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**Toplotnoizolacijski proizvodi za stavbe - Proizvodi iz penjenega stekla (CG) -  
Specifikacija**

Thermal insulation products for buildings - Factory made cellular glass (CG) products -  
Specification

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Wärmedämmstoffe für Gebäude - Werkmäßig hergestellte Produkte aus Schaumglas  
(CG) - Spezifikation

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Produits isolants thermiques pour le bâtiment - Produits manufacturés en verre cellulaire  
(CG) - Spécification

**Ta slovenski standard je istoveten z: EN 13167:2008**

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**ICS:**

91.100.60 Thermal and sound insulating materials

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EUROPEAN STANDARD

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## Thermal insulation products for buildings - Factory made cellular glass (CG) products - Specification

Produits isolants thermiques pour le bâtiment - Produits manufacturés en verre cellulaire (CG) - Spécification

Wärmedämmstoffe für Gebäude - Werkmäßig hergestellte Produkte aus Schaumglas (CG) - Spezifikation

This European Standard was approved by CEN on 11 October 2008.

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 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 Management Centre has the same status as the official versions.

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

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**EN 13167:2008 (E)****Foreword**

This document (EN 13167:2008) 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 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, which is an integral part of this document.

This document supersedes EN 13167:2001.

This document is one of a series of standards for insulation products used in buildings, but this standard may be used in other areas where appropriate.

In pursuance of Resolution BT 20/1993 (revised CEN/TC 88) have proposed defining the standards listed below as a package of documents.

The package of standards comprises the following group of interrelated standards for the specifications of factory made thermal insulation products, all of which come within the scope of CEN/TC 88:

EN 13162, *Thermal insulating products for buildings — Factory made mineral wool (MW) products — Specification*

EN 13163, *Thermal insulating products for buildings — Factory made products of expanded polystyrene (EPS) — Specification*

EN 13164, *Thermal insulating products for buildings — Factory made products of extruded polystyrene foam (XPS) — Specification*

EN 13165, *Thermal insulating products for buildings — Factory made rigid polyurethane foam (PUR) products — Specification*

EN 13166, *Thermal insulating products for buildings — Factory made products of phenolic foam (PF) — Specification*

EN 13167, *Thermal insulating products for buildings — Factory made cellular glass (CG) products — Specification*

EN 13168, *Thermal insulating products for buildings — Factory made wood wool (WW) products — Specification*

EN 13169, *Thermal insulating products for buildings — Factory made products of expanded perlite (EPB) — Specification*

EN 13170, *Thermal insulating products for buildings — Factory made products of expanded cork (ICB) — Specification*

EN 13171, *Thermal insulating products for buildings — Factory made wood fibre (WF) products — Specification*

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

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**EN 13167:2008 (E)****1 Scope**

This European Standard specifies the requirements for factory made cellular glass products, with or without facings, which are used for the thermal insulation of buildings. The products are manufactured in the form of boards or slabs.

This European Standard specifies product characteristics and includes procedures for testing, evaluation of conformity, marking and labelling.

Products covered by this standard are also used in prefabricated thermal insulation systems and composite panels; the performance of systems incorporating these products is not covered.

This European Standard does not specify the required level of a given property to be achieved by a product to demonstrate fitness for purpose in a particular application. The levels required for a given application are to be found in regulations or non-conflicting standards.

Products with a declared thermal resistance lower than 0,50 m<sup>2</sup>·K/W or a declared thermal conductivity greater than 0,065 W/(m·K) at 10 °C are not covered by this European Standard.

This European Standard does not cover products intended to be used for the insulation of building equipment and industrial installations.

This European Standard does not cover the following acoustical aspects: direct airborne sound insulation and impact noise transmission.

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**2 Normative references**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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 826:1996, *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 12086:1997, *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 12089, *Thermal insulating products for building applications — Determination of bending behaviour*
- EN 12090, *Thermal insulating products for building applications — Determination of shear behaviour*
- EN 12430, *Thermal insulating products for building applications — Determination of behaviour under point load*
- EN 12667, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Products of high and medium thermal resistance*
- EN 12939, *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Thick products of high and medium thermal resistance*
- EN 13172:2008, *Thermal insulating products — Evaluation of conformity*
- EN 13471:2001, *Thermal insulating products for building equipment and industrial installations — Determination of the coefficient of thermal expansion*
- EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire test*
- EN 13820, *Thermal insulating materials for building applications — Determination of organic content*
- EN 13823, *Reaction to fire tests for building products — Building products excluding floorings exposed to the thermal attack by a single burning item*
- EN ISO 354, *Acoustics — Measurement of sound absorption in a reverberation room (ISO 354:2003)*
- EN ISO 1182, *Reaction to fire tests for building products — Non-combustibility test (ISO 1182:2002)*
- EN ISO 1716, *Reaction to fire tests for building products — Determination of the heat of combustion (ISO 1716:2002)*
- EN ISO 9229:2007, *Thermal insulation — Vocabulary (ISO 9229:2007)*
- EN ISO 11654, *Acoustics — Sound absorbers for use in buildings — Rating of sound absorption (ISO 11654:1997)*
- EN ISO 11925-2, *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single-flame source test (ISO 11925-2:2002)*
- ISO 12491, *Statistical methods for quality control of building materials and components*

## EN 13167:2008 (E)

**3 Terms, definitions, symbols, units and abbreviated terms****3.1 Terms and definitions**

For the purposes of this document, the following terms and definitions apply.

