
**Thermal insulating products
for building applications —
Determination of thickness for
floating-floor insulating products**

*Produits isolants thermiques destinés aux applications du bâtiment —
Détermination de l'épaisseur des produits d'isolation pour sol flottant*

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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 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 1, *Test and measurement methods*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 88, *Thermal insulating materials and products*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 29770:2008), which has been technically revised.

The main changes are as follows:

- the terms and definitions in [Clause 3](#) have been removed and replaced in [7.2.2](#) and [7.2.3](#);
- some editorial corrections.

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.

Thermal insulating products for building applications — Determination of thickness for floating-floor insulating products

1 Scope

This document specifies the equipment and procedures for determining the thickness of thermal insulating products for impact sound insulation in floating-floor applications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 29768, *Thermal insulating products for building applications — Determination of linear dimensions of test specimens*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

4 Principle

The thickness is determined as the distance measured between a rigid, flat base plate on which the test specimen rests and a rigid, flat pressure plate exerting different specified pressures on the top surface of the test specimen.

5 Apparatus

5.1 Dial gauge, allowing readings to 0,1 mm, mounted on a rigid frame fastened to a rigid, flat base plate.

A device with the same accuracy for two readings of the thickness/deformation is placed symmetrically on a diagonal on the upper square plate of the device. The mean of these two readings is the thickness/deformation.

5.2 Base plate and pressure plate, at least as large as the test specimen.

5.3 Pressure device, capable of exerting a total pressure on the test specimen of $(0,250 \pm 0,05)$ kPa, including the force exerted by the dial gauge.

5.4 Pressure device, capable of exerting a total pressure on the test specimen of $(2 \pm 0,020)$ kPa, including the force exerted by the dial gauge.

5.5 Pressure device, capable of exerting a total pressure on the test specimen of $(50 \pm 0,500)$ kPa.

As an alternative to 5.1 to 5.5, a compression-testing machine suited to the range of force and displacement involved can be used. The compression-testing machine shall have two very rigid, polished, square, plane parallel plates, the length of one side of which is at least as large as the test specimen side being tested. One of the plates shall be fixed and the other movable, if appropriate, with a centrally positioned knee ball joint to ensure that only an axial force is applied to the test specimen.

A device for measuring the displacement shall be fitted to the compression-testing machine that allows measurement of the displacement of the movable plate and that allows a reading to $\pm 0,1$ mm.

A sensor shall be fitted to one of the machine plates to measure the force produced by the reaction of the test specimen upon the plates. This sensor shall be such that either its own deformation during the course of the measuring operation is negligible compared with that being measured or its deformation shall be taken into account by calculation. In addition, it shall allow continuous measurement of the force allowing a reading to ± 1 %. When measurements are made on a movable plate and not in the axis, two sensors, placed symmetrically with respect to the axis, shall be used and then the mean value of the two measurements is used.

6 Test specimens

6.1 Dimensions of test specimens

The thickness of the test specimens shall be the original product thickness.

The test specimens shall be squarely cut and square having sides of (200 ± 1) mm.

The length and width shall be determined in accordance with ISO 29768, with a measurement uncertainty of not more than ± 1 mm.

6.2 Number of test specimens

The number of test specimens shall be as specified in the relevant product standard. If the number is not specified, then 10 test specimens shall be used.

In the absence of a product standard or any other technical specification, the number of specimens may be agreed between parties.

6.3 Preparation of the test specimens

The test specimens shall be cut so that they do not include product edges. The test specimens shall be prepared by methods that do not change the original structure of the product. Any skins, facings and/or coatings shall be retained.

6.4 Conditioning of test specimens

The test specimens shall be stored for at least 6 h at (23 ± 5) °C. In case of dispute, they shall be stored at (23 ± 2) °C and (50 ± 5) % relative humidity (RH) for the time specified in the relevant product standard.

In tropical climates, different conditioning and testing conditions can be relevant. In this case, the conditions shall be (27 ± 2) °C and (65 ± 5) % RH and be clearly stated in the test report.

