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Laminate floor coverings — Determination of geometrical characteristics

Revêtements de sol stratifiés — Détermination des caractéristiques géométriques

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 219, *Floor coverings*.

This second edition cancels and replaces the first edition (ISO 24337:2006), which has been technically revised.

The main changes compared to the previous edition are as follows:

— a note has been added to the scope;

— the last paragraph of the scope has been deleted;

— in 8.1, an option is now given to measure thickness of elements with pre-attached underlay and, in 5.7, the apparatus needed has been added;

— in 8.8.1, eight elements are assembled instead of seven;

— in 8.8.1, 13 instead of 6 measuring points are indicated with the ∇ -symbol;

— in 8.6.2, Figure 10 has been added for clarification of convex or concave deviation of flatness;

— in 8.8.1, a note has been added to allow assembly of extra planks;

— Figure 12 is also the test assembly for measuring height differences;

— in 8.8.2, 8.9.2, 9.8 and 9.9, the text has been adapted for measuring at 13 points.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Laminate floor coverings — Determination of geometrical characteristics

1 Scope

This document gives test methods to determine the dimensional variance between elements of laminate floor coverings in a manufactured free-standing shape (unrestricted) in respect of thickness, length, width, squareness, straightness, width flatness, length flatness, openings between assembled elements and height differences between assembled elements.

NOTE These test methods are also applicable to other mechanically assembled panels, e.g. modular multilayer floorings.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Symbols

d	distance between supports on apparatus for measuring width flatness
f_l	length flatness of a laminate floor covering element
f_w	width flatness of a laminate floor covering element
h	height difference between assembled laminate floor covering elements
l	length of a laminate floor covering element, visible length of the surface layer
o	opening between assembled laminate floor covering elements
q	squareness of a laminate floor covering element
s	straightness of a laminate floor covering element
t	total thickness of a laminate floor covering element
w	width of a laminate floor covering element, visible width of the surface layer

5 Test apparatus

5.1 Micrometer, calliper gauge or **other equivalent tool**, having flat and parallel circular measuring surfaces of at least 16 mm diameter and an operating force of (4 ± 1) N, with an accuracy of ±0,05 mm, for thickness measurements (Z-axis dimension).

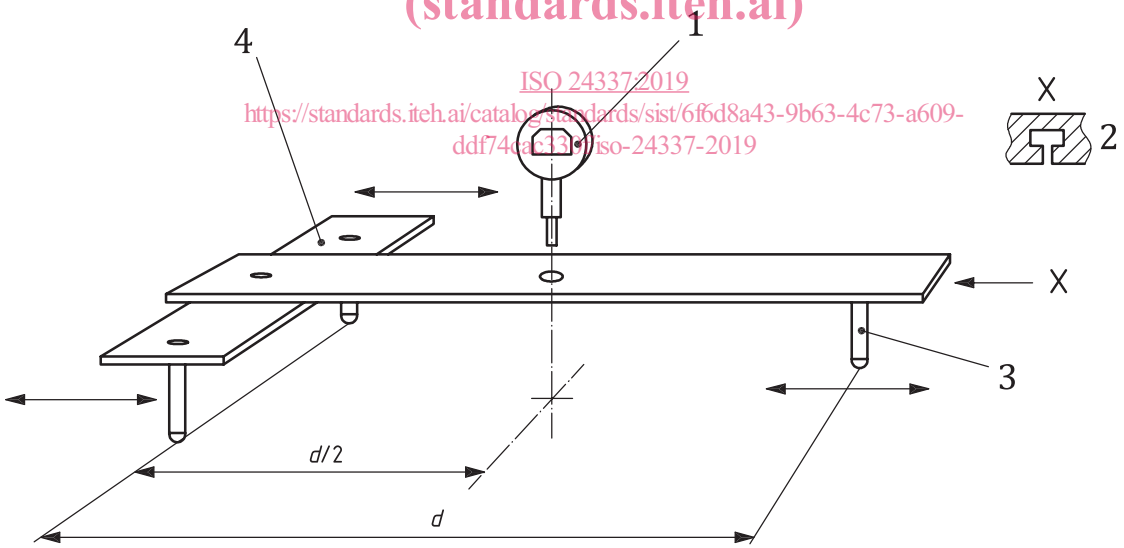
5.2 Calliper gauge or **other equivalent tool** with an accuracy of at least 0,1 mm.

5.3 Square (straight edge), with arms of at least 300 mm and having a maximum angular deviation of 0,02 mm over 300 mm.

5.4 Set of thickness gauges, ranging from 0,05 mm to 0,10 mm in steps of 0,01 mm, and from 0,10 mm to 1,00 mm in steps of 0,05 mm.

