



SLOVENSKI STANDARD SIST EN 13696:2009

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Wood Flooring (including parquet) - Test method to determine elasticity and resistance to wear

Holzfußböden (einschließlich Parkett) - Prüfverfahren zur Bestimmung der Elastizität und der Beständigkeit gegen Verschleiß

Planchers en bois (parquets compris) - Méthode d'essai pour déterminer l'élasticité et la résistance a l'abrasion

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Ta slovenski standard je istoveten z: EN 13696:2008

ICS:

79.080	Polizdelki iz lesa	Semi-manufactures of timber
97.150	Netekstilne talne obloge	Non-textile floor coverings

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EUROPEAN STANDARD

EN 13696

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 79.080; 97.150

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English Version

Wood flooring - Test methods to determine elasticity and resistance to wear and impact resistance

Planchers en bois - Méthodes d'essai pour déterminer l'élasticité et la résistance à l'abrasion et la résistance au choc

Holzfußböden - Prüfverfahren zur Bestimmung der Verformbarkeit und der Beständigkeit gegen Verschleiß und gegen Stoßbeanspruchung

This European Standard was approved by CEN on 8 November 2008.

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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 CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 13696:2008) has been prepared by Technical Committee CEN/TC 175 “Round and sawn timber”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by June 2009, and conflicting national standards shall be withdrawn at the latest by June 2009.

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

This standard supersedes ENV 13696:2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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EN 13696:2008 (E)**1 Scope**

This European Standard specifies a test method to determine the resistance to wear of lacquered wood floorings, a method to test the elasticity of the lacquer and a method to determine resistance to impact of lacquered wood floorings.

2 Normative references

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.

EN 13756:2002, *Wood flooring – Terminology*

EN ISO 868, *Plastics and ebonite – Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)*

EN ISO 291, *Plastics – Standard atmospheres for conditioning and testing (ISO 291:2008)*

3 Terms and definitions

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For the purposes of this document, the terms and definitions given in EN 13756:2002 and the following apply.

3.1**lacquer**

film making agent modifying surface layer properties

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NOTE It has a measurable thickness.

4 Common methods**4.1 Conditioning****4.1.1 Equipment**

Enclosures with the following climatic conditions:

- climate A temperature of (20 ± 2) °C and relative humidity of (65 ± 5) %; or
- climate B temperature of (23 ± 2) °C and relative humidity of (50 ± 5) %.

4.1.2 Procedure

The manufacturer shall specify either of the conditioning climates above.

Unless otherwise specified, all equipment and materials required for the test shall be stabilised and kept in an enclosure in the climate specified.

4.2 Measurement of the thickness of the lacquer

4.2.1 Equipment

4.2.1.1 Optical instrument

An instrument with a resolution of at least $(\pm 2) \mu\text{m}$.

NOTE For instance, a binocular microscope with a magnification of 100 to 200 and a built-in measuring scale in the field of view.

4.2.1.2 Contrast marking

A water-based felt tip pen.

4.2.2 Sampling

Choose the location from which the test pieces are taken, depending on the purpose of the measurement (either in an unworn area or in a worn area).

Test pieces with a size at least 10 mm x 10 mm and by the full thickness shall be cut out of one of the wear test pieces or area to be tested in elasticity.

The number of test pieces is specified in 5.3.3.4.1 and 6.4.1.

4.2.3 Procedure

If needed, contrast mark the lacquered face with the felt-tip pen specified in 4.2.1.2.

Clear-cut with a razor blade the edge of the lacquered face to be inspected.

Mount the test piece with the clear-cut edge facing the microscope. For each test piece, make at least two measurements to the accuracy allowed by the resolution of the optical instrument.

Measurements of lacquer above open holes in the wood shall not be taken into account.

4.2.4 Expression of the results

When required, average the measurements made on each test piece.

If there is more than one test piece, calculate to one significant figure the mean value and the coefficient of variation (expressed as a percentage) of the results.

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EN 13696:2008 (E)**5 Wear****5.1 Principle**

The resistance to wear is evaluated by abrading the face of representative test pieces or specimens with a specified abrasive applied by means of two loaded wheels.

The number of rotations, necessary to reach a defined wear, is used to evaluate the resistance to wear.

