$- s1,d2,a1 as defined in EN 13501-6 could be necessary. See also 422.2.1."

Replace the entire text of 527.1.4 with the following:

"**527.1.4** Cables not complying, as a minimum, with the requirements of EN 60332-1-2 or class E_{ca} shall, if used, be limited to short lengths for connection of appliances to permanent wiring systems and shall, in any event, not pass from one fire-segregated compartment to another."

5 Addition to normative Annex ZA, "Normative references to international publications with their corresponding European publications"

Add the following new reference to the table at the appropriate place:

"Publication	Year	Title	EN/HD	Year
-	-	Fire classification of construction products and building elements - Part 6: Classification using data from reaction to fire tests on power, control and communication cables	EN 13501-6	-

"

6 Additions to Annex ZB, "Special National Conditions"

Add the following entries to the table on Special National Conditions:

"

Country	Clause	Special national condition
IT		In Italy this part is covered by the Amendment 4 to Italian Standard CEI 64-8 and Part 751 of CEI 64-8
IE	527	In Ireland, The National Rules for Electrical Installations require that all cables in buildings are minimum D_{ca}-s2,d2,a2 in accordance with EN 50575.
AT	527.1.3	In Austria, for wiring there are special conditions established by federal state authorities on the basis of the "OIB-Richtlinie 2 – Brandschutz.
GB	527.1.3	In the UK the provisions of BS 7671 apply.
AT	527.1.4	In Austria, for wiring there are special conditions established by federal state authorities on the basis of the "OIB-Richtlinie 2 – Brandschutz.
DK	Table C.52.3	Extension of an existing installation carried out under previous national regulations applicable before 1 July 2019. When an existing installation is extended with one new circuit, it is permitted that no correction for groups be made to the current-carrying capacity of the new circuit, and that the impact of the new circuit on the existing circuits be neglected if all of the following criteria are met: — The new circuit has a conductor cross-sectional area of max. 4 mm^2; — The new circuit has a design load of max. 16 A;

Country	Clause	Special national condition
		— The new circuit is expected to carry a current not exceeding 70 % of the current-carrying capacities listed in Table C.52.1 or Table C.52.2 multiplied by any correction factor for the ambient temperature (other than 30 °C); — The new circuit is not charged maximally for a period longer than 3 h at a time.

“

In the table on Special National Conditions, replace the Special National Conditions for Germany with the following:

“

Country	Clause	Special national condition
DE	520.3	*Add new definition:* ***520.3.3*** **main circuit** circuit containing electrical equipment for generation, conversion, distribution or switching of electrical power or current-using equipment [IEC 60364-5-55 Ed. 2.2:2016-07, 557.2.2]
	521.6	*Amend text as follows:* Several circuits are allowed in the same conduit system, separated compartment of cable ducting system or cable trunking system provided all conductors are insulated for the highest nominal voltage present **and the conduit system, separated compartment of cable ducting system or cable trunking system have a suitable cross-section**. Conduit systems shall comply with the **EN 61386** series, cable trunking or ducting systems shall comply with EN 50085 series and cable tray and cable ladder systems shall comply with **EN 61537**. NOTE Guidance on the selection of conduit systems is given in Annex F. **For installation of non-metallic conduits in free air conduits with resistance to UV radiation shall be selected.** **For installations where halogene-free material is required, non-metallic conduit systems, cable ducting systems and cable trunking systems shall comply with EN 50642.** **For the installation of conduits in concrete the resistance to compression as required in DIN EN 61386-1 (VDE 0605-1) has to be considered to enable the introduction and the exchange of cables without damage after the installation of the conduits.** **Following this, the conduits shall comply with medium or high resistance to compression and the bending behavior shall be rigid or bendable according to DIN EN 61386-22 (VDE 0605-22).** **Conduits in compliance with DIN EN 61386-24 (VDE 0605-24) classified with N750 may be installed in or passing through concrete.** **In the case of basic-insulated conductors in conduit systems, cable trunking systems and cable ducting systems, only the conductors of one main circuit and the auxiliary circuits associated with this main circuit may be laid in a conduit or a single-channel trunking or one duct of a multi-channel trunking, except in electrical and closed electrical operating areas. The uncut**

