EN

# SANDWICH PANEL

INSULATED PANEL SYSTEMS FOR ARCHITECTURE CONSTRUCTION AND COLD STORAGE CHAMBERS

O FELIZ
PAINEL

# CONTENTS

# THE COMPANY AND THE GROUP

**“We aim to be a global reference.”**

Over several decades of activity, the Group O FELIZ has been nationally and internationally recognized as a quality reference concerning the Metal Construction Industry and coatings.

O FELIZ Painel is the newest company of the group and its sandwich panel was created to enrich and increase the range of products with the brand O FELIZ. The company occupies today a market leading position concerning the insulated panel. O FELIZ offers high-quality products and solutions which are tailored to customer and market needs.

With the most modern production line, skilled workers and certified reference materials, O FELIZ Painel aims to provide a high level of service, quality and efficiency to ensure and increase customer satisfaction.

**Product**

The improvement of the insulation and construction materials provides innovative, efficient and cheaper solutions. The insulated sandwich panel with polyurethane foam is one of the best examples of this development.

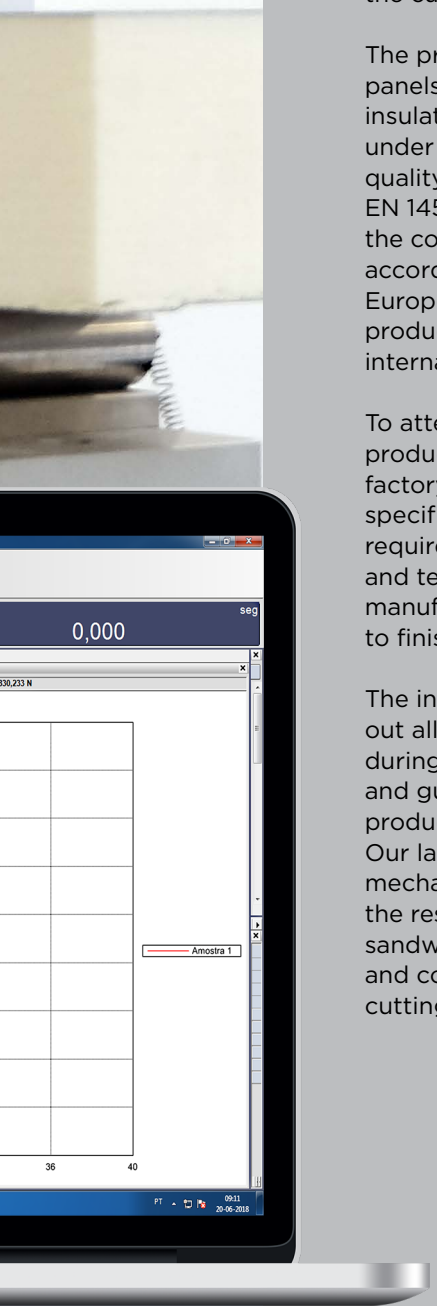
The sandwich panel, composed of two profiled steel sheets which are joined using a rigid Polyurethane Foam Core, is the best solution for thermal insulation when compared to other materials such as rock wool or polystyrene.

The production of self-supporting, insulating double-sided panels is subject to CE marking and the manufacturing requirements specified in EN 14509. The CE marking indicates that the product conforms to harmonized European legislation and standards and can move freely in the internal market.

This is a structure with a good mechanical behavior and water-tightness which is designed for easy installation. Due to its thermal efficiency and fire performance, this product became the most appropriate solution according to the construction regulations.

This is a product with high applicability in civil construction industry mainly in industrial, commercial or house facades. The sandwich panel is the best choice for industrial cold store systems, in particular when it is installed in modular and prefabricated buildings.


TRAPEZIUM X - Ensaio_corte_08.06.2018_amostra1&90.2.xtas
Arquivo Editar Visualização Ensaio Ferramentas Hardware Janela Ajuda
Lista de método-rápido Novo Abrir Salvar Prévia Imprimir Analisar novamente... Ensaiar novamente... Iniciar Pausar Parar
Ensaios realizados.
Force N 0,00
Stroke mm 0,0000
Tempo
Parar
Velocidade do ensaio 10 mm/min
Escala: CP Force
10000 N
50 N
Ruptura
Ligar
Nova análise
Abrir ensaio
Salvar como PDF
Relatório
Salvar como ensaio
Salvar
Voltar para TRAPEZIUMX Home
Gráfico1 Gráfico2
X = 11,678 mm
Ensaio de Resistência ao Corte (Flexão)
MÁX
Force(N)
Disp.(mm)
0 400 800 1200 1600 2000 2400 2800 3200 3600
0 4 8 12 16 20 24 28 32




## Quality

The quality management system, based on ISO 9001, guarantees the highest level of quality and ensures the customers quality expectations.

The production of self-supporting panels, double-skin metal-faced insulating panels, is developed under the CE marking, which quality regulations rely on EN 14509. The CE marking attests the conformity of the product, according to legislation and European standards. Therefore, the product can circulate freely in the internal market.

To attest the conformity of the products, the company has a factory production control which specifies the work procedures - requirements, regular inspection and testing, devices and manufacturing process from start to finish.

The inspection and test plan sets out all the obligatory inspections during the production stages and guarantees the quality of the products available in the market. Our laboratory performs daily mechanical testing to determine the resistance properties of the sandwich panel (tensile, impact and compressive strength and core cutting strength).

## Environment

The environmental management system implemented in O FELIZ Painel shows the concern with sustainability and preservation of the environment.

Therefore, our company actively identifies and implements improvements to minimize consumption and promote efficient use of resources, prevent pollution as well as accidents at work involving dangerous substances.

certif Certificado

CERTIFICADO DE REGULARIDADE DO DESEMPENHO
*CERTIFICATE OF CONSTANCY OF PERFORMANCE*
1328 – CPR – 0708

De acordo com o Regulamento 305/2011/EU do Parlamento Europeu e do Conselho, de 9 de março de 2011 (o Regulamento dos Produtos da Construção ou CPR), este certificado aplica-se ao produto da construção

*In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product*

PAINÉIS SANDWICH AUTOPORTANTES, ISOLANTES, COM DUPLA FACE METÁLICA
*SELF-SUPPORTING DOUBLE SKIN METAL FACED INSULATING PANELS*

de acordo com a utilização prevista e características descritas em anexo
*according to the intended use and characteristics in the annex*

fabricado por / *produced by*
O Feliz Painel, Lda.
Av. de São Lourenço, n.º 41, Celeirós
4705-444 Braga

e fabricado na unidade fabril / *and produced in the manufacturing plant*
O Feliz Painel, Lda.
Av. de São Pedro, n.º 22, Tebosa
4705-630 Braga

Este certificado atesta que todas as disposições relativas à avaliação e verificação da regularidade do desempenho e aos desempenhos descritos no Anexo ZA da(s) norma(s)

*This certificate attests that all provisions concerning the assessment and verification of constancy of performance and the performances described in Annex ZA of the standard(s)*

EN 14509:2013

de acordo com o sistema 1 são aplicados e que o produto cumpre todos os requisitos estabelecidos acima indicados.

*under system 1 are applied and that the product fulfils all the prescribed requirements set out above.*

Este certificado foi emitido pela primeira vez em 2018-05-03 e manter-se-á válido desde que não mudem os métodos de ensaio e/ou os requisitos de controlo da produção em fábrica incluídos na norma harmonizada, usados para avaliar o desempenho das características declaradas, e que o produto e as condições de fabrico na fábrica não se alterem significativamente.

*This certificate was first issued on 2018-05-03 and will remain valid as long as the test methods and/or factory production control requirements included in the harmonized standard, used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly.*

Almada, 2018-05-03

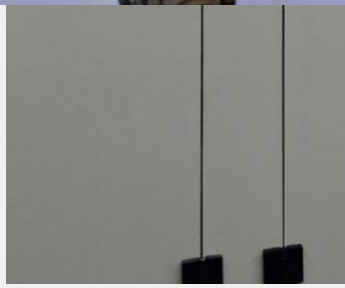
Francisco Barroca
Diretor Geral / *General Manager*

IPAC

Este Certificado é constituído por um Anexo com 2 (duas) páginas
*This Certificate includes one Annex with 2 (two) pages*

Certif – Associação para a Certificação
Rua José Afonso, 9 E – 2810-237 Almada – Portugal – Tel.: 351 21 258 69 40 – Fax: 351 21 258 69 59

Certificate of Constancy of Performance CERTIF (CE Marking)



**The evaluation and verification of the constancy of the performance, is performed according to system 1 and proven by the Certificate of Constancy of Performance, issued by CERTIF: Association for Certification.**

The Quality Management System of O FELIZ Painel, implemented in accordance with ISO 9001, ensures the conditions to respond to the needs and expectations of the customers, giving them the guarantee of the high level of quality of the product.

Ignitability test

## Reaction to Fire

The way the materials used in the various building elements react to fire is extremely important for fire safety, as it determines the evolution of a possible firebreak, conditioning the time for the safe evacuation of the building, as well as for the control and the extinction of fire.

Reaction to Fire is the indicator that allows us to classify the fire behavior of a material, analyzing its contribution in the deflagration, in the initial propagation of the fire and in its development.

The classification of the reaction to fire is harmonized at European level by EN 13501-1. This classification is based on two standardized European tests:

- **EN ISO 11925-2 Test:**
  Ignitability test (application of direct flame on the insulation foam);

- **EN 13823 Test:**
  Isolated element in combustion test (SBI).

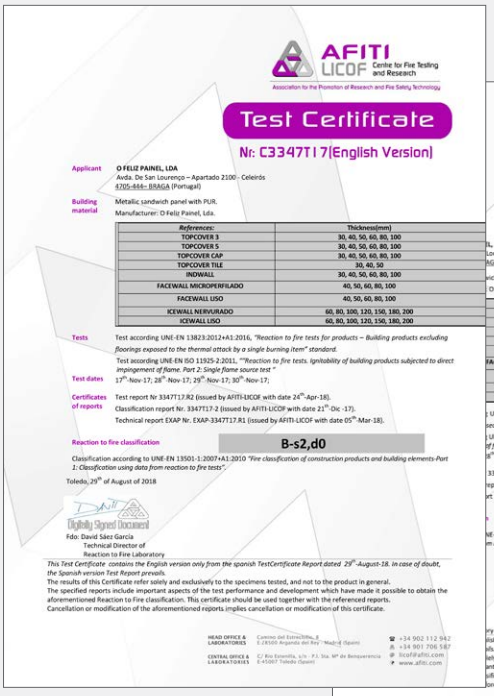
In order to meet the requirements of the Fire Safety in Buildings (SCIE) legal regime, DL 220/2008 and Ordinance nº 1532/2008, O FELIZ Panel presents a range of products tested in certified laboratory and provenly classified as the Fire Reaction.

| O FELIZ Painel foam solutions | | |
|---|---|---|
| **PUR** | **PIR** | **PIR-HI** |
| B-s2,d0 | B-s2,d0 | B-s1,d0 |

| **Combustibility** | **Smoke Production** | **Production of inflamed Particles/Droplets** |
|---|---|---|
| **A** Non-combustible | | |
| **B** Very limited contribution to fire | **s1** Low smoke production | |
| **C** Limited contribution to fire | **s2** Average smoke production | **d0** Without particles/droplets production |
| **D** Average limited contribution to fire | **s3** High smoke production | **d1** Production of particles without inflammation |
| **E** High contribution to fire | | **d1** Production of particles with inflammation |
| **F** Without classification | | |

**Euroclasses of Reaction to Fire EN 13501**

Isolated element in
combustion test (SBI)



AFITI LICOF Centre for Fire Testing and Research
Association for the Promotion of Research and Fire Safety Technology

**Test Certificate**

Nr: C3347T17(English Version)

Applicant: O FELIZ PAINEL, LDA
Avda. Dr San Lourenço – Apartado 2100 - Celeirós
4705-444- BRAGA (Portugal)

Building material: Metallic sandwich panel with PUR.
Manufacturer: O Feliz Painel, Lda.

| References: | Thickness(mm) |
|---|---|
| TOPCOVER 3 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER 5 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER CAP | 30, 40, 50, 60, 80, 100 |
| TOPCOVER TILE | 30, 40, 50 |
| INDWALL | 30, 40, 50, 60, 80, 100 |
| FACEWALL MICROPERFILADO | 40, 50, 60, 80, 100 |
| FACEWALL USO | 40, 50, 60, 80, 100 |
| ICEWALL NERVURADO | 60, 80, 100, 120, 150, 180, 200 |
| ICEWALL LISO | 60, 80, 100, 120, 150, 180, 200 |

Tests: Test according UNE-EN 13823:2012+A1:2016, *"Reaction to fire tests for products – Building products excluding floorings exposed to the thermal attack by a single burning item" standard.*
Test according UNE-EN ISO 11925-2:2011, *""Reaction to fire tests. Ignitability of building products subjected to direct impingement of flame. Part 2: Single flame source test "*

Test dates: 17th-Nov-17; 28th-Nov-17; 29th-Nov-17; 30th-Nov-17;

Certificates of reports: Test report Nr 3347T17.R2 (issued by AFITI-LICOF with date 24th-Apr-18).
Classification report Nr. 3347T17-2 (issued by AFITI-LICOF with date 21th-Oic -17).
Technical report EXAP Nr. EXAP-3347T17.R1 (issued by AFITI-LICOF with date 05th-Mar-18).

Reaction to fire classification: **B-s2,d0**

Classification according to UNE-EN 13501-1:2007+A1:2010 *"Fire classification of construction products and building elements-Part 1: Classification using data from reaction to fire tests".*

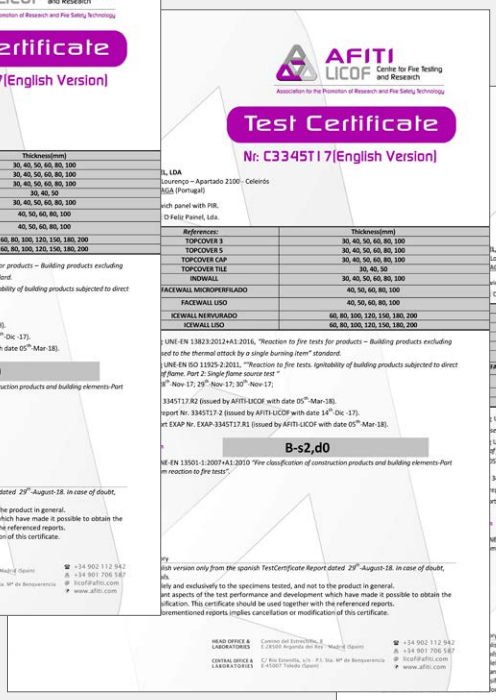
Toledo, 29th of August of 2018

Digitally Signed Document
Fdo: David Sáez García
Technical Director of
Reaction to Fire Laboratory

*This Test Certificate contains the English version only from the spanish TestCertificate Report dated 29th-August-18. In case of doubt, the Spanish version Test Report prevails.*
The results of this Certificate refer solely and exclusively to the specimens tested, and not to the product in general.
The specified reports include important aspects of the test performance and development which have made it possible to obtain the aforementioned Reaction to Fire classification. This certificate should be used together with the referenced reports.
Cancellation or modification of the aforementioned reports implies cancellation or modification of this certificate.

HEAD OFFICE & LABORATORIES: Camino del Estrecillo, 8 E-28500 Arganda del Rey - Madrid (Spain)
CENTRAL OFFICE & LABORATORIES: C/ Río Estenilla, s/n - P.I. Sta. Mª de Benquerencia E-45007 Toledo (Spain)
+34 902 112 942 | +34 901 706 587 | licof@afiti.com | www.afiti.com

PUR — B-s2d0



AFITI LICOF Centre for Fire Testing and Research
Association for the Promotion of Research and Fire Safety Technology

**Test Certificate**

Nr: C3345T17(English Version)

L, LDA
Lourenço – Apartado 2100 - Celeirós
AGA (Portugal)
ich panel with PIR.
O Feliz Painel, Lda.

| References: | Thickness(mm) |
|---|---|
| TOPCOVER 3 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER 5 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER CAP | 30, 40, 50, 60, 80, 100 |
| TOPCOVER TILE | 30, 40, 50 |
| INDWALL | 30, 40, 50, 60, 80, 100 |
| FACEWALL MICROPERFILADO | 40, 50, 60, 80, 100 |
| FACEWALL USO | 40, 50, 60, 80, 100 |
| ICEWALL NERVURADO | 60, 80, 100, 120, 150, 180, 200 |
| ICEWALL LISO | 60, 80, 100, 120, 150, 180, 200 |

UNE-EN 13823:2012+A1:2016, *"Reaction to fire tests for products – Building products excluding*
*ed to the thermal attack by a single burning item" standard.*
UNE-EN ISO 11925-2:2011, *""Reaction to fire tests. Ignitability of building products subjected to direct*
*f flame. Part 2: Single flame source test "*
th-Nov-17; 29th-Nov-17; 30th-Nov-17;

3345T17.R2 (issued by AFITI-LICOF with date 05th-Mar-18).
eport Nr. 3345T17-2 (issued by AFITI-LICOF with date 14th-Oic -17).
t EXAP Nr. EXAP-3345T17.R1 (issued by AFITI-LICOF with date 05th-Mar-18).

**B-s2,d0**

NE-EN 13501-1:2007+A1:2010 *"Fire classification of construction products and building elements-Part*
*m reaction to fire tests".*

*ish version only from the spanish TestCertificate Report dated 29th-August-18. In case of doubt,*
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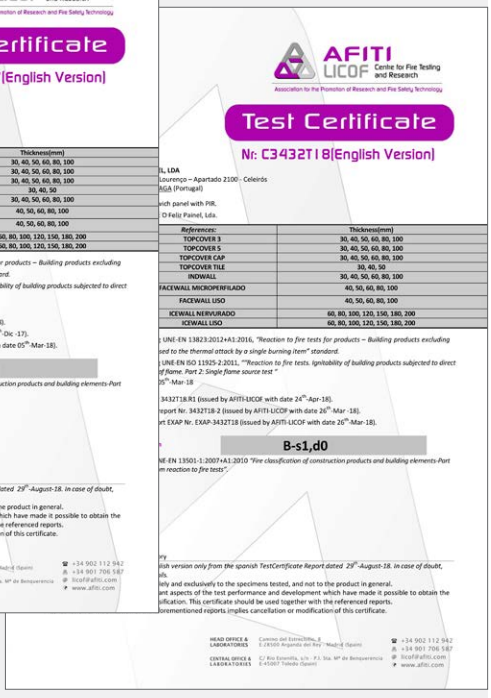
PIR — B-s2,d0



AFITI LICOF Centre for Fire Testing and Research
Association for the Promotion of Research and Fire Safety Technology

**Test Certificate**

Nr: C3432T18(English Version)

L, LDA
ourenço – Apartado 2100 - Celeirós
AGA (Portugal)
ich panel with PIR.
O Feliz Painel, Lda.

| References: | Thickness(mm) |
|---|---|
| TOPCOVER 3 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER 5 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER CAP | 30, 40, 50, 60, 80, 100 |
| TOPCOVER TILE | 30, 40, 50 |
| INDWALL | 30, 40, 50, 60, 80, 100 |
| FACEWALL MICROPERFILADO | 40, 50, 60, 80, 100 |
| FACEWALL USO | 40, 50, 60, 80, 100 |
| ICEWALL NERVURADO | 60, 80, 100, 120, 150, 180, 200 |
| ICEWALL LISO | 60, 80, 100, 120, 150, 180, 200 |

UNE-EN 13823:2012+A1:2016, *"Reaction to fire tests for products – Building products excluding*
*ed to the thermal attack by a single burning item" standard.*
UNE-EN ISO 11925-2:2011, *""Reaction to fire tests. Ignitability of building products subjected to direct*
*f flame. Part 2: Single flame source test "*
th-Mar-18

3432T18.R1 (issued by AFITI-LICOF with date 24th-Apr-18).
eport Nr. 3432T18-2 (issued by AFITI-LICOF with date 26th-Mar-18).
t EXAP Nr. EXAP-3432T18 (issued by AFITI-LICOF with date 26th-Mar-18).

**B-s1,d0**

NE-EN 13501-1:2007+A1:2010 *"Fire classification of construction products and building elements-Part*
*m reaction to fire tests".*

*ish version only from the spanish TestCertificate Report dated 29th-August-18. In case of doubt,*
*ls.*
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PIR-HI — B-s1,d0

Test certificates of
reaction to fire

## Thermal and Mechanical Behavior

The thermal and mechanical behavior of the sandwich panels was obtained based on analyzes carried out by the Structural and Structural Mechanics Laboratory of the Department of Civil Engineering of the University of Coimbra.

The study of the mechanical characteristics was carried out through laboratory tests and analytical calculations, based on the structural Eurocodes and the calculation procedures of NP EN 14509.

To determine the load capacity, direct calculation tables have been developed that allow the designer to carry out the sizing with a simple methodology and that ensures compliance with the normative requirements.

The Thermal Behavior of the panels is quantified by the Thermal Transmission, which indicates the thermal insulation capacity of the material.

The thermal transmission was determined according to the procedures described in EN 14509 using the *THERM* software, which is based on the finite element method.

## Direct Design Tables

The values indicated in these tables (in kN/m²) correspond to the maximum characteristic values of the loads that can be applied, besides the own weight and the effect of the differential temperature variations.

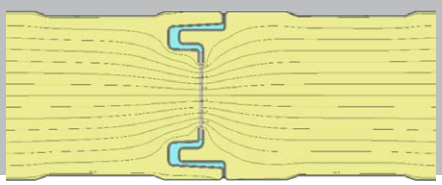
All calculations took into account the safety checks and conditions of service. In the checks concerning the last limit states, the rupture modes were considered in flexion, transverse stress and the application of loads concentrated in the supports.

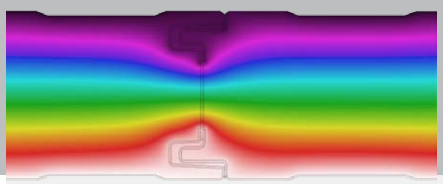
For the verification of the service conditions, tensions and deformations were verified in order to guarantee a service deformation of less than L/200, where L is the gap between supports.

The tables have two entries, the panel thickness (in millimeters) and the calculation span (in meters).

Tables were developed for single spans and for multiple spans, considering ascending and descending loads (roofing), external suction and external pressure (walls).

An example of applying the calculation tables to a panel is presented below.






Thermal analysis


Full panel bending test

**Practical application example**
It is intended to dimension a cover panel with multiple spans of 2,75 m using a Topcover 5 panel with faces 0,5/0,4 mm thick.

The acting actions are:
- Overload: 0.40 kN/m²
  (descending);
- Wind: 1,30 kN/m² (ascending).

The action of the own weight and the differential temperature variations of summer and winter are already considered automatically.

**Multiple support condition**

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 3,06 | 2,40 | 1,91 | 1,54 | 1,27 | 1,08 | 0,93 | 0,81 | 0,72 | 0,64 | 0,58 | 0,52 | 0,48 | 0,44 | 0,41 |
| | ▼ | 2,60 | 2,02 | 1,61 | 1,31 | 1,09 | 0,91 | 0,77 | 0,66 | 0,57 | 0,49 | 0,43 | 0,38 | 0,33 | | |
| 40 | ▲ | 3,60 | 2,71 | 2,13 | 1,72 | 1,43 | 1,22 | 1,05 | 0,92 | 0,82 | 0,74 | 0,67 | 0,61 | 0,56 | 0,51 | 0,48 |
| | ▼ | 3,06 | 2,43 | 1,97 | 1,63 | 1,37 | 1,16 | 0,99 | 0,86 | 0,75 | 0,65 | 0,57 | 0,51 | 0,45 | 0,40 | 0,36 |
| 50 | ▲ | 3,97 | 3,00 | 2,36 | 1,92 | 1,61 | 1,37 | 1,19 | 1,05 | 0,93 | 0,84 | 0,76 | 0,70 | 0,64 | 0,60 | 0,55 |
| | ▼ | 3,55 | 2,86 | 2,36 | 1,98 | 1,68 | 1,44 | 1,24 | 1,08 | 0,94 | 0,83 | 0,73 | 0,65 | 0,58 | 0,52 | 0,47 |
| 60 | ▲ | 4,16 | 3,18 | 2,51 | 2,05 | 1,71 | 1,46 | 1,27 | 1,12 | 1,00 | 0,90 | 0,81 | 0,75 | 0,69 | 0,64 | 0,59 |
| | ▼ | 4,05 | 3,32 | 2,77 | 2,34 | 1,99 | 1,68 | 1,43 | 1,24 | 1,08 | 0,95 | 0,84 | 0,75 | 0,68 | 0,61 | 0,56 |
| 80 | ▲ | 4,99 | 3,71 | 2,90 | 2,37 | 2,00 | 1,72 | 1,51 | 1,35 | 1,22 | 1,12 | 1,03 | 0,95 | 0,89 | 0,84 | 0,79 |
| | ▼ | 5,10 | 4,26 | 3,51 | 2,82 | 2,32 | 1,98 | 1,71 | 1,50 | 1,33 | 1,19 | 1,07 | 0,97 | 0,89 | 0,81 | 0,75 |
| 100 | ▲ | 5,23 | 3,95 | 3,10 | 2,53 | 2,12 | 1,82 | 1,60 | 1,42 | 1,28 | 1,17 | 1,08 | 1,00 | 0,93 | 0,88 | 0,83 |
| | ▼ | 6,17 | 4,74 | 3,68 | 2,94 | 2,43 | 2,05 | 1,75 | 1,53 | 1,36 | 1,21 | 1,09 | 0,99 | 0,90 | 0,83 | 0,76 |

▲ Ascending load ▼ Descending load


In this case the most unfavorable situation of the working forces will be the wind action of 1,30 kN/m². Referring to the table values for a span of 2,75 m and for ascending loads, it is verified that to resist this load a **Topcover 5 panel with faces of 0.5/0.4 mm and thickness of 50 mm.**

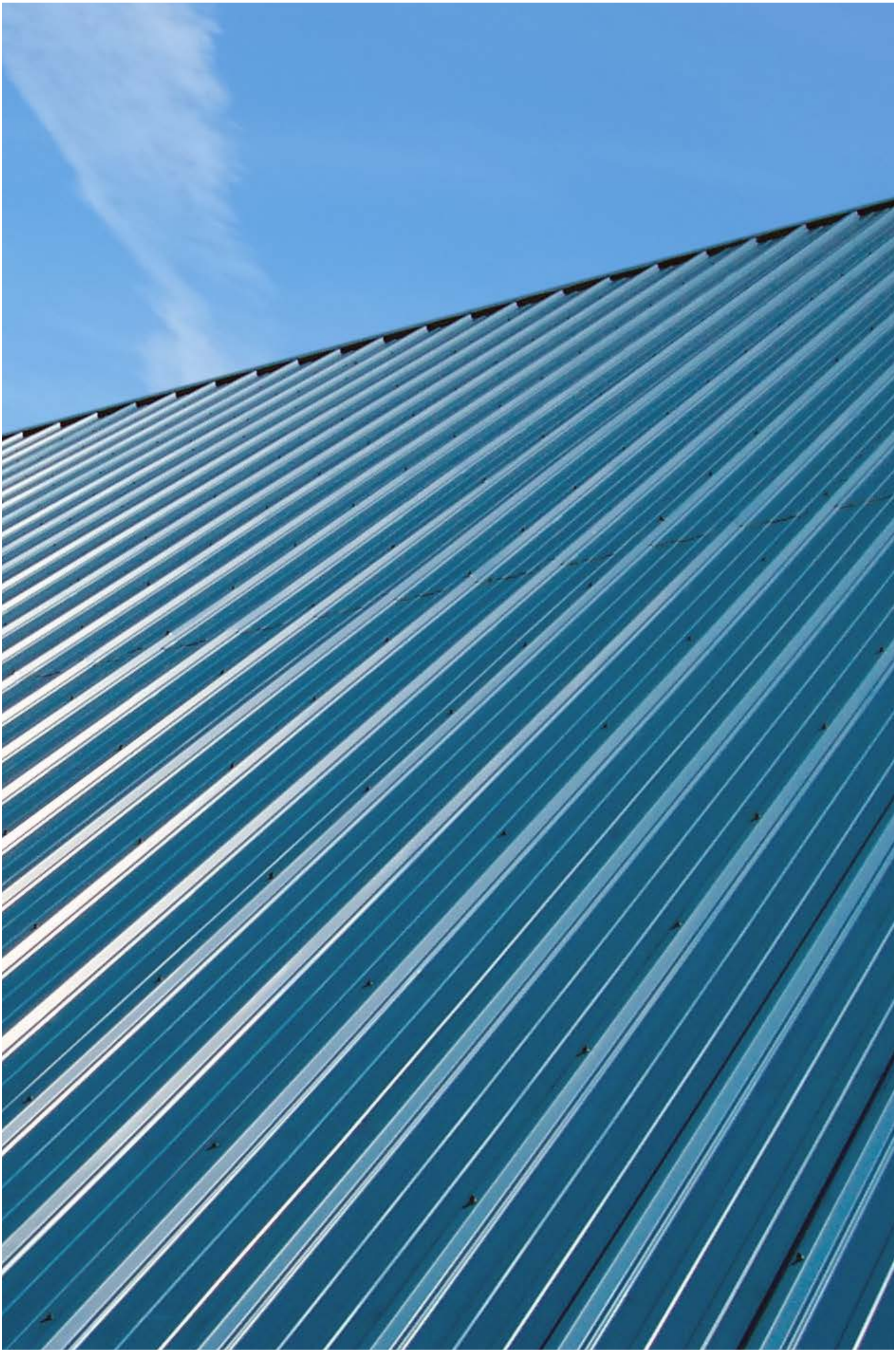
**Additional guidelines**
The technical information contained in this catalog is only indicative and developed in the situations mentioned. It is the responsibility of the designer to verify the adequacy of the information to the specificity of the project.

The designer must take into account that in addition to the structural calculation, the thickness of the panels must also be determined according to the functional requirements of the design, namely fire, thermal and acoustic behavior.

