

BS EN 825:2013



BSI Standards Publication

Thermal insulating products for building applications — Determination of flatness

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of EN 825:2013. It supersedes BS EN 825:1995 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/540, Energy performance of materials components and buildings.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2013. Published by BSI Standards Limited 2013

ISBN 978 0 580 78038 7

ICS 91.100.60

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2013.

Amendments issued since publication

Date	Text affected
------	---------------

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 planéitéWärmedämmstoffe 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.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG**Management Centre: Avenue Marnix 17, B-1000 Brussels**

Contents		Page
Foreword.....		3
1 Scope.....		5
2 Normative references.....		5
3 Terms and definitions		5
4 Principle.....		5
5 Apparatus		5
6 Test specimens		5
7 Procedure		6
8 Calculation and expression of results		7
9 Accuracy of measurement.....		7
10 Test report		7

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*

- 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*

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 ± 5) °C. In cases of dispute, they shall be stored at (23 ± 2) °C and (50 ± 5) % relative humidity for the time specified in the relevant product standard.

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.

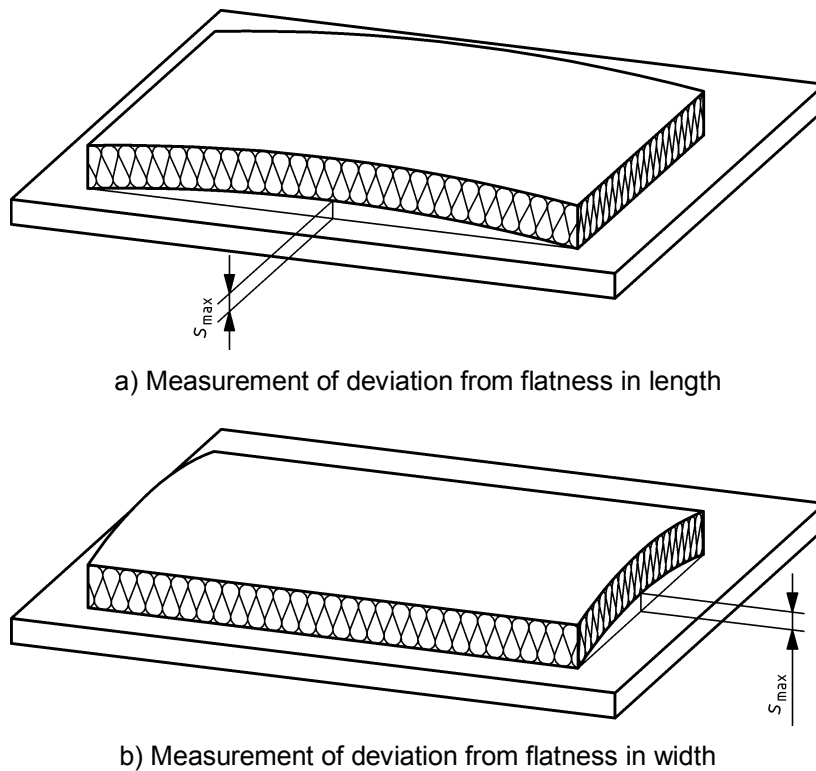


Figure 1 — Measurement of deviation from flatness

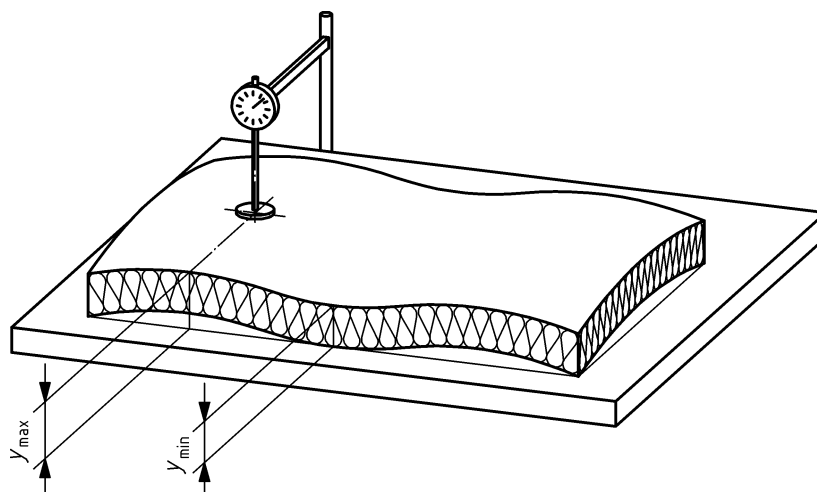


Figure 2 — Location of maximum and minimum distances

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);

- 2) conditioning;
 - 3) deviation from Clauses 6 and 7, if any;
 - 4) date of test;
 - 5) general information relating to the test;
 - 6) any occurrences which may have affected the results. Information about the apparatus and identity of the technician should be available in the laboratory but it need not 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.

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

All the data, software and documentation set out in all British Standards and other BSI publications are the property of and copyrighted by BSI, or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. Details and advice can be obtained from the Copyright & Licensing Department.

Useful Contacts:

Customer Services

Tel: +44 845 086 9001

Email (orders): orders@bsigroup.com

Email (enquiries): cservices@bsigroup.com

Subscriptions

Tel: +44 845 086 9001

Email: subscriptions@bsigroup.com

Knowledge Centre

Tel: +44 20 8996 7004

Email: knowledgecentre@bsigroup.com

Copyright & Licensing

Tel: +44 20 8996 7070

Email: copyright@bsigroup.com



...making excellence a habit.™