Country	Clause	Special national condition
		conductors of several circuits may, however, be fed through common looping-through boxes.
	521.9.1	*This clause is amended as follows:* A flexible cable may be used for fixed wiring where the provisions of this standard **and EN 50565-2 or DIN VDE 0298-3 (VDE 0298-3)** are met. **Isolated flexible cores in compliance with EN 50565-2 or DIN VDE 0298-3 (VDE 0298-3) may also be used for fixed installation. In this case, 521.10.1 shall also be considered.**
	521.9.5	*Add new subclause:* 521.9.5 Under certain circumstances, for ease of installation, the conductor may be Class 5 according to EN 60228, in which case the designatory suffix according to DIN VDE 0292 (VDE 0292) is given by "-K". The use of a Class 5 conductor designated "-K" does not indicate that the cable is suitable for repeated bending. Flexible cables or cords should not be used as fixed wiring unless contained in an enclosure affording mechanical protection, except when used as the final connection to fixed equipment. In which case they should be of, at least, the 'ordinary' type. Heavy duty types may be used for fixed installations in temporary buildings. Flexible cables or cords should not be placed under carpets or other floor coverings, where there is a) any risk of thermal insulating effects, leading to excessive temperature rise (see 5.3.1, a)); b) any risk of damage due to furniture or equipment resting on them or traffic passing over them. When flexible cables are required for use outdoors, whether of temporary or permanent usage, reference should be made to EN 50565-2 to determine their suitability for such usage. PVC flexible cables or cords are unsuitable for permanent use outdoors. Neither should those that have a temporary designation be used in that manner outdoors in adverse conditions, e. g. at temperatures below those given in EN 50565-2. In the case of soft soldered joints or terminations the limiting temperature for the conductor under short circuit conditions is reduced to 160 °C. Account of this limitation should be taken in selecting and operating cables. Tinned copper conductors should not be used at temperatures above 200 °C because of the risk of mutual adhesion. Where the limiting temperature given in EN 50565-2 is such that the temperature of the surface of the cable is liable to exceed 50 °C, the cable should be so located or guarded as to prevent contact of persons or animals therewith. Cable surface temperatures above this can cause involuntary reaction in the event of contact with exposed skin. Account should be taken of these possibilities in the selection and use of cables.
	521.10	*This clause is separated in several subclauses as follows:* **521.10.1 Cores** Insulated conductors (non-sheathed cores) for fixed wiring shall be enclosed in a continuous

Country	Clause	Special national condition
		— conduit system in compliance with EN 61386 series, — cable ducting system in compliance with EN 50085 series, — cable trunking system in compliance with EN 50085 series. This requirement does not apply to a protective conductor complying with HD 60364-5-54. **521.10.2 Cables *(Kabel)*** Cables NYY or NYCWY according to DIN VDE 0276-603 (VDE 0276-603):2010 should have the following bending radii (see Part 5, Section 3G, Clause IV “Recommendation for use”): a) Permissible bending radius during installation: — single-core cables: 15-fold cable diameter; — multi-core cables: 12-fold cable diameter. b) Reduction of bending radius by 50 % under the following conditions: — single bending; — professional installation; — heating the cable up to 30 °C; — bending the cable by using a template. The distance between fixing means should be (see Part 5, Section 3G, Clause IV “Recommendation for use”: Horizontal distance between fixing means: — 20 times the cable diameter These distances also apply for supporting areas for wiring on cable racks, or supporting structures. The distance shall not exceed 80 cm. Vertical distance between fixing means: — For vertical wiring along walls, the distances may be longer. However, distances shall not exceed 1,5 m. **521.10.3 Cables *(Leitungen)*** In case of fixed installation, conductors shall have bending radii according to Table 1 (see also EN 50565-1:2002, Table 3):

Table 1 — Minimum permissible bending radius for fixed installation

		minimum bending radius for cable diameter D mm			
		D ≤ 8	8 < D ≤ 12	12 < D ≤ 20	D > 20
cables with rigid conductors	Standard application	4	5	6	6
	Careful bending	2	3	4	4
cables with flexible conductors	Fixed installation	3	3	4	4
	Flexible application	4	4	5	6
NOTE 1 The minimum permissible bending radius corresponds to the internal radius.					
NOTE 2 Specifications apply for a cable temperature of (20 ± 10) °C.					
NOTE 3 *D* corresponds to the outer diameter for round cables or the smaller external dimensions for flat cables.					

The distance between fixing means should be according to Table 2 (see EN 50565-1:2014, Table 1):

Table 2 — Maximum distance between fixing means

Outer diameter of cable [a] (mm)	Maximum distance [b c] (mm)	
	Horizontal	Vertical
$D \leq 9$	250	400
$9 < D \leq 15$	300	400
$15 < D \leq 20$	350	450
$20 < D \leq 40$ [d]	400	550

[a] For flat cables this is taken as the measurement of the major axis.

[b] The spacings stated for horizontal runs may also be applied to runs at an angle of more than 30° from the vertical. For runs at an angle of 30° or less than the vertical, the vertical spacings are applicable.

[c] The spacing stated in this table is a maximum. Reduced spacing may be required for various reasons, for example, the fixing method used, vibration, weight of cable.

[d] For the spacing of supports for cables of overall diameter exceeding 40 mm, and for single core cables having conductors of cross-sectional area 300 mm^2 and larger, the manufacturer's recommendations shall be observed.

521.10.4 Sheathed cables (NYM)

These cables are intended for installation on, under and in plaster in dry, humid and wet rooms as well as in masonry and concrete, except for direct embedding in heaped, shaked or tamped concrete in compliance with DIN VDE 0298-3 (VDE 0298-3). These cables are also suitable for use in open air, provided that they are protected from direct exposure to sun light.

Table A.52.1 applies for the installation of sheathed conductors with the following restriction:

Sheathed conductors according to DIN VDE 0250-210 (VDE 0250-210) may be installed in underground protective conduits if the cables remain accessible and exchangeable and the conduit is mechanically fixed, protected against the ingress of liquids and ventilated.