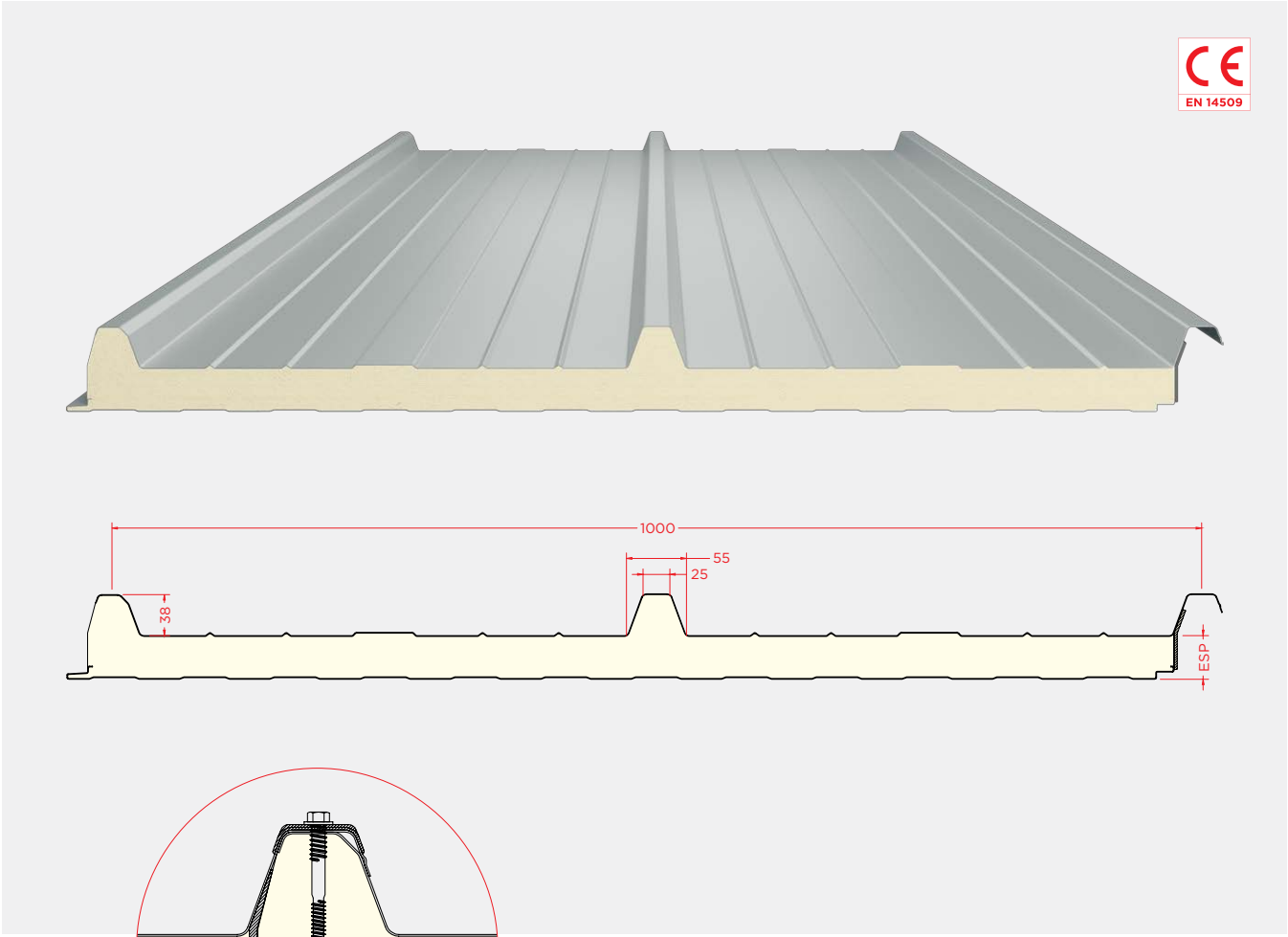
For dark colors this temperature can reach 80°C; in these cases the load capacity should be reduced, this reduction being able to reach maximum values around 30% in the smallest thicknesses, but only for ascending loads in roofs or suction in walls.

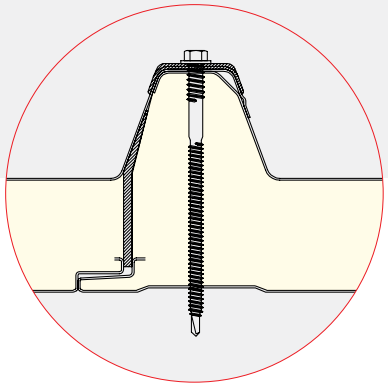
# ROOF PANELS

Topcover® 3
Topcover® 5
Topcover® Cap
Topcover® Tile
Topcover® Deck



# Topcover® 3



## Description/Application

Insulated panel composed of two profiled metal sheets joined by rigid Polyurethane (PUR) or Polyisocyanurate (PIR) foam.

An economic and efficient solution in a panel with 3 waves for roofs with minimum slope of 5%.

Panel produced according to EN 14509 and subject to evaluation and verification of regularity of performance according to system 1.

## Characteristics

### Dimensions

Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

### Metallic support

Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,4–0,5–0,6 mm

### Insulated core

Polyurethane (PUR) | Polysocyanurate (PIR)
Thermal conductivity:

| | |
|---|---|
| PUR | 0,022 W/mK |
| PIR | 0,022 W/mK |

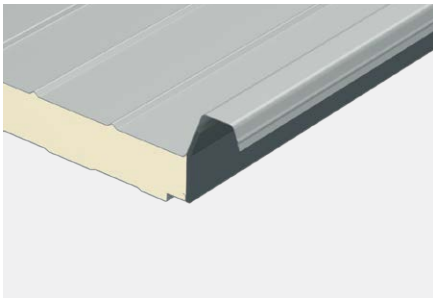
Density: 40 kg/m³
Reaction to fire: EN 13501-1

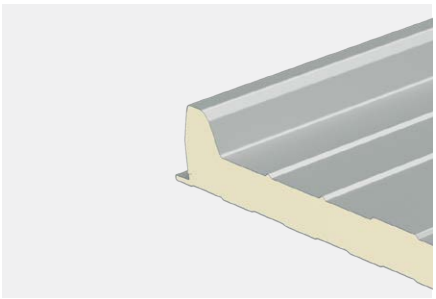
| | |
|---|---|
| PUR | B-s2,d0 |
| PIR | B-s2,d0 |
| PIR-HI | B-s1,d0 |

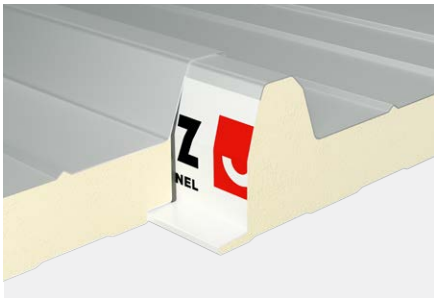
### Coating

Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm

## Details







## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,62 | 0,47 | 0,38 | 0,32 | 0,24 | 0,20 |
| Weight (Steel sheet \| Thickness 0,4/0,4) | Kg/m² | 7,7 | 8,1 | 8,5 | 8,9 | 9,7 | 10,5 |
| Weight (Steel sheet \| Thickness 0,5/0,4) | Kg/m² | 8,3 | 8,7 | 9,1 | 9,5 | 10,3 | 11,1 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,4/0,4

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 1,84 | 1,46 | 1,20 | 1,00 | 0,85 | 0,73 | 0,63 | 0,56 | 0,47 | 0,39 | 0,31 | | | | |
| | ▼ | 1,44 | 1,11 | 0,89 | 0,72 | 0,59 | 0,49 | 0,32 | | | | | | | | |
| 40 | ▲ | 2,31 | 1,87 | 1,56 | 1,31 | 1,13 | 0,97 | 0,85 | 0,75 | 0,67 | 0,58 | 0,49 | 0,42 | 0,36 | 0,30 | |
| | ▼ | 1,80 | 1,44 | 1,17 | 0,96 | 0,80 | 0,67 | 0,57 | 0,39 | | | | | | | |
| 50 | ▲ | 2,80 | 2,31 | 1,95 | 1,66 | 1,43 | 1,25 | 1,10 | 0,97 | 0,87 | 0,78 | 0,68 | 0,58 | 0,50 | 0,44 | 0,38 |
| | ▼ | 2,20 | 1,78 | 1,47 | 1,23 | 1,04 | 0,88 | 0,76 | 0,65 | 0,46 | 0,31 | | | | | |
| 60 | ▲ | 3,32 | 2,78 | 2,36 | 2,03 | 1,76 | 1,54 | 1,36 | 1,21 | 1,06 | 0,93 | 0,82 | 0,73 | 0,66 | 0,58 | 0,51 |
| | ▼ | 2,60 | 2,15 | 1,79 | 1,51 | 1,29 | 1,11 | 0,96 | 0,83 | 0,71 | 0,52 | 0,37 | | | | |
| 80 | ▲ | 4,40 | 3,75 | 3,23 | 2,81 | 2,46 | 2,13 | 1,79 | 1,52 | 1,32 | 1,15 | 1,02 | 0,91 | 0,81 | 0,73 | 0,67 |
| | ▼ | 3,45 | 2,90 | 2,47 | 2,12 | 1,83 | 1,59 | 1,39 | 1,22 | 1,08 | 0,95 | 0,81 | 0,62 | 0,48 | 0,35 | |
| 100 | ▲ | 5,50 | 4,75 | 4,14 | 3,62 | 3,09 | 2,55 | 2,14 | 1,83 | 1,58 | 1,38 | 1,22 | 1,09 | 0,97 | 0,88 | 0,80 |
| | ▼ | 4,32 | 3,69 | 3,17 | 2,75 | 2,40 | 2,10 | 1,84 | 1,63 | 1,45 | 1,29 | 1,15 | 1,03 | 0,87 | 0,69 | 0,55 |

▲ Ascending load ▼ Descending load

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 1,60 | 1,21 | 0,95 | 0,78 | 0,65 | 0,56 | 0,49 | 0,43 | 0,39 | 0,35 | 0,32 | | | | |
| | ▼ | 1,44 | 1,11 | 0,89 | 0,72 | 0,59 | 0,49 | 0,41 | 0,34 | | | | | | | |
| 40 | ▲ | 1,77 | 1,34 | 1,07 | 0,88 | 0,74 | 0,64 | 0,56 | 0,50 | 0,45 | 0,41 | 0,37 | 0,34 | 0,32 | | |
| | ▼ | 1,80 | 1,44 | 1,17 | 0,96 | 0,80 | 0,67 | 0,57 | 0,49 | 0,42 | 0,36 | | | | | |
| 50 | ▲ | 1,94 | 1,49 | 1,19 | 0,98 | 0,83 | 0,72 | 0,64 | 0,57 | 0,51 | 0,47 | 0,43 | 0,40 | 0,37 | 0,35 | 0,33 |
| | ▼ | 2,20 | 1,78 | 1,46 | 1,16 | 0,95 | 0,79 | 0,67 | 0,58 | 0,50 | 0,43 | 0,38 | 0,34 | 0,30 | | |
| 60 | ▲ | 2,05 | 1,58 | 1,26 | 1,04 | 0,88 | 0,77 | 0,67 | 0,60 | 0,54 | 0,50 | 0,46 | 0,42 | 0,39 | 0,37 | 0,35 |
| | ▼ | 2,60 | 1,96 | 1,53 | 1,23 | 1,01 | 0,85 | 0,72 | 0,62 | 0,54 | 0,47 | 0,42 | 0,37 | 0,33 | 0,30 | |
| 80 | ▲ | 2,41 | 1,82 | 1,46 | 1,21 | 1,04 | 0,91 | 0,82 | 0,74 | 0,68 | 0,63 | 0,59 | 0,55 | 0,52 | 0,50 | 0,47 |
| | ▼ | 3,07 | 2,28 | 1,77 | 1,43 | 1,18 | 1,01 | 0,87 | 0,77 | 0,68 | 0,61 | 0,54 | 0,49 | 0,44 | 0,40 | 0,37 |
| 100 | ▲ | 2,56 | 1,94 | 1,54 | 1,28 | 1,09 | 0,95 | 0,85 | 0,77 | 0,70 | 0,65 | 0,60 | 0,57 | 0,54 | 0,51 | 0,49 |
| | ▼ | 3,16 | 2,35 | 1,82 | 1,46 | 1,20 | 1,01 | 0,87 | 0,76 | 0,67 | 0,60 | 0,53 | 0,48 | 0,43 | 0,39 | 0,36 |

### Steel sheet | Thicknesses 0,5/0,4

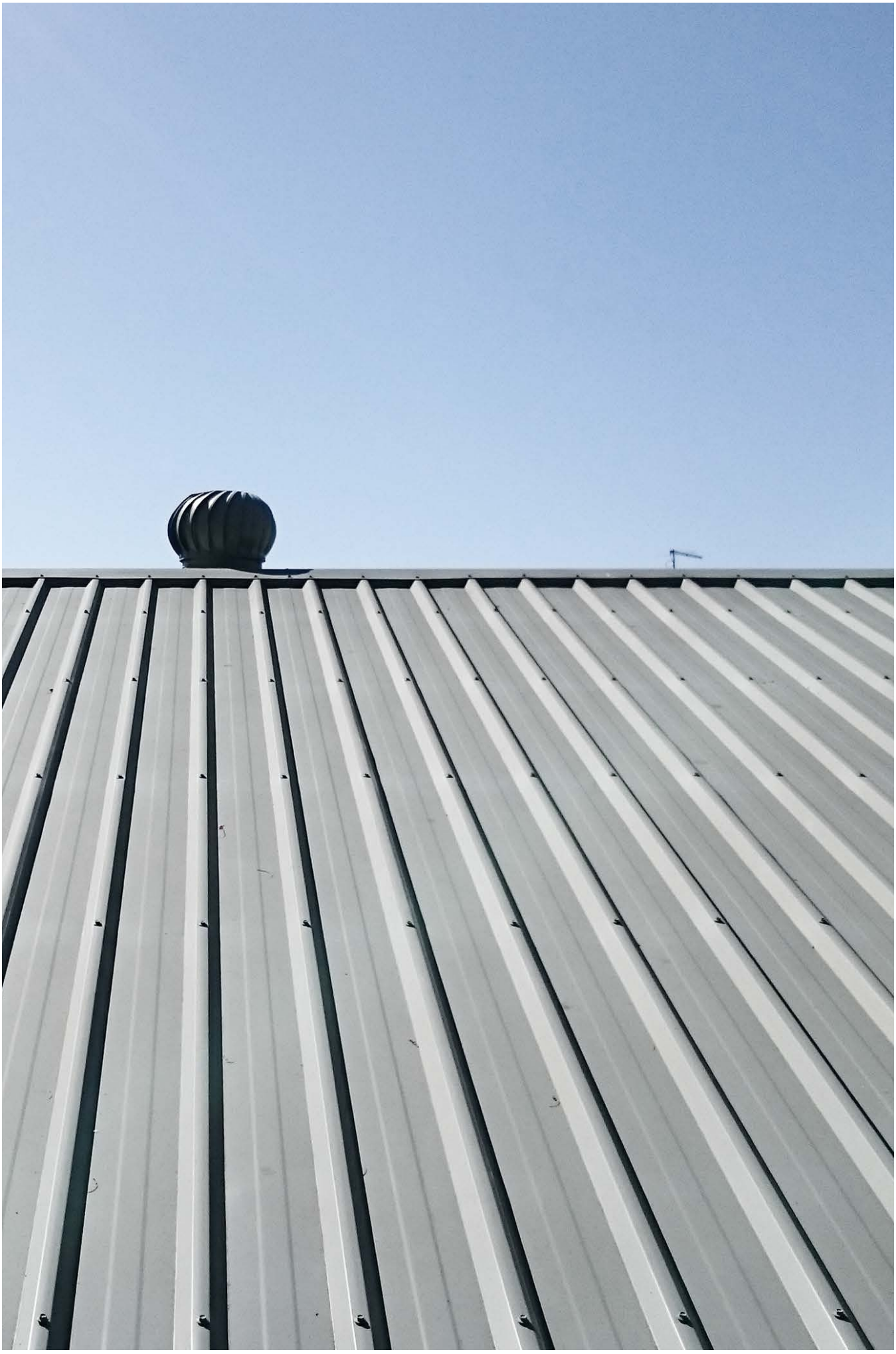
Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 2,07 | 1,64 | 1,34 | 1,12 | 0,95 | 0,82 | 0,71 | 0,62 | 0,51 | 0,42 | 0,34 | | | | |
| | ▼ | 1,63 | 1,27 | 1,01 | 0,82 | 0,68 | 0,56 | 0,38 | | | | | | | | |
| 40 | ▲ | 2,56 | 2,08 | 1,73 | 1,46 | 1,25 | 1,08 | 0,95 | 0,84 | 0,74 | 0,62 | 0,52 | 0,44 | 0,38 | 0,32 | |
| | ▼ | 2,02 | 1,61 | 1,31 | 1,08 | 0,91 | 0,77 | 0,65 | 0,45 | 0,30 | | | | | | |
| 50 | ▲ | 3,08 | 2,54 | 2,14 | 1,83 | 1,58 | 1,38 | 1,22 | 1,08 | 0,96 | 0,84 | 0,73 | 0,62 | 0,53 | 0,46 | 0,41 |
| | ▼ | 2,43 | 1,98 | 1,64 | 1,37 | 1,16 | 1,00 | 0,86 | 0,73 | 0,52 | 0,37 | | | | | |
| 60 | ▲ | 3,62 | 3,03 | 2,58 | 2,23 | 1,94 | 1,70 | 1,47 | 1,25 | 1,08 | 0,94 | 0,83 | 0,74 | 0,67 | 0,60 | 0,54 |
| | ▼ | 2,86 | 2,36 | 1,98 | 1,68 | 1,44 | 1,24 | 1,08 | 0,94 | 0,79 | 0,59 | 0,43 | 0,30 | | | |
| 80 | ▲ | 4,75 | 4,06 | 3,51 | 3,06 | 2,63 | 2,16 | 1,81 | 1,54 | 1,33 | 1,16 | 1,03 | 0,91 | 0,82 | 0,74 | 0,67 |
| | ▼ | 3,75 | 3,16 | 2,70 | 2,33 | 2,02 | 1,77 | 1,55 | 1,37 | 1,21 | 1,08 | 0,88 | 0,69 | 0,53 | 0,40 | |
| 100 | ▲ | 5,90 | 5,12 | 4,47 | 3,90 | 3,13 | 2,58 | 2,16 | 1,84 | 1,59 | 1,39 | 1,23 | 1,09 | 0,98 | 0,89 | 0,80 |
| | ▼ | 4,66 | 3,99 | 3,46 | 3,01 | 2,64 | 2,32 | 2,05 | 1,82 | 1,62 | 1,45 | 1,30 | 1,16 | 0,94 | 0,76 | 0,60 |

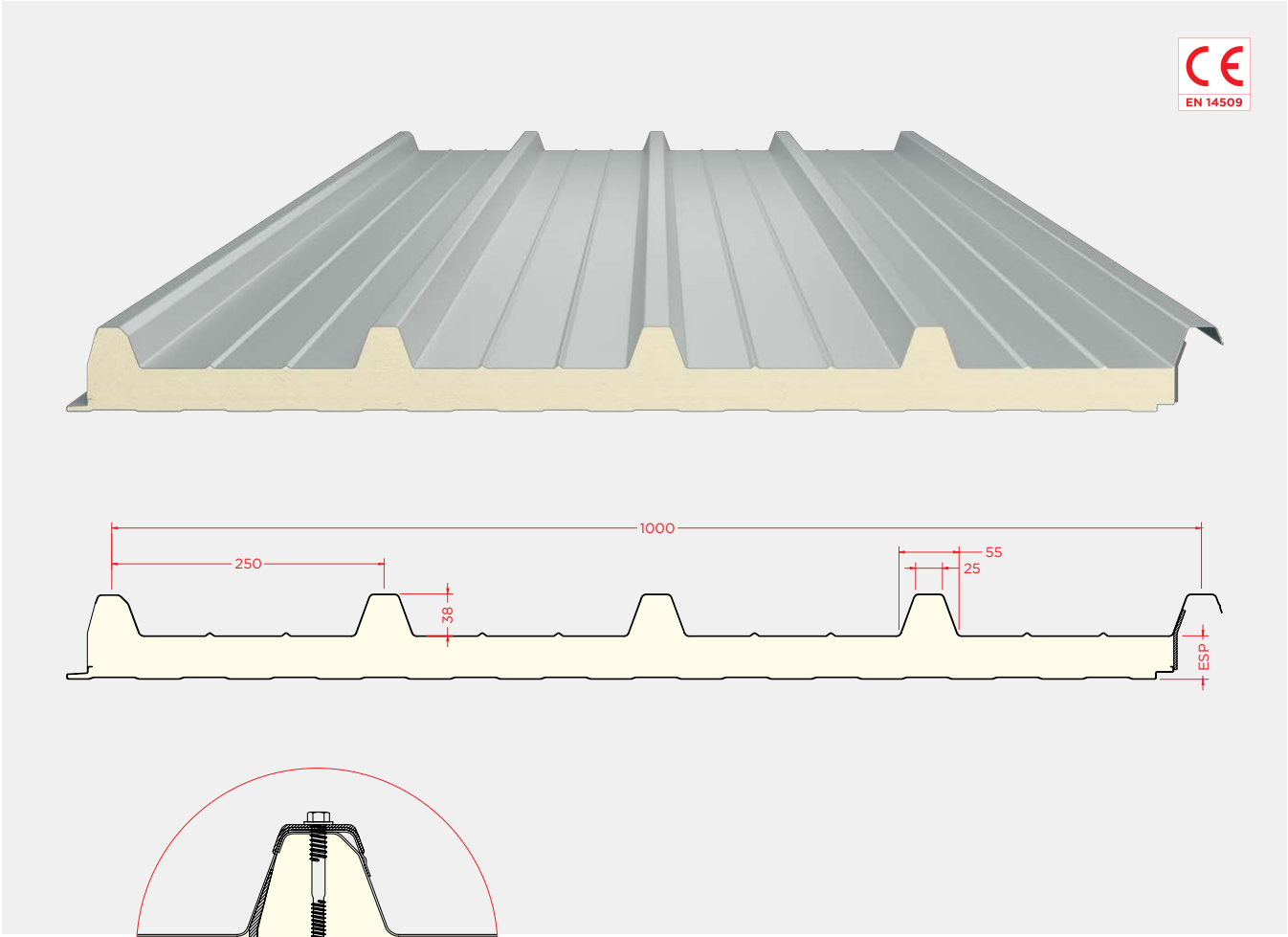
▲ Ascending load ▼ Descending load

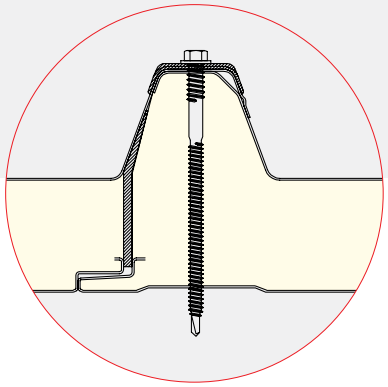
Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 1,88 | 1,42 | 1,11 | 0,91 | 0,76 | 0,65 | 0,56 | 0,50 | 0,45 | 0,40 | 0,37 | 0,34 | 0,31 | | |
| | ▼ | 1,63 | 1,27 | 1,01 | 0,82 | 0,68 | 0,56 | 0,47 | 0,40 | 0,34 | | | | | | |
| 40 | ▲ | 2,07 | 1,57 | 1,25 | 1,02 | 0,86 | 0,74 | 0,65 | 0,57 | 0,51 | 0,46 | 0,42 | 0,39 | 0,36 | 0,34 | 0,32 |
| | ▼ | 2,02 | 1,61 | 1,31 | 1,08 | 0,91 | 0,77 | 0,65 | 0,56 | 0,49 | 0,42 | 0,37 | 0,32 | | | |
| 50 | ▲ | 2,28 | 1,74 | 1,39 | 1,14 | 0,97 | 0,83 | 0,73 | 0,65 | 0,59 | 0,53 | 0,49 | 0,45 | 0,42 | 0,39 | 0,37 |
| | ▼ | 2,43 | 1,98 | 1,64 | 1,37 | 1,14 | 0,95 | 0,81 | 0,69 | 0,60 | 0,53 | 0,46 | 0,41 | 0,37 | 0,33 | |
| 60 | ▲ | 2,41 | 1,84 | 1,47 | 1,21 | 1,02 | 0,88 | 0,77 | 0,69 | 0,62 | 0,56 | 0,52 | 0,48 | 0,45 | 0,42 | 0,39 |
| | ▼ | 2,86 | 2,33 | 1,82 | 1,46 | 1,20 | 1,01 | 0,86 | 0,75 | 0,65 | 0,57 | 0,51 | 0,45 | 0,40 | 0,36 | 0,33 |
| 80 | ▲ | 2,84 | 2,13 | 1,69 | 1,40 | 1,20 | 1,05 | 0,93 | 0,84 | 0,77 | 0,71 | 0,66 | 0,62 | 0,59 | 0,56 | 0,53 |
| | ▼ | 3,66 | 2,71 | 2,10 | 1,70 | 1,40 | 1,20 | 1,04 | 0,91 | 0,81 | 0,72 | 0,65 | 0,59 | 0,54 | 0,49 | 0,45 |
| 100 | ▲ | 3,00 | 2,27 | 1,80 | 1,48 | 1,26 | 1,10 | 0,97 | 0,87 | 0,80 | 0,73 | 0,68 | 0,64 | 0,60 | 0,57 | 0,54 |
| | ▼ | 3,76 | 2,80 | 2,17 | 1,74 | 1,44 | 1,21 | 1,04 | 0,91 | 0,80 | 0,72 | 0,64 | 0,58 | 0,53 | 0,48 | 0,44 |



# Topcover® 5



## Description/Application

Insulated panel composed of two profiled metal sheets joined by rigid Polyurethane (PUR) or Polyisocyanurate (PIR) foam.

The solution with better structural behavior and more efficient in a 5 waves panel for roofs with a minimum slope of 5%.

Panel produced according to EN 14509 and subject to evaluation and verification of regularity of performance according to system 1.

## Characteristics

### Dimensions

Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

### Metallic support

Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,4–0,5–0,6 mm

### Insulated core

Polyurethane (PUR) | Polysocyanurate (PIR)
Thermal conductivity:

| | |
|---|---|
| PUR | 0,022 W/mK |
| PIR | 0,022 W/mK |

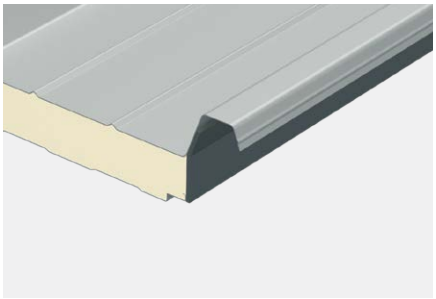
Density: 40 kg/m³
Reaction to fire: EN 13501-1

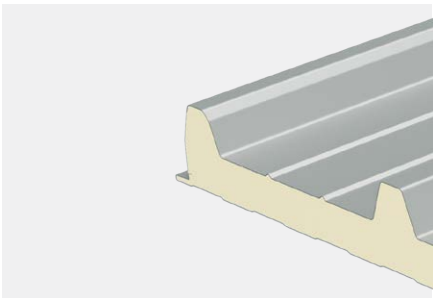
| | |
|---|---|
| PUR | B-s2,d0 |
| PIR | B-s2,d0 |
| PIR-HI | B-s1,d0 |

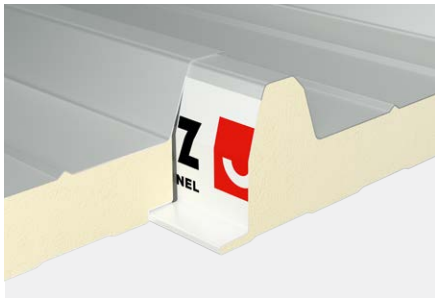
### Coating

Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm

## Details







## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,59 | 0,46 | 0,37 | 0,31 | 0,24 | 0,19 |
| Weight (Steel sheet \| Thickness 0,4/0,4) | Kg/m² | 8,0 | 8,4 | 8,8 | 9,2 | 10,0 | 10,8 |
| Weight (Steel sheet \| Thickness 0,5/0,4) | Kg/m² | 8,7 | 9,1 | 9,5 | 9,9 | 10,7 | 11,5 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,4/0,4

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 2,70 | 2,12 | 1,72 | 1,43 | 1,21 | 1,04 | 0,90 | 0,75 | 0,62 | 0,51 | 0,43 | 0,37 | 0,32 | | |
| | ▼ | 2,28 | 1,77 | 1,41 | 1,15 | 0,95 | 0,77 | 0,52 | 0,34 | | | | | | | |
| 40 | ▲ | 3,21 | 2,58 | 2,12 | 1,78 | 1,52 | 1,31 | 1,15 | 1,01 | 0,85 | 0,71 | 0,60 | 0,51 | 0,44 | 0,39 | 0,34 |
| | ▼ | 2,72 | 2,15 | 1,75 | 1,44 | 1,21 | 1,02 | 0,81 | 0,57 | 0,39 | | | | | | |
| 50 | ▲ | 3,76 | 3,07 | 2,56 | 2,17 | 1,86 | 1,62 | 1,42 | 1,25 | 1,11 | 0,95 | 0,81 | 0,69 | 0,60 | 0,52 | 0,46 |
| | ▼ | 3,18 | 2,56 | 2,11 | 1,76 | 1,49 | 1,27 | 1,10 | 0,85 | 0,62 | 0,45 | 0,31 | | | | |
| 60 | ▲ | 4,33 | 3,58 | 3,02 | 2,58 | 2,23 | 1,94 | 1,71 | 1,51 | 1,35 | 1,21 | 1,05 | 0,90 | 0,78 | 0,68 | 0,60 |
| | ▼ | 3,66 | 2,99 | 2,49 | 2,10 | 1,79 | 1,54 | 1,33 | 1,16 | 0,89 | 0,67 | 0,50 | 0,36 | | | |
| 80 | ▲ | 5,51 | 4,65 | 3,97 | 3,44 | 3,00 | 2,63 | 2,31 | 1,97 | 1,69 | 1,48 | 1,30 | 1,16 | 1,03 | 0,93 | 0,85 |
| | ▼ | 4,66 | 3,89 | 3,29 | 2,82 | 2,43 | 2,11 | 1,84 | 1,62 | 1,43 | 1,20 | 0,95 | 0,74 | 0,58 | 0,44 | 0,33 |
| 100 | ▲ | 6,47 | 5,53 | 4,83 | 4,28 | 3,80 | 3,27 | 2,74 | 2,33 | 2,01 | 1,75 | 1,54 | 1,37 | 1,23 | 1,11 | 1,00 |
| | ▼ | 5,69 | 4,82 | 4,13 | 3,56 | 3,10 | 2,71 | 2,38 | 2,11 | 1,87 | 1,67 | 1,49 | 1,21 | 0,98 | 0,79 | 0,63 |

