SLOVENSKI STANDARD
oSIST prEN ISO 29468:2021

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Toplotno izolacijski proizvodi za uporabo v gradbeništvu - Ugotavljanje ploskosti (ISO/DIS 29468:2021)

Thermal insulating products for building applications - Determination of flatness (ISO/DIS 29468:2021)

Wärmedämmstoffe für das Bauwesen - Bestimmung der Ebenheit (ISO/DIS 29468:2021)

Produits isolants thermiques destinés aux applications du bâtiment - Détermination de la planéité (ISO/DIS 29468:2021)

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91.100.60	Materiali za toplotno in zvočno izolacijo	Thermal and sound insulating materials

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Thermal insulating products for building applications — Determination of flatness

Produits isolants thermiques destinés aux applications du bâtiment — Détermination de la planéité

ICS: 91.100.60

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Foreword

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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).

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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 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 29468:2008) and the standard EN 825:2013, which has been technically revised. The main changes compared to the previous edition are as follows:

Clause 5.3 conditioning of test specimen to reflect the conditions for tropical countries;

Clause 6.1 test conditions and

Clause 9 test report

Thermal insulating products for building applications — Determination of flatness

1 Scope

This International Standard specifies the equipment and procedures for determining the deviation from flatness for full-size products. It is applicable to thermal insulating products.

2 Terms and definitions

For the purposes of this document, the following term and definition apply.

2.1
deviation from flatness
the maximum distance between the product, placed on a flat surface with the convex side uppermost, and the flat surface

3 Principle

The maximum distance between the product placed on a flat surface and the flat surface is measured.

4 Apparatus

4.1 Flat surface.

4.2 Metal rule or **metal tape**, graduated in millimetres and permitting reading to 0,5 mm.

4.3 Rigid frame, with a movable measuring device consisting of a disc with a diameter of 30 mm, fixed to a graduated pin or a dial gauge (graduated to at least 0,5 mm) applying a load of (2,0 ± 0,1) N.

Any test equipment that provides the same result with at least the same accuracy may be used.

5 Test specimens

5.1 Dimensions of test specimens

The test specimen shall be the full-size product.

5.2 Number of test specimens

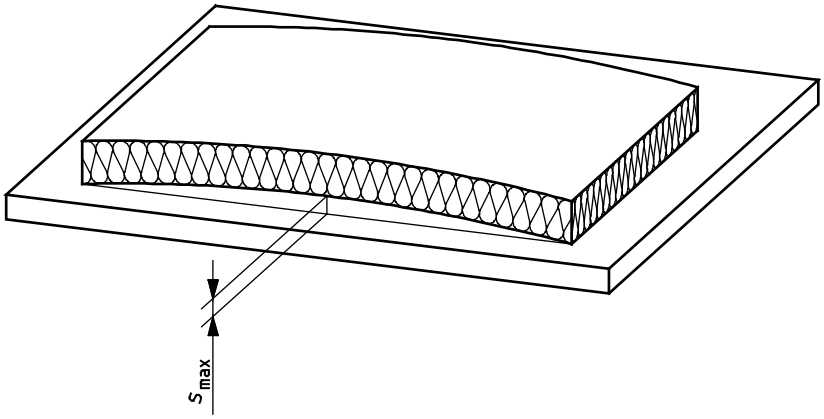
The number of test specimens shall be as specified in the relevant product standard.

In the absence of a product standard, the number of test specimens may be agreed upon.

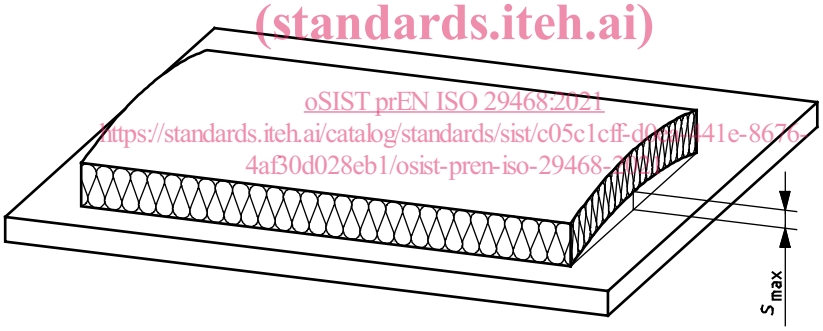
5.3 Conditioning of test specimens

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 for the time specified in the relevant product standard.

