ICS 13.260, 97.145 SLOVENSKÁ TECHNICKÁ NORMA September 2024

STN	**Izolované rebríky na použitie v nízkonapäťových elektrických inštaláciách a v ich blízkosti**	**STN EN 50528** 35 9734

Insulating ladders for use on or near low voltage electrical installations

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/24

Obsahuje: EN 50528:2024

Oznámením tejto normy sa od 29.04.2027 ruší
STN EN 50528 (35 9734) z novembra 2010

obsahuje farebné strany

139011

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50528

May 2024

ICS 97.145; 13.260

Supersedes EN 50528:2010

English Version

Insulating ladders for use on or near low voltage electrical installations

Échelles isolantes pour utilisation sur ou à proximité des installations électriques basse tension

Isolierende Leitern für Arbeiten an oder in der Nähe von Niederspannungsanlagen

This European Standard was approved by CENELEC on 2024-04-29. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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Ref. No. EN 50528:2024 E

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European foreword

This document (EN 50528:2024) has been prepared by CLC/TC 78 “Live working”.

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)	2025-04-29
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2027-04-29

This document supersedes EN 50528:2010 and all of its amendments and corrigenda (if any).

EN 50528:2024 includes the following significant technical changes with respect to EN 50528:2010:

— The previous edition (EN 50528:2010) was written as a complementary document of the EN 131 series for insulating ladders for use on or near low voltage electrical installations. Consequently, these ladders shall fulfil the relevant EN 131 series documents and EN 50528:2010. The philosophy of this edition is completely different: this document is completely self-supporting. It is completely disconnected from the EN 131 series. In this document, the requirements of the EN 131 series, which are retaken, are retaken individually in the relevant clause. Consequently:

  — all requirements of the EN 131 series which are retaken in this document are clearly identified and are in the relevant subclause;

  — specific national deviations which European countries have in EN 131-1 are no longer automatically applicable; only specific national deviations expressed in this document are applicable on insulating ladders for use on or near low voltage electrical installations.

— Two classes of maximum total load are introduced: 150daN and 170 daN.

— The types of ladders covered by this document are clearly defined:

  — standing ladders with rungs or steps and stepladders with platform;

  — leaning ladders with rungs (single ladders, extending ladders, ladders with working platform);

  — combination ladders with rungs (two parts, three parts).

— new type tests have been added:

  — foot slip test (5.4.2);

  — swaying test (5.4.8);

  — strength test of the stiles (5.5.5);

  — dynamic drop test (5.5.7);

  — hook and locking device test (5.5.8);

  — torsion test for the leaning ladder (5.5.16).

— For the electrical test on the stiles and rungs, the test voltage has become 36 kV instead of 10 kV (5.6.1).

— Reference documents have been updated.

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.

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.

Introduction

Ladders covered by this document are used to work on low voltage live parts, such as to perform connector fittings, repairs on pole, switching actions. They are also used to carry out operations prior to dead working, as in the case of voltage detection, earthing and short-circuiting, etc.

In all these cases the ladders have two main functions to reach the part of the installation that needs to be operated on and to protect the worker from risk of electrical injury, by providing the insulation level and maintaining a distance between the worker and the live or potentially live installation to avoid electrisation.

Taking the local risk assessment into account, additional protection (either personal or collective) can be furthermore considered.

This document contributes to the safety of the users provided they are trained to the operations envisaged.

A risk assessment may determine that additional protection (either personal or on the adjacent live system) should be considered.

The ladder is used in accordance with the EN 50110 series.

This document contributes to the safety of the users provided they are trained in accordance with the relevant operational requirements.

This document has been prepared in accordance with the requirements of EN 61477.

In 1999 the European Commission launched a standardization mandate to CEN relative to the safety of consumers and children for the ladders (mandate M/285). As it is written clause 9 of this mandate that ladders for professional use are excluded, this mandate does not concern ladders defined in this document.

1 Scope

This document is applicable to portable ladders made only of non-conductive stiles, including accessories (pole leaning device, adjustable levelling device, adjustable ladder stabilizer, etc.) used to work on or near electrical systems and installations in the low voltage range (up to 1 000 V AC/1 500 V DC).

These ladders are used to provide temporary access, generally on overhead line structures, and to undertake electrical operations. They are expected to be used by one person only.

These ladders, in conjunction with other protective equipment provide sufficient insulation level to protect against inadvertent contact with live low voltage installations.

This document does not cover ladders used for live working on electrical installations at voltages above 1 000 V AC and above 1 500 V DC. These insulating ladders are separately covered by EN 61478.

This document does not cover products not made entirely with non-conductive stiles generally called mixed ladders. In this case the EN 131 series apply.

This document does not cover step stools, which are covered by EN 14183.

These ladders are only for specific professional use. Only skilled persons, after an appropriate training, can use this type of ladder for professional applications.

The products designed and manufactured according to this document contribute to the safety of the users provided they are used by skilled persons, in accordance with safe methods of work and the manufacturer instructions for use (where appropriate).

Annex E gives a rationale to explain how a ladder which fulfils the requirements of this document used with correct accessories gives better safety for the user than an ordinary ladder.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 59, *Glass reinforced plastics - Determination of indentation hardness by means of a Barcol hardness tester*

EN 131-2:2010+A2:2017, *Ladders - Part 2: Requirements, testing, marking*

EN 131-3:2018, *Ladders - Part 3: Marking and user instructions*

EN 131-4:2020, *Ladders - Part 4: Single or multiple hinge-joint ladders*

EN 131-7:2013, *Ladders - Part 7: Mobile ladders with platform*

EN 16165:2021, *Determination of slip resistance of pedestrian surfaces - Methods of evaluation*

EN 60060-2, *High-voltage test techniques - Part 2: Measuring systems*

EN 60068-1, *Environmental testing - Part 1: General and guidance*

EN 60068-2-11, *Environmental testing - Part 2: Tests - Test Ka: Salt mist*

EN IEC 61318:2021, *Live working - Methods for assessment of defects and verification of performance applicable to tools, devices and equipment*

IEC 60417:2002-10, *Graphical symbols for use on equipment*

EN ISO 179-1, *Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test (ISO 179-1)*

EN ISO 527-4, *Plastics - Determination of tensile properties - Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites (ISO 527-4)*

EN ISO 527-5, *Plastics - Determination of tensile properties - Part 5: Test conditions for unidirectional fibre-reinforced plastic composites (ISO 527-5)*

EN ISO 1140, *Fibre ropes - Polyamide - 3-, 4-, 8- and 12-strand ropes (ISO 1140)*

EN ISO 1141, *Fibre ropes - Polyester - 3-, 4-, 8- and 12-strand ropes (ISO 1141)*

EN ISO 1346, *Fibre ropes - Polypropylene split film, monofilament and multifilament (PP2) and polypropylene high-tenacity multifilament (PP3) - 3-, 4-, 8- and 12-strand ropes (ISO 1346)*

EN ISO 14125, *Fibre-reinforced plastic composites - Determination of flexural properties (ISO 14125)*

EN ISO 14731, *Welding coordination - Tasks and responsibilities (ISO 14731)*

EN ISO 3834-1, *Quality requirements for fusion welding of metallic materials - Part 1: Criteria for the selection of the appropriate level of quality requirements (ISO 3834-1)*

EN ISO 3834-4, *Quality requirements for fusion welding of metallic materials - Part 4: Elementary quality requirements (ISO 3834-4)*

EN ISO 4892-2:2013, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2:2013)*

EN ISO 7010, *Graphical symbols - Safety colours and safety signs - Registered safety signs (ISO 7010)*