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**Laminate floor coverings —  
Determination of geometrical  
characteristics**

*Revêtements de sol stratifiés — Détermination des caractéristiques  
géométriques*

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ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

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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](http://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](http://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](http://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  $\nabla$  -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](http://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  $(4 \pm 1)$  N, with an accuracy of  $\pm 0,05$  mm, for thickness measurements (Z-axis dimension).

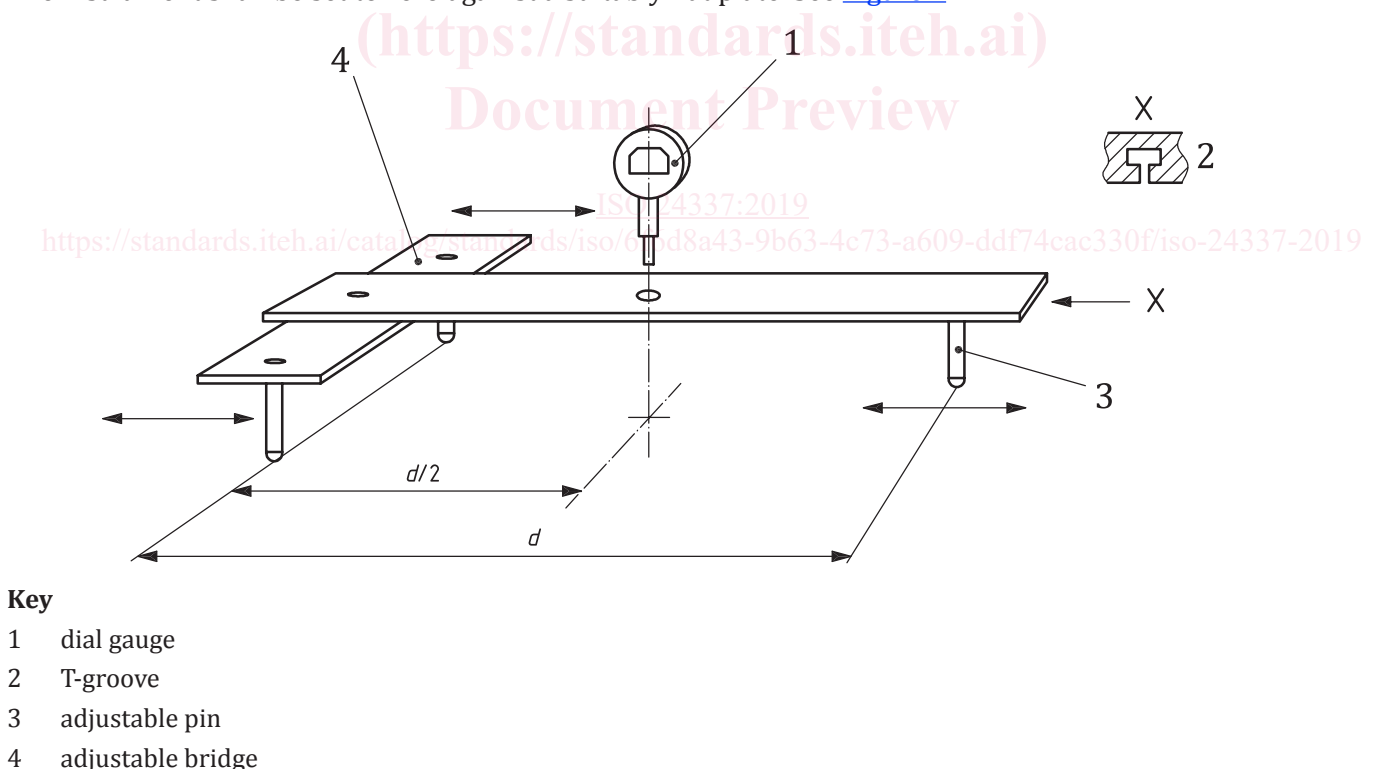
**5.2 Calliper gauge or other equivalent tool** with an accuracy of at least 0,1 mm.

**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  $\pm 0,01$  mm with a rounded tip of radius  $\leq 5,5$  mm, installed centrally in relation to three rounded supports with radii  $\geq 5$  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  $(1,0 \pm 0,5)$  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](#).



**Figure 1 — Example of apparatus for measuring width flatness**