

SLOVENSKI STANDARD

SIST EN 13950:2014

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Nadomešča:
SIST EN 13950:2006

Mavčne plošče za toplotno/zvočno izolacijo kompozitnih panelov - Definicije, zahteve in preskusne metode

Gypsum board thermal/acoustic insulation composite panels - Definitions, requirements and test methods

Gips-Verbundplatten zur Wärme- und Schalldämmung - Begriffe, Anforderungen und Prüfverfahren

Complexes d'isolation thermique/acoustique en plaques de plâtre - Définitions, exigences et méthodes d'essai

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

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EUROPEAN STANDARD
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Gypsum board thermal/acoustic insulation composite panels -
Definitions, requirements and test methods

Complexes d'isolation thermique/acoustique en plaques de
plâtre et isolant - Définitions, spécifications et méthodes
d'essai

Gips-Verbundplatten zur Wärme- und Schalldämmung -
Begriffe, Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 22 May 2014.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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EN 13950:2014 (E)**Foreword**

This document (EN 13950:2014) has been prepared by Technical Committee CEN/TC 241 "Gypsum and gypsum based products", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by January 2015 and conflicting national standards shall be withdrawn at the latest by April 2016.

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 supersedes EN 13950:2005.

The main technical changes that have been made in this new edition of EN 13950 are the following:

- a) Normative references have been updated;
- b) Scope has been enlarged to include boards according to EN 520, EN 15283-1 and EN 15283-2;
- c) new clause symbols, abbreviations and classification has been introduced;
- d) Annex ZA and Clause 6 have been revised to be in line with the Construction Products Regulation (CPR);
- e) document has been editorially revised.

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 Regulation (EU) No. 305/2011.

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For relationship with Regulation (EU) No. 305/2011, see informative Annex ZA, which is an integral part of this document.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the characteristics and performance of thermal/acoustic insulation composite panels made of an insulating material laminated to gypsum boards for which the main intended use is the internal insulation (thermal and/or acoustic) of walls. They are attached with adhesives or by mechanical fixings to vertical solid backgrounds and by mechanical fixings to wood or metal framing with the gypsum board face exposed. The method of fixing and jointing should ensure that the insulating material is not exposed in its normal application.

This European Standard covers the following performance characteristics: reaction to fire, fire resistance, water vapour permeability, flexural strength, impact resistance, direct airborne sound insulation and thermal resistance to be measured according to the corresponding European test methods.

It provides for the assessment and verification of constancy of performance of the products to this European Standard.

This European Standard covers also additional technical characteristics that are of importance for the use and acceptance of the product by the construction industry.

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 520, *Gypsum plasterboards — Definitions, requirements and test methods*

EN 825:2013, *Thermal insulating products for building applications — Determination of flatness*

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

EN 13963, *Jointing materials for gypsum plasterboards — Definitions, requirements and test methods*

EN 14496, *Gypsum based adhesives for thermal/acoustic insulation composite panels and plasterboards — Definitions, requirements and test methods*

EN 15283-1, *Gypsum boards with fibrous reinforcement — Definitions, requirements and test methods — Part 1: Gypsum boards with mat reinforcement*

EN 15283-2, *Gypsum boards with fibrous reinforcement — Definitions, requirements and test methods — Part 2: Gypsum fibre boards*

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

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

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)*

EN ISO 12572, *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties (ISO 12572)*

ISO 7892, *Vertical building elements — Impact resistance tests — Impact bodies and general test procedures*

3 Terms, definitions, symbols, abbreviations and classification

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

3.1 Terms and definitions of the product

3.1.1

gypsum board thermal/acoustic insulation composite panel

panel made from an insulating material laminated to gypsum board, with or without a water vapour retarder

3.1.2

gypsum board thermal/acoustic insulation sandwich panel

gypsum board thermal/acoustic insulation composite panel with board on both faces

3.2 General terms

3.2.1

water vapour retarder

material which reduces water vapour diffusion, provided separately or in conjunction with the gypsum board

EXAMPLE See EN 14190.