▲ Ascending load ▼ Descending load

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 2,70 | 2,09 | 1,63 | 1,31 | 1,09 | 0,92 | 0,80 | 0,70 | 0,62 | 0,55 | 0,50 | 0,46 | 0,42 | 0,39 | 0,36 |
| | ▼ | 2,28 | 1,77 | 1,41 | 1,15 | 0,95 | 0,79 | 0,67 | 0,57 | 0,49 | 0,42 | 0,37 | 0,32 | | | |
| 40 | ▲ | 3,06 | 2,30 | 1,81 | 1,47 | 1,23 | 1,05 | 0,91 | 0,80 | 0,71 | 0,64 | 0,58 | 0,53 | 0,49 | 0,45 | 0,42 |
| | ▼ | 2,72 | 2,15 | 1,75 | 1,44 | 1,21 | 1,02 | 0,87 | 0,75 | 0,65 | 0,57 | 0,50 | 0,44 | 0,39 | 0,34 | 0,30 |
| 50 | ▲ | 3,37 | 2,55 | 2,01 | 1,64 | 1,38 | 1,18 | 1,02 | 0,90 | 0,81 | 0,73 | 0,66 | 0,61 | 0,56 | 0,52 | 0,49 |
| | ▼ | 3,18 | 2,56 | 2,11 | 1,76 | 1,49 | 1,27 | 1,10 | 0,95 | 0,83 | 0,73 | 0,64 | 0,57 | 0,50 | 0,45 | 0,40 |
| 60 | ▲ | 3,55 | 2,71 | 2,14 | 1,75 | 1,47 | 1,26 | 1,09 | 0,96 | 0,86 | 0,78 | 0,71 | 0,65 | 0,60 | 0,56 | 0,52 |
| | ▼ | 3,66 | 2,99 | 2,49 | 2,04 | 1,68 | 1,41 | 1,20 | 1,04 | 0,91 | 0,80 | 0,71 | 0,63 | 0,56 | 0,51 | 0,46 |
| 80 | ▲ | 4,22 | 3,15 | 2,48 | 2,03 | 1,72 | 1,49 | 1,31 | 1,17 | 1,06 | 0,97 | 0,90 | 0,84 | 0,78 | 0,74 | 0,70 |
| | ▼ | 4,66 | 3,82 | 2,96 | 2,38 | 1,96 | 1,67 | 1,45 | 1,27 | 1,12 | 1,00 | 0,90 | 0,82 | 0,75 | 0,68 | 0,63 |
| 100 | ▲ | 4,45 | 3,36 | 2,64 | 2,16 | 1,82 | 1,57 | 1,38 | 1,23 | 1,12 | 1,02 | 0,94 | 0,88 | 0,82 | 0,77 | 0,73 |
| | ▼ | 5,34 | 3,99 | 3,09 | 2,48 | 2,04 | 1,73 | 1,48 | 1,30 | 1,15 | 1,02 | 0,92 | 0,83 | 0,76 | 0,69 | 0,64 |

### Steel sheet | Thicknesses 0,5/0,4

Simple support conditions

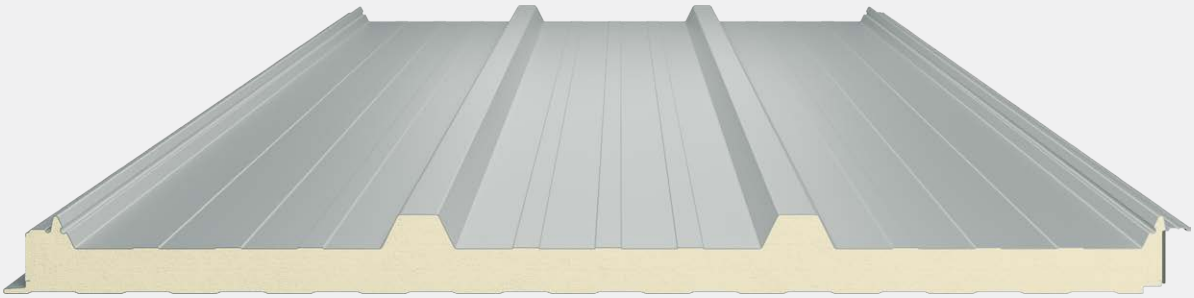
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 3,06 | 2,40 | 1,95 | 1,62 | 1,36 | 1,17 | 1,01 | 0,82 | 0,67 | 0,56 | 0,47 | 0,40 | 0,35 | 0,30 | |
| | ▼ | 2,60 | 2,02 | 1,61 | 1,31 | 1,09 | 0,89 | 0,62 | 0,42 | | | | | | | |
| 40 | ▲ | 3,60 | 2,88 | 2,37 | 2,00 | 1,70 | 1,47 | 1,28 | 1,12 | 0,92 | 0,77 | 0,65 | 0,55 | 0,48 | 0,42 | 0,37 |
| | ▼ | 3,06 | 2,43 | 1,97 | 1,63 | 1,37 | 1,16 | 0,91 | 0,66 | 0,47 | 0,32 | | | | | |
| 50 | ▲ | 4,17 | 3,40 | 2,84 | 2,41 | 2,07 | 1,80 | 1,58 | 1,40 | 1,22 | 1,02 | 0,87 | 0,74 | 0,64 | 0,56 | 0,49 |
| | ▼ | 3,55 | 2,86 | 2,36 | 1,98 | 1,68 | 1,44 | 1,24 | 0,95 | 0,71 | 0,52 | 0,37 | | | | |
| 60 | ▲ | 4,77 | 3,94 | 3,32 | 2,85 | 2,47 | 2,15 | 1,90 | 1,66 | 1,42 | 1,24 | 1,09 | 0,96 | 0,83 | 0,72 | 0,63 |
| | ▼ | 4,05 | 3,32 | 2,77 | 2,34 | 2,00 | 1,73 | 1,50 | 1,28 | 0,98 | 0,75 | 0,56 | 0,42 | | | |
| 80 | ▲ | 6,00 | 5,06 | 4,34 | 3,77 | 3,30 | 2,82 | 2,36 | 2,00 | 1,72 | 1,50 | 1,32 | 1,17 | 1,05 | 0,94 | 0,86 |
| | ▼ | 5,10 | 4,26 | 3,62 | 3,11 | 2,70 | 2,35 | 2,06 | 1,82 | 1,61 | 1,30 | 1,04 | 0,82 | 0,64 | 0,49 | 0,38 |
| 100 | ▲ | 6,47 | 5,53 | 4,83 | 4,28 | 3,84 | 3,32 | 2,78 | 2,36 | 2,03 | 1,77 | 1,56 | 1,38 | 1,24 | 1,12 | 1,01 |
| | ▼ | 6,17 | 5,24 | 4,51 | 3,91 | 3,42 | 3,00 | 2,65 | 2,35 | 2,10 | 1,88 | 1,60 | 1,31 | 1,07 | 0,86 | 0,70 |

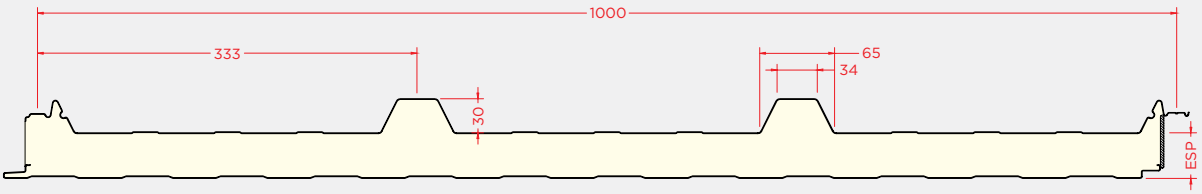
▲ Ascending load ▼ Descending load

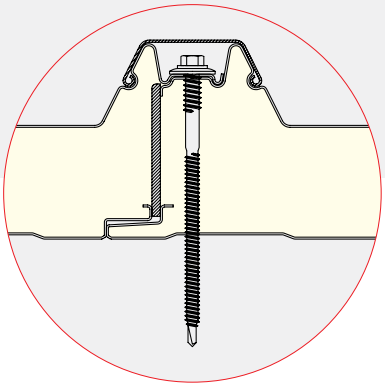
Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 3,06 | 2,40 | 1,91 | 1,54 | 1,27 | 1,08 | 0,93 | 0,81 | 0,72 | 0,64 | 0,58 | 0,52 | 0,48 | 0,44 | 0,41 |
| | ▼ | 2,60 | 2,02 | 1,61 | 1,31 | 1,09 | 0,91 | 0,77 | 0,66 | 0,57 | 0,49 | 0,43 | 0,38 | 0,33 | | |
| 40 | ▲ | 3,60 | 2,71 | 2,13 | 1,72 | 1,43 | 1,22 | 1,05 | 0,92 | 0,82 | 0,74 | 0,67 | 0,61 | 0,56 | 0,51 | 0,48 |
| | ▼ | 3,06 | 2,43 | 1,97 | 1,63 | 1,37 | 1,16 | 0,99 | 0,86 | 0,75 | 0,65 | 0,57 | 0,51 | 0,45 | 0,40 | 0,36 |
| 50 | ▲ | 3,97 | 3,00 | 2,36 | 1,92 | 1,61 | 1,37 | 1,19 | 1,05 | 0,93 | 0,84 | 0,76 | 0,70 | 0,64 | 0,60 | 0,55 |
| | ▼ | 3,55 | 2,86 | 2,36 | 1,98 | 1,68 | 1,44 | 1,24 | 1,08 | 0,94 | 0,83 | 0,73 | 0,65 | 0,58 | 0,52 | 0,47 |
| 60 | ▲ | 4,16 | 3,18 | 2,51 | 2,05 | 1,71 | 1,46 | 1,27 | 1,12 | 1,00 | 0,90 | 0,81 | 0,75 | 0,69 | 0,64 | 0,59 |
| | ▼ | 4,05 | 3,32 | 2,77 | 2,34 | 1,99 | 1,68 | 1,43 | 1,24 | 1,08 | 0,95 | 0,84 | 0,75 | 0,68 | 0,61 | 0,56 |
| 80 | ▲ | 4,99 | 3,71 | 2,90 | 2,37 | 2,00 | 1,72 | 1,51 | 1,35 | 1,22 | 1,12 | 1,03 | 0,95 | 0,89 | 0,84 | 0,79 |
| | ▼ | 5,10 | 4,26 | 3,51 | 2,82 | 2,32 | 1,98 | 1,71 | 1,50 | 1,33 | 1,19 | 1,07 | 0,97 | 0,89 | 0,81 | 0,75 |
| 100 | ▲ | 5,23 | 3,95 | 3,10 | 2,53 | 2,12 | 1,82 | 1,60 | 1,42 | 1,28 | 1,17 | 1,08 | 1,00 | 0,93 | 0,88 | 0,83 |
| | ▼ | 6,17 | 4,74 | 3,68 | 2,94 | 2,43 | 2,05 | 1,75 | 1,53 | 1,36 | 1,21 | 1,09 | 0,99 | 0,90 | 0,83 | 0,76 |

# Topcover® Cap





## Description/Application

Covering Panel characterized by a hidden fixing joint cover system (minimum slope 5%).

Resistant solution distinguished by a high aesthetic design whose fixation system is protected.

Insulated panel composed of two profiled metal sheets joined by rigid Polyurethane (PUR) or Polyisocyanurate (PIR) foam.

Panel produced according to EN 14509 and subject to evaluation and verification of regularity of performance according to system 1.

## Characteristics

### Dimensions

Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

### Metallic support

Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,4–0,5–0,6 mm

### Insulated core

Polyurethane (PUR) | Polysocyanurate (PIR)
Thermal conductivity:

| | |
|---|---|
| PUR | 0,022 W/mK |
| PIR | 0,022 W/mK |

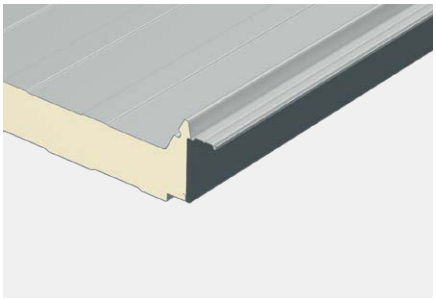
Density: 40 kg/m³
Reaction to fire: EN 13501-1

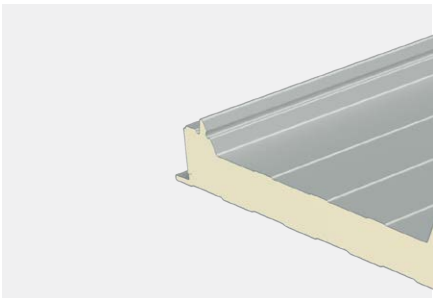
| | |
|---|---|
| PUR | B-s2,d0 |
| PIR | B-s2,d0 |
| PIR-HI | B-s1,d0 |

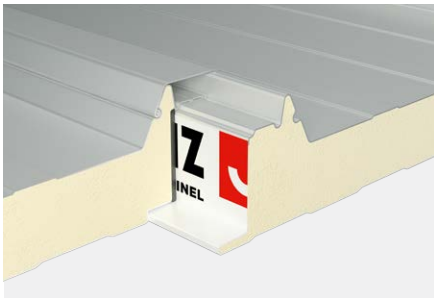
### Coating

Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm

## Details







## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,61 | 0,46 | 0,38 | 0,32 | 0,24 | 0,19 |
| Weight (Steel sheet \| Thickness 0,4/0,4) | Kg/m² | 7,7 | 8,1 | 8,5 | 8,9 | 9,7 | 10,5 |
| Weight (Steel sheet \| Thickness 0,5/0,4) | Kg/m² | 8,4 | 8,8 | 9,2 | 9,6 | 10,4 | 11,2 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,4/0,4

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 2,09 | 1,68 | 1,30 | 1,15 | 0,98 | 0,81 | 0,64 | 0,52 | 0,41 | 0,33 | 0,43 | 0,37 | | | |
| | ▼ | 1,73 | 1,36 | 1,09 | 0,89 | 0,60 | 0,38 | | | | | | | | | |
| 40 | ▲ | 2,68 | 2,20 | 1,83 | 1,55 | 1,33 | 1,15 | 0,96 | 0,78 | 0,64 | 0,54 | 0,45 | 0,38 | 0,32 | | |
| | ▼ | 2,23 | 1,79 | 1,47 | 1,22 | 1,02 | 0,70 | 0,47 | 0,30 | | | | | | | |
| 50 | ▲ | 3,31 | 2,75 | 2,32 | 1,98 | 1,70 | 1,48 | 1,30 | 1,10 | 0,91 | 0,76 | 0,65 | 0,55 | 0,48 | 0,42 | 0,37 |
| | ▼ | 2,76 | 2,26 | 1,87 | 1,57 | 1,33 | 1,10 | 0,79 | 0,56 | 0,39 | | | | | | |
| 60 | ▲ | 3,97 | 3,33 | 2,83 | 2,43 | 2,10 | 1,83 | 1,61 | 1,43 | 1,22 | 1,03 | 0,87 | 0,75 | 0,65 | 0,57 | 0,50 |
| | ▼ | 3,30 | 2,74 | 2,29 | 1,94 | 1,66 | 1,43 | 1,16 | 0,87 | 0,64 | 0,46 | 0,32 | | | | |
| 80 | ▲ | 5,31 | 4,53 | 3,89 | 3,37 | 2,93 | 2,54 | 2,14 | 1,82 | 1,58 | 1,38 | 1,22 | 1,08 | 0,97 | 0,88 | 0,80 |
| | ▼ | 4,43 | 3,73 | 3,18 | 2,72 | 2,35 | 2,03 | 1,78 | 1,56 | 1,24 | 0,97 | 0,76 | 0,58 | 0,44 | 0,32 | |
| 100 | ▲ | 6,40 | 5,47 | 4,78 | 4,24 | 3,73 | 3,08 | 2,59 | 2,21 | 1,91 | 1,67 | 1,47 | 1,31 | 1,17 | 1,06 | 0,96 |
| | ▼ | 5,58 | 4,76 | 4,09 | 3,53 | 3,06 | 2,68 | 2,34 | 2,07 | 1,83 | 1,58 | 1,28 | 1,03 | 0,83 | 0,66 | 0,52 |

▲ Ascending load ▼ Descending load

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 1,73 | 1,32 | 1,04 | 0,86 | 0,72 | 0,62 | 0,54 | 0,48 | 0,43 | 0,39 | 0,36 | 0,33 | 0,31 | | |
| | ▼ | 1,73 | 1,36 | 1,09 | 0,89 | 0,74 | 0,62 | 0,52 | 0,44 | 0,37 | 0,32 | | | | | |
| 40 | ▲ | 1,88 | 1,44 | 1,15 | 0,94 | 0,80 | 0,69 | 0,60 | 0,54 | 0,48 | 0,44 | 0,40 | 0,37 | 0,35 | 0,33 | 0,31 |
| | ▼ | 2,22 | 1,65 | 1,27 | 1,02 | 0,83 | 0,69 | 0,58 | 0,49 | 0,42 | 0,36 | 0,32 | | | | |
| 50 | ▲ | 2,09 | 1,60 | 1,28 | 1,06 | 0,90 | 0,78 | 0,69 | 0,61 | 0,55 | 0,50 | 0,46 | 0,43 | 0,40 | 0,38 | 0,35 |
| | ▼ | 2,47 | 1,85 | 1,44 | 1,15 | 0,94 | 0,79 | 0,67 | 0,57 | 0,49 | 0,43 | 0,38 | 0,33 | | | |
| 60 | ▲ | 2,14 | 1,66 | 1,33 | 1,10 | 0,93 | 0,81 | 0,71 | 0,63 | 0,57 | 0,52 | 0,48 | 0,44 | 0,41 | 0,39 | 0,37 |
| | ▼ | 2,52 | 1,90 | 1,49 | 1,19 | 0,98 | 0,83 | 0,70 | 0,60 | 0,53 | 0,46 | 0,41 | 0,36 | 0,32 | | |
| 80 | ▲ | 2,54 | 1,94 | 1,55 | 1,29 | 1,11 | 0,97 | 0,87 | 0,79 | 0,72 | 0,67 | 0,62 | 0,58 | 0,55 | 0,53 | 0,51 |
| | ▼ | 2,99 | 2,23 | 1,73 | 1,40 | 1,16 | 0,99 | 0,86 | 0,75 | 0,66 | 0,59 | 0,53 | 0,48 | 0,43 | 0,39 | 0,36 |
| 100 | ▲ | 2,62 | 2,01 | 1,60 | 1,33 | 1,13 | 0,99 | 0,88 | 0,79 | 0,73 | 0,67 | 0,62 | 0,59 | 0,55 | 0,53 | 0,50 |
| | ▼ | 3,01 | 2,25 | 1,75 | 1,40 | 1,16 | 0,98 | 0,84 | 0,73 | 0,64 | 0,57 | 0,51 | 0,46 | 0,41 | 0,37 | 0,34 |

### Steel sheet | Thicknesses 0,5/0,4

Simple support conditions

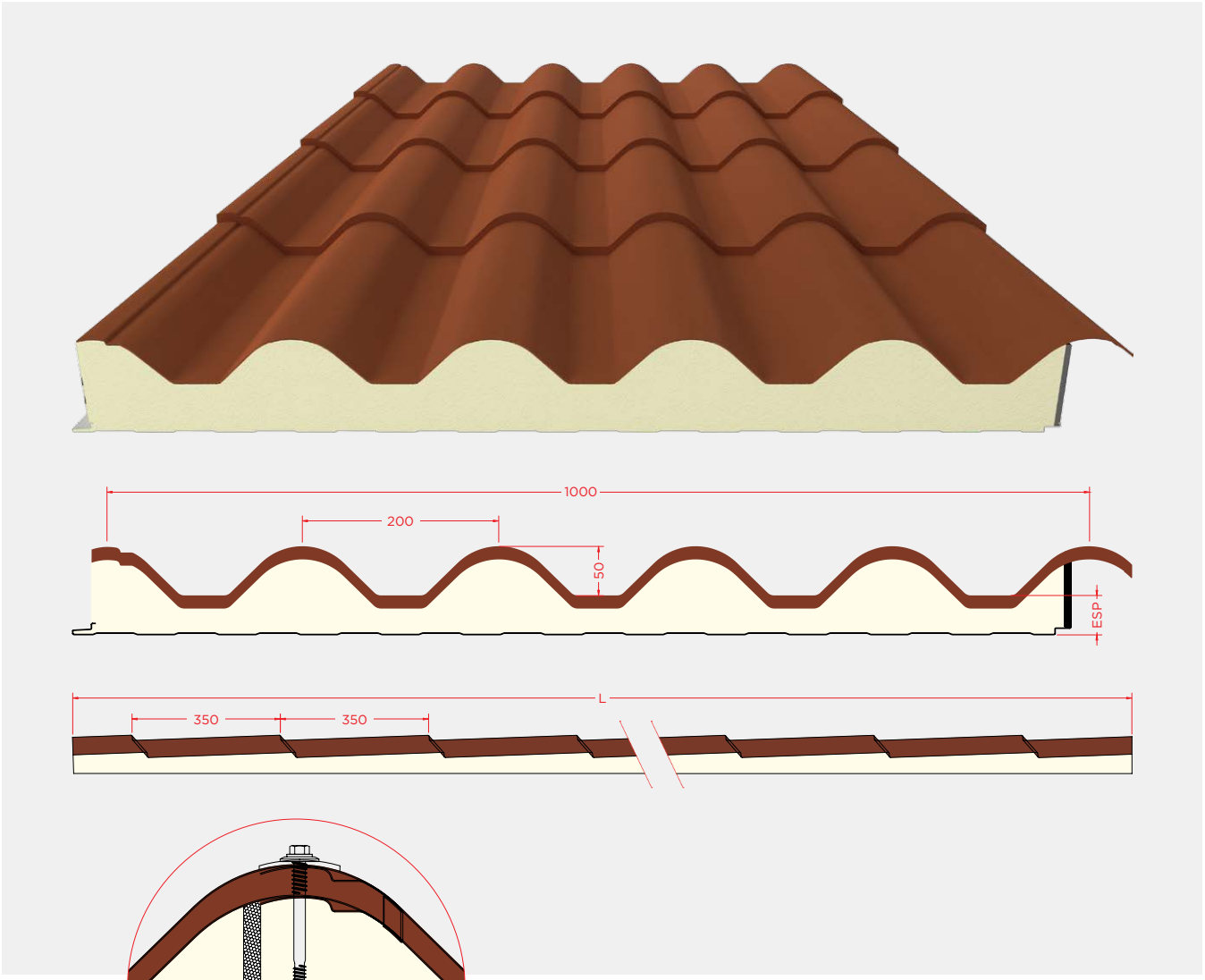
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 2,33 | 1,87 | 1,54 | 1,29 | 1,10 | 0,87 | 0,69 | 0,56 | 0,45 | 0,35 | | | | | |
| | ▼ | 1,95 | 1,53 | 1,24 | 1,01 | 0,69 | 0,44 | | | | | | | | | |
| 40 | ▲ | 2,96 | 2,42 | 2,03 | 1,72 | 1,47 | 1,28 | 1,03 | 0,83 | 0,69 | 0,57 | 0,48 | 0,41 | 0,34 | | |
| | ▼ | 2,48 | 2,00 | 1,64 | 1,37 | 1,12 | 0,79 | 0,54 | 0,36 | | | | | | | |
| 50 | ▲ | 3,62 | 3,02 | 2,55 | 2,18 | 1,89 | 1,64 | 1,42 | 1,17 | 0,97 | 0,81 | 0,69 | 0,59 | 0,51 | 0,44 | 0,39 |
| | ▼ | 3,03 | 2,49 | 2,08 | 1,75 | 1,49 | 1,20 | 0,87 | 0,63 | 0,44 | 0,30 | | | | | |
| 60 | ▲ | 4,31 | 3,63 | 3,10 | 2,67 | 2,32 | 2,03 | 1,72 | 1,46 | 1,27 | 1,09 | 0,92 | 0,79 | 0,69 | 0,60 | 0,53 |
| | ▼ | 3,61 | 3,01 | 2,53 | 2,16 | 1,85 | 1,60 | 1,25 | 0,95 | 0,71 | 0,52 | 0,37 | | | | |
| 80 | ▲ | 5,73 | 4,91 | 4,24 | 3,69 | 3,12 | 2,57 | 2,16 | 1,84 | 1,59 | 1,39 | 1,22 | 1,09 | 0,98 | 0,88 | 0,80 |
| | ▼ | 4,80 | 4,07 | 3,48 | 3,00 | 2,60 | 2,27 | 1,99 | 1,69 | 1,33 | 1,05 | 0,82 | 0,64 | 0,49 | 0,36 | |
| 100 | ▲ | 6,40 | 5,47 | 4,78 | 4,24 | 3,76 | 3,10 | 2,60 | 2,22 | 1,92 | 1,68 | 1,48 | 1,32 | 1,18 | 1,06 | 0,97 |
| | ▼ | 6,02 | 5,16 | 4,46 | 3,88 | 3,39 | 2,98 | 2,62 | 2,32 | 2,06 | 1,68 | 1,37 | 1,11 | 0,90 | 0,71 | 0,57 |

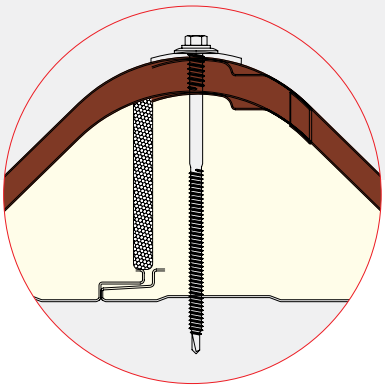
▲ Ascending load ▼ Descending load

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ▲ | 2,04 | 1,54 | 1,22 | 1,00 | 0,84 | 0,72 | 0,62 | 0,55 | 0,49 | 0,45 | 0,41 | 0,37 | 0,35 | 0,32 | 0,30 |
| | ▼ | 1,95 | 1,53 | 1,24 | 1,01 | 0,84 | 0,71 | 0,60 | 0,51 | 0,44 | 0,38 | 0,33 | | | | |
| 40 | ▲ | 2,21 | 1,68 | 1,34 | 1,10 | 0,93 | 0,80 | 0,70 | 0,62 | 0,55 | 0,50 | 0,46 | 0,42 | 0,39 | 0,37 | 0,34 |
| | ▼ | 2,48 | 1,96 | 1,52 | 1,22 | 1,00 | 0,83 | 0,70 | 0,60 | 0,51 | 0,45 | 0,39 | 0,34 | 0,30 | | |
| 50 | ▲ | 2,44 | 1,87 | 1,50 | 1,23 | 1,04 | 0,90 | 0,79 | 0,70 | 0,63 | 0,57 | 0,53 | 0,49 | 0,45 | 0,43 | 0,40 |
| | ▼ | 2,93 | 2,20 | 1,72 | 1,38 | 1,12 | 0,94 | 0,80 | 0,69 | 0,60 | 0,52 | 0,46 | 0,41 | 0,36 | 0,32 | |
| 60 | ▲ | 2,51 | 1,94 | 1,55 | 1,28 | 1,08 | 0,93 | 0,81 | 0,72 | 0,65 | 0,59 | 0,54 | 0,50 | 0,47 | 0,44 | 0,41 |
| | ▼ | 2,98 | 2,26 | 1,77 | 1,42 | 1,17 | 0,98 | 0,84 | 0,72 | 0,63 | 0,55 | 0,49 | 0,44 | 0,39 | 0,35 | 0,32 |
| 80 | ▲ | 2,99 | 2,27 | 1,81 | 1,50 | 1,28 | 1,12 | 0,99 | 0,90 | 0,82 | 0,75 | 0,70 | 0,66 | 0,62 | 0,59 | 0,56 |
| | ▼ | 3,55 | 2,65 | 2,06 | 1,67 | 1,38 | 1,17 | 1,02 | 0,89 | 0,79 | 0,71 | 0,64 | 0,58 | 0,53 | 0,48 | 0,44 |
| 100 | ▲ | 3,06 | 2,35 | 1,87 | 1,54 | 1,31 | 1,14 | 1,01 | 0,91 | 0,83 | 0,76 | 0,71 | 0,66 | 0,62 | 0,59 | 0,56 |
| | ▼ | 3,58 | 2,69 | 2,09 | 1,67 | 1,38 | 1,17 | 1,00 | 0,87 | 0,77 | 0,69 | 0,61 | 0,55 | 0,50 | 0,45 | 0,42 |

# Topcover® Tile



## Description/Application

Tile shaped insulated panel for roofs.

Insulated panel composed of two profiled metal sheets joined by rigid Polyurethane (PUR) or Polyisocyanurate (PIR) foam.

To reproduce the tile effect, the sheet has a textured paint finish.

## Characteristics

### Dimensions

Thicknesses: 30–40–50 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

### Metallic support

Galvanized steel sheet S250 GD, EN 10142
Thicknesses: 0,4–0,5–0,6 mm

### Insulated core

Polyurethane (PUR) | Polysocyanurate (PIR)
Thermal conductivity:

| | |
|---|---|
| PUR | 0,022 W/mK |
| PIR | 0,022 W/mK |

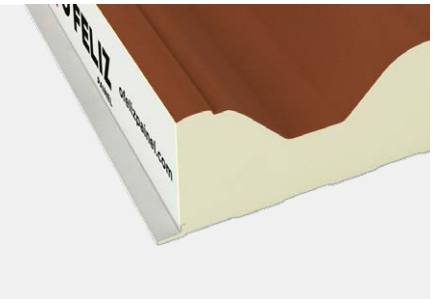
Density: 40 kg/m³
Reaction to fire:

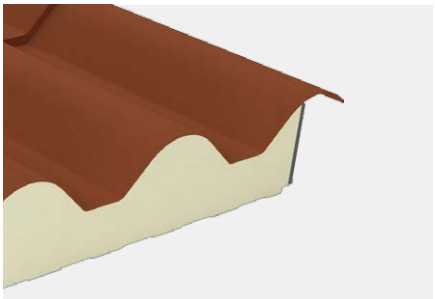
| | |
|---|---|
| PUR | B-s2,d0 |
| PIR | B-s2,d0 |
| PIR-HI | B-s1,d0 |

### Coating

Standard: Polyester textured paint 25 µm.
Special: Granite HDX 55 µm | PVC 180 µm color textured wood for the interior face.

## Details





## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

All the RAL references presented here, referring to the product Topcover® Tile, have a textured finish.