5.2 Test pieces**5.2.1 Dimensions**

The test shall be carried out on a test piece.

The test piece shall have the shape of:

- either a square with a side of 120 mm, its corners being trimmed so as to have a diagonal length reduced to about 130 mm,
- or, a disc with a diameter of about 130 mm.

Samples, from which it is intended to obtain a test piece, may be smaller than the above dimensions. In that case, a test piece shall be produced by jointing two or more elements according to the manufacturer's specifications.

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Bore a hole ($6 \pm 0,5$) mm diameter and axis normal to the surface at the centre of the test piece.

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5.2.2 Sampling

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Three test pieces shall be cut. The clearance between two test pieces shall be at least 100 mm. For elements which have to be jointed, the three test species shall be made out of elements picked out at random.

NOTE This sampling gives an estimation of the property of the lot.

5.2.3 Conditioning

The test pieces shall be conditioned to constant mass in one of the climates defined in 4.1.

Prior to testing, the lacquer shall be fully cured according to the manufacturer's instructions.

5.3 Abrading system**5.3.1 Principle**

The system described in this Standard is a grit feeder system: a specified loose abrasive is fed continuously on to the face of the test piece, in the track of the loaded wheels.

NOTE Other methods described in other standards could be possible. In this case, the results are expressed without making reference to this Standard.

5.3.2 Test equipment and materials

5.3.2.1 Abrading equipment and materials

5.3.2.1.1 Abrader

Supporting disc

Supporting disc shall have a minimum diameter of 105 mm, rotating in the horizontal plane with a permitted deviation of ± 2 mm/m, at (60 ± 2) r.p.m, the test piece being tightly held flat by means of a suitable clamping device.

Abrading wheels

Two cylindrical wheels free to turn on their axis, balanced by lever and counterweight, with nominal diameter and width of respectively 44,4 mm and 12,7 mm. They are fitted with a leather strip having a width of $(12,7 \pm 0,1)$ mm and a minimum thickness of 1,5 mm. The overall diameter of the wheels, when fitted with leather strips, shall not be less than 47,4 mm.

The distance between the internal faces of the wheels shall be (53 ± 2) mm, their common axis being set by 20 mm nominally of the axis of the test piece revolving support. The axis of rotation of the test piece shall be equidistant from the two wheels.

A device shall apply the abrading wheels on the test piece with a force of $(10 \pm 0,1)$ N by each wheel. The device shall be able to maintain the 20 mm eccentricity for all possible thicknesses of test pieces.

