



**SLOVENSKI STANDARD**  
**SIST EN 825:2013**

**01-julij-2013**

**Nadomešča:**  
**SIST EN 825:1997**

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**Toplotno izolacijski proizvodi za uporabo v gradbeništvu - Ugotavljanje ploskosti**

Thermal insulating products for building applications - Determination of flatness

Wärmedämmstoffe für das Bauwesen - Bestimmung der Ebenheit

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

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**Ta slovenski standard je istoveten z: EN 825:2013**  
SIST EN 825:2013  
http://www.sist.si/log/standards/EN/825:2013-2e10-42f0-8e5e-1e40b204da0e/sist-en-825-2013

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**ICS:**

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

EN 825

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2013

ICS 91.100.60

Supersedes EN 825:1994

English Version

## Thermal insulating products for building applications - Determination of flatness

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

Wärmedämmstoffe für das Bauwesen - Bestimmung der  
Ebenheit

This European Standard was approved by CEN on 15 December 2012.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

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## Foreword

This document (EN 825:2013) has been prepared by Technical Committee CEN/TC 88 “Thermal insulating materials and products”, the secretariat of which is held by DIN.

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 September 2013, and conflicting national standards shall be withdrawn at the latest by September 2013.

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 document supersedes EN 825:1994.

The revision of this standard contains no major changes, only minor corrections and clarifications of an editorial nature.

This European standard has been drafted for applications in building but it may also be used in other areas where it is relevant.

This European test standard is one of the following group of interrelated standards on test methods for determining dimensions and properties of thermal insulation materials and products, all of which fall within the scope of CEN/TC 88:

- EN 822, *Thermal insulating products for building applications — Determination of length and width*
- EN 823, *Thermal insulating products for building applications — Determination of thickness*
- EN 824, *Thermal insulating products for building applications — Determination of squareness*
- EN 825, *Thermal insulating products for building applications — Determination of flatness*
- EN 826, *Thermal insulating products for building applications — Determination of compression behaviour*
- EN 1602, *Thermal insulating products for building applications — Determination of the apparent density*
- EN 1603, *Thermal insulating products for building applications — Determination of dimensional stability under constant normal laboratory conditions (23 °C/50 % relative humidity)*
- EN 1604, *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*
- EN 1605, *Thermal insulating products for building applications — Determination of deformation under specified compressive load and temperature conditions*
- EN 1606, *Thermal insulating products for building applications — Determination of compressive creep*
- EN 1607, *Thermal insulating products for building applications — Determination of tensile strength perpendicular to faces*
- EN 1608, *Thermal insulating products for building applications — Determination of tensile strength parallel to faces*

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- EN 1609, *Thermal insulating products for building applications — Determination of short-term water absorption by partial immersion*
- EN 12085, *Thermal insulating products for building applications — Determination of linear dimensions of test specimens*
- EN 12086, *Thermal insulating products for building applications — Determination of water vapour transmission properties*
- EN 12087, *Thermal insulating products for building applications — Determination of long-term water absorption by immersion*
- EN 12088, *Thermal insulating products for building applications — Determination of long-term water absorption by diffusion*
- EN 12089, *Thermal insulating products for building applications — Determination of bending behaviour*
- EN 12090, *Thermal insulating products for building applications — Determination of shear behaviour*
- EN 12091, *Thermal insulating products for building applications — Determination of freeze-thaw resistance*
- EN 12429, *Thermal insulating products for building applications — Conditioning to moisture equilibrium under specified temperature and humidity conditions*
- EN 12430, *Thermal insulating products for building applications — Determination of behaviour under point load*
- EN 12431, *Thermal insulating products for building applications — Determination of thickness for floating floor insulating products*
- EN 13793, *Thermal insulating products for building applications — Determination of behaviour under cyclic loading*
- EN 13820, *Thermal insulating materials for building applications — Determination of organic content*

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

## 1 Scope

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

## 2 Normative references

This European Standard contains no normative references.

## 3 Terms and definitions

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

### 3.1

#### **deviation from flatness**

maximum distance between the product placed on a flat surface with the convex side uppermost and the flat surface

## 4 Principle

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

## 5 Apparatus

### 5.1 Flat surface.

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

**5.3 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  $(2,0 \pm 0,1)$  N.

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

## 6 Test specimens

### 6.1 Dimensions of test specimens

The test specimen shall be the full-size product.

