



SLOVENSKI STANDARD
oSIST prEN 17237:2018
01-julij-2018

Toplotnoizolacijski proizvodi za stavbe - Zunanji sestavljeni toplotnoizolacijski sistemi z ometi (ETICS) - Specifikacija

Thermal insulation products for buildings - External thermal insulation composite systems with renders (ETICS) - Specification

Wärmedämmstoffe für Gebäude - Außenseitige Wärmedämmverbundsysteme mit Putzoberfläche (WDVS) - Spezifikation

Produits isolants thermiques pour bâtiments - Systèmes d'isolation thermique extérieure par enduit sur isolant (ETICS) - Spécification

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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
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English Version

Thermal insulation products for buildings - External thermal insulation composite systems with renders (ETICS) - Specification

Produits isolants thermiques pour bâtiments -
Systèmes d'isolation thermique extérieure par enduit
sur isolant (ETICS) - Spécification

Wärmedämmstoffe für Gebäude - Außenseitige
Wärmedämmverbundsysteme mit Putzoberfläche
(WDVS) - Spezifikation

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 88.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 17237:2018) has been prepared by Technical Committee CEN/TC 88 “Thermal insulating materials and products”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13499:2003 and EN 13500:2003.

Upon publication of EN 17237, EN 13498:2002 will be withdrawn without replacement.

This document has been prepared under a standardization request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of the EU Construction Products Regulation (CPR).

For relationship with the EU Regulation, see informative Annex ZA, which is an integral part of this document.

This European Standard is one of a series of standards for insulation products used in buildings, but can be used in other areas where appropriate.

Compared to EN 13499:2003 and EN 13500:2003, the following changes have been made:

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- a) the text is completely revised and both standards have been implemented in the approach of an ETICS;
- b) a new standard reference. [oSIST prEN 17237:2018](https://standards.iteh.ai/catalog/standards/sist/0a5113f7-fd1b-45a9-a649-c20408e0f4d9/osist-pren-17237-2018)
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This European Standard contains four annexes:

- Annex A (normative) assessment of performance of the kit and assessment and verification of constancy of performance;
- Annex B (normative) Characteristics and performance for thermal insulation products;
- Annex C (informative) Fire performance middle and large scale fire test;
- Annex D (normative) Calculation of safety-factor pull-through;
- Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Regulation.

Introduction

This standard covers design External Thermal Insulation Composite Systems (design ETICS) with rendering systems. Design ETICS kits are intended for use as external thermal insulation to the walls of buildings. The walls are made of masonry (bricks, blocks, stones etc.) or concrete (cast on site or as prefabricated panels) with or without rendering systems.

The standard describes characteristics and performance of design ETICS kits and marking and labelling for design ETICS with rendering systems applied to thermal insulation products.

Design ETICS are placed on the market as different kits by a system holder, consisting of selected components to improve the thermal insulation of buildings' outside walls. Kits have to be installed following system holders instructions to achieve the declared performance. They may include ancillary products. Assembled kits provide protection against weathering and improve the appearance of the buildings. They do not contribute to the stability of the wall, nor to the air tightness of the building.

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1 Scope

This document specifies the characteristics and performance for design External Thermal Insulation Composite Systems (design ETICS) with rendering systems on thermal insulation products, delivered as a kit by a system holder, and used as thermal insulation for buildings.

This document covers design ETICS kits on walls which are made of masonry (bricks, blocks, stones, etc.) or concrete (cast on site or as prefabricated panels) with or without rendering systems. This document covers ETICS with thermal insulation products made of cellular glass, expanded polystyrene, expanded cork, mineral wool, phenolic foam, rigid polyurethane foam, extruded polystyrene foam or wood fibre as far as they comply with Annex B.

A design ETICS kit comprises a prefabricated insulation product bonded onto the wall, or mechanically fixed using anchors, profiles, etc., or a combination of adhesive and mechanical fixings. The insulation product is faced with a rendering system consisting of one or more layers (site applied), one of which contains reinforcement. The rendering system is applied directly to the insulating panels, without an air gap or disconnecting layer.

