



# SLOVENSKI STANDARD

## SIST EN 1608:1997

01-december-1997

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### Toplotnoizolacijski proizvodi za uporabo v gradbeništvu - Določanje natezne trdnosti v smeri dolžine

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

Wärmedämmstoffe für das Bauwesen - Bestimmung der Zugfestigkeit in Plattenebene

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

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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 1608

NORME EUROPÉENNE

EUROPÄISCHE NORM

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  
parallel to faces**

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

Wärmedämmstoffe für das Bauwesen - Bestimmung der Zugfestigkeit in 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.

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) |

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

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.

## 1 Scope

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

This standard can be used to determine whether the product has sufficient strength to withstand stresses during transportation and application.

## 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.

- EN 823 Thermal insulating products for building applications - Determination of thickness
- prEN 12085 Thermal insulating products for building applications - Determination of linear dimensions of test specimens
- ISO 5725-1 Accuracy (trueness and precision) of measurement methods and results - Part 1: General 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 reproducibility of a standard measurement method
- <https://standards.iteh.ai/catalog/standards/sist/9918e13d-4ddb-408d-bb6e-bcc0e974a139/sist-en-1608-1997>

## 3 Definitions

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

tensile strength parallel to faces,  $\sigma_t$ : The maximum recorded tensile force parallel to the product faces during the pulling operation, divided by the cross-sectional testing area of the test specimen.

## 4 Principle

The test specimen is attached to two clamps, which are 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  $\pm$  10 % and capable of measuring the force with an accuracy of  $\pm$  1 %.

5.2 Two clamps designed in such a way so as to avoid failure of the test specimen in the area of the clamps. The clamps shall be positioned such that the tensile stress is uniformly distributed during the test.

Example of a suitable equipment is shown in figure 1.

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

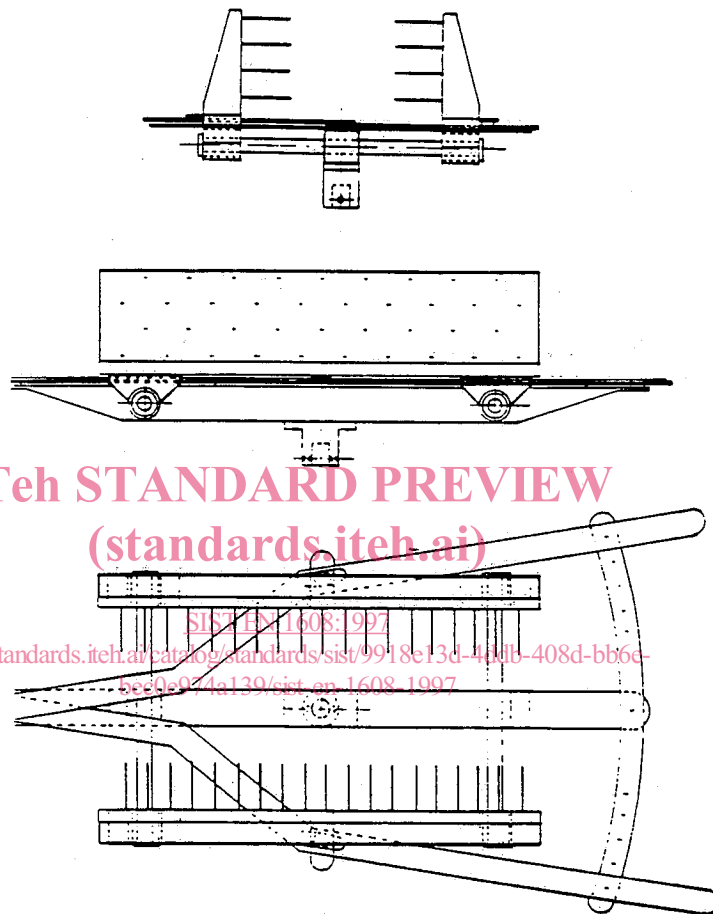


Figure 1: Example of suitable clamps

## 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 cut with the shape and with the dimensions shown in figure 2. For small products or because of apparatus limitations, the test specimens length and width shall be adjusted proportionally but with a minimum length of 500 mm.

NOTE: Other shapes which provide the same result with at least the same accuracy may be used.



## 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 three test specimens shall be used.

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 full size product so that the length direction corresponds to the direction in which the tensile force is applied to the product in its application.

Test specimens shall be prepared by methods that do not change the original structure of the product.

NOTE: Special methods of preparation, when needed, are given in the relevant product standard or any other European technical specification.

## 6.4 Conditioning of test specimens

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

All dimensions in millimetres

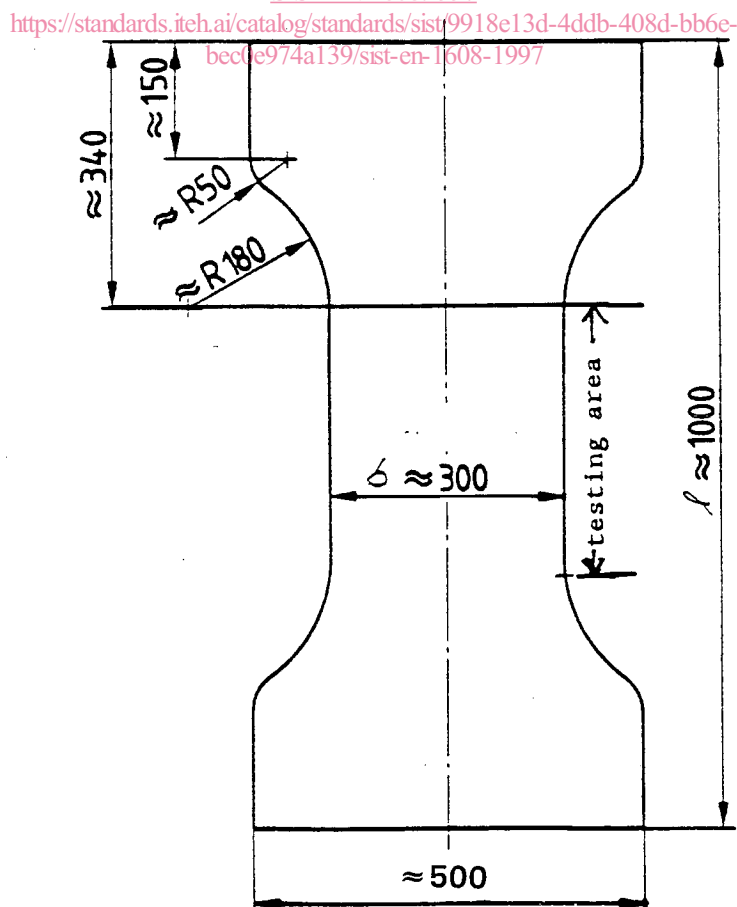


Figure 2: Test specimen shape and dimensions