### Exterior face

**RAL 8004T** Copper Brown

**RAL 8023T** Orange Brown

**RAL 9005T** Jet Black

**Alvero**

### Interior face

**RAL 9010** Pure White

**Naive Wood** Textured Lacquer

**Rovere Wood** Textured PVC

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 |
|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,43 | 0,36 | 0,31 |
| Weight (Steel sheet \| Thickness 0,5/0,4) | Kg/m² | 10,8 | 11,2 | 11,6 |
| Weight (Steel sheet \| Thickness 0,5/0,5) | Kg/m² | 11,7 | 12,1 | 12,5 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,5/0,4

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1,05 | 1,40 | 1,75 | 2,10 | 2,45 | 2,80 | 3,15 | 3,50 |
| 30 | ▲ | 2,52 | 1,55 | 1,08 | 0,81 | 0,64 | 0,52 | 0,44 | 0,37 |
| | ▼ | 1,86 | 1,10 | 0,73 | 0,51 | 0,37 | | | |
| 40 | ▲ | 2,69 | 1,70 | 1,21 | 0,92 | 0,73 | 0,60 | 0,51 | 0,43 |
| | ▼ | 1,98 | 1,20 | 0,81 | 0,59 | 0,44 | 0,33 | | |
| 50 | ▲ | 2,86 | 1,85 | 1,35 | 1,04 | 0,84 | 0,69 | 0,58 | 0,50 |
| | ▼ | 2,11 | 1,32 | 0,91 | 0,67 | 0,50 | 0,39 | 0,30 | |

▲ Ascending load ▼ Descending load

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1,05 | 1,40 | 1,75 | 2,10 | 2,45 | 2,80 | 3,15 | 3,50 |
| 30 | ▲ | 2,52 | 1,53 | 0,96 | 0,67 | 0,50 | 0,40 | 0,33 | |
| | ▼ | 1,86 | 1,10 | 0,73 | 0,51 | 0,37 | | | |
| 40 | ▲ | 2,69 | 1,68 | 1,07 | 0,73 | 0,54 | 0,43 | 0,35 | |
| | ▼ | 1,86 | 1,10 | 0,73 | 0,51 | 0,37 | | | |
| 50 | ▲ | 2,86 | 1,85 | 1,20 | 0,82 | 0,63 | 0,50 | 0,40 | |
| | ▼ | 1,86 | 1,10 | 0,73 | 0,51 | 0,37 | | | |

### Steel sheet | Thicknesses 0,5/0,5

Simple support conditions

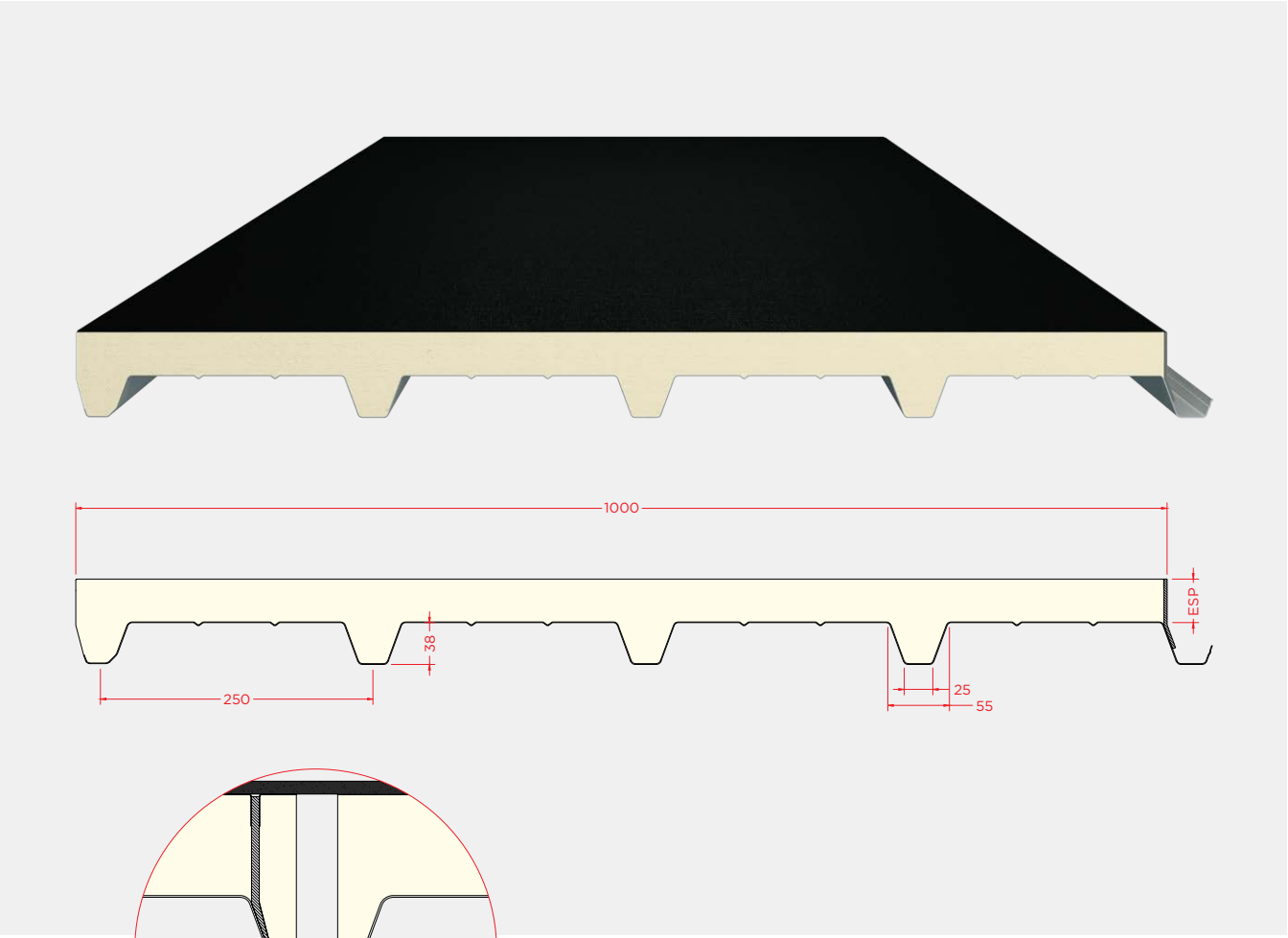
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1,05 | 1,40 | 1,75 | 2,10 | 2,45 | 2,80 | 3,15 | 3,50 |
| 30 | ▲ | 2,52 | 1,55 | 1,08 | 0,81 | 0,64 | 0,53 | 0,44 | 0,38 |
| | ▼ | 1,86 | 1,10 | 0,73 | 0,51 | 0,38 | | | |
| 40 | ▲ | 2,69 | 1,70 | 1,21 | 0,93 | 0,74 | 0,61 | 0,51 | 0,44 |
| | ▼ | 1,98 | 1,21 | 0,82 | 0,59 | 0,44 | 0,33 | | |
| 50 | ▲ | 2,87 | 1,86 | 1,35 | 1,05 | 0,84 | 0,70 | 0,59 | 0,51 |
| | ▼ | 2,11 | 1,32 | 0,92 | 0,67 | 0,51 | 0,39 | 0,30 | |

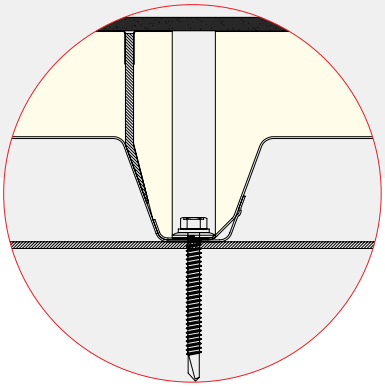
▲ Ascending load ▼ Descending load

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1,05 | 1,40 | 1,75 | 2,10 | 2,45 | 2,80 | 3,15 | 3,50 |
| 30 | ▲ | 2,52 | 1,54 | 0,97 | 0,68 | 0,50 | 0,40 | 0,33 | |
| | ▼ | 1,86 | 1,10 | 0,73 | 0,51 | 0,38 | | | |
| 40 | ▲ | 2,69 | 1,69 | 1,08 | 0,73 | 0,54 | 0,43 | 0,35 | |
| | ▼ | 1,98 | 1,21 | 0,82 | 0,59 | 0,44 | 0,33 | | |
| 50 | ▲ | 2,87 | 1,86 | 1,21 | 0,82 | 0,63 | 0,50 | 0,40 | 0,30 |
| | ▼ | 2,11 | 1,32 | 0,92 | 0,67 | 0,51 | 0,39 | 0,30 | |

# Topcover® Deck



**Description/Application**
Panel for Deck application (Flat surfaces). The external faces are made of paperboard.

The waterproofing structure should be installed in situ using a bituminous tile or a PVC tile.

Insulated panel composed of an internal profiled metal sheet and an external flexible metal sheet joined by rigid Polyurethane (PUR) or a Polyisocyanurate (PIR) foam.

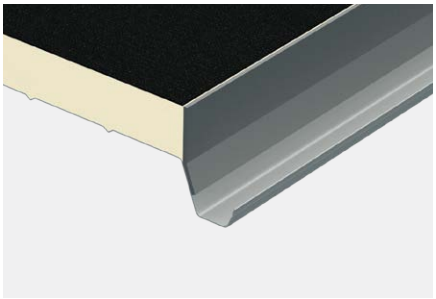
**Characteristics**
**Dimensions**
Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

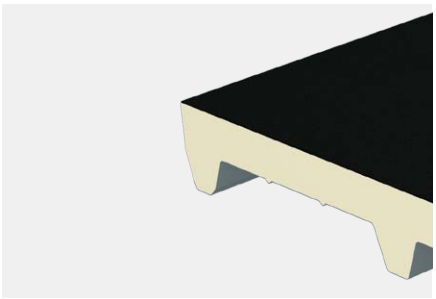
**Metallic support**
Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,5–0,6–0,7 mm

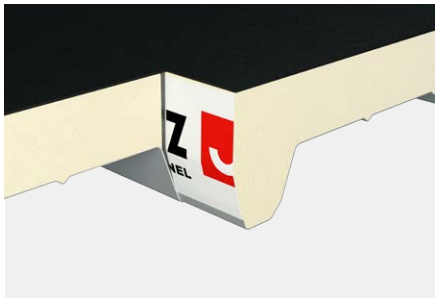
**Insulated core**
Polyurethane (PUR)
Thermal conductivity: 0,020 W/mK
Density: 40 kg/m$^3$
Reaction to fire: F

**Coating**
Felt paper on the external side.
Polyester paint 25 µm on the internal side.

## Details







## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,66 | 0,51 | 0,42 | 0,35 | 0,27 | 0,22 |
| Weight (Steel sheet \| Thickness 0,5) | Kg/m² | 6,0 | 6,4 | 6,8 | 7,2 | 8,0 | 8,7 |
| Weight (Steel sheet \| Thickness 0,6) | Kg/m² | 7,4 | 7,8 | 8,2 | 8,6 | 9,4 | 10,2 |
| Weight (Steel sheet \| Thickness 0,7) | Kg/m² | 8,4 | 8,8 | 9,2 | 9,6 | 10,4 | 11,2 |

## Direct Design Tables
## Steel sheet | Thicknesses 0,5/0,6/0,7

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,5 | ▲ | 2,64 | 2,10 | 1,48 | 1,08 | 0,75 | 0,39 | | | | | |
| | ▼ | 2,64 | 1,97 | 1,39 | 1,03 | 0,79 | 0,63 | 0,51 | 0,42 | 0,35 | | |
| 0,6 | ▲ | 3,92 | 3,11 | 2,15 | 1,57 | 1,12 | 0,65 | 0,35 | | | | |
| | ▼ | 3,92 | 2,61 | 1,85 | 1,38 | 1,07 | 0,85 | 0,69 | 0,57 | 0,48 | 0,41 | 0,35 |
| 0,7 | ▲ | 5,43 | 4,18 | 2,89 | 2,11 | 1,49 | 0,91 | 0,54 | | | | |
| | ▼ | 4,98 | 3,31 | 2,35 | 1,76 | 1,37 | 1,09 | 0,89 | 0,74 | 0,62 | 0,53 | 0,46 |

▲ Ascending load ▼ Descending load

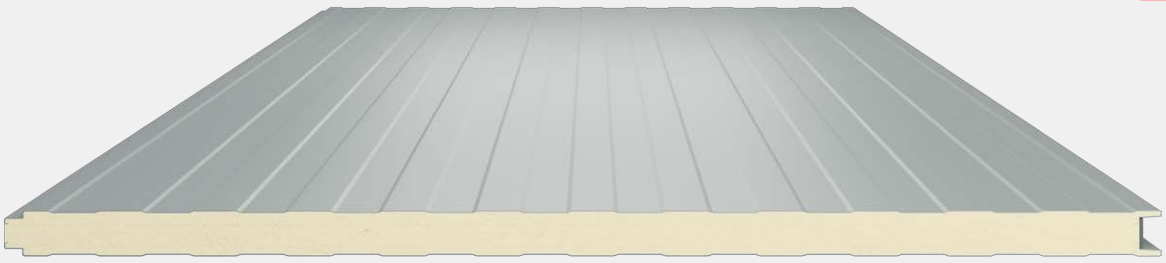
Multiple support conditions

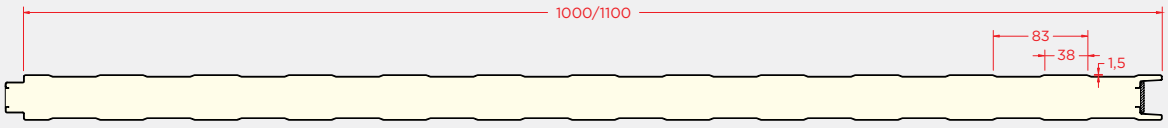
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,5 | ▲ | 2,10 | 1,67 | 1,39 | 1,03 | 0,79 | 0,63 | 0,51 | 0,42 | 0,33 | | |
| | ▼ | 2,10 | 1,67 | 1,39 | 1,08 | 0,81 | 0,64 | 0,51 | 0,41 | 0,34 | | |
| 0,6 | ▲ | 3,13 | 2,49 | 1,85 | 1,38 | 1,07 | 0,85 | 0,69 | 0,57 | 0,48 | 0,33 | |
| | ▼ | 3,13 | 2,49 | 2,07 | 1,57 | 1,19 | 0,93 | 0,75 | 0,61 | 0,51 | 0,43 | 0,36 |
| 0,7 | ▲ | 4,34 | 3,31 | 2,35 | 1,76 | 1,37 | 1,09 | 0,89 | 0,74 | 0,62 | 0,51 | 0,32 |
| | ▼ | 4,34 | 3,46 | 2,88 | 2,11 | 1,61 | 1,26 | 1,01 | 0,83 | 0,69 | 0,58 | 0,50 |

# FACADE AND WALL PANELS

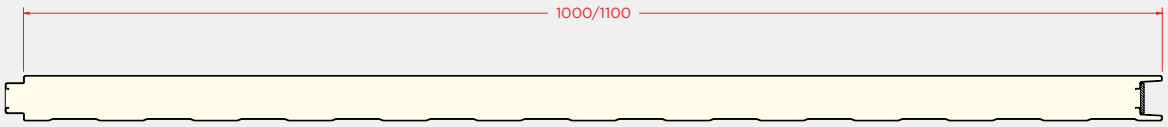
Indwall®
Facewall®

# Indwall®

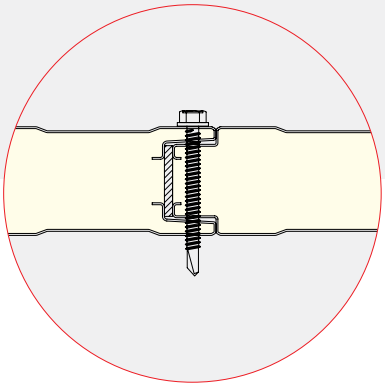





Indwall® ribbed




Indwall® flat



## Description/Application

Insulated panel composed of two profiled metal sheets joined by rigid Polyurethane (PUR) or Polyisocyanurate (PIR) foam.

Self-supporting panel for walls or facades with visible fasteners. Industrial solution for prefabricated and modular buildings. Flat and ribbed external face is available.

Versatile panel designed for easy installation and maintenance.

Panel produced according to EN 14509 and subject to evaluation and verification of regularity of performance according to system 1.

## Characteristics

### Dimensions

Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 — 1100 mm
Length: 4,00 — 13,50 m

### Metallic support

Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,4–0,5 mm

### Insulated core

Polyurethane (PUR) | Polyisocyanurate (PIR)
Thermal conductivity:

| | |
|---|---|
| PUR | 0,022 W/mK |
| PIR | 0,022 W/mK |

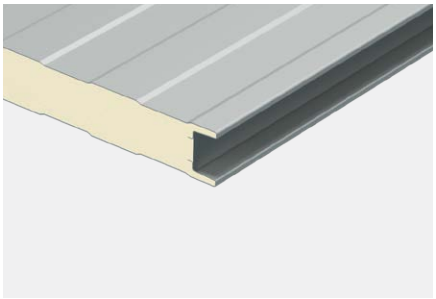
Density: 40 kg/m³
Reaction to fire: EN 13501-1

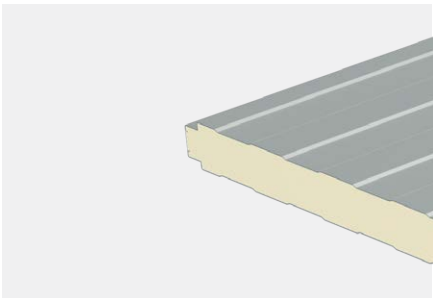
| | |
|---|---|
| PUR | B-s2,d0 |
| PIR | B-s2,d0 |
| PIR-HI | B-s1,d0 |

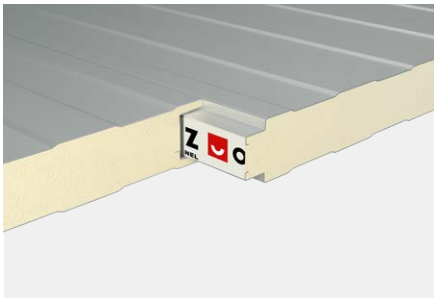
### Coating

Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm

## Details







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**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,77 | 0,58 | 0,46 | 0,38 | 0,29 | 0,23 |
| Weight (Steel sheet \| Thickness 0,4/0,4) | Kg/m² | 7,0 | 7,4 | 7,7 | 8,1 | | |
| Weight (Steel sheet \| Thickness 0,5/0,5) | Kg/m² | 8,6 | 9,0 | 9,4 | 9,8 | 10,2 | 10,6 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,4/0,4

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ◄ | 1,31 | 0,79 | 0,41 | | | | | | | | | | | | |
| | ► | 1,31 | 0,79 | 0,41 | | | | | | | | | | | | |
| 40 | ◄ | 2,34 | 1,67 | 1,22 | 0,86 | 0,54 | 0,33 | | | | | | | | | |
| | ► | 2,34 | 1,67 | 1,22 | 0,86 | 0,54 | 0,33 | | | | | | | | | |
| 50 | ◄ | 3,45 | 2,56 | 1,92 | 1,46 | 1,12 | 0,87 | 0,61 | 0,41 | | | | | | | |
| | ► | 3,45 | 2,56 | 1,92 | 1,46 | 1,12 | 0,87 | 0,61 | 0,41 | | | | | | | |
| 60 | ◄ | 4,25 | 3,12 | 2,39 | 1,89 | 1,53 | 1,26 | 1,03 | 0,83 | 0,63 | 0,46 | 0,33 | | | | |
| | ► | 4,25 | 3,12 | 2,39 | 1,89 | 1,53 | 1,26 | 1,03 | 0,83 | 0,63 | 0,46 | 0,33 | | | | |
| 80 | ◄ | 5,72 | 4,21 | 3,22 | 2,54 | 2,06 | 1,70 | 1,43 | 1,22 | 1,05 | 0,92 | 0,80 | 0,71 | 0,63 | 0,50 | 0,39 |
| | ► | 5,72 | 4,21 | 3,22 | 2,54 | 2,06 | 1,70 | 1,43 | 1,22 | 1,05 | 0,92 | 0,80 | 0,71 | 0,63 | 0,50 | 0,39 |
| 100 | ◄ | 6,35 | 5,29 | 4,05 | 3,20 | 2,59 | 2,14 | 1,80 | 1,53 | 1,32 | 1,15 | 1,01 | 0,90 | 0,80 | 0,72 | 0,65 |
| | ► | 6,35 | 5,29 | 4,05 | 3,20 | 2,59 | 2,14 | 1,80 | 1,53 | 1,32 | 1,15 | 1,01 | 0,90 | 0,80 | 0,72 | 0,65 |

◄ Exterior suction ► Exterior pressure

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ◄ | 2,02 | 1,49 | 1,14 | 0,90 | 0,73 | 0,60 | 0,51 | 0,43 | 0,37 | 0,32 | | | | | |
| | ► | 2,02 | 1,49 | 1,14 | 0,90 | 0,73 | 0,60 | 0,51 | 0,43 | 0,37 | 0,32 | | | | | |
| 40 | ◄ | 2,77 | 2,03 | 1,56 | 1,23 | 1,00 | 0,82 | 0,69 | 0,59 | 0,51 | 0,44 | 0,39 | 0,34 | 0,31 | | |
| | ► | 2,77 | 2,03 | 1,56 | 1,23 | 1,00 | 0,82 | 0,69 | 0,59 | 0,51 | 0,44 | 0,39 | 0,34 | 0,31 | | |
| 50 | ◄ | 3,15 | 2,58 | 1,97 | 1,56 | 1,26 | 1,04 | 0,88 | 0,75 | 0,64 | 0,56 | 0,49 | 0,44 | 0,39 | 0,35 | 0,32 |
| | ► | 3,15 | 2,58 | 1,97 | 1,56 | 1,26 | 1,04 | 0,88 | 0,75 | 0,64 | 0,56 | 0,49 | 0,44 | 0,39 | 0,35 | 0,32 |
| 60 | ◄ | 3,36 | 2,88 | 2,39 | 1,89 | 1,53 | 1,26 | 1,06 | 0,90 | 0,78 | 0,68 | 0,60 | 0,53 | 0,47 | 0,42 | 0,38 |
| | ► | 3,36 | 2,88 | 2,39 | 1,89 | 1,53 | 1,26 | 1,06 | 0,90 | 0,78 | 0,68 | 0,60 | 0,53 | 0,47 | 0,42 | 0,38 |
| 80 | ◄ | 3,79 | 3,25 | 2,84 | 2,52 | 2,06 | 1,70 | 1,43 | 1,22 | 1,05 | 0,92 | 0,80 | 0,71 | 0,64 | 0,57 | 0,52 |
| | ► | 3,79 | 3,25 | 2,84 | 2,52 | 2,06 | 1,70 | 1,43 | 1,22 | 1,05 | 0,92 | 0,80 | 0,71 | 0,64 | 0,57 | 0,52 |
| 100 | ◄ | 4,21 | 3,61 | 3,16 | 2,81 | 2,53 | 2,14 | 1,80 | 1,53 | 1,32 | 1,15 | 1,01 | 0,90 | 0,80 | 0,72 | 0,65 |
| | ► | 4,21 | 3,61 | 3,16 | 2,81 | 2,53 | 2,14 | 1,80 | 1,53 | 1,32 | 1,15 | 1,01 | 0,90 | 0,80 | 0,72 | 0,65 |

### Steel sheet | Thicknesses 0,5/0,5

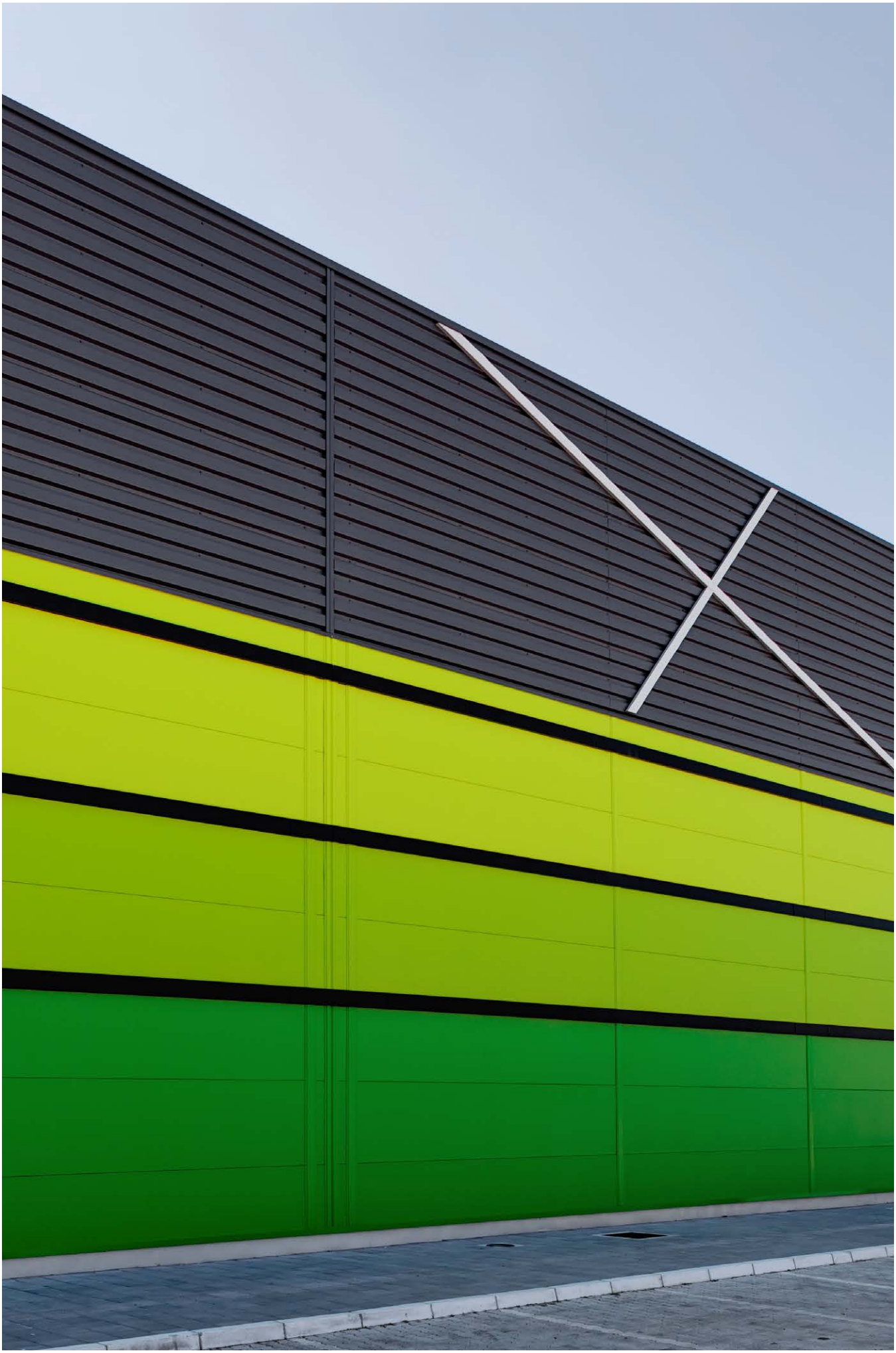
Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ◄ | 1,40 | 0,85 | 0,44 | | | | | | | | | | | | |
| | ► | 1,40 | 0,85 | 0,44 | | | | | | | | | | | | |
| 40 | ◄ | 2,47 | 1,79 | 1,31 | 0,93 | 0,60 | 0,36 | | | | | | | | | |
| | ► | 2,47 | 1,79 | 1,31 | 0,93 | 0,60 | 0,36 | | | | | | | | | |
| 50 | ◄ | 3,62 | 2,71 | 2,06 | 1,58 | 1,22 | 0,95 | 0,67 | 0,46 | 0,30 | | | | | | |
| | ► | 3,62 | 2,71 | 2,06 | 1,58 | 1,22 | 0,95 | 0,67 | 0,46 | 0,30 | | | | | | |
| 60 | ◄ | 4,49 | 3,68 | 2,83 | 2,23 | 1,77 | 1,41 | 1,13 | 0,92 | 0,70 | 0,52 | 0,37 | | | | |
| | ► | 4,49 | 3,68 | 2,83 | 2,23 | 1,77 | 1,41 | 1,13 | 0,92 | 0,70 | 0,52 | 0,37 | | | | |
| 80 | ◄ | 5,92 | 4,98 | 3,81 | 3,01 | 2,44 | 2,01 | 1,69 | 1,44 | 1,24 | 1,08 | 0,95 | 0,83 | 0,70 | 0,56 | 0,44 |
| | ► | 5,92 | 4,98 | 3,81 | 3,01 | 2,44 | 2,01 | 1,69 | 1,44 | 1,24 | 1,08 | 0,95 | 0,83 | 0,70 | 0,56 | 0,44 |
| 100 | ◄ | 6,34 | 5,44 | 4,76 | 3,79 | 3,07 | 2,54 | 2,13 | 1,82 | 1,57 | 1,36 | 1,20 | 1,06 | 0,95 | 0,85 | 0,77 |
| | ► | 6,34 | 5,44 | 4,76 | 3,79 | 3,07 | 2,54 | 2,13 | 1,82 | 1,57 | 1,36 | 1,20 | 1,06 | 0,95 | 0,85 | 0,77 |