This document is not applicable for:

- a) Mechanically fixed kits with supplementary adhesive with the mass per unit area of the rendering system of $> 40 \text{ kg/m}^2$ in end use conditions intended by the system holder and/or mechanical fixed kits with the mass per unit area of the rendering system plus thermal insulation product of $> 65 \text{ kg/m}^2$ intended by the system holder.
- b) Mechanically fixed kits without supplementary adhesive with the mass per unit area of the rendering system of $> 30 \text{ kg/m}^2$ in end use conditions intended by the system holder and/or mechanical fixed kits with the mass per unit area of the rendering system plus thermal insulation product of $> 60 \text{ kg/m}^2$ intended by the system holder and/or with a thickness of the thermal insulation product intended by the system holder of $> 200 \text{ mm}$. For thermal insulations products with thicknesses $\leq 200 \text{ mm}$ fixed with anchors without supplementary adhesive, the bending deformation of the mechanically fixing devices is assumed as negligible.
- c) Purely bonded kits with or without supplementary mechanically fixing devices with bonded area (coverage) less than 40 %, intended by the system holder.
- d) Mechanically fixed kits with supplementary adhesive with bonded area (coverage) less than 40 %, intended by the system holder.
- e) Kits incorporating a thermal insulation product providing a declared thermal resistance of less than $1 \text{ m}^2\text{K/W}$.

External insulation and finishing systems (EIFS) according to ISO 17738 are not covered by this standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

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- EN 824, *Thermal insulating products for building applications - Determination of squareness*
- EN 825, *Thermal insulating products for building applications - Determination of flatness*
- EN 998-1, *Specification for mortar for masonry - Part 1: Rendering and plastering mortar*
- EN 1015-1, *Methods of test for mortar for masonry - Part 1: Determination of particle size distribution (by sieve analysis)*
- EN 1015-6, *Methods of test for mortar for masonry - Part 6: Determination of bulk density of fresh mortar*
- EN 1015-18, *Methods of test for mortar for masonry - Part 18: Determination of water absorption coefficient due to capillary action of hardened mortar*
- EN 1062-1, *Paints and varnishes - Coating materials and coating systems for exterior masonry and concrete - Part 1: Classification*
- EN 1062-3, *Paints and varnishes - Coating materials and coating systems for exterior masonry and concrete - Part 3: Determination of liquid water permeability*
- EN 1542, *Products and systems for the protection and repair of concrete structures - Test methods - Measurement of bond strength by pull-off*
- EN 1602, *Thermal insulating products for building applications - Determination of the apparent density*
- EN 1604, *Thermal insulating products for building applications - Determination of dimensional stability under specified temperature and humidity conditions*
- EN 1607, *Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces*
- EN 1609, *Thermal insulating products for building applications - Determination of short term water absorption by partial immersion*
- EN 1990:2002, *Eurocode: Basis of structural design*¹⁾
- EN 1991-1-4, *Eurocode 1: Actions on structures - Part 1-4: General actions - Wind actions*
- 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 12090, *Thermal insulating products for building applications - Determination of shear behaviour*
- EN 12127, *Textiles - Fabrics - Determination of mass per unit area using small samples*

1) This document is impacted by the amendment EN 1990:2002/A1:2005.

EN 12664, *Thermal performance of building materials and products - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Dry and moist products of medium and low thermal resistance*

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 13162, *Thermal insulation products for buildings - Factory made mineral wool (MW) products - Specification*

EN 13163, *Thermal insulation products for buildings - Factory made expanded polystyrene (EPS) products - Specification*

EN 13164, *Thermal insulation products for buildings - Factory made extruded polystyrene foam (XPS) products - Specification*

EN 13165, *Thermal insulation products for buildings - Factory made rigid polyurethane foam (PU) products - Specification*

EN 13166, *Thermal insulation products for buildings - Factory made phenolic foam (PF) products - Specification*

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

EN 13170, *Thermal insulation 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*

EN 13172:2012, *Thermal insulation products - Evaluation of conformity*

EN 13494, *Thermal insulation products for building applications - Determination of the tensile bond strength of the adhesive and of the base coat to the thermal insulation material*

EN 13495, *Thermal insulation products for building applications - Determination of the pull-off resistance of external thermal insulation composite systems (ETICS)(foam block test)*

