
Laminatne talne obloge - Ugotavljanje odpornosti proti udarcem z majhno kroglo

Laminate floor coverings - Determination of impact resistance with small ball

Laminatfußböden - Beständigkeit gegen Stossbeanspruchung mit Kleine Kugel

Revêtements de sol stratifié - Détermination de resistance à l'impact à la petite bille

Ta slovenski standard je istoveten z: EN 17368:2020

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ICS:

97.150

Talne obloge

Floor coverings

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 17368

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English Version

**Laminate floor coverings - Determination of impact
resistance with small ball**

Revêtements de sol stratifiés - Détermination de la
résistance aux chocs à l'aide d'une bille de petit
diamètre

Laminatböden - Bestimmung der Beständigkeit gegen
Stoßbeanspruchung mit kleiner Kugel

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European foreword

This document (EN 17368:2020) has been prepared by Technical Committee CEN/TC 134 “Resilient, textile and laminate floor coverings”, the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2020, and conflicting national standards shall be withdrawn at the latest by August 2020.

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EN 17368:2020 (E)

1 Scope

This document specifies a method of assessment of surface resistance to impact with a small ball tester and relates to the surfaces of laminate floor coverings according to EN 13329, EN 14978 or EN 15468. The test is generally carried out on parts of the laminate floor panels with suitable sizes.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp/ui>

3.1

test panel

laminate panel which is to be tested

3.2

test specimen

part of the test panel used for testing

3.3

test field

part of test surface affected by the impact stress and evaluated

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4 Principle

The surfaces are tested by application of impacts by means of a defined dropping weight, which has a spherical impact head with a diameter of 10 mm. The points of impacts are visually examined for damage. The test intensity is raised by gradually changing the falling height of the impact head until at least 1 of 5 impacts at the same falling height leads to a surface damage. The impact resistance is the highest falling height without damages.

5 Apparatus

5.1 Test apparatus

5.1.1 General

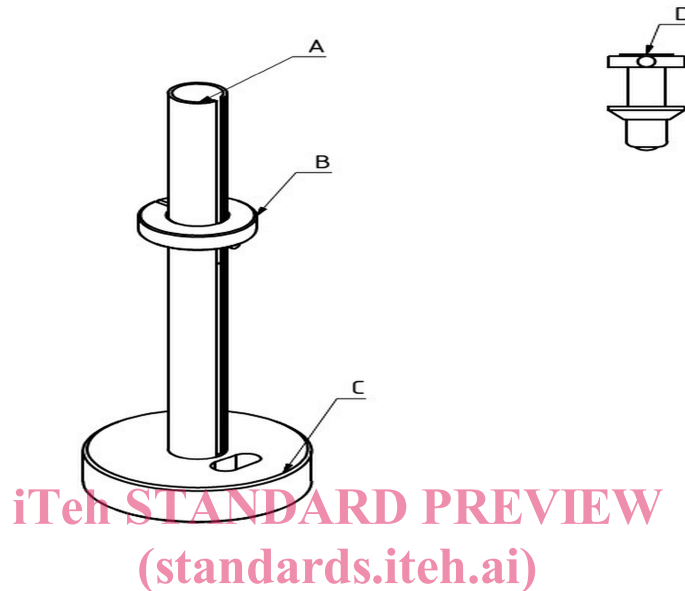
Test apparatus with the following characteristics and parameters (Figure 1: Example of a suitable version of the test apparatus):

5.1.2 Cylindrical impactor, with \varnothing : (25 ± 1) mm with spherical impact head with $(10 \pm 0,5)$ mm diameter of sphere, which is mounted to a dropping weight

5.1.3 Mass of impactor, including impact head: (100 ± 1) g

5.1.4 Guiding tube, to guide the dropping weight. The tube has a height scale to determine the dropping height and is mounted to the steel base with three feet ($\varnothing (20 \pm 1)$ mm, thickness $(3,0 \pm 0,1)$ mm - see Figure 2 . The total mass of the steel base is (2520 ± 20) g. The steel base has a marking hole to mark the dropping spot

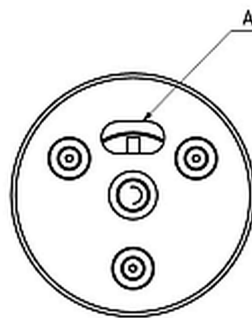
5.1.5 Adjustable ring, which is guided outside the tube, and which can be fixed by a knurled screw, works as stop for the plug on the side of the dropping weight to adjust the dropping height.



Key

- A guiding tube with scale
 B adjustable ring
 C steel base
 D Impactor

Figure 1 — Example of a suitable version of the test apparatus



Key

- A marking hole

Figure 2 — Steel base with a marking hole

EN 17368:2020 (E)**5.2 Climatic chamber**

Climate chamber or an air-conditioned room, normally conditioned at $(23 \pm 2) ^\circ\text{C}$ and at relative humidity of $(50 \pm 5) \%$.

5.3 Steel plate

With minimum dimensions of 300 mm length x 300 mm width x 10 mm thickness.

5.4 Water soluble crayon or waterborne colouring matter

To make cracks on the test area visible.

5.5 Diffuse light source

A light source, providing evenly diffused light, giving an illumination on the test surface of $(1\,200 \pm 400) \text{ lx}$. This may either be diffused daylight or diffused artificial daylight.