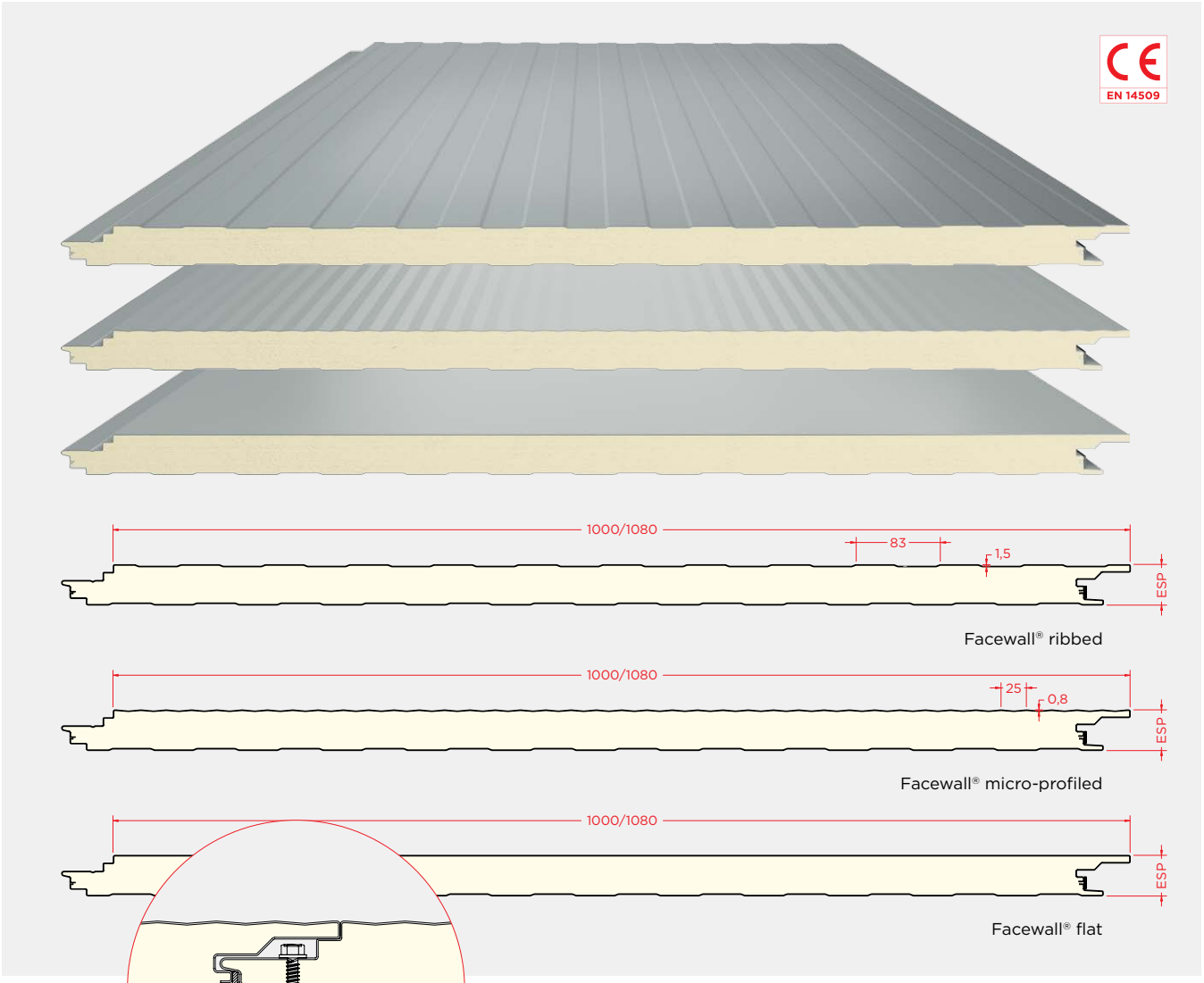
◄ Exterior suction ► Exterior pressure

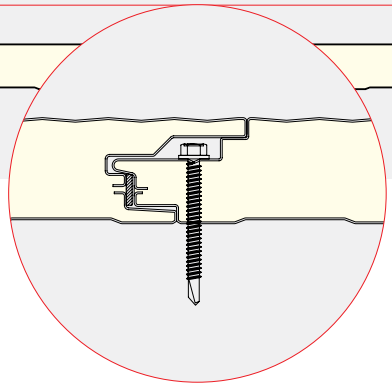
Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 30 | ◄ | 2,08 | 1,63 | 1,31 | 1,06 | 0,86 | 0,71 | 0,60 | 0,50 | 0,43 | 0,36 | 0,31 | | | | |
| | ► | 2,08 | 1,63 | 1,31 | 1,06 | 0,86 | 0,71 | 0,60 | 0,50 | 0,43 | 0,36 | 0,31 | | | | |
| 40 | ◄ | 2,93 | 2,40 | 1,84 | 1,45 | 1,18 | 0,97 | 0,82 | 0,70 | 0,60 | 0,52 | 0,46 | 0,41 | 0,36 | 0,33 | |
| | ► | 2,93 | 2,40 | 1,84 | 1,45 | 1,18 | 0,97 | 0,82 | 0,70 | 0,60 | 0,52 | 0,46 | 0,41 | 0,36 | 0,33 | |
| 50 | ◄ | 3,14 | 2,70 | 2,33 | 1,84 | 1,49 | 1,23 | 1,04 | 0,88 | 0,76 | 0,66 | 0,58 | 0,52 | 0,46 | 0,41 | 0,37 |
| | ► | 3,14 | 2,70 | 2,33 | 1,84 | 1,49 | 1,23 | 1,04 | 0,88 | 0,76 | 0,66 | 0,58 | 0,52 | 0,46 | 0,41 | 0,37 |
| 60 | ◄ | 3,36 | 2,88 | 2,52 | 2,23 | 1,81 | 1,49 | 1,26 | 1,07 | 0,92 | 0,80 | 0,71 | 0,63 | 0,56 | 0,50 | 0,45 |
| | ► | 3,36 | 2,88 | 2,52 | 2,23 | 1,81 | 1,49 | 1,26 | 1,07 | 0,92 | 0,80 | 0,71 | 0,63 | 0,56 | 0,50 | 0,45 |
| 80 | ◄ | 3,78 | 3,24 | 2,84 | 2,52 | 2,27 | 2,01 | 1,69 | 1,44 | 1,24 | 1,08 | 0,95 | 0,84 | 0,75 | 0,68 | 0,61 |
| | ► | 3,78 | 3,24 | 2,84 | 2,52 | 2,27 | 2,01 | 1,69 | 1,44 | 1,24 | 1,08 | 0,95 | 0,84 | 0,75 | 0,68 | 0,61 |
| 100 | ◄ | 4,21 | 3,61 | 3,16 | 2,81 | 2,53 | 2,30 | 2,11 | 1,82 | 1,57 | 1,36 | 1,20 | 1,06 | 0,95 | 0,85 | 0,77 |
| | ► | 4,21 | 3,61 | 3,16 | 2,81 | 2,53 | 2,30 | 2,11 | 1,82 | 1,57 | 1,36 | 1,20 | 1,06 | 0,95 | 0,85 | 0,77 |



# Facewall®



**Description/Application**
Insulated panel composed of two profiled metal sheets joined by rigid Polyurethane (PUR) or Polyisocyanurate (PIR) foam.

Facade panel with secret fix. Ribbed, micro-profiled or flat faced panels available.

Panel produced according to EN 14509 and subject to evaluation and verification of regularity of performance according to system 1.

**Characteristics**
**Dimensions**
Thicknesses: 40–50–60–80–100 mm
Width: 1000 — 1080 mm
Length: 4,00 — 13,50 m

**Metallic support**
Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,5–0,6 mm

**Insulated core**
Polyurethane (PUR) | Polyisocyanurate (PIR)
Thermal conductivity:

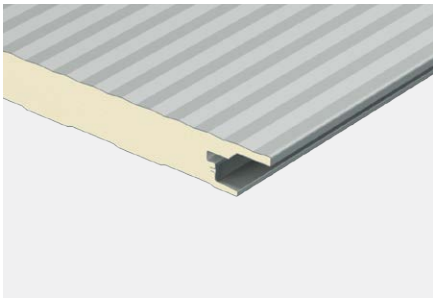
| | |
|---|---|
| PUR | 0,022 W/mK |
| PIR | 0,022 W/mK |

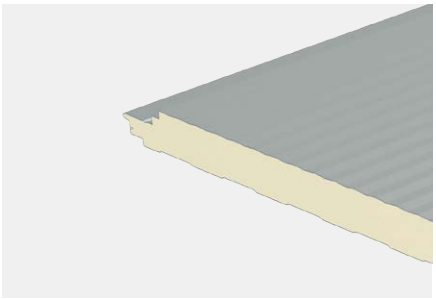
Density: 40 kg/m³
Reaction to fire: EN 13501-1

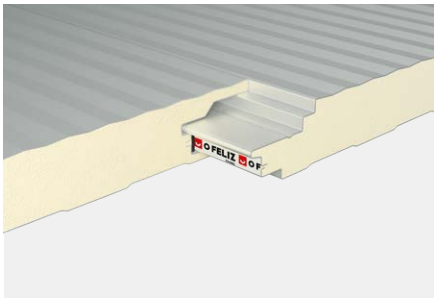
| | |
|---|---|
| PUR | B-s2,d0 |
| PIR | B-s2,d0 |
| PIR-HI | B-s1,d0 |

**Coating**
Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm

## Details








## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,58 | 0,46 | 0,38 | 0,29 | 0,23 |
| Weight (Steel sheet \| Thickness 0,5/0,4) | Kg/m² | 8,5 | 8,9 | 9,3 | 9,7 | 10,1 |
| Weight (Steel sheet \| Thickness 0,6/0,4) | Kg/m² | 9,9 | 10,3 | 10,7 | 11,1 | 11,5 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,5/0,4

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 40 | ◄ | 2,24 | 1,62 | 1,18 | 0,80 | 0,50 | | | | | | | | | | |
| | ► | 2,24 | 1,62 | 1,18 | 0,80 | 0,50 | | | | | | | | | | |
| 50 | ◄ | 3,36 | 2,51 | 1,90 | 1,45 | 1,12 | 0,84 | 0,58 | 0,39 | | | | | | | |
| | ► | 3,36 | 2,51 | 1,90 | 1,45 | 1,12 | 0,84 | 0,58 | 0,39 | | | | | | | |
| 60 | ◄ | 4,39 | 3,36 | 2,57 | 2,03 | 1,64 | 1,31 | 1,05 | 0,84 | 0,62 | 0,45 | 0,32 | | | | |
| | ► | 4,39 | 3,46 | 2,68 | 2,09 | 1,65 | 1,31 | 1,05 | 0,84 | 0,62 | 0,45 | 0,32 | | | | |
| 80 | ◄ | 5,89 | 4,55 | 3,49 | 2,75 | 2,23 | 1,84 | 1,55 | 1,32 | 1,14 | 0,99 | 0,87 | 0,77 | 0,64 | 0,51 | 0,40 |
| | ► | 5,89 | 5,05 | 4,36 | 3,50 | 2,84 | 2,32 | 1,91 | 1,58 | 1,32 | 1,10 | 0,92 | 0,78 | 0,64 | 0,51 | 0,40 |
| 100 | ◄ | 6,32 | 5,42 | 4,40 | 3,48 | 2,82 | 2,33 | 1,96 | 1,67 | 1,44 | 1,25 | 1,10 | 0,97 | 0,87 | 0,78 | 0,70 |
| | ► | 6,32 | 5,42 | 4,74 | 4,21 | 3,78 | 3,12 | 2,62 | 2,24 | 1,93 | 1,68 | 1,48 | 1,28 | 1,10 | 0,95 | 0,82 |

◄ Exterior suction ► Exterior pressure

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 40 | ◄ | 2,83 | 2,16 | 1,65 | 1,31 | 1,06 | 0,88 | 0,74 | 0,63 | 0,54 | 0,47 | 0,41 | 0,37 | 0,33 | | |
| | ► | | 2,34 | 1,90 | 1,57 | 1,31 | 1,10 | 0,93 | 0,79 | 0,68 | 0,58 | 0,50 | 0,44 | 0,38 | 0,33 | |
| 50 | ◄ | 3,12 | 2,67 | 2,11 | 1,67 | 1,35 | 1,12 | 0,94 | 0,80 | 0,69 | 0,60 | 0,53 | 0,47 | 0,42 | 0,37 | 0,34 |
| | ► | 3,12 | 2,67 | 2,34 | 2,08 | 1,81 | 1,50 | 1,26 | 1,07 | 0,93 | 0,81 | 0,71 | 0,63 | 0,55 | 0,48 | 0,43 |
| 60 | ◄ | 3,33 | 2,86 | 2,50 | 2,03 | 1,64 | 1,36 | 1,14 | 0,97 | 0,84 | 0,73 | 0,64 | 0,57 | 0,51 | 0,46 | 0,41 |
| | ► | 3,33 | 2,86 | 2,50 | 2,22 | 2,00 | 1,82 | 1,53 | 1,31 | 1,13 | 0,98 | 0,86 | 0,76 | 0,68 | 0,61 | 0,54 |
| 80 | ◄ | 3,76 | 3,22 | 2,82 | 2,51 | 2,23 | 1,84 | 1,55 | 1,32 | 1,14 | 0,99 | 0,87 | 0,77 | 0,69 | 0,62 | 0,56 |
| | ► | 3,76 | 3,22 | 2,82 | 2,51 | 2,25 | 2,05 | 1,88 | 1,73 | 1,53 | 1,33 | 1,17 | 1,04 | 0,92 | 0,83 | 0,75 |
| 100 | ◄ | 4,18 | 3,59 | 3,14 | 2,79 | 2,51 | 2,28 | 1,96 | 1,67 | 1,44 | 1,25 | 1,10 | 0,97 | 0,87 | 0,78 | 0,70 |
| | ► | 4,18 | 3,59 | 3,14 | 2,79 | 2,51 | 2,28 | 2,09 | 1,93 | 1,79 | 1,67 | 1,48 | 1,31 | 1,17 | 1,05 | 0,94 |

### Steel sheet | Thicknesses 0,6/0,4

Simple support conditions

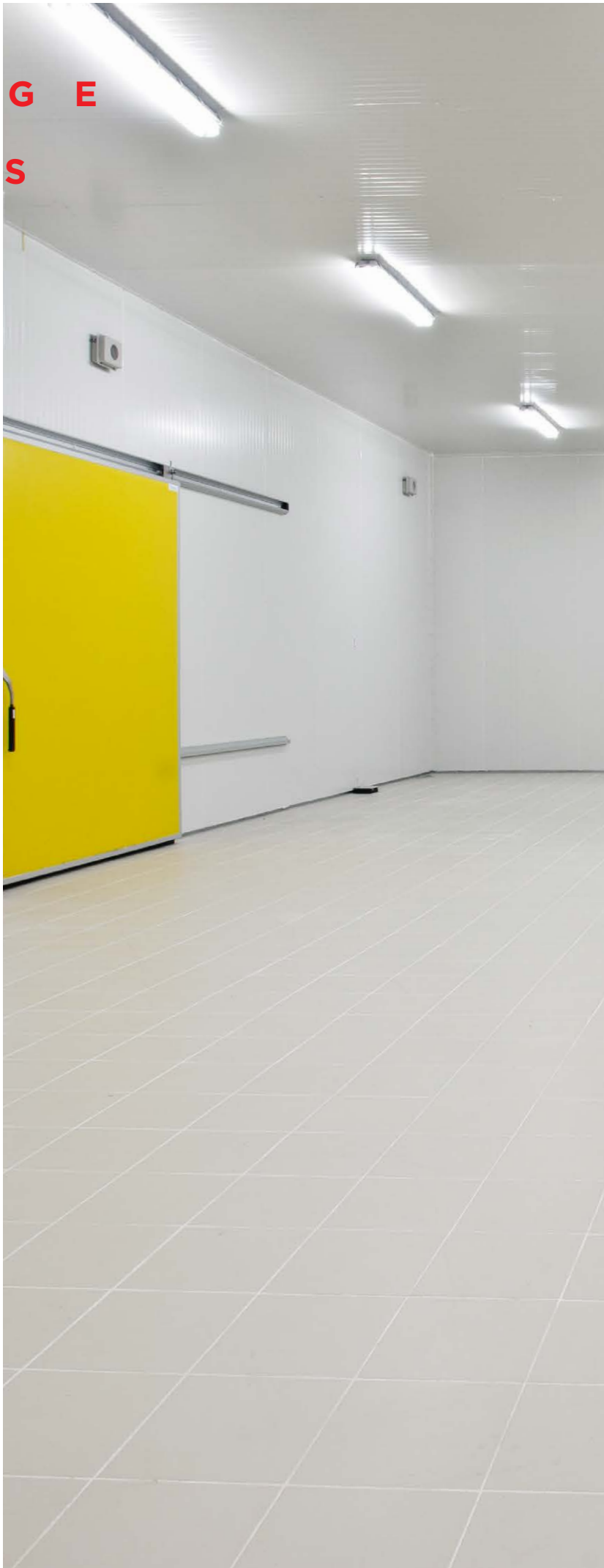
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 40 | ◄ | 2,30 | 1,67 | 1,23 | 0,83 | 0,52 | 0,30 | | | | | | | | | |
| | ► | 2,30 | 1,67 | 1,23 | 0,83 | 0,52 | 0,30 | | | | | | | | | |
| 50 | ◄ | 3,44 | 2,58 | 1,96 | 1,51 | 1,17 | 0,88 | 0,61 | 0,41 | | | | | | | |
| | ► | 3,44 | 2,58 | 1,96 | 1,51 | 1,17 | 0,88 | 0,61 | 0,41 | | | | | | | |
| 60 | ◄ | 4,39 | 3,35 | 2,57 | 2,03 | 1,64 | 1,36 | 1,10 | 0,89 | 0,66 | 0,48 | 0,34 | | | | |
| | ► | 4,39 | 3,55 | 2,76 | 2,17 | 1,72 | 1,37 | 1,10 | 0,89 | 0,66 | 0,48 | 0,34 | | | | |
| 80 | ◄ | 5,89 | 4,55 | 3,48 | 2,75 | 2,23 | 1,84 | 1,55 | 1,32 | 1,14 | 0,99 | 0,87 | 0,77 | 0,68 | 0,54 | 0,43 |
| | ► | 5,89 | 5,05 | 4,42 | 3,61 | 2,94 | 2,41 | 1,99 | 1,66 | 1,38 | 1,16 | 0,98 | 0,82 | 0,68 | 0,54 | 0,43 |
| 100 | ◄ | 6,32 | 5,41 | 4,40 | 3,48 | 2,82 | 2,33 | 1,96 | 1,67 | 1,44 | 1,25 | 1,10 | 0,97 | 0,87 | 0,78 | 0,70 |
| | ► | 6,32 | 5,41 | 4,74 | 4,21 | 3,79 | 3,45 | 3,00 | 2,53 | 2,15 | 1,83 | 1,57 | 1,34 | 1,16 | 1,00 | 0,87 |

◄ Exterior suction ► Exterior pressure

Multiple support conditions

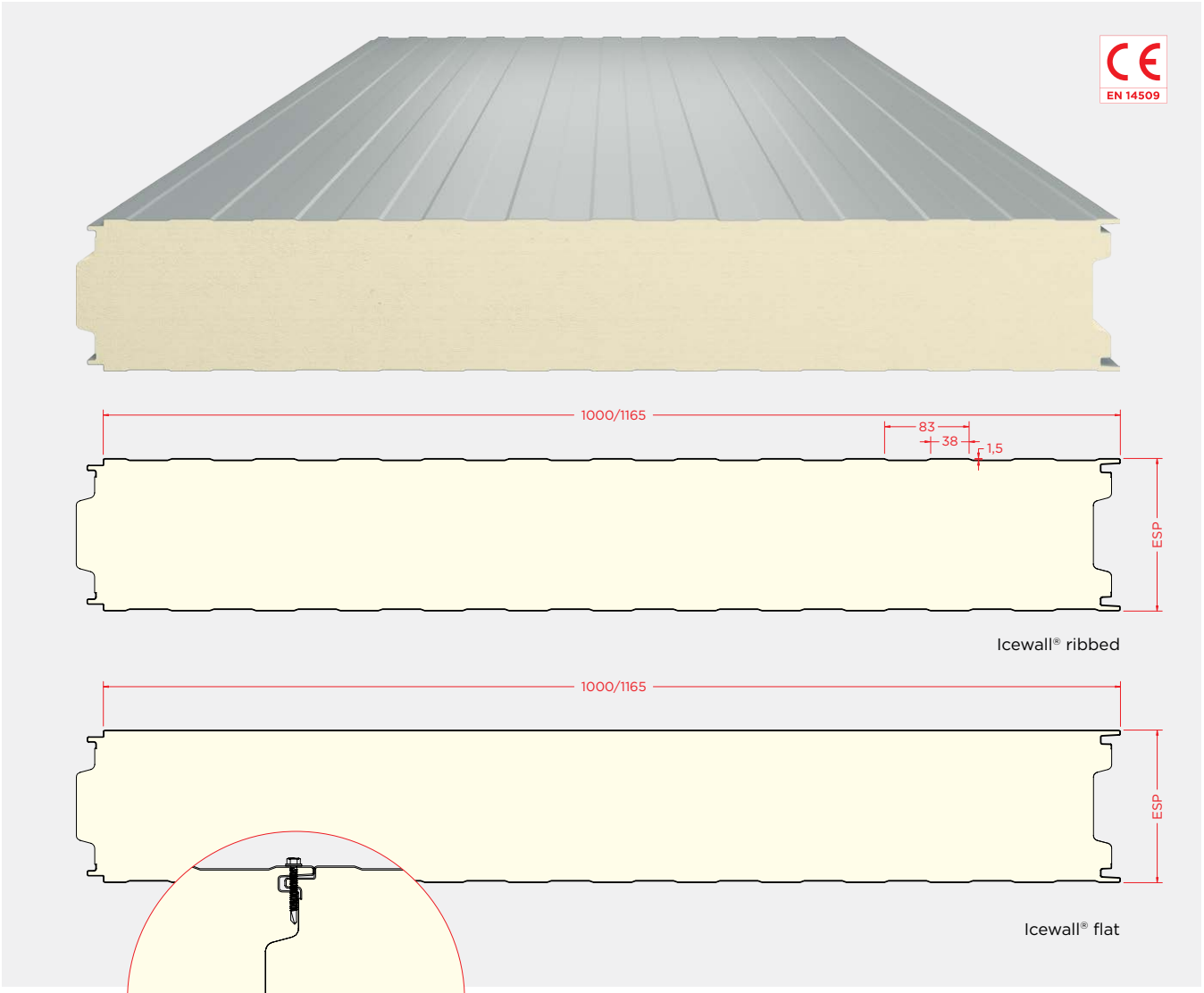
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 40 | ◄ | 2,82 | 2,16 | 1,65 | 1,31 | 1,06 | 0,87 | 0,73 | 0,63 | 0,54 | 0,47 | 0,41 | 0,37 | 0,33 | | |
| | ► | 2,82 | 2,37 | 1,93 | 1,60 | 1,34 | 1,13 | 0,96 | 0,82 | 0,67 | 0,55 | 0,47 | 0,40 | 0,35 | 0,30 | |
| 50 | ◄ | 3,12 | 2,67 | 2,11 | 1,67 | 1,35 | 1,12 | 0,94 | 0,80 | 0,69 | 0,60 | 0,53 | 0,47 | 0,42 | 0,37 | 0,34 |
| | ► | 3,12 | 2,67 | 2,34 | 2,08 | 1,87 | 1,64 | 1,41 | 1,15 | 0,93 | 0,77 | 0,64 | 0,55 | 0,47 | 0,41 | 0,36 |
| 60 | ◄ | 3,33 | 2,85 | 2,50 | 2,03 | 1,64 | 1,36 | 1,14 | 0,97 | 0,84 | 0,73 | 0,64 | 0,57 | 0,51 | 0,46 | 0,41 |
| | ► | 3,33 | 2,85 | 2,50 | 2,22 | 2,00 | 1,82 | 1,67 | 1,50 | 1,22 | 1,00 | 0,84 | 0,71 | 0,61 | 0,53 | 0,46 |
| 80 | ◄ | 3,76 | 3,22 | 2,82 | 2,50 | 2,23 | 1,84 | 1,55 | 1,32 | 1,14 | 0,99 | 0,87 | 0,77 | 0,69 | 0,62 | 0,56 |
| | ► | 3,76 | 3,22 | 2,82 | 2,50 | 2,25 | 2,05 | 1,88 | 1,73 | 1,61 | 1,50 | 1,29 | 1,08 | 0,92 | 0,79 | 0,69 |
| 100 | ◄ | 4,18 | 3,59 | 3,14 | 2,79 | 2,51 | 2,28 | 1,96 | 1,67 | 1,44 | 1,25 | 1,10 | 0,97 | 0,87 | 0,78 | 0,70 |
| | ► | 4,18 | 3,59 | 3,14 | 2,79 | 2,51 | 2,28 | 2,09 | 1,93 | 1,79 | 1,67 | 1,57 | 1,48 | 1,28 | 1,09 | 0,94 |

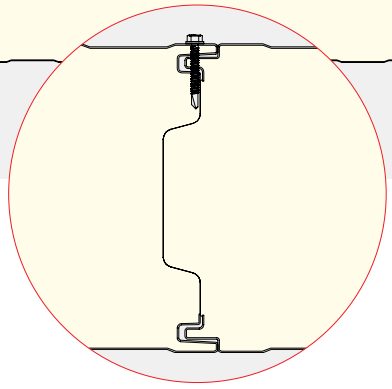
# COLD STORAGE PANELS



Icewall®

# Icewall®



## Description/Application

Insulated panel composed of two profiled metal sheets joined by rigid Polyurethane (PUR) or Polyisocyanurate (PIR) foam.

High thickness self-supporting panel designed for application in cold storage chambers. Versatile panel developed for an easy installation in temperature--controlled storage areas.

Panel produced according to EN 14509 and subject to evaluation and verification of regularity of performance according to system 1.

## Characteristics

### Dimensions

Thicknesses: 60–80–100–120–150–180–200 mm
Width: 1000 — 1165 mm
Length: 4,00 — 16,00 m

### Metallic support

Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,5 mm

### Insulated core

Polyurethane (PUR) | Polyisocyanurate (PIR)
Thermal conductivity:

| | |
|---|---|
| PUR | 0,022 W/mK |
| PIR | 0,022 W/mK |

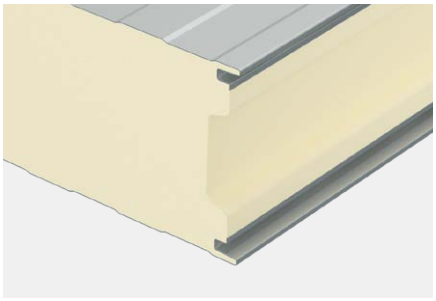
Density: 40 kg/m³
Reaction to fire: EN 13501-1

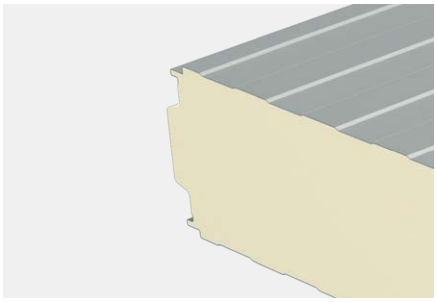
| | |
|---|---|
| PUR | B-s2,d0 |
| PIR | B-s2,d0 |
| HPIR | B-s1,d0 |

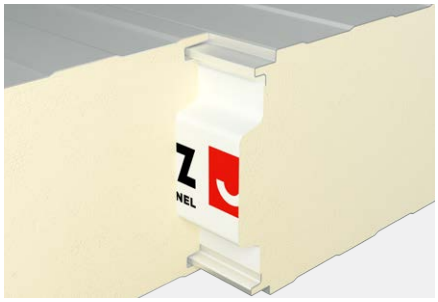
### Coating

Standard: Polyester paint 25 µm
Specials: Granite HDX 55 Qm | PVC food-safe

## Details







## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 60 | 80 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,38 | 0,29 | 0,23 | 0,19 | 0,15 | 0,13 | 0,12 |
| Weight (Steel sheet \| Thickness 0,5/0,5) | Kg/m² | 9,9 | 10,7 | 11,5 | 12,3 | 13,5 | 14,7 | 15,5 |

## Direct Design Tables
## Steel sheet | Thicknesses 0,5/0,5

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 60 | ◄ | 3,09 | 2,43 | 1,94 | 1,56 | 1,27 | 1,04 | 0,85 | 0,70 | 0,55 | 0,41 | 0,30 | | | | |
| | ► | 3,09 | 2,43 | 1,94 | 1,56 | 1,27 | 1,04 | 0,85 | 0,70 | 0,55 | 0,41 | 0,30 | | | | |
| 80 | ◄ | 4,59 | 3,69 | 3,01 | 2,48 | 2,07 | 1,73 | 1,46 | 1,24 | 1,05 | 0,90 | 0,77 | 0,66 | 0,57 | 0,46 | 0,37 |
| | ► | 4,59 | 3,69 | 3,01 | 2,48 | 2,07 | 1,73 | 1,46 | 1,24 | 1,05 | 0,90 | 0,77 | 0,66 | 0,57 | 0,46 | 0,37 |
| 100 | ◄ | 6,11 | 4,97 | 4,11 | 3,45 | 2,91 | 2,48 | 2,12 | 1,82 | 1,58 | 1,37 | 1,19 | 1,04 | 0,91 | 0,79 | 0,70 |
| | ► | 6,11 | 4,97 | 4,11 | 3,45 | 2,91 | 2,48 | 2,12 | 1,82 | 1,58 | 1,37 | 1,19 | 1,04 | 0,91 | 0,79 | 0,70 |
| 120 | ◄ | 7,62 | 6,28 | 5,24 | 4,43 | 3,78 | 3,25 | 2,81 | 2,44 | 2,13 | 1,87 | 1,64 | 1,45 | 1,28 | 1,13 | 1,01 |
| | ► | 7,62 | 6,28 | 5,24 | 4,43 | 3,78 | 3,25 | 2,81 | 2,44 | 2,13 | 1,87 | 1,64 | 1,45 | 1,28 | 1,13 | 1,01 |
| 150 | ◄ | 8,26 | 7,08 | 6,20 | 5,51 | 4,96 | 4,44 | 3,85 | 3,28 | 2,83 | 2,47 | 2,17 | 1,92 | 1,71 | 1,54 | 1,39 |
| | ► | 8,26 | 7,08 | 6,20 | 5,51 | 4,96 | 4,44 | 3,85 | 3,28 | 2,83 | 2,47 | 2,17 | 1,92 | 1,71 | 1,54 | 1,39 |
| 180 | ◄ | 8,90 | 7,63 | 6,68 | 5,94 | 5,34 | 4,86 | 4,45 | 3,95 | 3,41 | 2,97 | 2,61 | 2,31 | 2,06 | 1,85 | 1,67 |
| | ► | 8,90 | 7,63 | 6,68 | 5,94 | 5,34 | 4,86 | 4,45 | 3,95 | 3,41 | 2,97 | 2,61 | 2,31 | 2,06 | 1,85 | 1,67 |
| 200 | ◄ | 9,33 | 8,00 | 7,00 | 6,22 | 5,60 | 5,09 | 4,67 | 4,31 | 3,79 | 3,30 | 2,90 | 2,57 | 2,29 | 2,06 | 1,86 |
| | ► | 9,33 | 8,00 | 7,00 | 6,22 | 5,60 | 5,09 | 4,67 | 4,31 | 3,79 | 3,30 | 2,90 | 2,57 | 2,29 | 2,06 | 1,86 |

