SLOVENSKI STANDARD
SIST EN 1607:1997

01-december-1997

Toplotnoizolacijski proizvodi za uporabo v gradbeništvu - Določanje natezne trdnosti v smeri debeline

Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces

Wärmedämmstoffe für das Bauwesen - Bestimmung der Zugfestigkeit senkrecht zur Plattenebene

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Produits isolants thermiques destinés aux applications du bâtiment - Détermination de la résistance a la traction perpendiculairement aux faces

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Ta slovenski standard je istoveten z: **EN 1607:1996**

ICS:

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

SIST EN 1607:1997 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1607

November 1996

ICS 91.120.10

Descriptors: buildings, thermal insulation, thermal insulating materials, tensile tests, determination, tensile strength

English version

Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces

Produits isolants thermiques destinés aux applications du bâtiment - Détermination de la résistance à la traction perpendiculairement aux faces

Wärmedämmstoffe für das Bauwesen - Bestimmung der Zugfestigkeit senkrecht zur Plattenebene

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This European Standard was approved by CEN on 1996-10-05. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

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Foreword

This European Standard 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 May 1997, and conflicting national standards shall be withdrawn at the latest by December 1997.

This European Standard is one of a series of standards which specify test methods for determining dimensions and properties of thermal insulating materials and products. It supports a series of product standards for thermal insulating materials and products which derive from the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (Directive 89/106/EEC) through the consideration of the essential requirements.

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

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In pursuance of Resolution BT 20/1993 Revised, CEN/TC 88 have proposed defining the standards listed below as a European "package" of standards, setting December 31, 1997 as the date of withdrawal (dow) of national standards which conflict with the European Standards of this package.

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The "package" of standards comprises the following group of inter-related standards on test methods for determining dimensions and properties of thermal insulation materials and products, all of which come 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)

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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
prEN 12085	Thermal insulating products for building applications - Determination of linear dimensions of test specimens
prEN 12086	Thermal insulating products for building applications - Determination of water vapour transmission properties
prEN 12087	Thermal insulating products for building applications - Determination of long term water absorption by immersion
prEN 12088	Thermal insulating products for building applications - Determination of long term water absorption by diffusion
prEN 12089	Thermal insulating products for building applications - Determination of bending behaviour
prEN 12090	Thermal insulating products for building applications - Determination of shear behaviour
prEN 12091	Thermal insulating products for building applications - Determination of freeze-thaw resistance

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According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies the equipment and procedures for determining the tensile strength of a product perpendicular to its faces. It is applicable to thermal insulating products.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

prEN 12085	Thermal insulating products for building applications - Determination of linear dimensions of test specimens
ISO 5725-1	Accuracy (trueness and precision) of mesurement methods and results - Part 1: Gerneral principles and definitions
ISO 5725-2	Accuracy (trueness and precision) of measurement methods and results - Part 2: Basic method for the determination of repeatability and reproduciblity of a standard measurement method

3 Definitions

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For the purposes of this standard, the following definition applies:

tensile strength perpendicular to faces, σ_{mt}: The maximum recorded tensile force perpendicular to the product faces during the pulling operation, divided by the cross-sectional area of the test specimen.

4 Principle

The test specimen is attached between two rigid plates or blocks, fastened in a tensile testing machine and pulled apart at a given speed.
The maximum tensile force is recorded and the tensile strength of the test specimen is calculated.

5 Apparatus

5.1 **Tensile testing machine**, appropriate for the range of force and displacement involved, capable of having a constant crosshead speed adjusted to 10 mm/min ± 10 % and capable of measuring the force with an accuracy of ± 1 %.

5.2 **Rigid plates or blocks** with self aligning attachment to avoid uneven distribution of tensile stress during the test.

Examples of suitable arrangement to bond the test specimen are shown in figure 1.