6 Preparing and conditioning of test specimen

Prepare for each test at least 5 test specimen cut from 5 test panels of at least 260 mm (length) x minimum 160 mm (panel width) x thickness. In case of smaller panels, install a test specimen with at least the named dimensions from two parts with a joint in the middle.

Conditioning of test specimens shall begin at least 72 h before testing and shall be carried out in air at a temperature of $(23 \pm 2) ^\circ\text{C}$ and relative humidity of $(50 \pm 5) \%$ in a climatic chamber (5.2.)

7 Test procedure**7.1 General**

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The test shall be performed immediately after conditioning under laboratory conditions.

It is recommended to perform the testing at standard climatic conditions of $(23 \pm 2) ^\circ\text{C}$ and at relative humidity of $(50 \pm 5) \%$.

7.2 Testing

Put the test specimen with the decor side on top on the steel plate (5.3). Take the test apparatus (5.1) and put it on the test specimen.

For the first test specimen, fix the adjustable ring with its upper edge at a falling height of 70 mm and lift the handle of the impactor to the ring. Make five impacts on the specimen across to the decor direction or haptic structure. The distance between points of impact shall be at least 20 mm and to the edge or the joint of the test specimen at least 40 mm.

At all impacts, the three feet of the steel base (Figure 2) shall be placed on the test specimen.

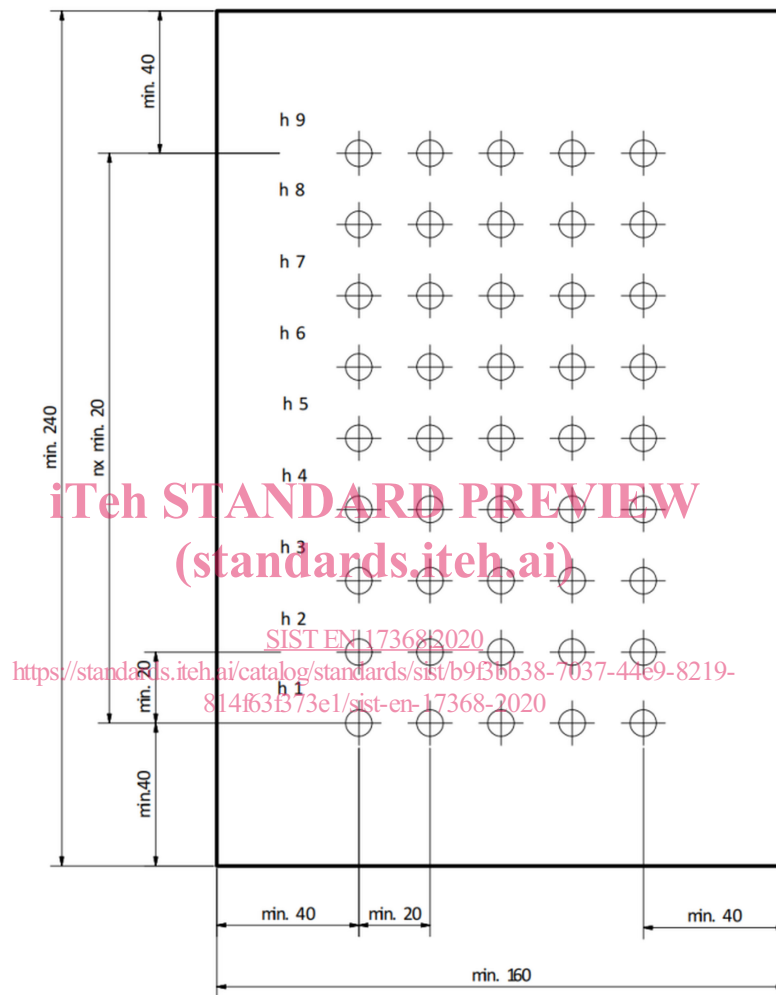
Use a crayon or colouring matter (5.4) to make possible cracks on the test field visible, remove the residues and examine the 5 test fields on the test specimen under the diffuse day light source (5.5) without any additional magnification. The visual assessment shall be carried out with a viewing distance of $(500 \pm 200) \text{ mm}$ with different viewings angles by use of diffuse light source (5.5). The time for the assessment shall be $\leq 30 \text{ s}$ after marking for all 5 test fields. The test specimen fails for this falling height if at least one crack is detected.

In case of passing at the tested height, carry out the next test after moving the specimen 20 mm further (the new line of impacts shall be parallel to the previous one, see Figure 3) with a falling height of 120 mm and repeat the procedure with the 5 impacts per falling height. Depending on the result (pass or fail), go up or down in 10 mm steps until 5 of 5 impacts are without damage.

In case of fail at 70 mm with the first impact, go down in 10 mm steps of falling height and repeat the procedure until 5 of 5 impacts are without damage.

Repeat the test with the other 4 test specimens. The beginning of the test shall be with the determined falling height of the previous test specimen with no damages and shall be continued with increasing or decreasing falling height in 10 mm steps.

Dimensions in millimetres



Key

n number of impacts at one force

Figure 3 — Positioning of the impacts on one test specimen

8 Calculation and expression of results

The impact resistance of the test specimen is the highest value of the falling height [mm] without any damage at none of the 5 impacts. Cracks and delaminations are to be considered as damages but not the dents. Calculate the mean value of the determined impact resistance of the 5 test specimens and round it to the nearest 5 mm.