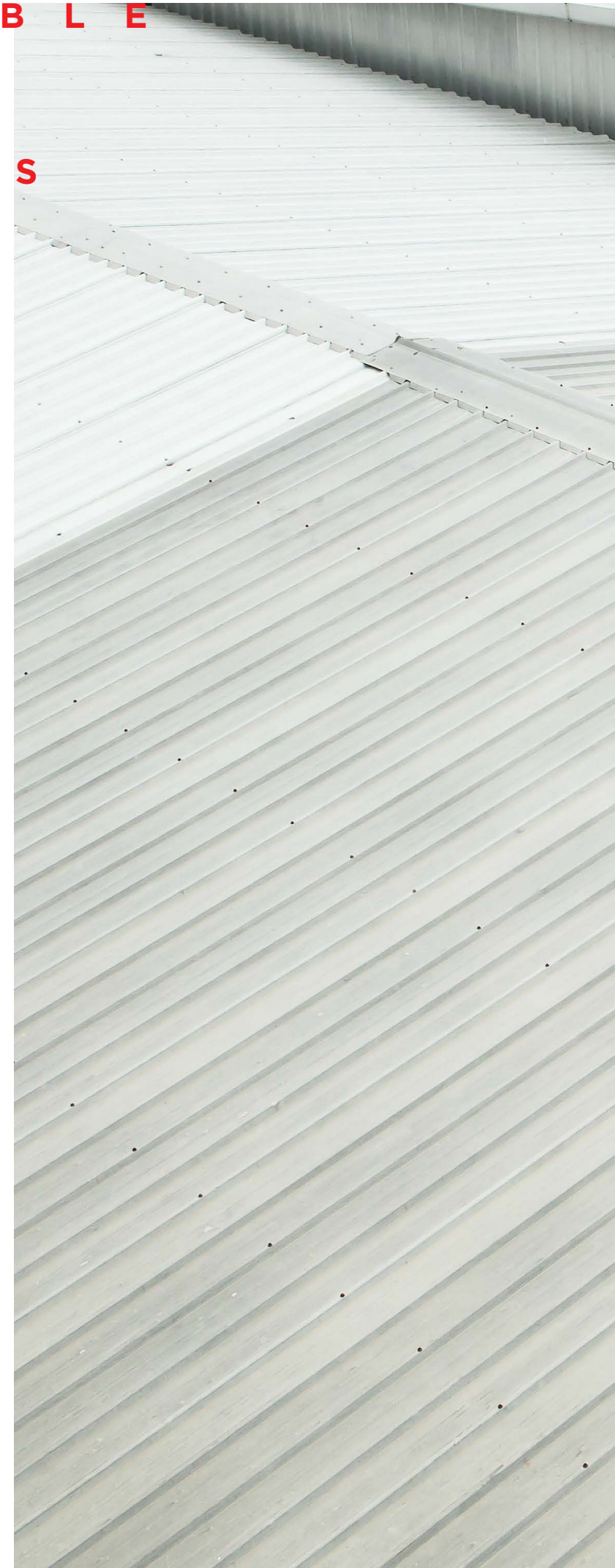
◄ Exterior suction ► Exterior pressure

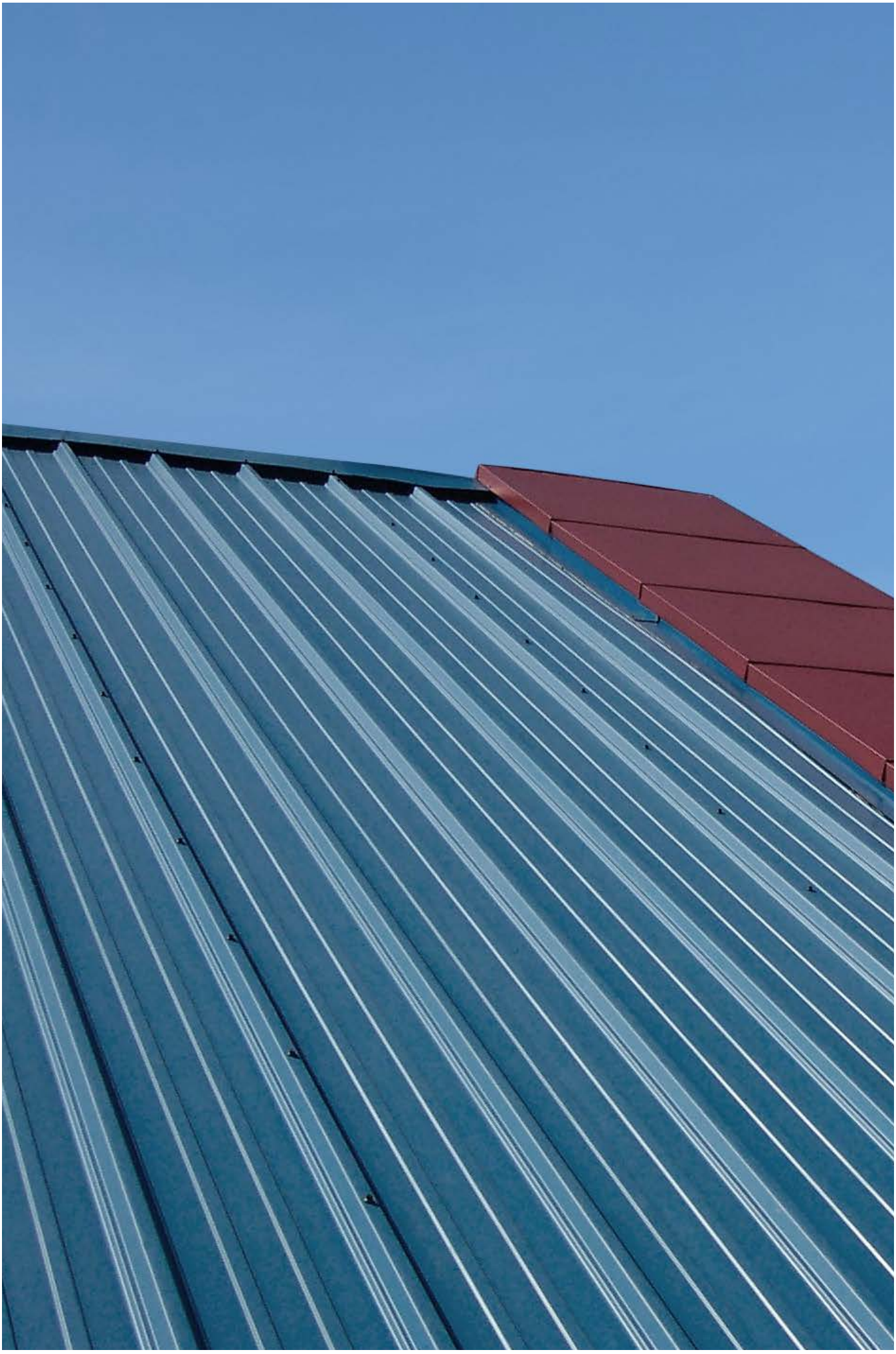
Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 | 3,75 | 4,00 | 4,25 | 4,50 | 4,75 | 5,00 |
| 60 | ◄ | 3,36 | 2,75 | 2,30 | 1,96 | 1,68 | 1,46 | 1,28 | 1,13 | 1,00 | 0,90 | 0,80 | 0,72 | 0,65 | 0,58 | 0,53 |
| | ► | 3,36 | 2,75 | 2,30 | 1,96 | 1,68 | 1,46 | 1,28 | 1,13 | 1,00 | 0,90 | 0,80 | 0,72 | 0,65 | 0,58 | 0,53 |
| 80 | ◄ | 4,21 | 3,61 | 3,16 | 2,81 | 2,49 | 2,18 | 1,93 | 1,71 | 1,49 | 1,29 | 1,14 | 1,01 | 0,90 | 0,81 | 0,73 |
| | ► | 4,21 | 3,61 | 3,16 | 2,81 | 2,49 | 2,18 | 1,93 | 1,71 | 1,49 | 1,29 | 1,14 | 1,01 | 0,90 | 0,81 | 0,73 |
| 100 | ◄ | 4,64 | 3,98 | 3,48 | 3,09 | 2,78 | 2,53 | 2,32 | 2,14 | 1,87 | 1,63 | 1,43 | 1,27 | 1,13 | 1,02 | 0,92 |
| | ► | 4,64 | 3,98 | 3,48 | 3,09 | 2,78 | 2,53 | 2,32 | 2,14 | 1,87 | 1,63 | 1,43 | 1,27 | 1,13 | 1,02 | 0,92 |
| 120 | ◄ | 5,06 | 4,34 | 3,80 | 3,38 | 3,04 | 2,76 | 2,53 | 2,34 | 2,17 | 1,96 | 1,73 | 1,53 | 1,36 | 1,22 | 1,10 |
| | ► | 5,06 | 4,34 | 3,80 | 3,38 | 3,04 | 2,76 | 2,53 | 2,34 | 2,17 | 1,96 | 1,73 | 1,53 | 1,36 | 1,22 | 1,10 |
| 150 | ◄ | 5,70 | 4,89 | 4,28 | 3,80 | 3,42 | 3,11 | 2,85 | 2,63 | 2,44 | 2,28 | 2,14 | 1,92 | 1,71 | 1,54 | 1,39 |
| | ► | 5,70 | 4,89 | 4,28 | 3,80 | 3,42 | 3,11 | 2,85 | 2,63 | 2,44 | 2,28 | 2,14 | 1,92 | 1,71 | 1,54 | 1,39 |
| 180 | ◄ | 6,34 | 5,44 | 4,76 | 4,23 | 3,81 | 3,46 | 3,17 | 2,93 | 2,72 | 2,54 | 2,38 | 2,24 | 2,06 | 1,85 | 1,67 |
| | ► | 6,34 | 5,44 | 4,76 | 4,23 | 3,81 | 3,46 | 3,17 | 2,93 | 2,72 | 2,54 | 2,38 | 2,24 | 2,06 | 1,85 | 1,67 |
| 200 | ◄ | 6,77 | 5,80 | 5,08 | 4,51 | 4,06 | 3,69 | 3,39 | 3,13 | 2,90 | 2,71 | 2,54 | 2,39 | 2,26 | 2,06 | 1,86 |
| | ► | 6,77 | 5,80 | 5,08 | 4,51 | 4,06 | 3,69 | 3,39 | 3,13 | 2,90 | 2,71 | 2,54 | 2,39 | 2,26 | 2,06 | 1,86 |

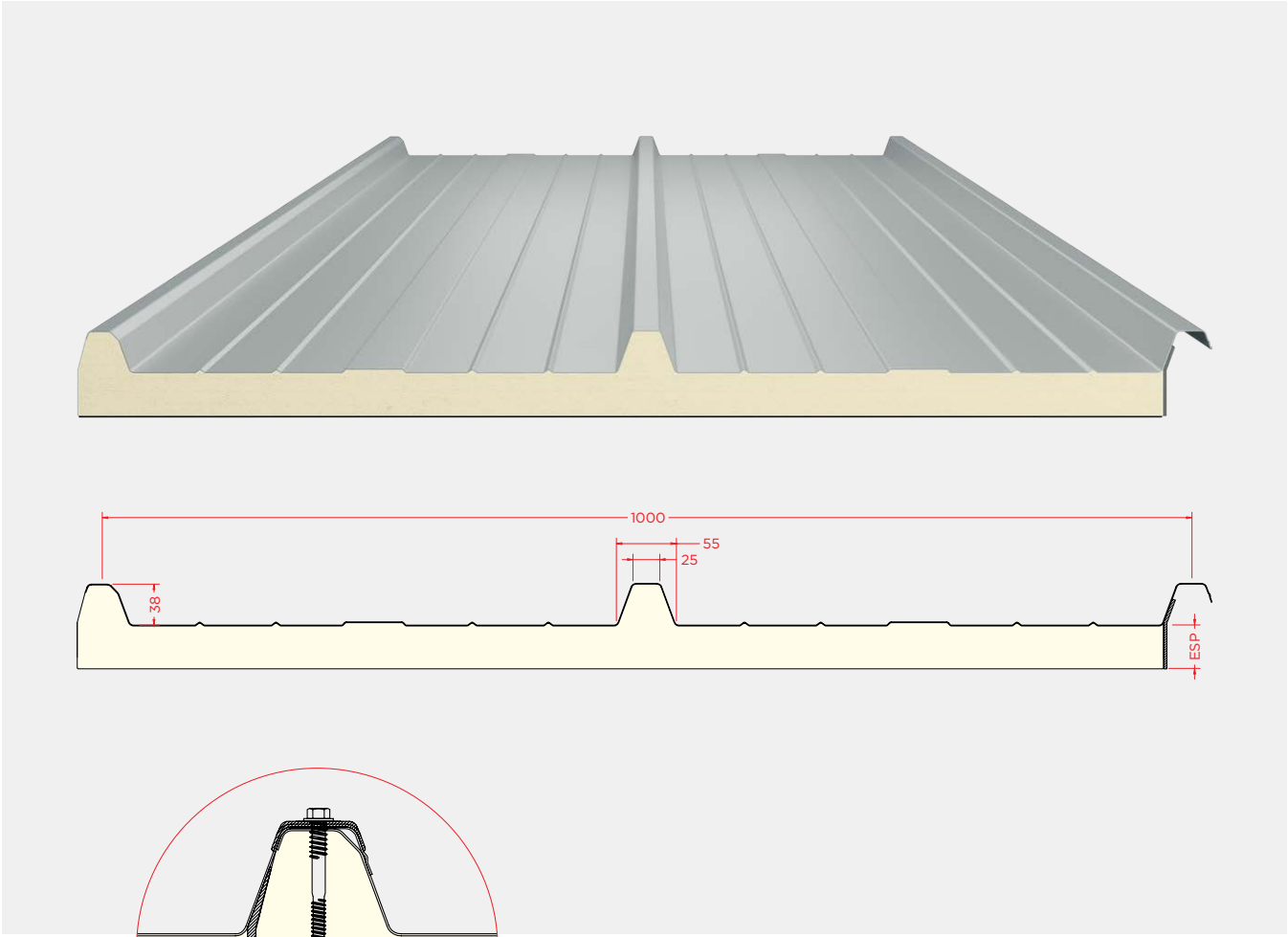
# FLEXIBLE SHEET PANELS

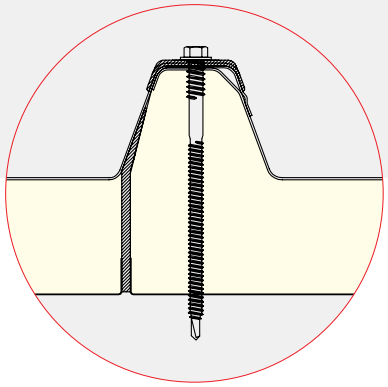
Monotop® 3
Monotop® 5





# Monotop® 3



**Description/Application**
Insulated panel composed of an external profiled metal sheet and an internal flexible metal sheet joined by rigid Polyurethane (PUR) or a Polyisocyanurate (PIR) foam.

Economic solution in a 3 waves roof panel with an external face composed of a profiled sheet and an internal face made of embossed aluminum or felt paper.

**Characteristics**

**Dimensions**
Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

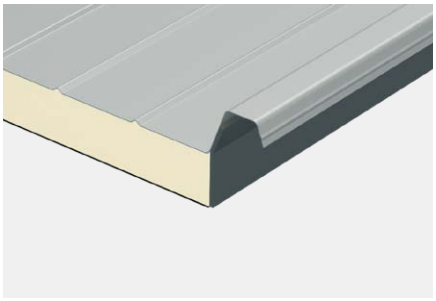
**Metallic support**
Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,4–0,5–0,6 mm

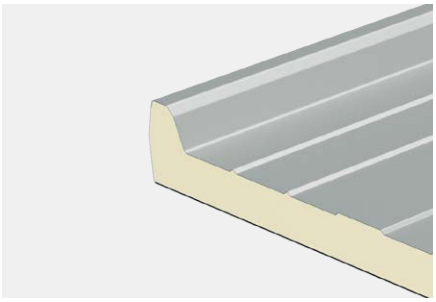
**Insulated core**
Polyurethane (PUR)
Thermal conductivity: 0,022 W/mK
Density: 40 kg/m³

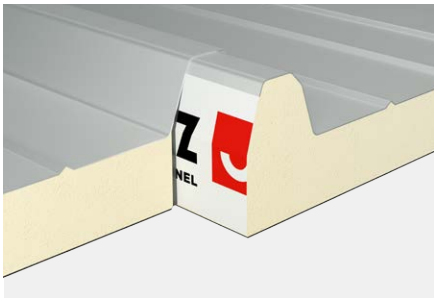
**Coating**
Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm

**Panel with undeclared performance.*

## Details







## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,70 | 0,54 | 0,43 | 0,37 | 0,28 | 0,22 |
| Weight (Steel sheet \| Thickness 0,5) | Kg/m² | 5,6 | 6,0 | 6,4 | 6,8 | 7,6 | 8,4 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,4/0,5/0,6

Simple support conditions

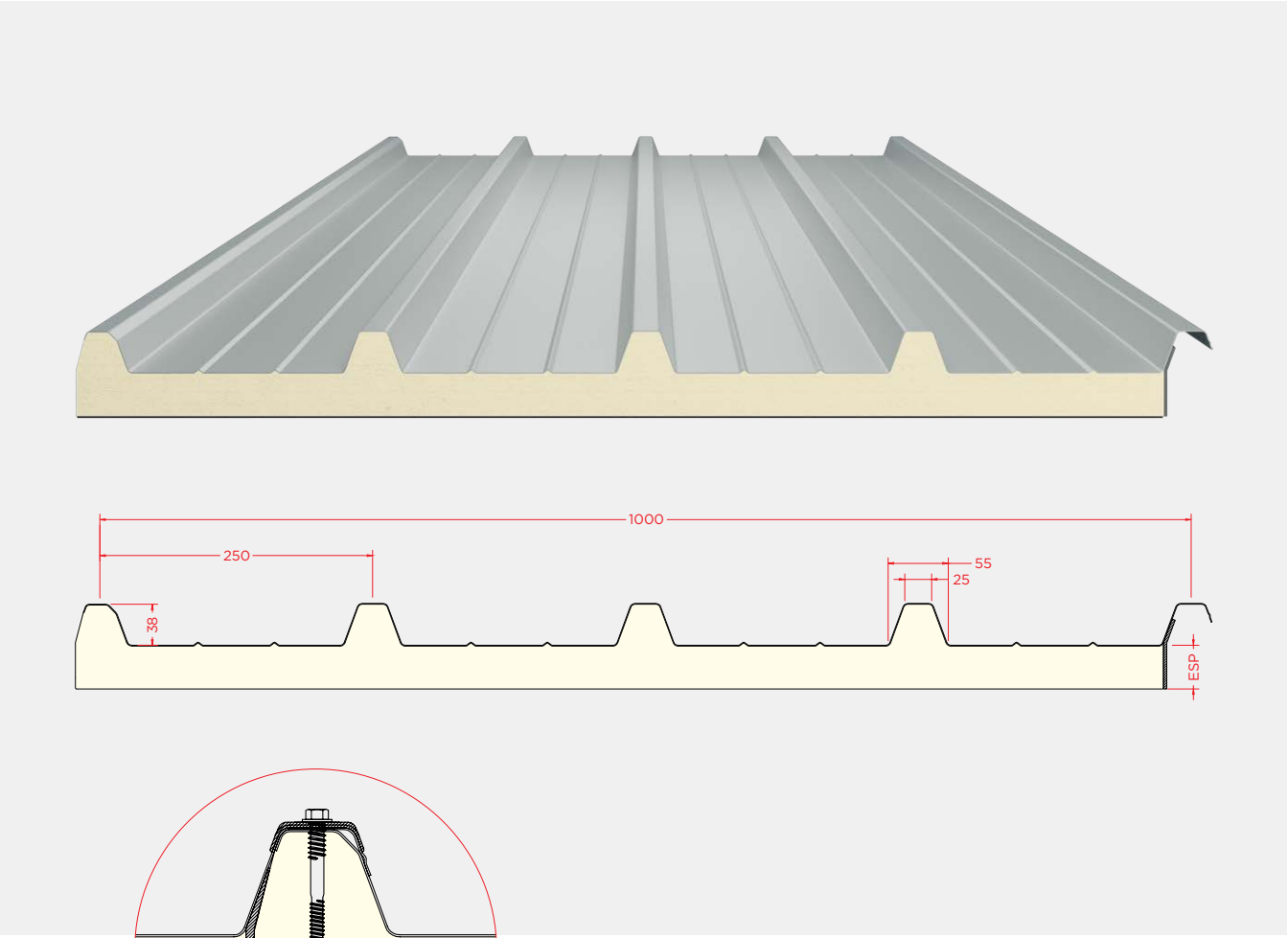
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 0,92 | 0,72 | 0,50 | 0,37 | | | | | | | |
| | ▼ | 0,92 | 0,73 | 0,51 | 0,36 | | | | | | | |
| 0,5 | ▲ | 1,30 | 0,91 | 0,64 | 0,47 | 0,36 | | | | | | |
| | ▼ | 1,30 | 1,03 | 0,71 | 0,51 | 0,38 | | | | | | |
| 0,6 | ▲ | 1,83 | 1,21 | 0,85 | 0,63 | 0,49 | 0,38 | 0,31 | | | | |
| | ▼ | 1,94 | 1,51 | 1,04 | 0,75 | 0,56 | 0,40 | | | | | |

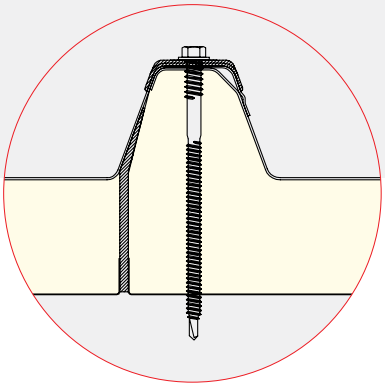
▲ Ascending load ▼ Descending load

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 0,73 | 0,57 | 0,47 | 0,36 | | | | | | | |
| | ▼ | 0,73 | 0,57 | 0,47 | 0,37 | | | | | | | |
| 0,5 | ▲ | 1,03 | 0,82 | 0,67 | 0,51 | 0,38 | | | | | | |
| | ▼ | 1,03 | 0,82 | 0,64 | 0,47 | 0,36 | | | | | | |
| 0,6 | ▲ | 1,54 | 1,23 | 1,02 | 0,75 | 0,56 | 0,44 | 0,35 | | | | |
| | ▼ | 1,54 | 1,21 | 0,85 | 0,63 | 0,49 | 0,38 | 0,31 | | | | |

# Monotop® 5



**Description/Application**
Insulated panel composed of an external profiled metal sheet and an internal flexible metal sheet joined by rigid Polyurethane (PUR) or a Polyisocyanurate (PIR) foam.

Roof panel with 5 waves - external face composed of a profiled sheet and internal face in goffered aluminum or felt paper.

**Characteristics**
**Dimensions**
Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

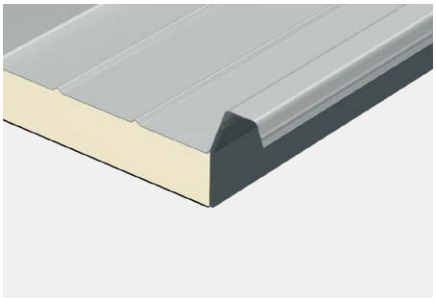
**Metallic support**
Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,4–0,5–0,6–0,7 mm

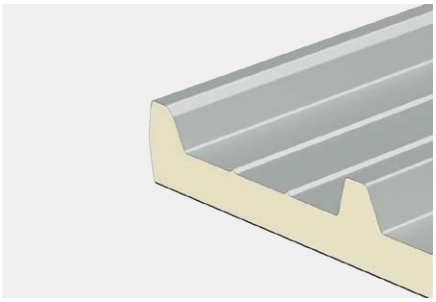
**Insulated core**
Polyurethane (PUR)
Thermal conductivity: 0,022 W/mK
Density: 40 kg/m$^3$

**Coating**
Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm

**Panel with undeclared performance.*

## Details





## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,66 | 0,51 | 0,42 | 0,35 | 0,27 | 0,22 |
| Weight (Steel sheet \| Thickness 0,5) | Kg/m² | 6,0 | 6,4 | 6,8 | 7,2 | 8,0 | 8,7 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,4/0,5/0,6/0,7

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 1,88 | 1,49 | 1,10 | 0,81 | 0,62 | 0,49 | 0,39 | 0,32 | | | |
| | ▼ | 1,88 | 1,49 | 1,07 | 0,78 | 0,51 | | | | | | |
| 0,5 | ▲ | 2,64 | 1,97 | 1,39 | 1,03 | 0,79 | 0,63 | 0,51 | 0,42 | 0,35 | | |
| | ▼ | 2,64 | 2,10 | 1,48 | 1,08 | 0,75 | 0,39 | | | | | |
| 0,6 | ▲ | 3,92 | 2,61 | 1,85 | 1,38 | 1,07 | 0,85 | 0,69 | 0,57 | 0,48 | 0,41 | 0,35 |
| | ▼ | 3,92 | 3,11 | 2,15 | 1,57 | 1,12 | 0,65 | 0,35 | | | | |
| 0,7 | ▲ | 4,98 | 3,31 | 2,35 | 1,76 | 1,37 | 1,09 | 0,89 | 0,74 | 0,62 | 0,53 | 0,46 |
| | ▼ | 5,43 | 4,18 | 2,89 | 2,11 | 1,49 | 0,91 | 0,54 | | | | |

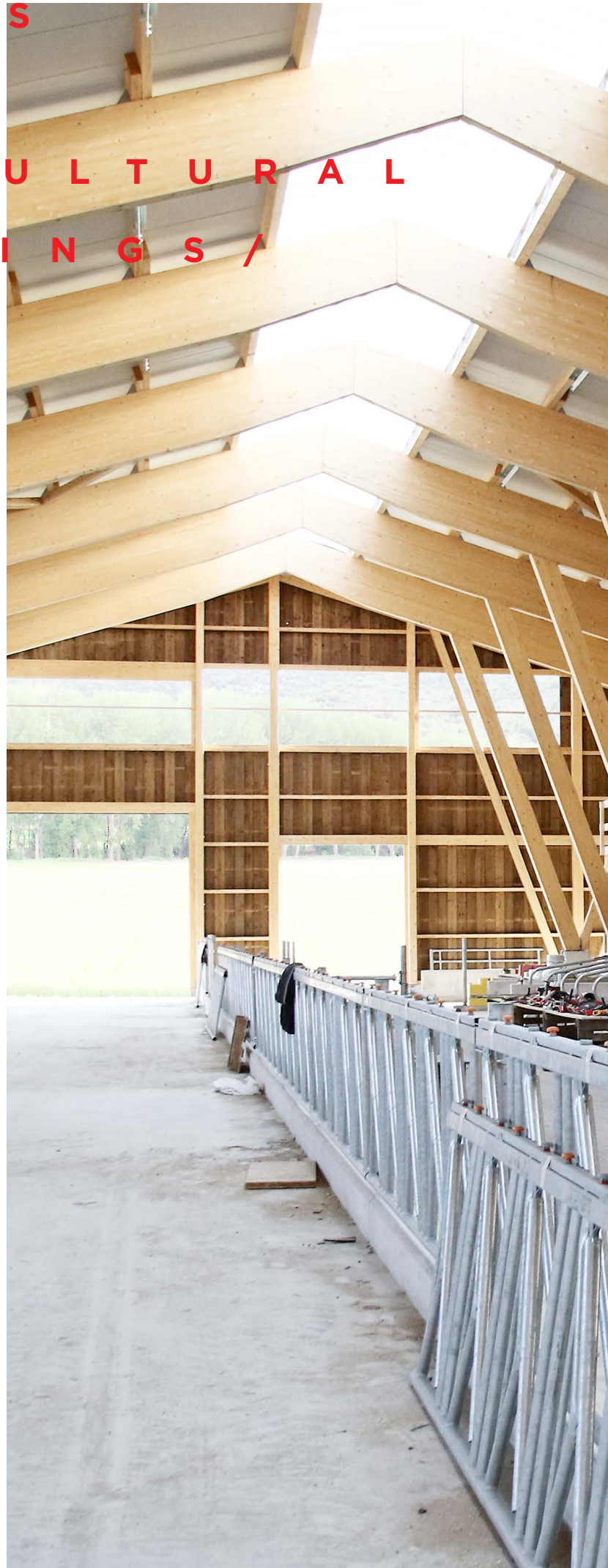
▲ Ascending load ▼ Descending load

Multiple support conditions

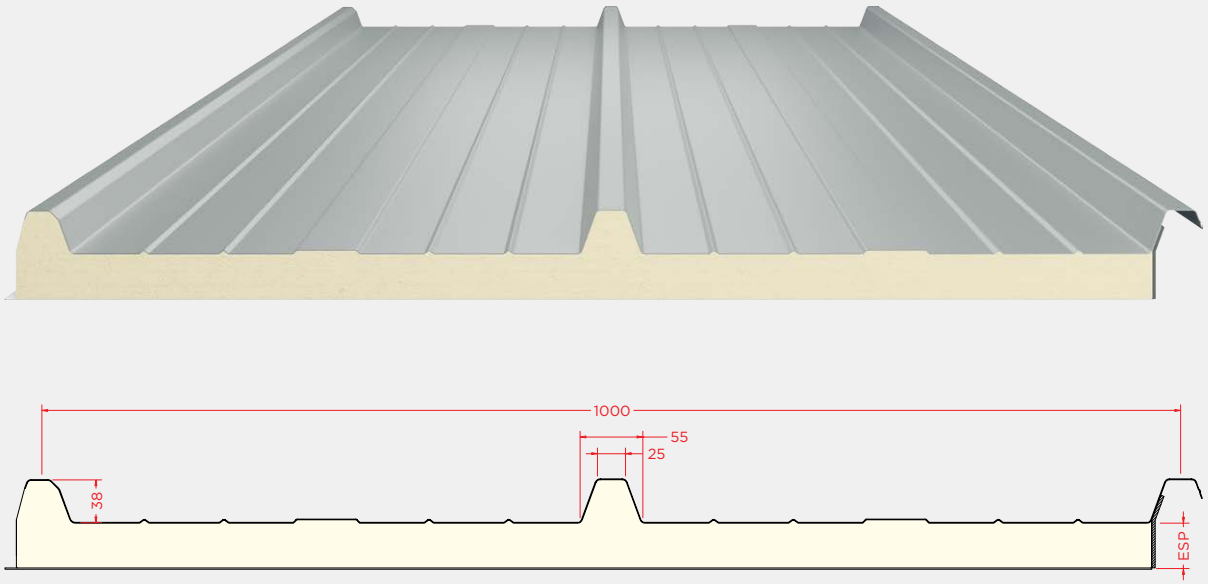
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 1,49 | 1,19 | 0,98 | 0,78 | 0,59 | 0,45 | 0,36 | | | | |
| | ▼ | 1,49 | 1,19 | 0,98 | 0,81 | 0,62 | 0,49 | 0,39 | 0,32 | | | |
| 0,5 | ▲ | 2,10 | 1,67 | 1,39 | 1,08 | 0,81 | 0,64 | 0,51 | 0,41 | 0,34 | | |
| | ▼ | 2,10 | 1,67 | 1,39 | 1,03 | 0,79 | 0,63 | 0,51 | 0,42 | 0,33 | | |
| 0,6 | ▲ | 3,13 | 2,49 | 2,07 | 1,57 | 1,19 | 0,93 | 0,75 | 0,61 | 0,51 | 0,43 | 0,36 |
| | ▼ | 3,13 | 2,49 | 1,85 | 1,38 | 1,07 | 0,85 | 0,69 | 0,57 | 0,48 | 0,33 | |
| 0,7 | ▲ | 4,34 | 3,46 | 2,88 | 2,11 | 1,61 | 1,26 | 1,01 | 0,83 | 0,69 | 0,58 | 0,50 |
| | ▼ | 4,34 | 3,31 | 2,35 | 1,76 | 1,37 | 1,09 | 0,89 | 0,74 | 0,62 | 0,51 | 0,32 |

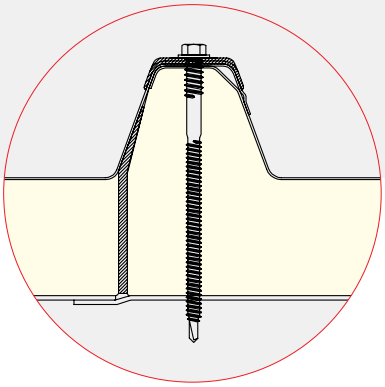
# PANELS FOR AGRICULTURAL BUILDINGS / FARM

Agrotop® 3
Agrotop® 5
Agrotop® Cap



# Agrotop® 3



## Description/Application

Insulated panel composed of an external profiled metal sheet and an internal flexible metal sheet joined by rigid Polyurethane (PUR) or a Polyisocyanurate (PIR) foam.

