SLOVENSKI STANDARD
SIST EN 131-2:2010+A1:2012/oprA2:2013

01-september-2013

Lestve - 2. del: Zahteve, preskušanje, označevanje

Ladders - Part 2: Requirements, testing, marking

Leitern - Teil 2: Anforderungen, Prüfung, Kennzeichnung

Echelles - Partie 2: Exigences, essais, marquage

Ta slovenski standard je istoveten z: **EN 131-2:2010+A1:2012/prA2**

ICS:

97.145	Lestve	Ladders

SIST EN 131-2:2010+A1:2012/oprA2:2013	**en,fr,de**

EUROPEAN STANDARD

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English Version

Ladders - Part 2: Requirements, testing, marking

Echelles - Partie 2: Exigences, essais, marquage

Leitern - Teil 2: Anforderungen, Prüfung, Kennzeichnung

This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 93.

This draft amendment A2, if approved, will modify the European Standard EN 131-2:2010+A1:2012. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 131-2:2010+A1:2012/prA2:2013) has been prepared by Technical Committee CEN/TC 93 “Ladders”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

1 Modification of Foreword

Delete:

"On stability tests and ladder classes no consensus could be reached. These issues will be addressed in the next revision".

Replace with:

"On ladder classes no consensus could be reached and a new test for torsion on ladder length for standing ladders is required. These issues will be addressed in the next revision.

A test protocol for durability of standing ladders is under preparation as a CEN Technical Specification.

A test protocol for an alternative base slip test is under preparation as a CEN Technical Specification.

2 Modification of Clause 2 Normative reference

Add:

"EN 572-2:2012, Glass in building — Basic soda lime silicate glass products — Float glass"

3 Modification of 4.1 General

Replace with:

"The requirements are based upon a maximum total load of 150 kg. This figure takes account of the weights of European professionals working at height and their equipment. Ladders are determined to be used by one person at a time but this excludes any person footing (stabilising) the ladder".

4 Modification of 4.9 Antiskid devices

Replace title with:

*"*Ladder feet and anti-skid devices".

Delete:

"The ends of wood stiles are considered to be slip resistant."

Add:

NOTE "A test for the base slip resistance of leaning ladders is contained in 5.17."

5 Modification of 5.2 Strength test of stiles

Replace title with:

"Strength test for ladders"

Replace text with:

“The test shall be carried out on the complete ladder. In the case of extending ladders and combination ladders the test shall be carried out on the complete extended ladder. Sectional ladders shall be tested at full length with all permitted pieces. The test shall be carried out without supporting legs if not permanently fixed to the ladder. Where the ascendable side cannot be determined by the construction of the product, or where it is a multiple part combination ladder the ladder shall be tested twice. For the second test the ladder shall be rotated 180° about the longitudinal axis.

The ladder shall be placed horizontally on supports situated 200 mm from each end of the ladder.

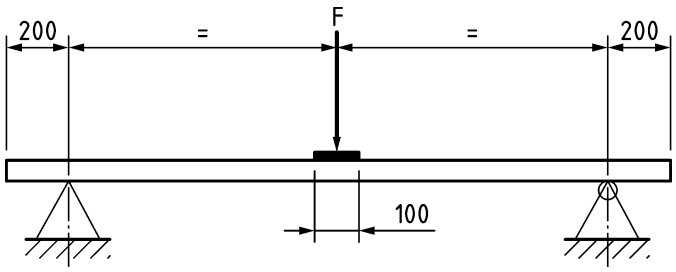
The supports shall be cylindrical with diameters between 25 mm and 100 mm and one shall be free to rotate the other shall be fixed.

The test load (F in Figure 10) of 1324 N shall be slowly applied in the middle of the ladder equally to both stiles over a width of 100 mm for a period of 1 min. Care should be taken to apply the load smoothly.

After removal of the test load the ladder shall remain functional with no deformation or visible signs of collapse or fracture.

5.2 Figure 10 - Replace with:

Dimensions in millimetres



Key

F test load

Figure 10 — Strength test

5.2 – Add NOTE:

NOTE Strength testing of ladders in the horizontal position is preferable to testing in the position of use because

a) of the long experience of testing in this way without evidence of ladder collapse due to insufficient strength

b) the testing is more controllable when carried out horizontally

c) the maximum bending moment is at the centre of the ladder

d) taking into account the effect of second order analysis in the horizontal position it is possible to represent closely the as used position

e) the maximum stress can be created by loading centrally in the horizontal position.

Asymmetric and dynamic effects are accommodated in the test load.