5.5 Steel ruler, of length at least equal to the length of two specimens, and having a maximum straightness deviation of 0,05 mm over 1 000 mm.

5.6 Apparatus for measuring width flatness, consisting of a dial gauge accurate to ±0,01 mm with a rounded tip of radius ≤5,5 mm, installed centrally in relation to three rounded supports with radii ≥5 mm. The supports shall be adjustable along a T-shaped assembly of bars to provide the required gauge length. The measurement, *d*, shall not be less than the width, *w*, of the test specimen minus 10 mm. The tip of the gauge in contact with the face of the test specimen shall apply a force of (1,0 ± 0,5) N. The mass of the apparatus shall not affect the flatness of the test specimen beyond the limit of the accuracy of the gauge. The instrument shall be set to zero against a suitably flat plate. See Figure 1.

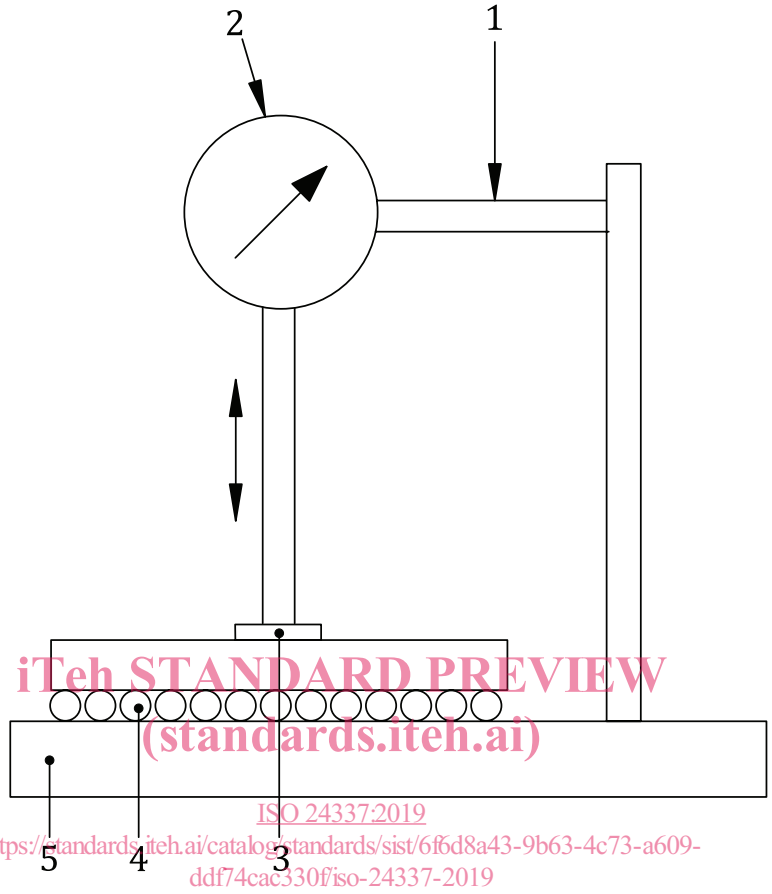


Key

1 dial gauge
2 T-groove
3 adjustable pin
4 adjustable bridge

Figure 1 — Example of apparatus for measuring width flatness

5.7 Apparatus for measuring the thickness of an element with pre-attached underlay as shown in Figure 2. The pressure foot shall have a circular plane foot parallel to the baseplate with a diameter of 25,3 mm and applying force of 4 kPa.



Key

1 rigid frame
2 dial gauge
3 circular pressure foot
4 floor covering element with pre-attached underlay (downward)
5 flat rigid baseplate

Figure 2 — Example of instrument for measuring thickness of an element with pre-attached underlay

5.8 Test surface of appropriate size that is preferably angled towards the operator by 15° to 30° and in a height suited for standing work. The test surface should be rigid and flat.

6 Test specimen

6.1 General

The test specimen shall be of the declared size as produced by the manufacturer. The test specimen shall not be restricted from movement during the tests (i.e. bonded to other materials). A specimen under test shall be a single sample of declared manufactured size. All surfaces of a specimen shall be free from foreign bodies and any protrusion from the face and edges. These materials shall be removed prior to the start of the test.

6.2 Sampling

Take five floor covering elements as test specimens except for the determination of openings between elements (8.8) and determination of height differences between elements (8.9), where eight test specimens are required.

7 Conditioning

Test specimens are normally measured in the received state.