Roof panel for agricultural/farm buildings with 3 waves – external face composed of a profiled metal sheet and internal face in polyester resin with fiberglass.
The most efficient solution to prevent corrosion in animal farms and agricultural buildings.

## Characteristics

**Dimensions**
Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

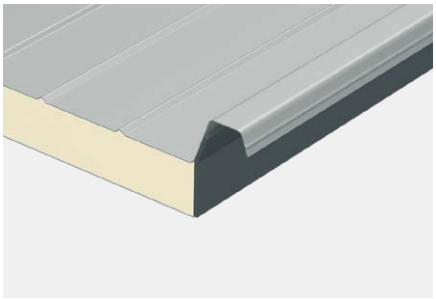
**Metallic support**
Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,4–0,5–0,6 mm

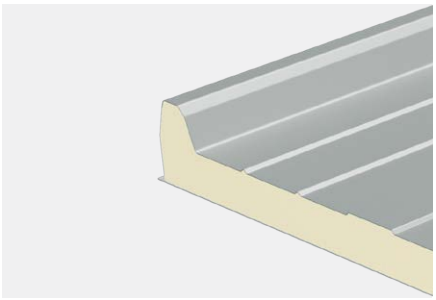
**Insulated core**
Polyurethane (PUR)
Thermal conductivity: 0,022 W/mK
Density: 40 kg/m$^3$

**Coating**
Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm
Polyester sheet with fiberglass on the internal side.

**Panel with undeclared performance.*

## Details





## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,70 | 0,54 | 0,43 | 0,37 | 0,28 | 0,22 |
| Weight (Steel sheet \| Thickness 0,5) | Kg/m² | 5,6 | 6,0 | 6,4 | 6,8 | 7,6 | 8,4 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,4/0,5/0,6

Simple support conditions

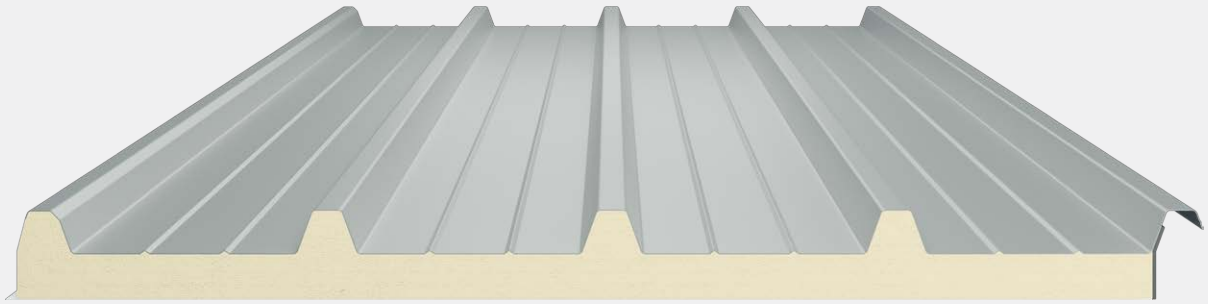
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 0,92 | 0,72 | 0,50 | 0,37 | | | | | | | |
| | ▼ | 0,92 | 0,73 | 0,51 | 0,36 | | | | | | | |
| 0,5 | ▲ | 1,30 | 0,91 | 0,64 | 0,47 | 0,36 | | | | | | |
| | ▼ | 1,30 | 1,03 | 0,71 | 0,51 | 0,38 | | | | | | |
| 0,6 | ▲ | 1,83 | 1,21 | 0,85 | 0,63 | 0,49 | 0,38 | 0,31 | | | | |
| | ▼ | 1,94 | 1,51 | 1,04 | 0,75 | 0,56 | 0,40 | | | | | |

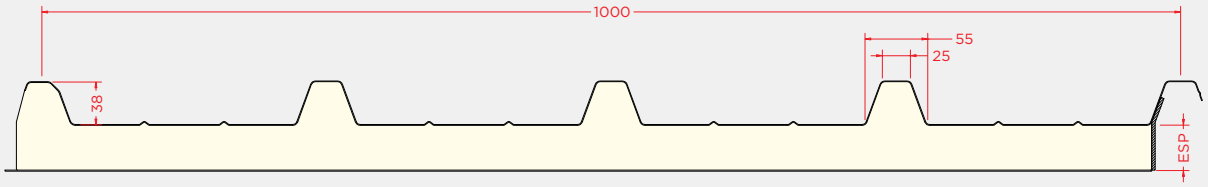
▲ Ascending load ▼ Descending load

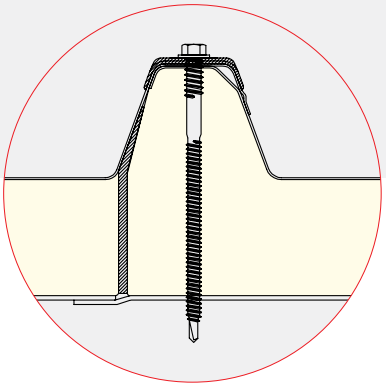
Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 0,73 | 0,57 | 0,47 | 0,36 | | | | | | | |
| | ▼ | 0,73 | 0,57 | 0,47 | 0,37 | | | | | | | |
| 0,5 | ▲ | 1,03 | 0,82 | 0,67 | 0,51 | 0,38 | | | | | | |
| | ▼ | 1,03 | 0,82 | 0,64 | 0,47 | 0,36 | | | | | | |
| 0,6 | ▲ | 1,54 | 1,23 | 1,02 | 0,75 | 0,56 | 0,44 | 0,35 | | | | |
| | ▼ | 1,54 | 1,21 | 0,85 | 0,63 | 0,49 | 0,38 | 0,31 | | | | |

# Agrotop® 5





**Description/Application**
Insulated panel composed of an external profiled metal sheet and an internal flexible metal sheet joined by rigid Polyurethane Foam (PUR).

Roof panel for agricultural/farm buildings with 5 waves – external face composed of a profiled metal sheet and internal face in polyester resin with fiberglass.
The most efficient solution to prevent corrosion in animal farms and agricultural buildings.

**Characteristics**
**Dimensions**
Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

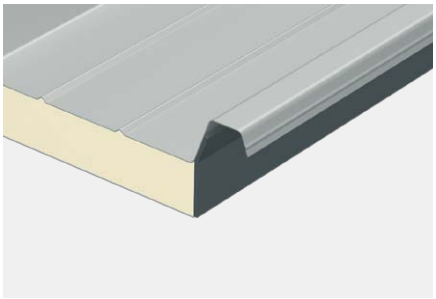
**Metallic support**
Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,4–0,5–0,6–0,7 mm

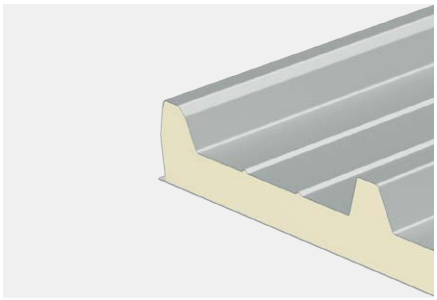
**Insulated core**
Polyurethane (PUR)
Thermal conductivity: 0,022 W/mK
Density: 40 kg/m$^3$

**Coating**
Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm
Polyester sheet with fiberglass on the internal side.

**Panel with undeclared performance.*

## Details





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**RAL 7012** Basalt Grey

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**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,66 | 0,51 | 0,42 | 0,35 | 0,27 | 0,22 |
| Weight (Steel sheet \| Thickness 0,5) | Kg/m² | 6,0 | 6,4 | 6,8 | 7,2 | 8,0 | 8,7 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,4/0,5/0,6/0,7

Simple support conditions

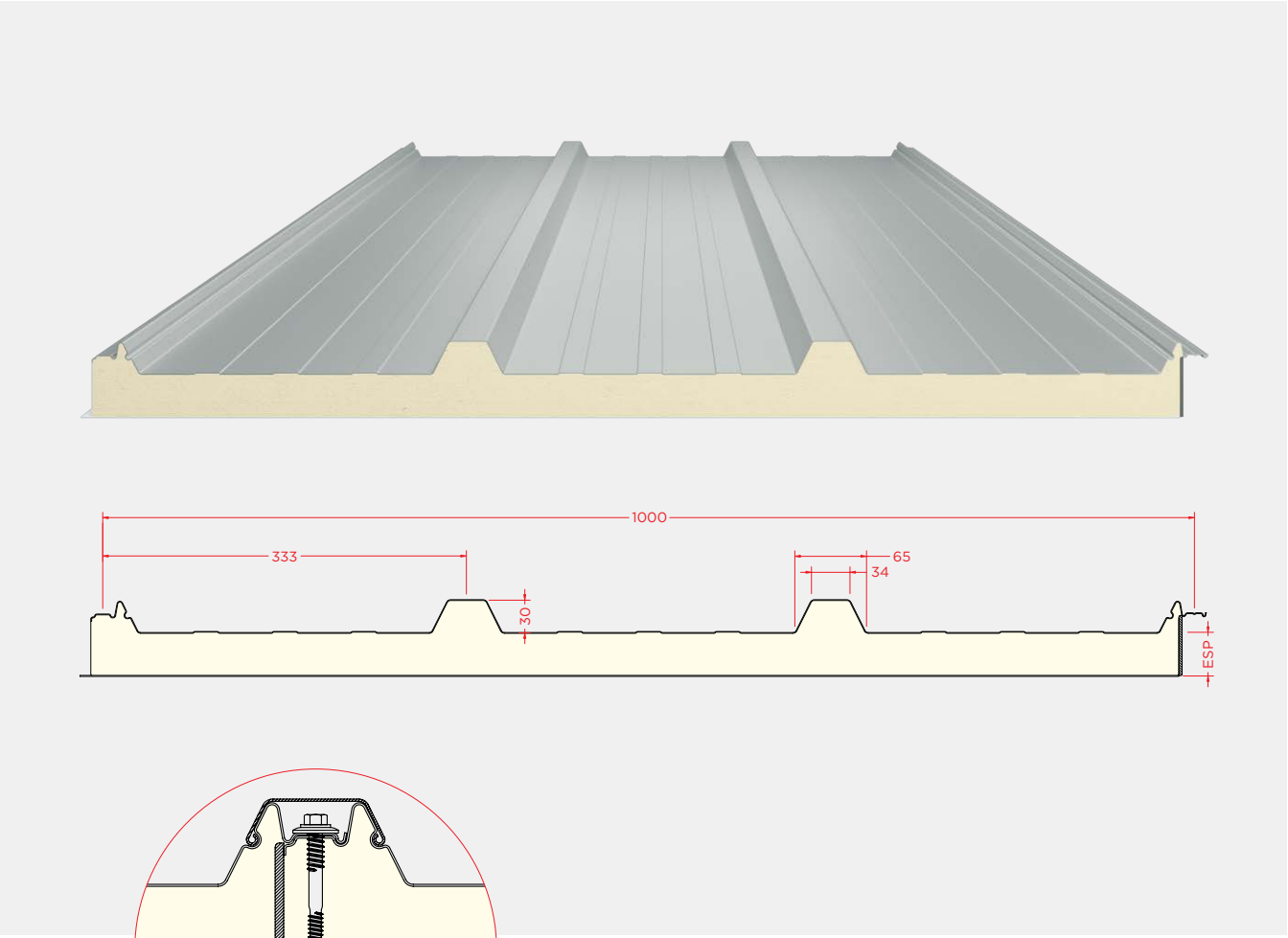
| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 1,88 | 1,49 | 1,10 | 0,81 | 0,62 | 0,49 | 0,39 | 0,32 | | | |
| | ▼ | 1,88 | 1,49 | 1,07 | 0,78 | 0,51 | | | | | | |
| 0,5 | ▲ | 2,64 | 1,97 | 1,39 | 1,03 | 0,79 | 0,63 | 0,51 | 0,42 | 0,35 | | |
| | ▼ | 2,64 | 2,10 | 1,48 | 1,08 | 0,75 | 0,39 | | | | | |
| 0,6 | ▲ | 3,92 | 2,61 | 1,85 | 1,38 | 1,07 | 0,85 | 0,69 | 0,57 | 0,48 | 0,41 | 0,35 |
| | ▼ | 3,92 | 3,11 | 2,15 | 1,57 | 1,12 | 0,65 | 0,35 | | | | |
| 0,7 | ▲ | 4,98 | 3,31 | 2,35 | 1,76 | 1,37 | 1,09 | 0,89 | 0,74 | 0,62 | 0,53 | 0,46 |
| | ▼ | 5,43 | 4,18 | 2,89 | 2,11 | 1,49 | 0,91 | 0,54 | | | | |

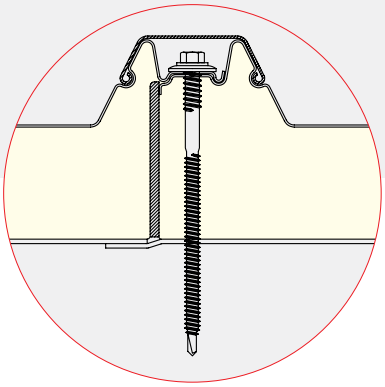
▲ Ascending load ▼ Descending load

Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 1,49 | 1,19 | 0,98 | 0,78 | 0,59 | 0,45 | 0,36 | | | | |
| | ▼ | 1,49 | 1,19 | 0,98 | 0,81 | 0,62 | 0,49 | 0,39 | 0,32 | | | |
| 0,5 | ▲ | 2,10 | 1,67 | 1,39 | 1,08 | 0,81 | 0,64 | 0,51 | 0,41 | 0,34 | | |
| | ▼ | 2,10 | 1,67 | 1,39 | 1,03 | 0,79 | 0,63 | 0,51 | 0,42 | 0,33 | | |
| 0,6 | ▲ | 3,13 | 2,49 | 2,07 | 1,57 | 1,19 | 0,93 | 0,75 | 0,61 | 0,51 | 0,43 | 0,36 |
| | ▼ | 3,13 | 2,49 | 1,85 | 1,38 | 1,07 | 0,85 | 0,69 | 0,57 | 0,48 | 0,33 | |
| 0,7 | ▲ | 4,34 | 3,46 | 2,88 | 2,11 | 1,61 | 1,26 | 1,01 | 0,83 | 0,69 | 0,58 | 0,50 |
| | ▼ | 4,34 | 3,31 | 2,35 | 1,76 | 1,37 | 1,09 | 0,89 | 0,74 | 0,62 | 0,51 | 0,32 |

# Agrotop® Cap



## Description/Application

Insulated panel composed of an external profiled metal sheet and an internal flexible metal sheet joined by rigid polyurethane foam.

Roof panel for agricultural/farm buildings, hidden by joint caps, with an external face composed by a profiled metal sheet and an internal face in polyester resin with fiberglass, resistant to biochemical corrosion.

## Characteristics

### Dimensions

Thicknesses: 30–40–50–60–80–100 mm
Width: 1000 mm
Length: 4,00 — 18,00 m

### Metallic support

Steel grade S250GD: EN 10346
Lacquered coils (organic coating): EN 10169+A1
Thicknesses: 0,4–0,5–0,6 mm

### Insulated core

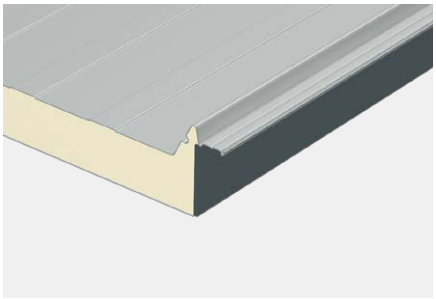
Polyurethane (PUR)
Thermal conductivity: 0,022 W/mK
Density: 40 kg/m$^3$

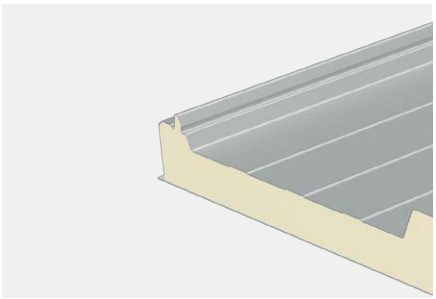
### Coating

Standard: Polyester paint 25 µm
Specials: Granite HDX 55 µm | PVDF 35 µm
Polyester sheet with fiberglass on the internal face.

**Panel with undeclared performance.*

## Details





## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

**RAL 9010** Pure White

**RAL 9006** White Aluminum

**RAL 9004** Signal Black

**RAL 7022** Umbra Grey

**RAL 7016** Anthracite Grey

**RAL 7012** Basalt Grey

**RAL 6005** Moss Green

**RAL 5010** Gentian Blue

**RAL 3009** Oxide Red

**RAL 1015** Light Ivory

## Thermal behavior and Weights

| Thickness | mm | 30 | 40 | 50 | 60 | 80 | 100 |
|---|---|---|---|---|---|---|---|
| Thermal transmittance, U (EN 14509 A.10) | W/m²K | 0,68 | 0,52 | 0,43 | 0,36 | 0,27 | 0,22 |
| Weight (Steel sheet \| Thickness 0,5) | Kg/m² | 5,9 | 6,3 | 6,7 | 7,1 | 7,9 | 8,7 |

## Direct Design Tables

### Steel sheet | Thicknesses 0,4/0,5/0,6

Simple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 1,31 | 0,85 | 0,60 | 0,44 | 0,33 | | | | | | |
| | ▼ | 1,34 | 0,92 | 0,63 | 0,40 | | | | | | | |
| 0,5 | ▲ | 1,65 | 1,08 | 0,76 | 0,56 | 0,43 | 0,34 | | | | | |
| | ▼ | 1,89 | 1,28 | 0,88 | 0,58 | | | | | | | |
| 0,6 | ▲ | 2,19 | 1,44 | 1,02 | 0,76 | 0,59 | 0,46 | 0,37 | 0,31 | | | |
| | ▼ | 2,81 | 1,89 | 1,30 | 0,87 | 0,47 | | | | | | |

▲ Ascending load ▼ Descending load

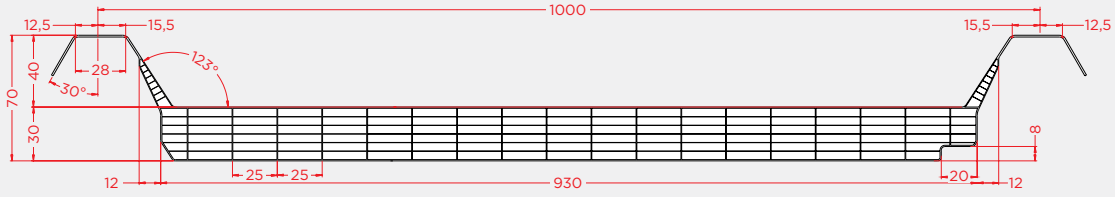
Multiple support conditions

| Thickness mm | Load | Uniformly distributed loads [kN/m²] Span L [m] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | 2,25 | 2,50 | 2,75 | 3,00 | 3,25 | 3,50 |
| 0,4 | ▲ | 1,06 | 0,84 | 0,63 | 0,45 | 0,34 | | | | | | |
| | ▼ | 1,06 | 0,84 | 0,60 | 0,44 | 0,33 | | | | | | |
| 0,5 | ▲ | 1,50 | 1,19 | 0,88 | 0,64 | 0,48 | 0,37 | | | | | |
| | ▼ | 1,50 | 1,08 | 0,76 | 0,56 | 0,43 | 0,34 | | | | | |
| 0,6 | ▲ | 2,24 | 1,78 | 1,30 | 0,95 | 0,71 | 0,56 | 0,44 | 0,36 | | | |
| | ▼ | 2,19 | 1,44 | 1,02 | 0,76 | 0,59 | 0,46 | 0,37 | 0,31 | | | |

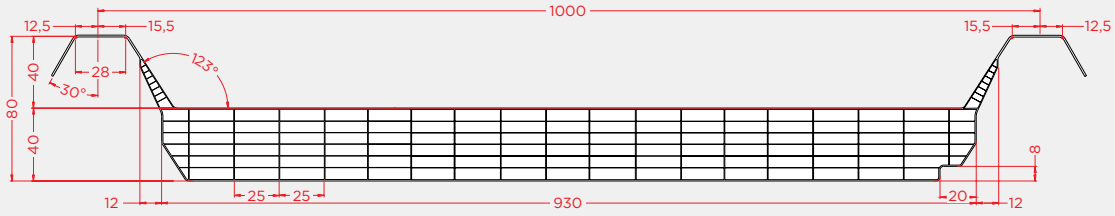
# DAYLIGHT SYSTEMS

## Topcover® Light

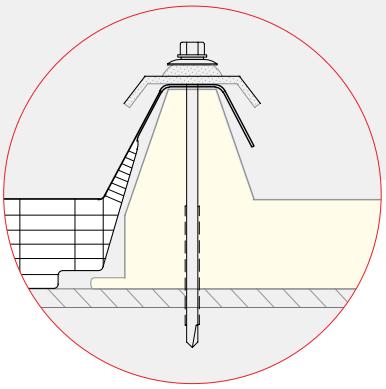
# Topcover® Light




Topcover® Light 30 mm




Topcover® Light 40 mm



**Description/Application**
White opal panel designed to make easier the installation of skylights in roof systems.

It is a solution with a good thermal insulation and light transmittance which is which is adaptable to the greatest roof panels.

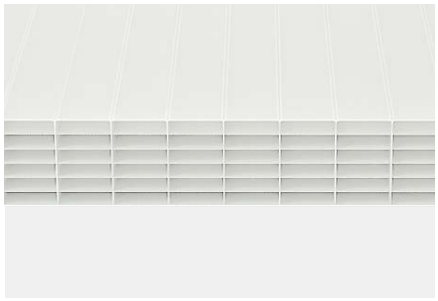
It allows the construction of several types of skylights and it has a good mechanical resistance to weathering agents.

It is the best solution for industrial roofing.

**Characteristics**
**Dimensions**
Thicknesses: 30–40 mm
Wave intervals: ~1000 mm
Modular width: 1000 ± 5
Length: 13500 mm (máx.)

**Performance**
Thermal transmittance: 1,2–1,1 W/m²K
Light transmittance: ~38–~35 %
Temperature variation: -40 / +120 °C
Reaction to fire: B-s2,d0
UV protection: yes

## Details

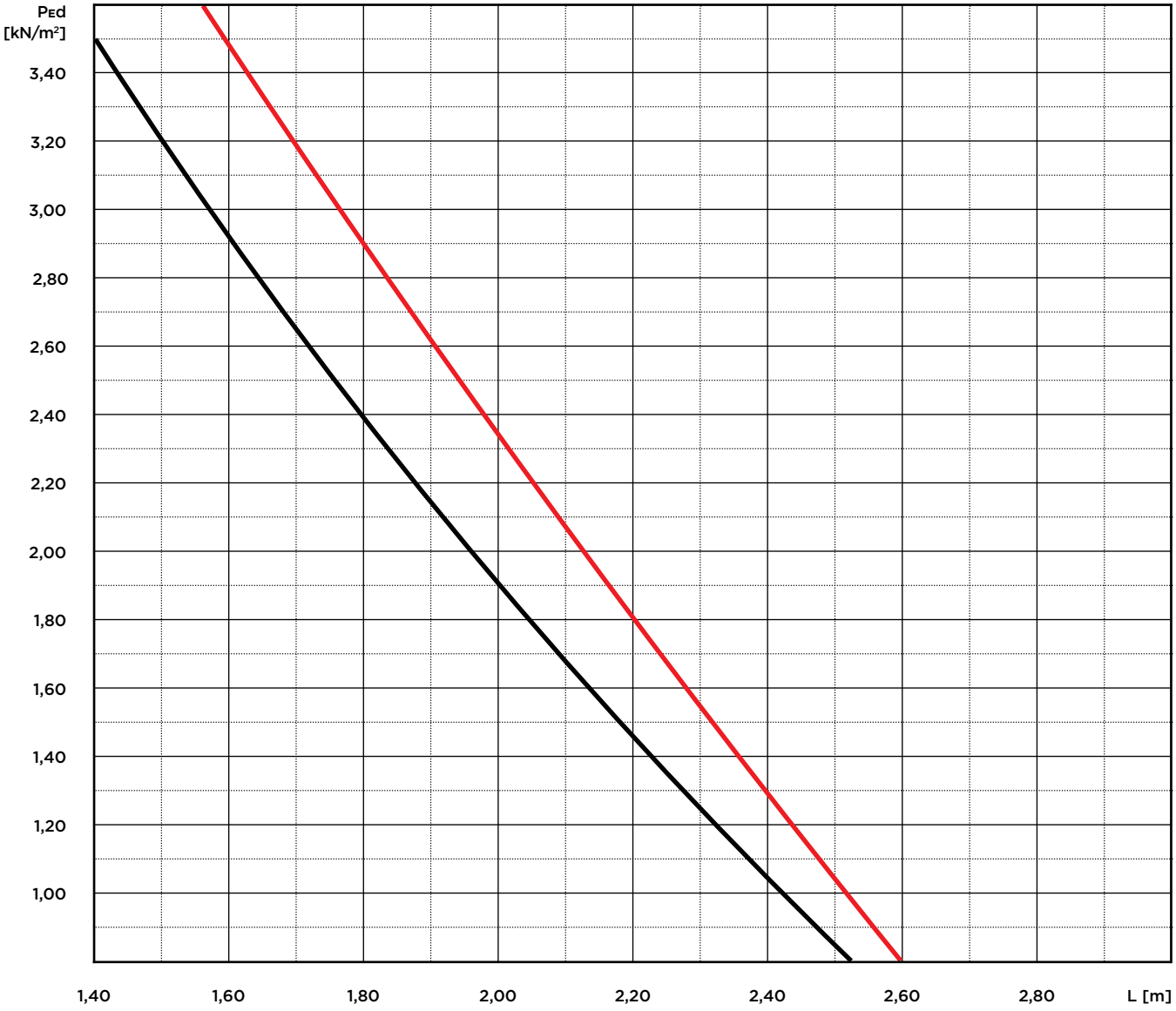


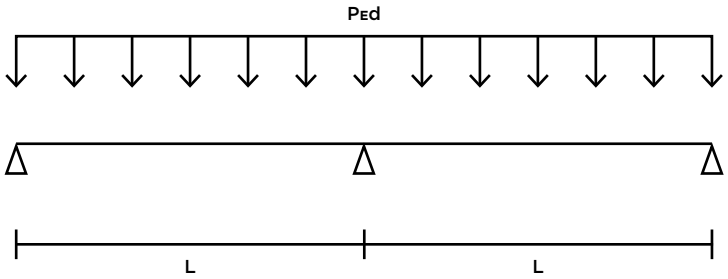
## Available Colors

The colors shown in this catalog comply to our standards with the greatest possible precision. However, some disparities are inevitable; that is why we always recommend a color test with a real sample.

