
Samonosilne izolacijske sendvič plošče z obojstranskim kovinskim oplaščenjem
- Tovarniško izdelani proizvodi - Specifikacije

Self-supporting double skin metal faced insulating panels - Factory made products - Specifications

Selbsttragende Sandwich-Elemente mit beidseitigen Metalldeckschichten - Werkmäßig hergestellte Produkte - Teil 1: Spezifikationen

Panneaux sandwichs, isolants, double peau à parements métalliques - Produits manufacturés - Spécifications - Partie 1 : Applications autoportantes

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ICS:

91.100.60	Materiali za toplotno in zvočno izolacijo	Thermal and sound insulating materials
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Self-supporting double skin metal faced insulating panels - Factory made products - Specifications

Panneaux sandwichs, isolants, double peau à
parements métalliques - Produits manufacturés -
Spécifications - Partie 1 : Applications autoportantes

Selbstragende Sandwich-Elemente mit beidseitigen
Metalldeckschichten - Werkmäßig hergestellte
Produkte - Teil 1: Spezifikationen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 128.

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.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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prEN 14509:2018 (E)

European foreword

This document (prEN 14509:2018) has been prepared by Technical Committee CEN/TC 128 “Roof covering products for discontinuous laying and products for wall cladding”, the secretariat of which is held by NBN.

This document will supersede EN 14509:2006.

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 EU Directive(s).

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

Annex F provides details of significant technical changes between this European Standard and the previous edition.

Data obtained from earlier tests in accordance to EN 14509:2006 may be used without the need for further testing to the revised procedures (6.2.2) providing the declared data does not change significantly.

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1 Scope

This document specifies requirements for factory made, self-supporting, double skin metal faced insulating sandwich panels, which are intended for discontinuous laying in the following applications:

- a) roofs and roof cladding;
- b) external walls and wall cladding;
- c) walls (including partitions) and ceilings within the building envelope.

The insulating core materials covered by this document are rigid polyurethane, expanded polystyrene, extruded polystyrene foam, phenolic foam, cellular glass and mineral wool.

NOTE Polyurethane (PUR) includes polyisocyanurate (PIR).

Panels with edge details that utilise different materials from the main insulating core are included in this document.

Panels used in cold store applications are included in this document. Panels, put on the market as a component of a cold storage room, building and/or building envelope kit are covered by ETA-Guideline 021 "Cold storage premises kits".

This document does not cover the following:

- i. sandwich panels with a declared thermal conductivity for the insulating core greater than 0,06 W/m·K at 10 °C;
- ii. products consisting of two or more clearly defined layers of different insulating core materials (multi-layered);
- iii. panels with perforated facing(s);
- iv. curved panels.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 485-2, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 2: Mechanical properties*

EN 485-4, *Aluminium and aluminium alloys - Sheet, strip and plate - Part 4: Tolerances on shape and dimensions for cold-rolled products*

EN 508-1, *Roofing and cladding products from metal sheet - Specification for self-supporting of steel, aluminium or stainless steel sheet - Part 1: Steel*

EN 826, *Thermal insulating products for building applications - Determination of compression behaviour*

EN 1172, *Copper and copper alloys - Sheet and strip for building purposes*

CEN/TS 1187, *Test methods for external fire exposure to roofs*

EN 1363-1:2012, *Fire resistance tests - Part 1: General Requirements*

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EN 1364-1, *Fire resistance tests for non-loadbearing elements - Part 1: Walls*

EN 1364-2, *Fire resistance tests for non-loadbearing elements - Part 2: Ceilings*

EN 1365-2, *Fire resistance tests for loadbearing elements - Part 2: Floors and roofs*

EN 1396, *Aluminium and aluminium alloys - Coil coated sheet and strip for general applications - Specifications*

EN 1602, *Thermal insulating products for building applications - Determination of the apparent density*

EN 1607, *Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces*

EN 1990:2002, *Eurocode - Basis of structural design*

EN 10088-1, *Stainless steels - Part 1: List of stainless steels*

EN 10143, *Continuously hot-dip coated steel sheet and strip - Tolerances on dimensions and shape*

EN 10169, *Continuously organic coated (coil coated) steel flat products — Technical delivery conditions*

EN 10204, *Metallic products - Types of inspection documents*

EN 10346:2015, *Continuously hot-dip coated steel flat products - Technical delivery conditions*