In tropical countries different conditioning and testing conditions can be relevant. In this case, the conditions shall be 27 °C and 65 % RH and be stated clearly in the test report.



a) Deviation from flatness in length



b) Deviation from flatness in width

Figure 1 — Measurement of deviation from flatness

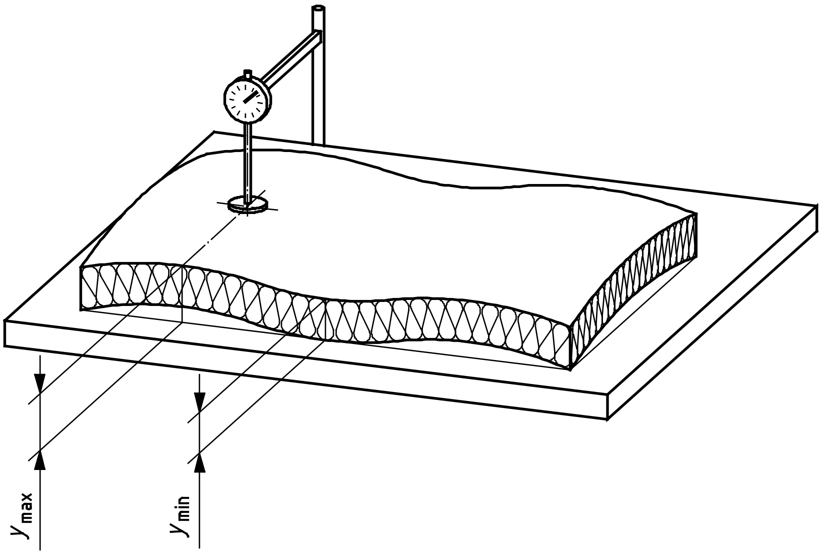


Figure 2 — Location of maximum and minimum distances

6 Procedure

6.1 Test conditions

The test shall be carried out at (23 ± 5) °C. In case of dispute, it shall be carried out at (23 ± 2) °C and (50 ± 5) % relative humidity.

In tropical countries different conditioning and testing conditions can be relevant. In this case, the conditions shall be 27 °C and 65 % RH and be stated clearly in the test report.

6.2 Test procedure

6.2.1 Lay the test specimen with the convex face, if any, uppermost on a flat surface. If there is a visible deviation from flatness only along the length or only along the width, make the measurement in accordance with 6.2.2 [see Figure 1, a) and 1b)]. If there is a deviation from flatness along both the length and width (warped products), make the measurement in accordance with 6.2.3 (see Figure 2).

6.2.2 Using the metal tape or rule, measure the maximum distance between the bottom edge of the specimen and the flat surface, S_{max}, to the nearest 0,5 mm.

6.2.3 Locate the maximum and minimum distances from the flat surface using the measuring device (see 4.3) as shown in Figure 2. At these positions, read the distances Y_{max} and Y_{min} to the nearest 0,5 mm. If the test specimen rests on only three points, there exists the possibility of alternative flatness measurements; all shall be measured.

7 Calculation and expression of results

For test specimens with deviation from flatness in one direction only, report the deviation as the maximum value measured, expressed in millimetres.

For warped products, calculate the deviation from flatness, S_{max}, expressed in millimetres, using Equation (1):

$$S_{max} = Y_{max} - Y_{min} \quad (1)$$

8 Accuracy of measurement

NOTE It has not been possible to include a statement of the accuracy of the method in this edition of this International Standard, but it is intended to include such a statement when this International Standard is next revised.

9 Test report

The test report shall include the following information:

a) reference to this International Standard;

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, i.e., the name of person taking the samples and sampling site,

   2) conditioning,

   3) deviation from Clauses 5 and 6, if any,

   4) conditioning and testing conditions in tropical countries, if applicable,

   5) date of test,

   6) general information relating to the test,

   7) any occurrences which may have affected the results;

NOTE It is expected that information about the apparatus and identity of the technician be available in the laboratory, but it is not necessary that it be recorded in the report.

d) results: all individual values and the maximum value of the deviation from flatness and the position where it occurred.