EN 13496, *Thermal insulation products for building applications - Determination of the mechanical properties of glass fibre meshes as reinforcement for External Thermal Insulation Composite Systems with renders (ETICS)*

EN 13497, *Thermal insulation products for building applications - Determination of the resistance to impact of external thermal insulation composite systems (ETICS)*

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire test*

EN 13823, *Reaction to fire tests for building products - Building products excluding floorings exposed to the thermal attack by a single burning item*

EN 15824, *Specifications for external renders and internal plasters based on organic binders*

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EN 16382, *Thermal insulation products for building applications - Determination of the pull-through resistance of plate anchors through thermal insulation products*

EN 16383, *Thermal insulation products for building applications - Determination of the hygrothermal behaviour of external thermal insulation composite systems with renders (ETICS)*

EN 16724, *Thermal insulation products for building applications - Instructions for mounting and fixing for determination of the reaction to fire testing of external thermal Insulation composite systems (ETICS)*

EN 16733, *Reaction to fire tests for building products - Determination of a building product's propensity to undergo continuous smouldering*

prEN 17101, *Thermal insulation products for buildings - PU adhesive foam for External Thermal Insulation Composite Systems (ETICS)*

EN 29052-1, *Acoustics - Determination of dynamic stiffness - Part 1: Materials used under floating floors in dwellings*

EN 29053, *Acoustics - Materials for acoustical applications - Determination of airflow resistance (ISO 9053)*

EN ISO 1182, *Reaction to fire tests for products - Non-combustibility test (ISO 1182)*

EN ISO 1716, *Reaction to fire tests for products - Determination of the gross heat of combustion (calorific value) (ISO 1716)*

EN ISO 2811-1, *Paints and varnishes - Determination of density - Part 1: Pycnometer method (ISO 2811-1)*

EN ISO 3251, *Paints, varnishes and plastics - Determination of non-volatile-matter content (ISO 3251)*

EN ISO 3451-1, *Plastics - Determination of ash - Part 1: General methods (ISO 3451-1:2008)*

EN ISO 6946, *Building components and building elements - Thermal resistance and thermal transmittance - Calculation methods (ISO 6946)*

EN ISO 7783, *Paints and varnishes - Determination of water-vapour transmission properties - Cup method (ISO 7783)*

EN ISO 9229:2007, *Thermal insulation - Vocabulary (ISO 9229)*

EN ISO 10211, *Thermal bridges in building construction - Heat flows and surface temperatures - Detailed calculations (ISO 10211)*

EN ISO 10456, *Building materials and products - Hygrothermal properties - Tabulated design values and procedures for determining declared and design thermal values (ISO 10456)*

EN ISO 11925-2, *Reaction to fire tests - Ignitability of products subjected to direct impingement of flame - Part 2: Single-flame source test (ISO 11925-2)*

ISO 16269-6:2014, *Statistical interpretation of data - Part 6: Determination of statistical tolerance intervals*

ISO 1887, *Textile glass - Determination of combustible-matter content*

EAD 330196-00-0604, Plastic anchors for fixing of external thermal insulation composite systems with rendering²⁾

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 9229:2007 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

adhesive

component used for bonding the thermal insulation product to the substrate

3.2

thermal insulation type

group of insulation products of the same thermal insulation material if a thermal insulation material covers more than one physical structure

Note 1 to entry: EPS S and SD, MW Lamella and board and faced and un-faced products are examples for different types of the same thermal insulation material.

3.3

anchor for thermal insulation products

fixing device for fixing the thermal insulation product and if appropriate also the reinforced base coat consisting of a plate, a sleeve which passes through (or partially) the thermal insulation product and a part which is embedded to the substrate

3.4

anchor for profiles or rails

fixing device for fixing the profiles or rails to the substrate

3.5

ancillary product

any supplementary component used in addition to the kit, which shall be used according to system holders instructions

3.6

base coat

component applied directly by rendering to the thermal insulation product

3.7

component

factory-made product or a group of factory-made products as a functional unit of the design ETICS

2) Available at: <https://www.eota.eu/>

prEN 17237:2018 (E)**3.8****reinforced base coat**

base coat with embedded reinforcement

3.9**declared thickness**

nominal thickness or range of thicknesses (minimum/maximum) of a layer of a kit stated by the system holder