EN 12085, *Thermal insulating products for building applications - Determination of linear dimensions of test specimens*

EN 12114, *Thermal performance of buildings - Air permeability of building components and building elements - Laboratory test method*

EN 12865, *Hygrothermal performance of building components and building elements - Determination of the resistance of external wall systems to driving rain under pulsating air pressure*

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*

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CEN/TS 13381-1, *Test methods for determining the contribution to the fire resistance of structural members - Part 1: Horizontal protective membranes*

ENV 13381-2, *Test methods for determining the contribution to the fire resistance of structural members - Part 2: Vertical protective membranes*

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

EN 13501-2, *Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services*

EN 13501-5, *Fire classification of construction products and building elements - Part 5: Classification using data from external fire exposure to roofs tests*

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

EN 14135, *Coverings - Determination of fire protection ability*

EN 15254-5, *Extended application of results from fire resistance tests - Non-loadbearing walls - Part 5: Metal sandwich panel construction*

EN ISO 354:2003, *Acoustics - Measurement of sound absorption in a reverberation room (ISO 354:2003)*

EN ISO 717-1, *Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation (ISO 717-1)*

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 6270-1, *Paints and varnishes - Determination of resistance to humidity - Part 1: Condensation (single-sided exposure) (ISO 6270-1)*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

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

EN ISO 9445 (all parts), *Continuously cold-rolled stainless steel - Tolerances on dimensions and form (ISO 9445)*

EN ISO 10140 (all parts), *Acoustics - Laboratory measurement of sound insulation of building elements (ISO 10140)*

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)*

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EN ISO 11654, *Acoustics - Sound absorbers for use in buildings - Rating of sound absorption (ISO 11654)*

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 12491, *Statistical methods for quality control of building materials and components*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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**auto-adhesion**

self adhesion of the core to the face(s) occurring automatically without the use of an adhesive

3.2**bending moment capacity**

maximum bending moment recorded during a test on an individual panel

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3.3**bending resistance**

characteristic value of bending moment capacity determined on the basis of a test series

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3.4**bond, bonding**

adhesion between the face(s) and the core normally provided by an adhesive

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3.5**ceiling**

covering over an internal area

3.6**core**

layer of material, having thermal insulating properties, which is bonded between two metal faces

3.7**durability**

ability of the panel to withstand the environmental effects and accommodate the consequent decrease in mechanical strength with time caused by factors such as temperature, humidity, freeze-thaw cycles and their various combinations

3.8**edge, longitudinal edge**

side of the panel where adjacent panels join together in the same plane

3.9**face, facing**

flat, lightly profiled or profiled thin metal sheet firmly bonded to the core.

3.10**flat facing**

facing without any rolled or pressed profile, or raised strengthening rib

3.11**incompletely bonded face**

metal face whose bond to the core is adequate for sandwich action but does not include the entire surface of the core

Note 1 to entry: An example is a trapezoidally profiled face that has voids between the raised profiles and the core.

3.12**incompletely bonded panel**

panel in which one or both faces is incompletely bonded

3.13**joint**

interface between two panels where the meeting edges have been designed to allow the panels to join together in the same plane

Note 1 to entry: The joint may incorporate interlocking parts that enhance the mechanical properties of the system as well as improving the thermal, acoustic and fire performance and restricting air movement.

Note 2 to entry: The term 'joint' does not refer to a junction between cut panels or a junction where the panels are not installed in the same plane. (standards.iteh.ai)

3.14**lamella**

core material consisting of mineral wool that has been cut and orientated with the fibres perpendicular to the facings prior to bonding

3.15**lightly profiled facing**

facing with a rolled or pressed profile not exceeding 5 mm in depth

3.16**pre-manufactured, pre-formed**

component or material that is supplied to the manufacturer ready for direct incorporation into the sandwich panel

3.17**sandwich panel**

building product consisting of two metal faces positioned on either side of a core that is a thermally insulating material, which is firmly bonded to both faces so that the three components act compositely when under load

3.18**self-supporting panel**

panel capable of supporting, by virtue of its materials and shape, its self-weight and in the case of panels fixed to spaced structural supports all applied loadings (e.g. snow, wind, internal air pressure), and transmitting these loadings to the supports