### 6.2 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 between parties.

### 6.3 Conditioning of test specimens

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

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## 7 Procedure

### 7.1 Test conditions

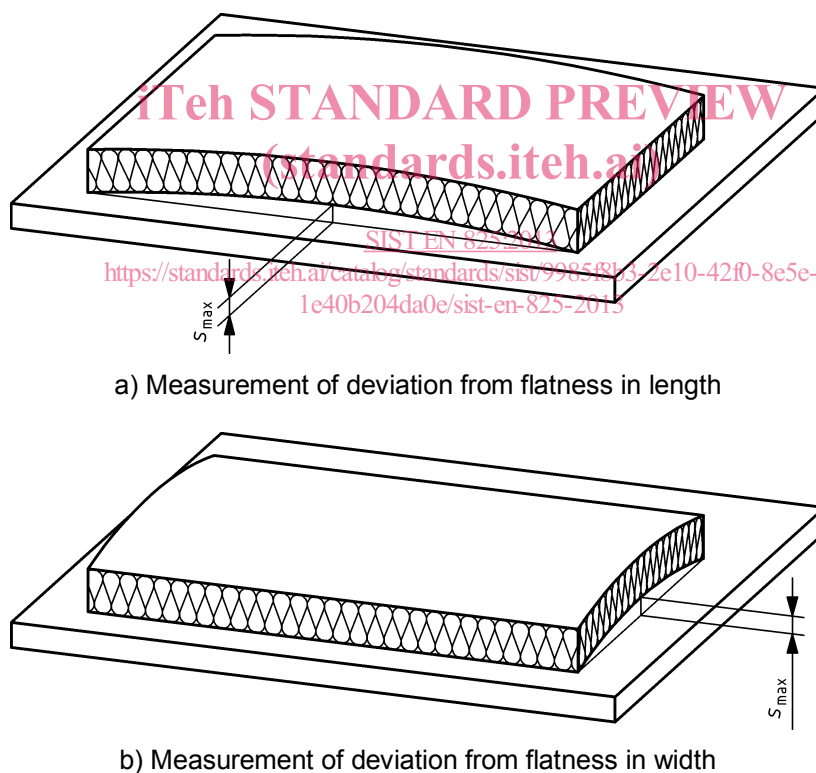
The test shall be carried out at  $(23 \pm 5) ^\circ\text{C}$ . In cases of dispute, it shall be carried out at  $(23 \pm 2) ^\circ\text{C}$  and  $(50 \pm 5) \%$  relative humidity.

### 7.2 Test procedure

**7.2.1** 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 7.2.2 (see Figures 1a and 1b). If there is a deviation from flatness along both the length and width (warped products), make the measurement in accordance with 7.2.3 (see Figure 2).

**7.2.2** 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.

**7.2.3** Locate the maximum and minimum distances from the flat surface using the measuring device (see 5.3) 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 only rests on three points, the possibility of alternative flatness measurements exists and all shall be measured.



**Figure 1 — Measurement of deviation from flatness**



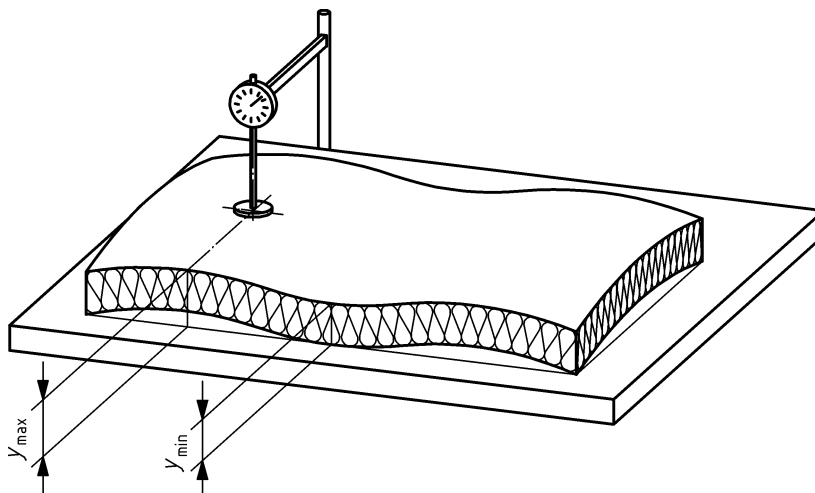


Figure 2 — Location of maximum and minimum distances

## 8 Calculation and expression of results

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

For warped products, calculate the deviation from flatness,  $S_{\max}$ , in millimetres, using the following formula:

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

## 9 Accuracy of measurement

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

## 10 Test report

The test report shall include the following information:

- a) reference to this European Standard;
- b) product identification:
  - 1) product name, factory, manufacturer or supplier;
  - 2) production code number;
  - 3) type of product;
  - 4) packaging;
  - 5) the 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. who sampled and place of sampling );