For type approval or verification purposes, the test specimen shall be stabilized to a constant mass in an atmosphere of (23 ± 3) °C and (50 ± 5) % relative humidity. Constant mass is considered to be reached when the results of two successive weighing operations, carried out at an interval of 24 h, do not differ by more than 0,1 % of the mass of the test specimen. The test specimen should be measured within 30 min after removal from the conditioning room. Any deviation from this conditioning shall be stated in the test report.

8 Test procedure

8.1 Determination of thickness *t*

8.1.1 Determination of thickness, *t*, of an element without pre-attached underlay

For each of the five specimens, using the micrometer, calliper gauge or other equivalent tool, measure the thickness, *t*, at a distance of 20 mm from the edges of the surface layer, at four points located in each corner and at two points in the middle of the specimen at 20 mm from each long side (see Figure 3). Close the jaws gently onto the surfaces between which the thickness is to be measured. Do not force the instrument. Record all 30 measured values to the nearest 0,05 mm.

Dimensions in millimetres

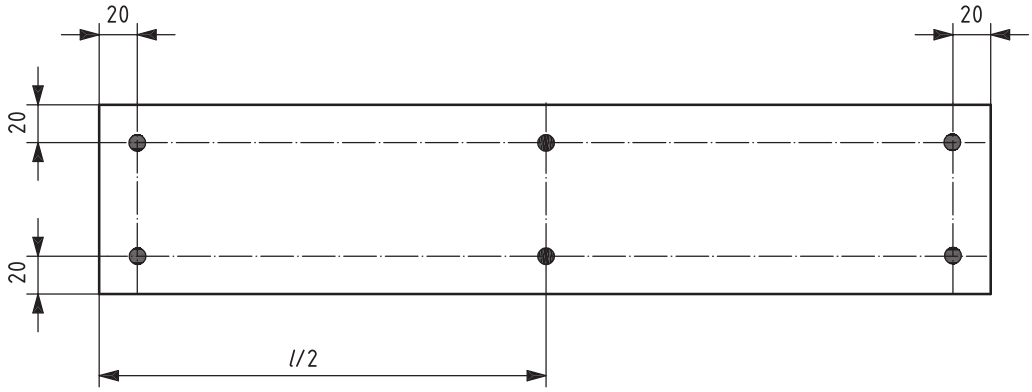


Figure 3 — Measuring points for determination of thickness *t*

8.1.2 Determination of thickness, *t*, of an element with pre-attached underlay

Take, from each of the five floor-covering elements with pre-attached underlay, three test specimens measuring approximately 100 mm × 100 mm, two centred 10 mm in from the short edges and one exactly in the centre of the element (see Figure 4).

If the elements measure less than 100 mm, cut a square sample with the actual width of the element. Measure in the middle of each sample with an apparatus according to 5.7 (see Figure 2). Record all 15 measured values to the nearest 0,1 mm.

Dimensions in millimetres

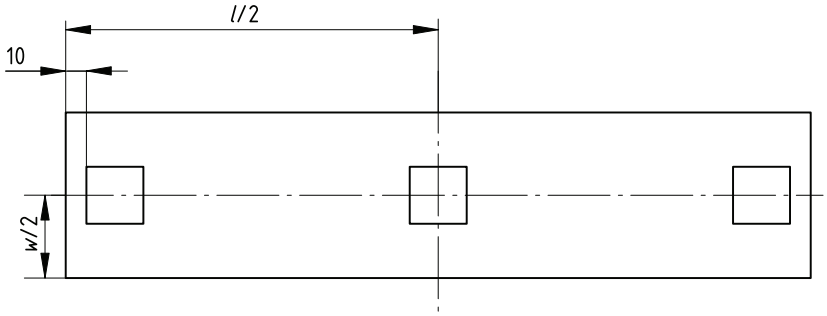


Figure 4 — Sampling from one floor covering element

8.2 Determination of length *l*

For each of the five specimens, using the appropriate calliper gauge or other equivalent tool, measure the length, *l*, of the surface layer along two lines parallel to the axis of the test specimen, at a distance of 20 mm from the long sides (see Figure 5). For squared elements, choose one direction for the measurement. Close the jaws gently onto the edges of the surface layer between which the length is to be measured. Do not force the instrument. Record all 10 measured values to the nearest 0,1 mm.

Dimensions in millimetres

Figure 5 — Measuring points for determination of length *l*

8.3 Determination of width *w*

For each of the five specimens, using the appropriate calliper gauge or other equivalent tool, measure the width, *w*, along two lines parallel to the short sides of the surface layer, at a distance of 20 mm from the short sides (see Figure 6). For squared elements, take the direction perpendicular to the direction chosen in 8.2. Close the jaws gently onto the edges of the surface layer between which the width is to be measured. Do not force the instrument. Record all 10 measured values to the nearest 0,05 mm.