White Opal

## Resistance



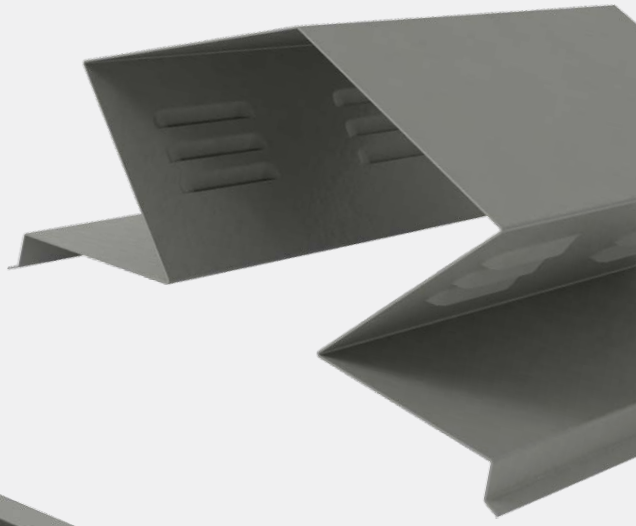

Panel 30 mm

Panel 40 mm

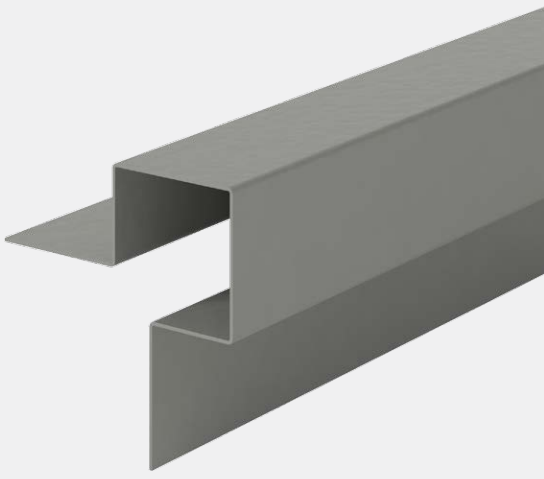
# A C C E S S O R I E S

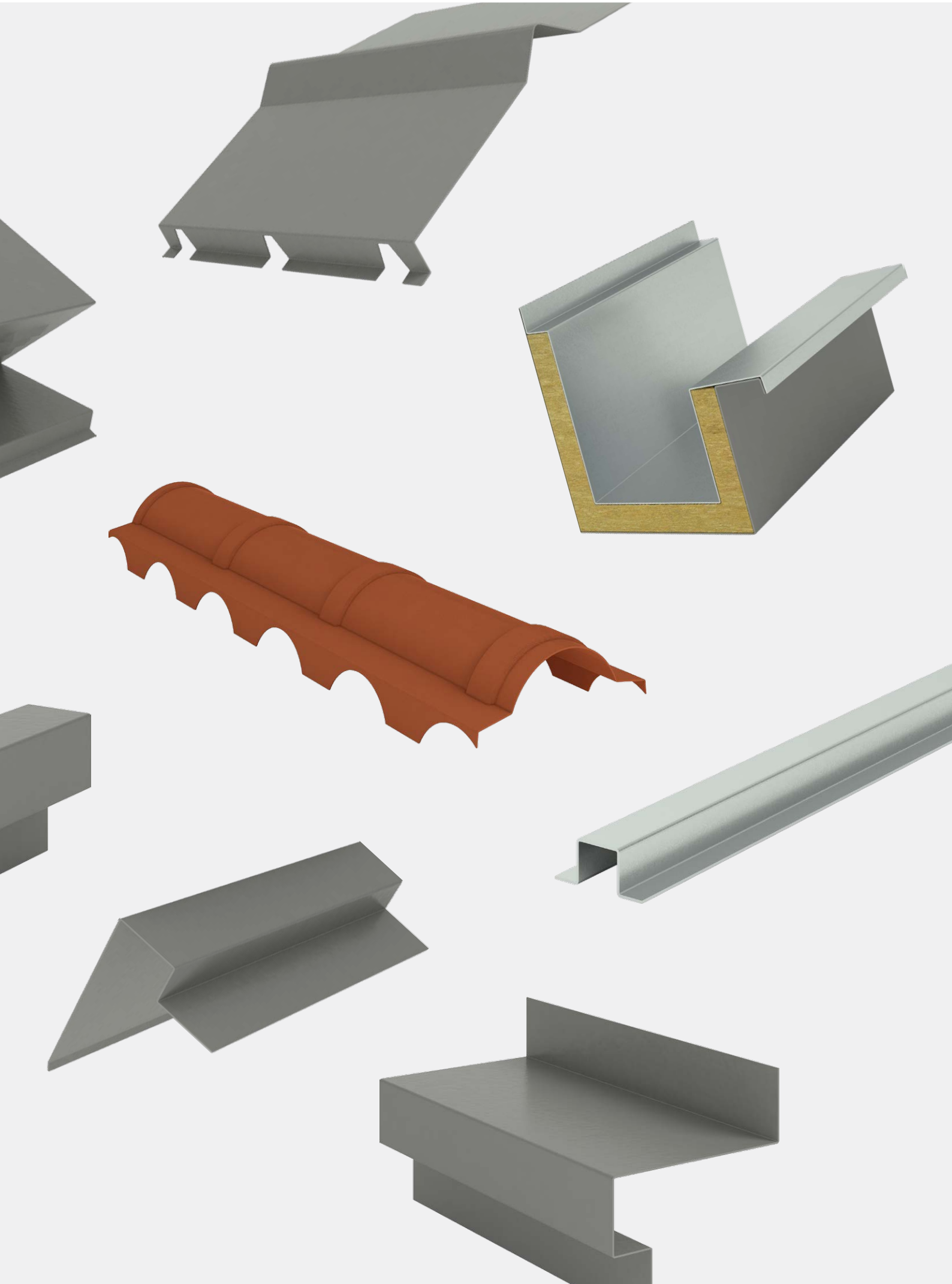
All the accessories were produced using the cutting and forming processes. The sheet dimensions can be adapted according to the particularities of the project and the production of the standardized accessories.

Maximum development: 1250 mm
Maximum length: 6000 mm
Other dimensions: under consultation

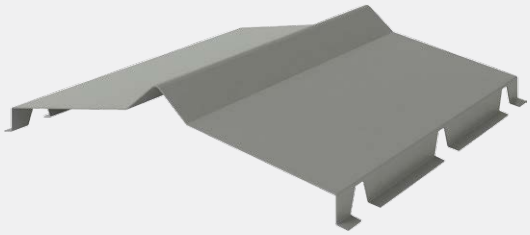


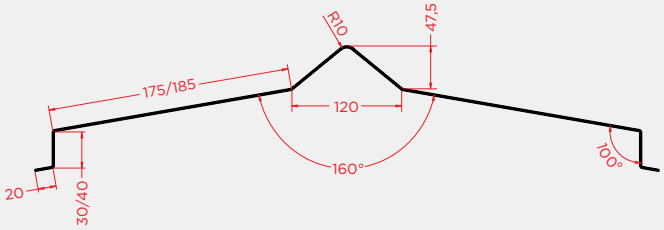
Ridge Caps
Internal Ridge Flashing
Coping Flashing
Gutters
Apron Flashing
Window Top Flashing
Sill Flashing
Window Side Flashing
Corner Flashing
Drip Flashing
Omegas
Joint Caps
Clips





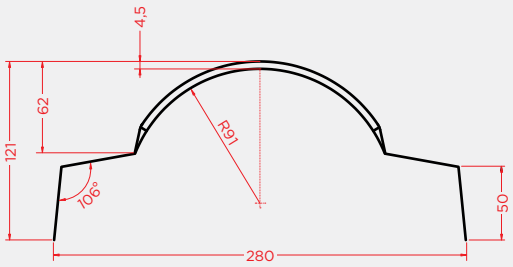
## **Plain Ridge Cap** Topcover® 3/5/Cap





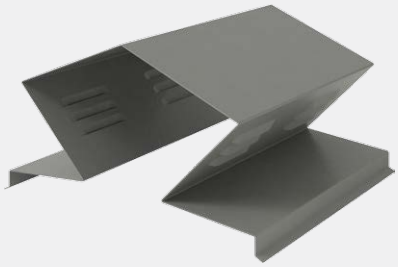

| Article | Description | Standard product |
|---|---|---|
| CUM.001 | Ridge 3 m without cutting for Topcover® 3 / Topcover® 5 | Development: 625 mm<br>Total length/usable: 3150 mm/3000 mm |
| CUM.002 | Ridge 3 m without cutting for Topcover® Cap | |
| CUM.003 | Ridge 3 m with cutting for Topcover® 3 | |
| CUM.004 | Ridge 3 m with cutting for Topcover® Cap | |
| CUM.005 | Ridge 3 m with cutting for Topcover® 5 | |

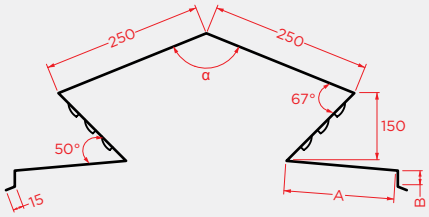
## **Ridge Cap** Topcover® Tile




| Article | Description | Standard product |
|---|---|---|
| CUM.006 | 1 m Stamped Ridge with cutting for Topcover® Tile | Development: 416 mm<br>Total length/usable: 1070 mm/1000 mm |
| CUM.007 | 1 m Stamped Ridge without cutting for Topcover® Tile | |

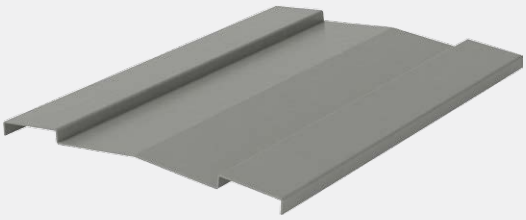
## **Ridge** Vent Cap

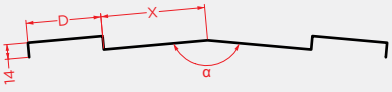





B – Panel thickness

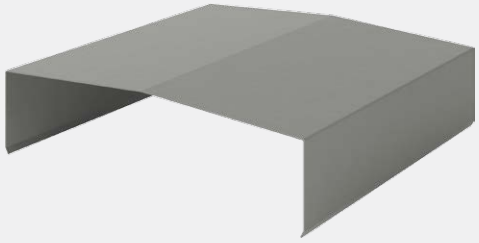
## **Internal Ridge Flash** A–02A

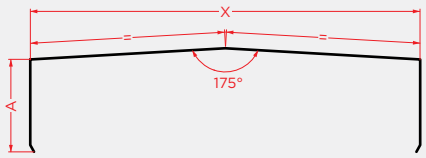





α – Variable angle  X – Variable dimension

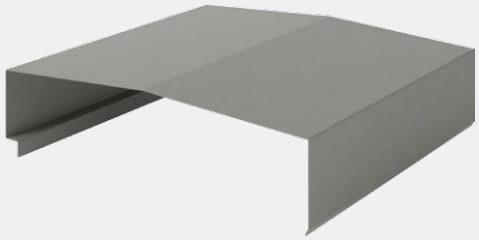
## **Coping Flash** A-03A

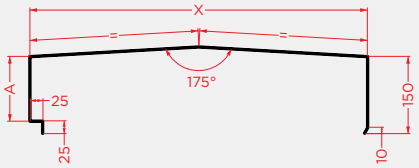





A≥ 80 mm X – Variable dimension

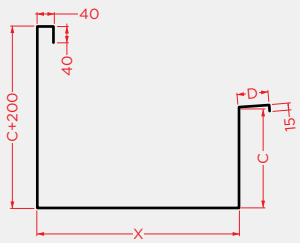
## **Coping Flash** A-03C





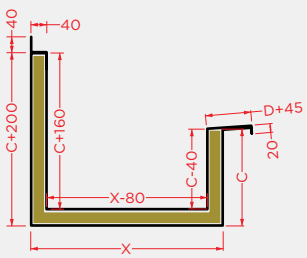

A≥ 80 mm X – Variable dimension

## Single Layer **Gutter**



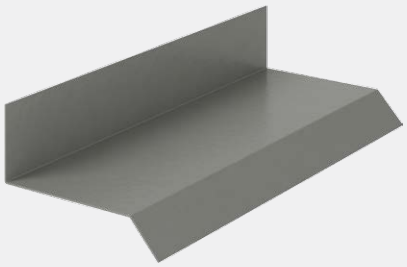

X – Variable dimension

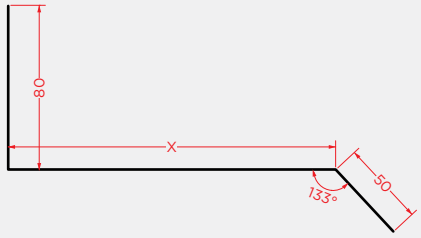
## Insulated **Gutter**




X – Variable dimension ■ Mineral wool insulation

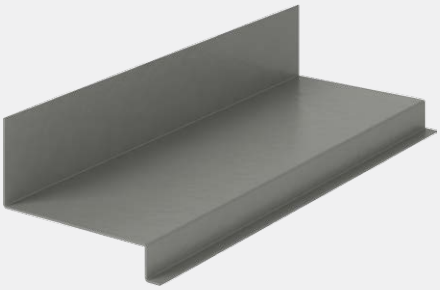
## **Apron Flash** A–05A

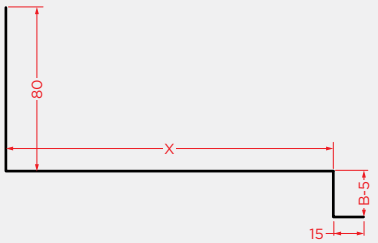





X – Variable dimension

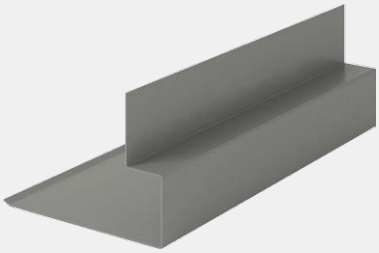
## **Apron Flash** A–05B

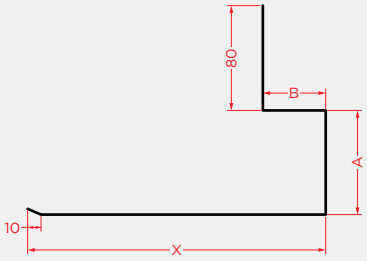





B – Panel thickness X – Variable dimension

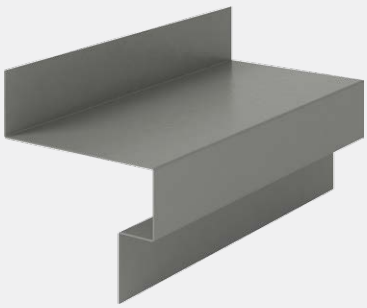
## **Window Top Flash** A–06A

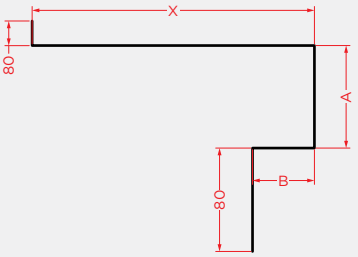





A≥ 80 mm B – Panel thickness + 30 mm X – Variable dimension

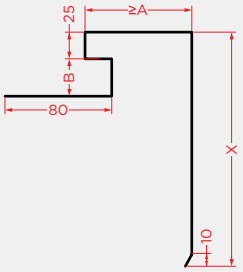
## **Sill Flash** A–07A





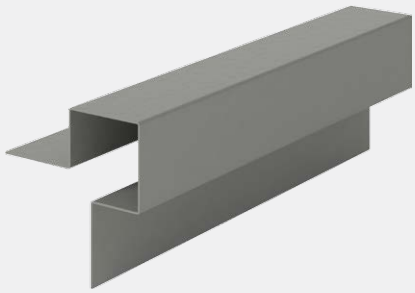

A≥ 80 mm B – Panel thickness + 30 mm X – Variable dimension

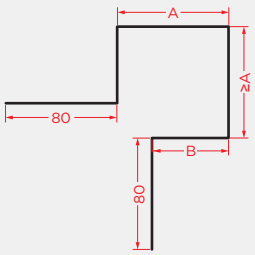
## **Window Side Flash** A–08A




A≥ 80 mm B – Panel thickness + 5 mm X – Variable dimension

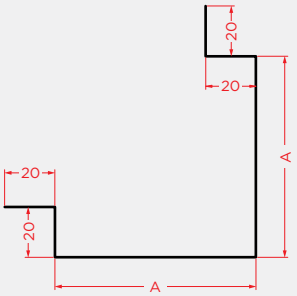
## **Corner Flash** A–09C





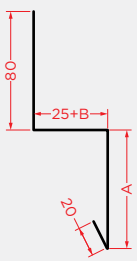

A≥ 80 mm B – Panel thickness + 25 mm

## **Corner Flash** A–09D



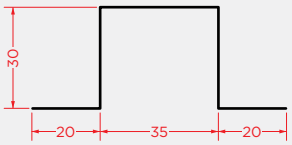

A≥ 80 mm

## **Drip Flash** A–11A

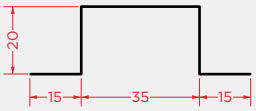



A≥ 80 mm B – Panel thickness + 30 mm

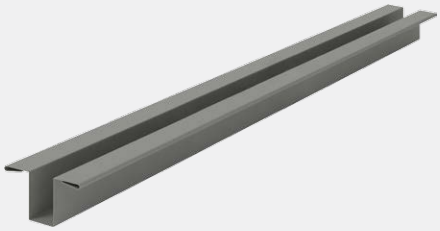
**Omega** A-12A

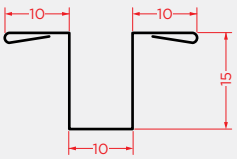



**Omega** A-12B

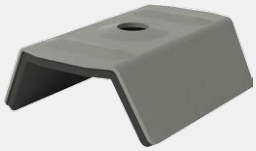


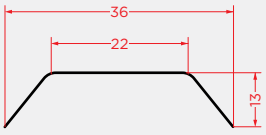

**Joint Cap** A-13A






**Clip** Topcover® 3/5






| Article | Description |
|---|---|
| APO.001 | Clip for Topcover® 3 / Topcover® 5. Available in several colors. |

AFITI LICOF Centre for Fire Testing and Research

Association for the Promotion of Research and Fire Safety Technology

# Test Certificate

## Nr: C3347T17(English Version)

**Applicant** **O FELIZ PAINEL, LDA**
Avda. De San Lourenço – Apartado 2100 - Celeirós
4705-444– BRAGA (Portugal)

**Building material** Metallic sandwich panel with PUR.
Manufacturer: O Feliz Painel, Lda.

| *References:* | Thickness(mm) |
|---|---|
| TOPCOVER 3 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER 5 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER CAP | 30, 40, 50, 60, 80, 100 |
| TOPCOVER TILE | 30, 40, 50 |
| INDWALL | 30, 40, 50, 60, 80, 100 |
| FACEWALL MICROPERFILADO | 40, 50, 60, 80, 100 |
| FACEWALL LISO | 40, 50, 60, 80, 100 |
| ICEWALL NERVURADO | 60, 80, 100, 120, 150, 180, 200 |
| ICEWALL LISO | 60, 80, 100, 120, 150, 180, 200 |

**Tests** Test according UNE-EN 13823:2012+A1:2016, *"Reaction to fire tests for products – Building products excluding floorings exposed to the thermal attack by a single burning item" standard.*

Test according UNE-EN ISO 11925-2:2011, *""Reaction to fire tests. Ignitability of building products subjected to direct impingement of flame. Part 2: Single flame source test "*

**Test dates** 17th-Nov-17; 28th-Nov-17; 29th-Nov-17; 30th-Nov-17;

**Certificates of reports** Test report Nr 3347T17.R2 (issued by AFITI-LICOF with date 24th-Apr-18).
Classification report Nr. 3347T17-2 (issued by AFITI-LICOF with date 21th-Dic -17).
Technical report EXAP Nr. EXAP-3347T17.R1 (issued by AFITI-LICOF with date 05th-Mar-18).

**Reaction to fire classification** **B-s2,d0**

Classification according to UNE-EN 13501-1:2007+A1:2010 *"Fire classification of construction products and building elements-Part 1: Classification using data from reaction to fire tests".*

Toledo, 29th of August of 2018

Digitally Signed Document

Fdo: David Sáez García
Technical Director of
Reaction to Fire Laboratory

*This Test Certificate contains the English version only from the spanish TestCertificate Report dated 29th-August-18. In case of doubt, the Spanish version Test Report prevails.*
The results of this Certificate refer solely and exclusively to the specimens tested, and not to the product in general.
The specified reports include important aspects of the test performance and development which have made it possible to obtain the aforementioned Reaction to Fire classification. This certificate should be used together with the referenced reports.
Cancellation or modification of the aforementioned reports implies cancellation or modification of this certificate.

HEAD OFFICE & LABORATORIES Camino del Estrechillo, 8 E-28500 Arganda del Rey - Madrid (Spain)
CENTRAL OFFICE & LABORATORIES C/ Río Estenilla, s/n - P.I. Sta. Mª de Benquerencia E-45007 Toledo (Spain)
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AFITI LICOF Centre for Fire Testing and Research

Association for the Promotion of Research and Fire Safety Technology

# Test Certificate

## Nr: C3345T17(English Version)

**Applicant** **O FELIZ PAINEL, LDA**
Avda. De San Lourenço – Apartado 2100 - Celeirós
4705-444– BRAGA (Portugal)

**Building material** Metallic sandwich panel with PIR.
Manufacturer: O Feliz Painel, Lda.

| *References:* | Thickness(mm) |
|---|---|
| TOPCOVER 3 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER 5 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER CAP | 30, 40, 50, 60, 80, 100 |
| TOPCOVER TILE | 30, 40, 50 |
| INDWALL | 30, 40, 50, 60, 80, 100 |
| FACEWALL MICROPERFILADO | 40, 50, 60, 80, 100 |
| FACEWALL LISO | 40, 50, 60, 80, 100 |
| ICEWALL NERVURADO | 60, 80, 100, 120, 150, 180, 200 |
| ICEWALL LISO | 60, 80, 100, 120, 150, 180, 200 |

**Tests** Test according UNE-EN 13823:2012+A1:2016, *"Reaction to fire tests for products – Building products excluding floorings exposed to the thermal attack by a single burning item" standard.*
Test according UNE-EN ISO 11925-2:2011, *""Reaction to fire tests. Ignitability of building products subjected to direct impingement of flame. Part 2: Single flame source test "*

**Test dates** 17th-Nov-17; 28th-Nov-17; 29th-Nov-17; 30th-Nov-17;

**Certificates of reports** Test report Nr 3345T17.R2 (issued by AFITI-LICOF with date 05th-Mar-18).
Classification report Nr. 3345T17-2 (issued by AFITI-LICOF with date 14th-Dic -17).
Technical report EXAP Nr. EXAP-3345T17.R1 (issued by AFITI-LICOF with date 05th-Mar-18).

**Reaction to fire classification** **B-s2,d0**

Classification according to UNE-EN 13501-1:2007+A1:2010 *"Fire classification of construction products and building elements-Part 1: Classification using data from reaction to fire tests".*

Toledo, 29th of August of 2018

Digitally Signed Document

Fdo: David Sáez García
Technical Director of
Reaction to Fire Laboratory

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HEAD OFFICE & LABORATORIES Camino del Estrechillo, 8 E-28500 Arganda del Rey - Madrid (Spain)
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www.afiti.com

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Association for the Promotion of Research and Fire Safety Technology

# Test Certificate

## Nr: C3432T18(English Version)

**Applicant** **O FELIZ PAINEL, LDA**
Avda. De San Lourenço – Apartado 2100 - Celeirós
4705-444– BRAGA (Portugal)

**Building material** Metallic sandwich panel with PIR.
Manufacturer: O Feliz Painel, Lda.

| *References:* | Thickness(mm) |
|---|---|
| TOPCOVER 3 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER 5 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER CAP | 30, 40, 50, 60, 80, 100 |
| TOPCOVER TILE | 30, 40, 50 |
| INDWALL | 30, 40, 50, 60, 80, 100 |
| FACEWALL MICROPERFILADO | 40, 50, 60, 80, 100 |
| FACEWALL LISO | 40, 50, 60, 80, 100 |
| ICEWALL NERVURADO | 60, 80, 100, 120, 150, 180, 200 |
| ICEWALL LISO | 60, 80, 100, 120, 150, 180, 200 |

**Tests** Test according UNE-EN 13823:2012+A1:2016, *"Reaction to fire tests for products – Building products excluding floorings exposed to the thermal attack by a single burning item" standard.*
Test according UNE-EN ISO 11925-2:2011, *""Reaction to fire tests. Ignitability of building products subjected to direct impingement of flame. Part 2: Single flame source test "*

**Test dates** 02nd-Mar-18; 05th-Mar-18

**Certificates of reports** Test report Nr 3432T18.R1 (issued by AFITI-LICOF with date 24th-Apr-18).
Classification report Nr. 3432T18-2 (issued by AFITI-LICOF with date 26th-Mar -18).
Technical report EXAP Nr. EXAP-3432T18 (issued by AFITI-LICOF with date 26th-Mar-18).

**Reaction to fire classification** **B-s1,d0**

Classification according to UNE-EN 13501-1:2007+A1:2010 *"Fire classification of construction products and building elements-Part 1: Classification using data from reaction to fire tests".*

Toledo, 29th of August of 2018

Digitally Signed Document

Fdo: David Sáez García
Technical Director of
Reaction to Fire Laboratory

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certif

# Certificado

## CERTIFICADO DE REGULARIDADE DO DESEMPENHO

***CERTIFICATE OF CONSTANCY OF PERFORMANCE***

**1328 – CPR – 0708**

De acordo com o Regulamento 305/2011/EU do Parlamento Europeu e do Conselho, de 9 de março de 2011 (o Regulamento dos Produtos da Construção ou CPR), este certificado aplica-se ao produto da construção

*In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product*

**PAINÉIS SANDWICH AUTOPORTANTES, ISOLANTES, COM DUPLA FACE METÁLICA**
***SELF-SUPPORTING DOUBLE SKIN METAL FACED INSULATING PANELS***

de acordo com a utilização prevista e características descritas em anexo
*according to the intended use and characterisitcs in the annex*

fabricado por / *produced by*

**O Feliz Painel, Lda.**
**Av. de São Lourenço, n.º 41, Celeirós**
**4705-444 Braga**

e fabricado na unidade fabril / *and produced in the manufacturing plant*

**O Feliz Painel, Lda.**
**Av. de São Pedro, n.º 22, Tebosa**
**4705-630 Braga**

Este certificado atesta que todas as disposições relativas à avaliação e verificação da regularidade do desempenho e aos desempenhos descritos no Anexo ZA da(s) norma(s)

*This certificate attests that all provisions concerning the assessment and verification of constancy of performance and the performances described in Annex ZA of the standard(s)*

**EN 14509:2013**

de acordo com o sistema 1 são aplicados e que **o produto cumpre todos os requisitos estabelecidos acima indicados.**

*under system 1 are applied and that* ***the product fulfils all the prescribed requirements set out above.***

Este certificado foi emitido pela primeira vez em 2018-05-03 e manter-se-á válido desde que não mudem os métodos de ensaio e/ou os requisitos de controlo da produção em fábrica incluídos na norma harmonizada, usados para avaliar o desempenho das características declaradas, e que o produto e as condições de fabrico na fábrica não se alterem significativamente.

*This certificate was first issued on 2018-05-03 and will remain valid as long as the test methods and/or factory production control requirements included in the harmonized standard, used to assess the performance of the declared characteristics, do not change, and the product, and the manufacturing conditions in the plant are not modified significantly.*

Almada, 2018-05-03

Francisco Barroca
Diretor Geral / *General Manager*

IPAC acreditação
CUUU4
ISO/IEC 17065
Produtos

Este Certificado é constituído por um Anexo com 2 (duas) páginas
*This Certificate includes one Annex with 2 (two) pages*

Certif – Associação para a Certificação
Rua José Afonso, 9 E – 2810-237 Almada – Portugal – Tel.: 351. 21 258 69 40 – Fax: 351. 21 258 69 59

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# Certificado

## ANEXO AO CERTIFICADO DE REGULARIDADE DO DESEMPENHO

***ANNEX TO THE CERTIFICATE OF CONSTANCY OF PERFORMANCE***

**1328 – CPR – 0708**

| CARACTERÍSTICAS TÉCNICAS / *TECHNICAL CHARACTERISTICS* | |
|---|---|
| **Referências** *Type References* | **Espessura dos painéis sandwich (mm)** *Thickness of the sandwich panel (mm)* |
| TOPCOVER 3 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER 5 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER CAP | 30, 40, 50, 60, 80, 100 |
| INDWALL | 30, 40, 50, 60, 80, 100 |
| FACEWALL MICROPERFILADO | 40, 50, 60, 80, 100 |
| FACEWALL LISO | 40, 50, 60, 80, 100 |
| ICEWALL NERVURADO | 60, 80, 100, 120, 150, 180, 200 |
| ICEWALL LISO | 60, 80, 100, 120, 150, 180, 200 |

| | |
|---|---|
| **Reação ao fogo** *Reaction to fire* | B – s1, d0 |
| **Material isolante do núcleo** *Insulating core material* | Poliisocianurato (PIR) *Polyisocyanurate (PIR)* |
| **Faces metálicas** *Metal faces* | Chapas metálicas de aço perfiladas e termolacadas *Profiled steel metal sheets and thermo-lacquered* |
| **Utilização prevista** *Intended use* | Coberturas e revestimentos de coberturas, paredes exteriores e revestimentos de paredes, paredes interiores (incluindo divisórias) e tetos *Roofs and roof cladding, external walls and wall cladding and internal walls (including partitions) and ceilings* |

Almada, 2018-05-03

Francisco Barroca
Diretor Geral / *General Manager*

IPAC acreditação
C0004
ISO/IEC 17065
Produtos

Página 1 de 2 / *Page 1 of 2*

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Rua José Afonso, 9 E – 2810-237 Almada – Portugal – Tel.: 351. 21 258 69 40 – Fax: 351. 21 258 69 59

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# Certificado

## ANEXO AO CERTIFICADO DE REGULARIDADE DO DESEMPENHO

***ANNEX TO THE CERTIFICATE OF CONSTANCY OF PERFORMANCE***

**1328 – CPR – 0708**

| CARACTERÍSTICAS TÉCNICAS / *TECHNICAL CHARACTERISTICS* | |
|---|---|
| **Referências** *Type References* | **Espessura dos painéis sandwich (mm)** *Thickness of the sandwich panel (mm)* |
| TOPCOVER 3 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER 5 | 30, 40, 50, 60, 80, 100 |
| TOPCOVER CAP | 30, 40, 50, 60, 80, 100 |
| INDWALL | 30, 40, 50, 60, 80, 100 |
| FACEWALL MICROPERFILADO | 40, 50, 60, 80, 100 |
| FACEWALL LISO | 40, 50, 60, 80, 100 |
| ICEWALL NERVURADO | 60, 80, 100, 120, 150, 180, 200 |
| ICEWALL LISO | 60, 80, 100, 120, 150, 180, 200 |

| | |
|---|---|
| **Reação ao fogo** *Reaction to fire* | B – s2, d0 |
| **Material isolante do núcleo** *Insulating core material* | Poliuretano (PUR) *Polyurethane (PUR)* |
| **Faces metálicas** *Metal faces* | Chapas metálicas de aço perfiladas e termolacadas *Profiled steel metal sheets and thermo-lacquered* |
| **Utilização prevista** *Intended use* | Coberturas e revestimentos de coberturas, paredes exteriores e revestimentos de paredes, paredes interiores (incluindo divisórias) e tetos *Roofs and roof cladding, external walls and wall cladding and internal walls (including partitions) and ceilings* |

Almada, 2018-05-03

Francisco Barroca
Diretor Geral / *General Manager*

IPAC acreditação
C0004
ISO/IEC 17065
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Página 2 de 2 / *Page 2 of 2*

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ED. | EN | 10.2018