3.10**key coat**

component applied to the base coat as a preparation for the application of the finishing coat

3.11**finishing coat**

component applied to the reinforced base coat with or without a key coat

3.12**decorative coat**

component which is applied to the finishing coat contributing to the aesthetic finishing and protection against weathering

3.13**finishing layer**

finishing coat with a key coat (optional) and/or a decorative coat (optional)

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3.14**rendering system**

reinforced base coat with finishing layer

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3.15**design external thermal insulation composite system (design ETICS)**

set of products defined by the system holder out of one base coat, thermal insulation product(s) of the same material, reinforcement(s) and with finishing coats, with adhesive(s) and/or mechanical fixing device(s) and optionally key coat(s) and decorative coat(s)

3.16**kit**

combination of selected products taken from a design ETICS and placed on the market by the system holder to be incorporated in the construction works

Note 1 to entry: For definition see CPR.

3.17**assembled kit**

kit after it has been incorporated in the construction works

3.18**reinforcement**

glass fibre mesh or metal mesh embedded in the base coat to reinforce the rendering system

3.19**glass fibre mesh**

textile fabrics consisting of continuous glass filament yarn in both the warp and the weft directions as reinforcement, embedded in the base coat

3.20**metal mesh**

galvanised steel or stainless steel mesh as reinforcement, embedded in the base coat

3.21**mechanical fixing device**

product used for fixing a kit mechanically to the substrate

3.22**substrate**

part of the wall/test assembly to which a kit is fixed

3.23**system holder**

single manufacturer who is placing design ETICS kits on the market

3.24**worst case**

configuration of specified products taken from the design ETICS for test purposes that leads to the most discriminating class or level of a certain characteristic of a kit. The performance of this kit can then be used to determine a equal or better performance for configurations of different products.

3.25**supplementary mechanical fixing device**

mechanical fixing device used primarily to provide stability until the adhesive has cured and act as a temporary connection to avoid the risk of detachment

3.26**supplementary adhesive**

adhesive used primarily to maintain thermal insulation products to the substrate before mechanical fixing

3.27**organic content**

total amount of organic substances as part of a component or a product related to the mass in cured and dried conditions

4 General — Informative**4.1 Description of a design ETICS**

A design ETICS is defined by the system holder. It consists of

- one base coat,
- thermal insulation product(s) of the same material,
- adhesive(s) without mechanical fixing device(s) or adhesives and mechanical fixing device(s) or only mechanical fixing device(s),

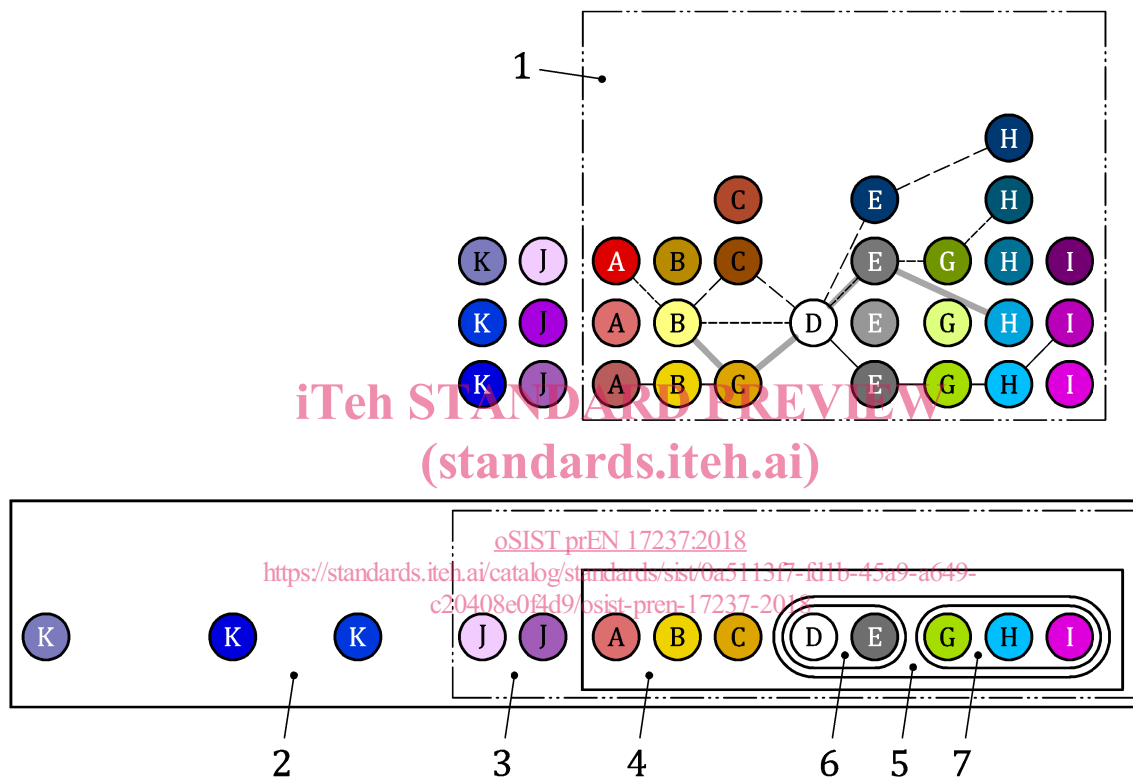
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- reinforcement(s),
- finishing layer(s).