6 Modification of 5.15 Torsion on ladder length

Replace the 1st paragraph:

"The test unit shall consist of a ladder base section of any length, supported over a 2 000 mm test span except that if the ladder base section (ascendable part of the ladder) is less than 2 000 mm then the maximum possible test span shall be used. Place the ladder in a flat horizontal position and support it at each end, as shown in Figure 28, with the bottom rung directly above the pivotal support."

with

"The test unit shall consist of a ladder base section (section starting from the lower end of the ladder) of any length, supported over a 2 000 mm test span except that if the ladder base section (ascendable part of the ladder) is less than 2 000 mm then the maximum possible test span shall be used. Place the ladder in a flat horizontal position and support it at each end, as shown in Figure 28 with the bottom rung directly above the pivotal support.

In case of hinged combination ladder with extending part the ladder should be tested with inner side extended but in position of use."

Replace the 3rd paragraph:

"The angle of twist shall not exceed the value determined by the following equation:"

with

"Each one of the two angles of twist shall not exceed the value determined by the following equation:"

7 *Add* 5.17 Base slip test for leaning ladders

5.17.1 Ladders to be tested

All leaning ladders or ladders that may be used as a leaning ladder

In the case of single part leaning ladders 4m or less in length then the whole ladder shall be tested.

In the case of single part leaning ladders greater than 4m in length, a 4m length from the lower end of the ladder shall be tested.

In the case of multi-part sectional or extending leaning ladders where the fully assembled length or fully extended length is less than 4m then the whole ladder is tested in the fully assembled or fully extended condition.

In the case of multi-part sectional ladders where the fully assembled length is greater than 4m then a part or an assembly of parts shall be tested with a length closest to a maximum of 4m.

In the case of extending leaning ladders where the fully extended length is greater than 4m then the ladder shall be extended to a length closest to a maximum of 4m.

In the case of multi-part sectional ladders where the parts are less than 4m in length then a part or an assembly of parts shall be tested with a length closest to a maximum of 4m.

In the case of multi-part extending ladders where the parts are less than 4m then the ladder shall be extended to a length closest to a maximum of 4m.

In the case of combination ladders that may be used as a leaning ladder they shall be tested as a leaning ladder.

In the case of a range of ladders with the same number of parts, stile cross section dimensions and material specification, the shortest and the longest ladders in the range shall be tested.

The feet of the ladder shall be new

The surface supporting the base of the ladder shall be a sheet of float glass conforming to the requirements of EN572 Part 2. The glass shall be of a suitable thickness to support the weight of the ladder.

The surface supporting the upper end of the ladder shall be firm and smooth stainless steel, smooth glass or smooth high pressure laminate.

The ladder shall be fitted with wheels (rollers) at the top on the inside of the stiles. The wheels (rollers) shall be sufficiently strong to resist the loads without deformation and be free running and have a diameter of nominally 80mm and with the circumference of the wheel towards the supporting surface projecting no more than 10mm from the rear surface of the ladder (see fig 30).

5.17.2 Pre-test procedures

Prior to carrying out the test, the float glass surface supporting the base of the ladder and the surface supporting the upper end of the ladder shall both be cleaned using pure industrial grade ethanol, and a clean-room certified dry hygiene wipe. After cleaning remove any remaining ethanol with another clean-room certified dry hygiene wipe.

Prior to carrying out the test the feet of the ladder shall be cleaned with a clean-room certified dry hygiene wipe.

The supporting surfaces shall be left to dry for 20 minutes before positioning the ladder.

Note: Industrial ethanol is 96% by volume. Read the safety data sheet before use. Pure ethanol is highly flammable, and should be used in a well-ventilated area. Avoid skin contact.

5.17.3 Test procedure

The ladder shall be positioned at an angle of 65 degrees with its feet on the float glass base and with the wheels (rollers) at the top of the ladder resting against the upper supporting surface. Confirm the angle of the ladder is correct by measuring it with an inclinometer accurate to within +/-0.5 degrees.

The base of the ladder shall be blocked to prevent outward movement.

A datum shall be established at the base of the ladder as the origin of measurement for outward movement of the feet of the ladder.

The air temperature shall be measured within 100 mm measured horizontally from the ladder feet and at a height no greater than 10 mm from the float glass surface supporting the base of the ladder. The surface temperature of the float glass supporting the base of the ladder, the ladder feet and the air temperature surrounding the feet shall be 20 °C +/- 2.0 °C before the testing and shall remain within this range during the testing.

A vertical downwards test load of 1471N shall be applied to the midpoint of the 4thrung down from the top of the ladder

The feet of the ladder shall be allowed to settle for a period of 2 min.

The block preventing outward movement of the base of the ladder shall then be removed.

After a period of 1 min. the block preventing outward movement of the ladder shall be replaced.

Measure any outward movement of the ladder feet relative to datum established for the origin of measurement.