3.2.2

panel facing

exposed surface of gypsum board to receive either direct decoration or gypsum plaster

3.2.3

length

dimension of the laminate measured by convention on the gypsum board, parallel to the longitudinal edges

3.2.4

width

dimension of the laminate measured by convention on the gypsum board, parallel to the cut edges

3.2.5

thickness

distance between the outer surfaces of the composite or of the sandwich panel

3.2.6

offset

position of the insulating material relative to the gypsum board and between the two gypsum boards in the case of the sandwich panel

Note 1 to entry: When the insulating material projects over the edge or the end of the gypsum board, the offset is taken to be positive.

3.3 Symbols and abbreviations

Table 1 — Symbols and abbreviations

Requirement	Sub-clause	Symbol or abbreviation
Reaction to fire	4.2.1	R2F
Water vapour resistance factor	4.3	μ
Flexural strength	4.4	F
Thermal resistance	4.8	TR
Impact resistance	4.5	→I
Airborne sound insulation	4.6	R
Acoustic absorption	4.7	α
Dangerous substances	4.13	DS
See manufacturer's literature		www.manufacturers_internet_address.com

3.4 Classification

Gypsum board thermal/acoustic insulation composite panels shall be classified depending on the kind of insulating materials as follows

a) class 1 composites:

- expanded polystyrene foam (EPS) (see EN 13163);
- extruded polystyrene foam (XPS) (see EN 13164);
- rigid polyurethane foam (polyisocyanate, polyisocyanurate) (PUR and PIR) (see EN 13165);
- phenolic foam (PF) (see EN 13166);

b) class 2 composites:

- mineral wool (MW) (see EN 13162).

Gypsum board thermal/acoustic insulation composite panels are for convenience referred to elsewhere in this European Standard as “composites”

4 Requirements

4.1 General

The gypsum board and the insulating material shall comply with their respective European Standards. Further requirements of the insulating material are given below.

Acoustic and thermal insulation performance vary according to the type of the insulating material, its thickness, its application and system.

EN 13950:2014 (E)**4.2 Fire behaviour****4.2.1 Reaction to fire**

When the intended use of gypsum board thermal/acoustic composite panels is for exposed situations in building construction works, composites shall be tested with their edges protected and classified in accordance with EN 13501-1.

Composites tested according to EN 13823 (SBI test) shall be mounted and fixed (see Annex B).

Composites tested according to EN ISO 11925-2 (small flame test) shall be tested on the face only as the edges are never exposed in use.

4.2.2 Fire resistance

NOTE Resistance to fire is a characteristic dependent on an assembled system and not of the product in isolation.

When the manufacturer wishes to determine the fire resistance performance of a system including composites, the system shall be tested and classified according to EN 13501-2.

4.3 Water vapour permeability (expressed as water vapour resistance factor)

Water vapour permeability is not a characteristic of heterogeneous products like composites.

When the intended use of composites is for moisture diffusion control, the water vapour resistance of the composites shall be determined in accordance with the test method described in EN ISO 12572.

NOTE The generic values of water vapour resistance given in EN ISO 10456 can be used for calculation.

4.4 Flexural strength

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Composites shall have a minimum transverse breaking load of 160 N and longitudinal breaking load of 400 N when determined in accordance with EN 520 or EN 15283-1 and EN 15283-2. This shall be ensured by using gypsum boards having those mechanical performances.

4.5 Impact resistance

NOTE Impact resistance is a characteristic dependent on an assembled system and not of the product in isolation.

When the manufacturer wishes to determine the impact resistance performance of a system including composite panels, the system shall be tested and classified according to ISO 7892.

4.6 Direct airborne sound insulation

NOTE Direct airborne sound insulation is a characteristic dependent on an assembled system and not of the product in isolation.

When the manufacturer wishes to determine the direct airborne sound insulation of a system including composites, the system shall be tested and classified according to EN ISO 10140 (all parts) as appropriate.

4.7 Acoustic absorption

NOTE Acoustic absorption is a characteristic dependent on an assembled system and not of the product in isolation.

When the manufacturer wishes to determine the acoustic absorption of a system including composites, the system shall be tested and classified according to EN ISO 354.

4.8 Thermal resistance of the panel

The thermal resistance of the composite panel shall be obtained by the addition of the thermal resistances of the components and expressed in $\text{m}^2 \times \text{K/W}$.

When a manufacturer wishes to declare thermal resistance, the thermal resistance may be calculated on the basis of tabulated data, testing or combination of them both.

Design thermal resistance values of gypsum boards are given in EN ISO 10456.