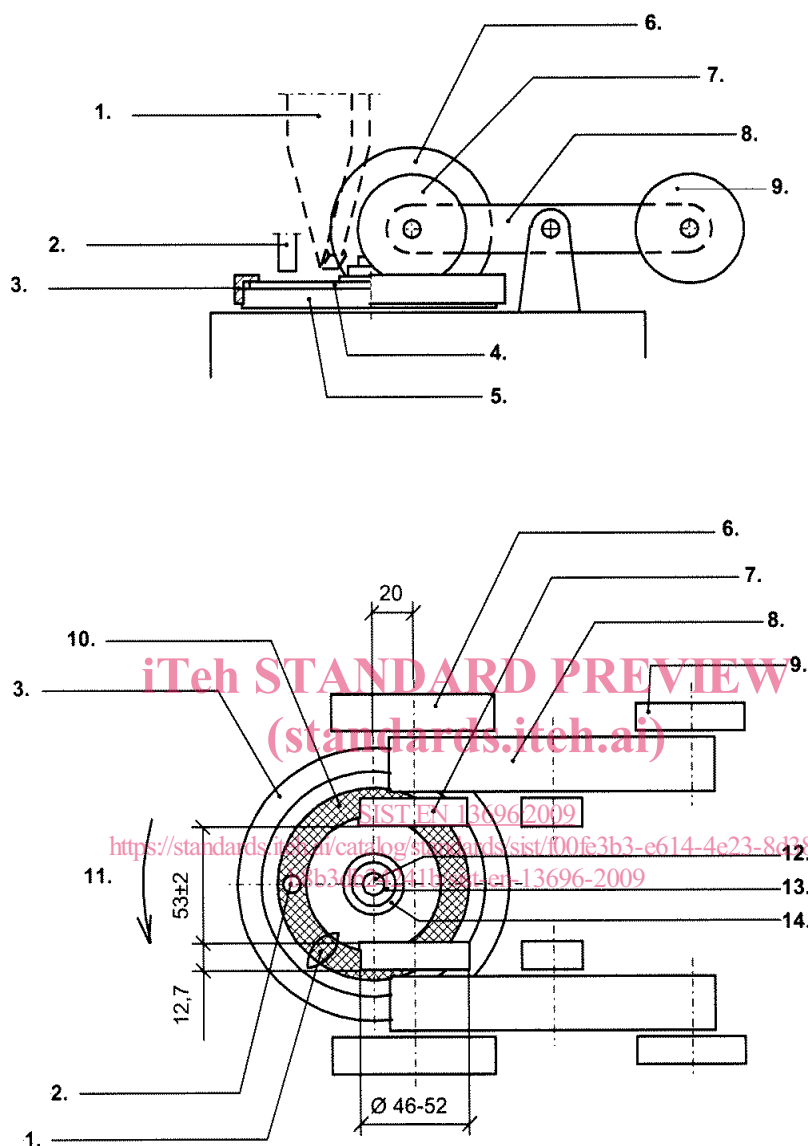
Revolution counter

A revolution counter is needed to record the number of revolutions of the supporting disc.

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Dimensions in mm

**Key**

- | | | | |
|---|-----------------|----|-----------------------|
| 1 | Abrasive tank | 9 | Counterweight |
| 2 | Suction nozzle | 10 | Wearing surface |
| 3 | Clamping ring | 11 | Direction of rotation |
| 4 | Test piece | 12 | Screwed pin |
| 5 | Supporting disc | 13 | Nut |
| 6 | Testing weight | 14 | Plate |
| 7 | Abrading wheel | | |
| 8 | Lever | | |

Figure 1 — Example of an abrader with grit feeder

Grit feeder

Grit feeder shall have a capacity of about 200 g of grit. It shall be openable at the top and at the bottom. The bottom opening shall be (10 ± 1) mm above the face of the test piece and have a length of (16 ± 1) mm. The length of the bottom opening shall be installed radially to the supporting disc. To make sure of a regular flow, a device shall be provided in the grit feeder to ensure a regular flow. A further device ensuring an immediate stop of the feeding is also required.

Vacuum cleaning device

A single nozzle (3 ± 2) mm above the track to be worn, shall be installed in the axial vertical plane between the two wheels before the grit feeder (relative to the rotation direction) and shall provide a differential pressure of $(2 \pm 0,5)$ kPa.

NOTE Equipment of this type, Taber Abrader and Taber Grit Feeder, is made by TELEDYNE TABER. This information is given for the convenience of users of this European Standard and does not constitute an endorsement by CEN of the product named. Equivalent products may be used if they can be show to lead to the same results.

5.3.2.1.2 Additional material or equipment**Weighing equipment**

For calibrating, the force applied by the abrading wheels on the test piece; and for calibrating the grit flow, a weighing equipment with an accuracy of ± 1 g is needed.

It shall be accurate to ± 1 g.

Leather strip

The leather strip is to be fitted on the perimeter of the abrading wheels.

Its hardness shall be suitable for the purpose. It is measured according to the procedure in EN ISO 868 with a Shore-Durometer of Type A with the following deviations:

- Shore-A hardness is measured at four points in the middle of the tire tread of abrading wheels (instead of the demands in 5.1, 5.2 and 8.1);
- hardness of the leather is suitable if all the results are contained within the range A/1:85 – A/1:95.

Abrading plate (to calibrate the leather)

A plate fitted with a grinding paper with a grain of 240 and a plate fitted with a grinding paper with a grain of 150 according to ISO 6344-1 (about 0,06 mm).

Abrading material

Pure Carborundum grit (di-aluminium tri-oxide) falling through a 240 meshes per inch sieve and retained on a 280 meshes per inch sieve (grade 240).

NOTE These sieves permit grit of 50 μ m to 63 μ m to fall through.

Stopwatch

A stopwatch accurate to $\pm 0,1$ s.

A tank to recover the grit

A tank of known mass to recover the grit when calibrating the grit feeder.