7 Procedure

7.1 Test conditions

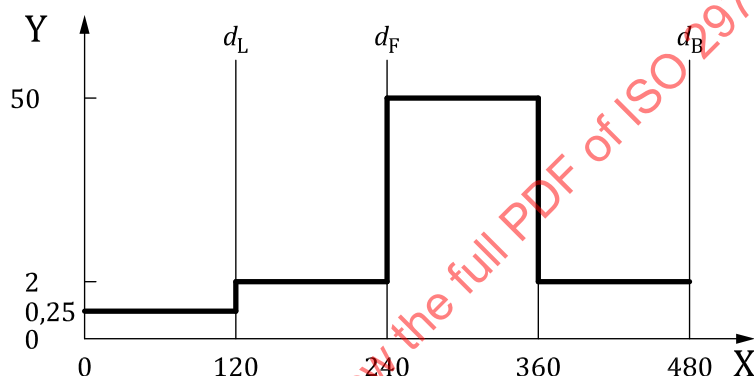
The test shall be carried out at $(23 \pm 5) ^\circ\text{C}$. In case of dispute, it shall be carried out at $(23 \pm 2) ^\circ\text{C}$ and $(50 \pm 5) \% \text{RH}$.

In tropical climates, different conditioning and testing conditions can be relevant. In this case, the conditions shall be $(27 \pm 2) ^\circ\text{C}$ and $(65 \pm 5) \% \text{RH}$ and be clearly stated in the test report.

7.2 Test procedure

7.2.1 General

The procedure for determining the thickness of the test specimen is shown in [Figure 1](#).



Key

X time, expressed in seconds

Y pressure, expressed in kilopascals

Figure 1 — Illustration of the determination of the thicknesses versus time and pressure

7.2.2 Thickness, d_L

The thickness d_L is the thickness of the product under a load of 250 Pa.

Lay the test specimen on the rigid, flat, horizontal base plate, ensuring that the measuring area is in contact with the base plate.

Place the test specimens, if faced or coated on one side, with the facing or coating against the base plate.

Load the test specimen with a device exerting a pressure of 250 Pa.

Measure the thickness to the nearest 0,1 mm, (120 ± 5) s after placing the pressure plate in position. The thickness may be measured with the dial gauge at two diagonally opposite measuring devices (pins) forced through an opening in the centre of the pressure plate.

7.2.3 Thicknesses d_F and d_B

The thickness d_F is the thickness of the product after a 120 s short-term application under a load of 2 kPa.

The thickness d_B is the thickness of the product after a 120 s short-term application under a load of 2 kPa after application of a short-term, additional load of 48 kPa.

The thicknesses d_F and d_B shall be determined on the same test specimen that was previously used for determining the thickness d_L .

Load the test specimens with a device exerting a pressure of 2 kPa. Measure the thickness d_F to the nearest 0,1 mm, (120 ± 5) s after applying this pressure. Apply an additional pressure of 48 kPa. Remove this additional pressure after (120 ± 5) s.

Measure the thickness, d_B to the nearest 0,1 mm, (120 ± 5) s or (300 ± 10) s after removing the pressure of 48 kPa. The pause before measuring the thickness, either 120 s or 300 s, shall be as specified in the relevant product standard. In the absence of a product standard or any other technical specification, the pause time may be agreed upon between parties.

8 Calculation and expression of results

The results for each thickness d_L , d_F and d_B shall be the mean value of the respective measurements made on all test specimens, rounded to the nearest 0,1 mm.

9 Accuracy of measurement

NOTE It has not been possible to include a statement on the accuracy of the measurements in this version of this document, but it is intended to include such a statement when this document is next revised.

10 Test report

The test report shall include the following information:

- a) reference to this document, i.e. ISO 29770:2022;
- b) product identification:
 - 1) product name, factory, manufacturer or supplier;
 - 2) production code number;
 - 3) type of product;
 - 4) packaging;
 - 5) form in which the product arrived at the laboratory;
 - 6) other information as appropriate, e.g. nominal thickness, nominal density;
- c) test procedure:
 - 1) pre-test history and sampling, e.g. where and by whom the sample was taken;
 - 2) conditioning;
 - 3) any deviation from [Clauses 6](#) and [7](#);
 - 4) conditioning and testing conditions in tropical climates, if applicable;
 - 5) date of the test;
 - 6) number of test specimens;
 - 7) general information relating to the test, e.g. the pause before measuring d_B ;