EN 12939 and EN 12667 give test methods for the thermal resistance of insulating products.

4.9 Dimensions and tolerances

Width and length of the composite panels are determined by the boards used in accordance with the relevant standards

The nominal thickness of the composite panels shall be given by the manufacturer.

- Gypsum boards with a minimum nominal thickness as given in the relevant standards;
- insulating material with a minimum nominal thickness as given in the relevant standards.

The thickness shall be measured as described in 5.2.1. The tolerance for each individual measurement for the thickness of the composite panels shall be ± 3 mm.

4.10 Offset

The offset range when determined as described in 5.3 shall not exceed:

- width direction: -5 mm to $+5$ mm;
- length direction: -5 mm to $+8$ mm.

The two measurements on the same side shall not differ by more than 5 mm. Within this range, different offset arrangements are possible to satisfy different applications.

Composite panels can be classified N when the offset is negative (insulating material back from the board) and P when positive (insulating material out of the board).

4.11 Flatness of the composite

The deviation from flatness of the composite, determined according to 5.5, shall not exceed 5 mm.

4.12 Adhesion/cohesion of the insulating material

When the tensile strength is measured in accordance with 5.4, no value shall be less than 0,017 MPa for class 1 composites or less than 0,003 MPa for class 2 composites.

If the manufacturer wishes to declare a higher value for class 1 no value shall be less than 0,04 MPa.

4.13 Dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets.

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In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction website on EUROPA accessed through:

<http://ec.europa.eu/enterprise/construction/cpd-ds/>

5 Test methods**5.1 Sampling**

Tests shall be carried out on three composite panels of each type and thickness. For testing core adhesion/cohesion specimens shall be cut out from one single panel.

5.2 Dimensional measurements**5.2.1 Thickness****5.2.1.1 Principle**

The distance between the two faces of the composite panel shall be measured.

5.2.1.2 Apparatus

A caliper permitting readings to the nearest 0,5 mm.

5.2.1.3 Procedure

Take three measurements on each end to the nearest 0,5 mm at equal intervals across the width and at least 25 mm from the end and 100 mm from the edges (see Figure 1).

5.2.1.4 Expression of results

Each measured value expressed in millimetres shall be recorded and compared to the nominal thickness of the composite.

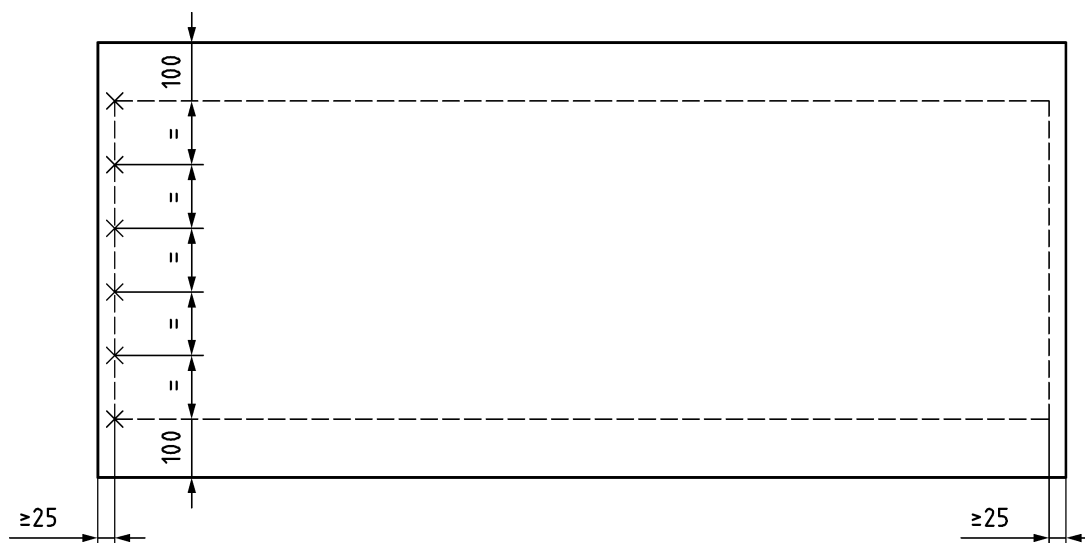


Figure 1 — Measurement of thickness