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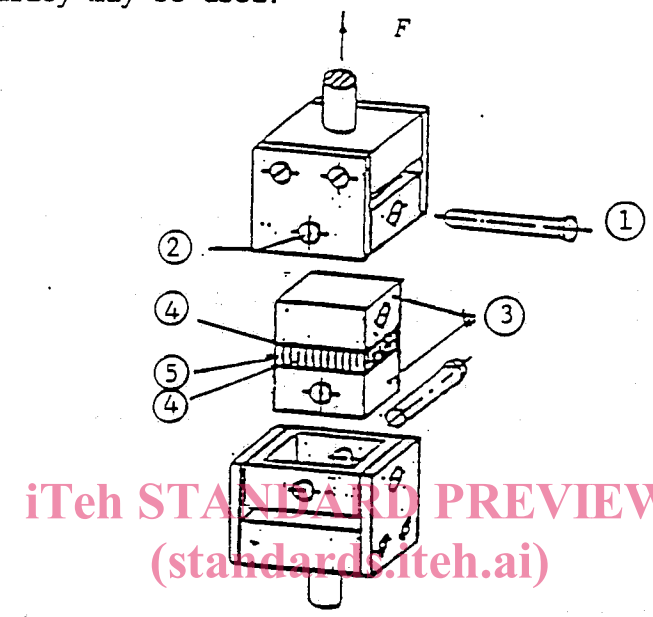
5.3 **Adhesive**, used to bond the test specimen between the rigid plates or blocks:

- the adhesive shall not reinforce or damage the surface layers of the product;
- hot adhesives shall be avoided if they damage the product;
- any solvent used shall be compatible with the product.

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



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a)

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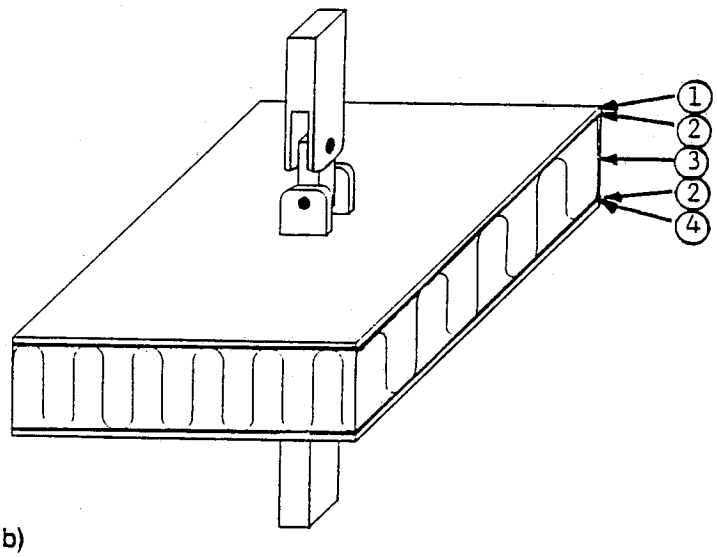
1 Bolt
2 Connecting shaft
3 Metal blocks
4 Adhesive
5 Test specimen



b)

1 Rigid plate
2 Adhesive
3 Test specimen
4 Rigid plate

Figure 1: Examples of suitable arrangement to bond the test specimen

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6 Test specimens

6.1 Dimensions of test specimens

The thickness of the test specimens shall be the original product thickness including any skins, facings and/or coatings.
The test specimens shall be prisms of square cross section having sides of the following recommended dimensions:

50 x 50 mm or
100 x 100 mm or
150 x 150 mm or
200 x 200 mm or
300 x 300 mm.

Dimensions used shall be as specified in the relevant product standard.

NOTE: In the absence of a product standard or any other European technical specification, the dimensions of the test specimens may be agreed between parties.

The linear dimensions shall be determined in accordance with prEN 12085 with an accuracy of ± 0,5 %.

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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 at least five test specimens shall be used.

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

6.3 Preparation of test specimens

The test specimens shall be cut from the product so that the test specimen base is normal to the direction of the tensile force applied to the product in its application.

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. The test specimens shall be representative of the product and preferably not taken closer than 15 mm from the edges of the product to avoid the influence of any handling damage. For products with non-plane or non-parallel faces, or which have skins, facings and/or coatings, preparation of test specimens shall be as specified in the relevant product standard.

The tolerance on parallelism and flatness between the two faces of the test specimen shall be no more than 0,5 % of the specimen side with a maximum of 0,5 mm.

Before conditioning, the test specimens shall be attached to the two rigid plates or blocks using a suitable adhesive.