**3.1.1 Terms and definitions as given in EN ISO 9229:2007****3.1.1.1****cellular glass**

rigid insulation material made from expanded glass with a closed cell structure

**3.1.1.2****board****slab**

rigid or semi-rigid (insulation) product of rectangular shape and cross section in which the thickness is uniform and substantially smaller than the other dimensions

NOTE Boards are usually thinner than slabs. They may also be supplied in tapered form.

**3.1.2 Additional terms and definitions****3.1.2.1****level**

given value which is the upper or lower limit of a requirement

NOTE The level is given by the declared value of the characteristic concerned.

**3.1.2.2****class**

combination of two levels of the same property between which the performance shall fall

**3.1.2.3****faced cellular glass board**

board of cellular glass with facing(s) on one or two faces which may be roofing felt or metal foil or paper, cardboard, plastic foil or similar materials. The core may consist of either one board, a part of a board or a number of boards bonded edge to edge in the factory, with an appropriate adhesive. Bitumen is a suitable adhesive which may be used to bond both the joints and the facings

**3.2 Symbols, units and abbreviated terms****3.2.1 Symbols and units used in this standard:**

$\alpha_p$	is the practical sound absorption coefficient	–
$\alpha_w$	is the weighted sound absorption coefficient	–
$b$	is the width	mm
$d$	is the thickness	mm
$d_N$	is the nominal thickness of the product	mm
$\Delta\varepsilon_b$	is the relative change in width	%
$\Delta\varepsilon_d$	is the relative change in thickness	%
$\Delta\varepsilon_l$	is the relative change in length	%

$\Delta\varepsilon_s$	is the relative change in flatness	mm/m
$k$	is a factor related to the number of test results available	–
$l$	is the length	mm
$\lambda_{90/90}$	is the 90 % fractile with a confidence level of 90 % for the thermal conductivity	W/(m·K)
$\lambda_D$	is the declared thermal conductivity	W/(m·K)
$\lambda_i$	is one test result of thermal conductivity	W/(m·K)
$\lambda_{\text{mean}}$	is the mean thermal conductivity	W/(m·K)
$\mu$	is the water vapour diffusion resistance factor	–
$n$	is the number of test results	–
$P_d$	is the deformation under point load	mm
$R_{90/90}$	is the 90 % fractile with a confidence level of 90 % for the thermal resistance	m <sup>2</sup> ·K/W
$R_D$	is the declared thermal resistance	m <sup>2</sup> ·K/W
$R_i$	is one test result of thermal resistance	m <sup>2</sup> ·K/W
$R_{\text{mean}}$	is the mean thermal resistance	m <sup>2</sup> ·K/W
$S_b$	is the deviation from squareness on length and width	mm/m
$S_d$	is the deviation from squareness on thickness	mm
$S_{\text{max}}$	is the deviation from flatness	mm
$s_R$	is the estimate of the standard deviation of the thermal resistance	m <sup>2</sup> ·K/W
$s_\lambda$	is the estimate of the standard deviation of the thermal conductivity	W/(m·K)
$\sigma_b$	is the bending strength	kPa
$\sigma_c$	is the declared compressive stress	kPa
$\sigma_m$	is the compressive strength	kPa
$\sigma_{\text{mt}}$	is the tensile strength perpendicular to faces	kPa
$\sigma_t$	is the tensile strength parallel to faces	kPa
$W_{\text{lp}}$	is the long term water absorption by partial immersion	kg/m <sup>2</sup>
$W_p$	is the short term water absorption	kg/m <sup>2</sup>
$X_{\text{ct}}$	is the compressive creep	mm
$X_t$	is the deformation at time $t$ (total thickness reduction)	mm
$Z$	is the water vapour resistance	m <sup>2</sup> ·h·Pa/mg
API	is the symbol of the declared level of practical sound absorption coefficient*	
AWi	is the symbol of the declared level of weighted sound absorption coefficient*	
BS	is the symbol of the declared level for bending strength	
CC( $i_1/i_2$ mm/y) $\sigma_c$	is the symbol of the declared level for compressive creep*	

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CS(Y)	is the symbol of the declared level for compressive strength
DS(T+)	is the symbol of the declared value for dimensional stability at specified temperature
DS(TH)	is the symbol of the declared value for dimensional stability under specified temperature and humidity
MUi	is the symbol of the declared value for water vapour diffusion resistance factor*
PL(P)	is the symbol of the declared level for penetration under point load
TP	is the symbol of the declared level for tensile strength parallel to faces
TRi	is the symbol of the declared level for tensile strength perpendicular to faces*
WL(P)	is the symbol of the declared level for long term water absorption by partial immersion
WS	is the symbol of the declared level for short term water absorption
Zi	is the symbol of the declared value for water vapour resistance*

\* "i" is the relevant class or level, " $\sigma_c$ " is the compressive stress, and "y" is the number of years.

**3.2.2 Abbreviated terms used in this standard:**

CG	Cellular Glass
ITT	Initial Type Test
RtF	Reaction to Fire
FPC	Factory Production Control

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**4 Requirements**

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**4.1 General**

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Product properties shall be assessed in accordance with Clause 5. To comply with this standard, products shall meet the requirements of 4.2, and the requirements of 4.3 as appropriate.

NOTE Information on additional properties is given in Annex D.

One test result on a product property is the average of the measured values on the number of test specimens given in Table 4.

**4.2 For all applications****4.2.1 Thermal resistance and thermal conductivity**

Thermal resistance and thermal conductivity shall be based upon measurements carried out in accordance with EN 12667 or EN 12939 for thick products.

The thermal resistance and thermal conductivity shall be determined in accordance with Annex A and declared by the manufacturer according to the following:

- the reference mean temperature shall be 10 °C;
- the measured value shall be expressed with three significant figures;