(See Figure 1 — Description of design ETICS and kit in relation to construction works). All combinations and their characteristics required to form a particular kit intended by the system holder, shall be fully described by the system holder.

They are assessed according to this standard before being placed on the market.

According to the characteristics and performance of a construction works a designer can then select an appropriate kit from the design ETICS.



Key

- | | | | |
|---|---|---|--|
| 1 | design ETICS (Box 1) | A | adhesives |
| 2 | construction works (Box 2) | B | thermal insulation products of the same material |
| 3 | assembled kit with ancillary products (Box 3) | C | mechanical fixing devices |
| 4 | assembled kit (Box 4) | D | base coat |
| 5 | rendering system (Box 5) | E | reinforcement |
| 6 | reinforced base coat (Box 6) | G | key coats |
| 7 | finishing layer (Box 7) | H | finishing coats |
| | | I | decorative coats |
| | | J | ancillary products |
| | | K | other construction products |

Figure 1 — Description of design ETICS and kit in relation to construction works

Figure 1 shows the principles of design ETICS, the resultant kits and the relation to construction works. Box 1 contains every product which can be used for a specific design ETICS kit. Only one base coat is

covered by one design ETICS. Some of the components are not mandatory. Commonly only a few of all possible combinations of the products in box 1 are in visage by a system holder for a particular kit. Only these combinations belong to the design ETICS. In short, the design ETICS consists of all products and the intended combinations for kits thereof.

Box 1 contains four kit examples. The short dash line kit is only bonded by adhesive. The straight line kit includes any kind of components. The grey line and the long dashes kits use reduced sets of components. These four kit examples are also illustrated in Figure 2 a), b), d) and e).

Box 2 is applicable to construction works. It includes an assembled kit with ancillary products, box 3. Ancillary products may be mastics, joint-covers, corner stripes, corner profiles, base profiles, fire barriers, etc. They are necessary to complete a kit on site. Box 4 intends the assembled kit without ancillary products. It includes the rendering system, box 5. The rendering system is made of the reinforced base coat, box 6, and the finishing layer, box 7.

NOTE In some cases products of a design ETICS may have additional intended uses.

Ancillary products are used, e.g. to form joints or to achieve continuity or to give specific protection (mastics, joint-covers, corner stripes, corner profiles, base profiles, fire barriers etc.). They are specified by the system holder in order to ensure the performance, the safety and the durability of the system. They are used in the assembled kit according to system holder's application rules, but are not assessed by this standard.

4.2 Description of an assembled kit

An assembled kit comprises a thermal insulation product fixed onto the external surface of a substrate. The substrate is made of masonry (bricks, blocks, stones etc.) or concrete (cast on site or as prefabricated panels). The thermal insulation product is faced by a rendering system consisting of a reinforced base coat and a finishing layer. The reinforcement consists of glass fibre mesh or metal mesh, incorporated in the base coat. The finishing layer consists of a finishing coat and an optional key coat and/or decorative coat.

For fixing methods and typical thermal insulations products used see Table 1 — Fixing methods and typical thermal insulation products used.