LANGUAGE
EN

GENERAL CATALOGUE

SANDWICH PANELS
CORRUGATED SHEETS
BUILDING TECHNICAL SYSTEMS

PART OF MANNI GROUP

ISOPAN
INSULATING DESIGN

ISOPAN
INSULATING DESIGN

Isopan: Roof and Wall Sandwich panels

Table of contents

MANNI GROUP
BUILDING FUTURE

For 70 years, the future of Steel

Strength and reliability, sustainability and beauty. In a word, steel. Since 1945 the solid Verona industrial company Manni Group, has worked and transformed steel into a wide range of products. Continuous investment in Research and Development, constant commitment to achieving maximum levels of quality and service, and concentration on Client needs make Gruppo Manni companies ideal project partners:

- **Manni SIPRE**, leader in the market of structural pre-machined steel;
- **Manni INOX**, an advanced steel service centre;
- **Manni ENERGY**, for the design and construction of renewable energy source plants and energy efficiency;
- **ISOPAN** is Europe's leading manufacturer of insulated metal panels with high coefficient thermal insulation for roofs and walls.

The numbers of a real Leadership

- **12 operating companies**
- **21 production, service and distribution** centers in Italy and abroad
- **400 thousand tons/year** of processed and distributed steel
- **13 million square meters/year** of metal insulating panels produced and distributed in Italy and abroad
- **1000 employees**
- **€ 500 million annual revenue (2014)**
- **10.000 customers**
- **60 countries supplied in 4 continents**

ISOPAN
INSULATING DESIGN

The ideal solution for all situations

Isopan manufactures and sells insulated metal panels for roofs and walls with a high coefficient thermal insulation for civil, industrial, commercial and livestock construction. It also developed acoustic panels in mineral fibre, high fire resistance and architectural facade systems.

A wide range of products, colours and finishes allows the creation of customized solutions and innovative design.

Through its Service Centre it is able to offer even mounting hardware, sheet metal for finishes and rainwater collection, translucent and polycarbonate corrugated elements for skylights.

Team Isopan: add value to your project

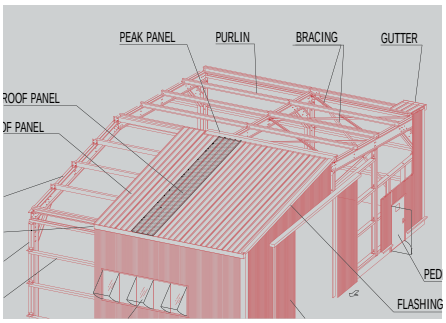
Besides having one of the widest product ranges in the industry, Isopan makes available the knowledge of constantly updated professionals and highly skilled technicians. Team Isopan supports the Client by interpreting their needs and offering the best solutions.

A deep knowledge of the market, the industry standards and major construction industry trends supports the creation of exclusive products, innovative systems and unique solutions.

A modern logistics facility also ensures timely fulfilment of orders: the strong connection between production and distribution allows very quick delivery both in Italy and abroad.

ISOPAN
INSULATING DESIGN

We invest in technology with tomorrow in mind



Continuous innovation in products and processes, high quality standards, broad product diversification and great attention for the Client have made it a reliable partner for many Italyn and foreign companies for which it offers competitive advantage and value.

Testing in line and in the laboratory ensure the high quality standards of materials, while promoting polyurethane chemistry upgrades in order to evolve and expand the areas of use of sandwich panels.

The production of Isopan is in perfect harmony with the environment: the panels, consisting essentially of a metal shape support and an insulating layer of polyurethane or mineral fibre, are made in innovative plants which are able to reduce the environmental impact of the manufacturing process.

Additionally, all Isopan plants worldwide have photovoltaic systems which can produce enough electricity for their own needs.

ISOPAN
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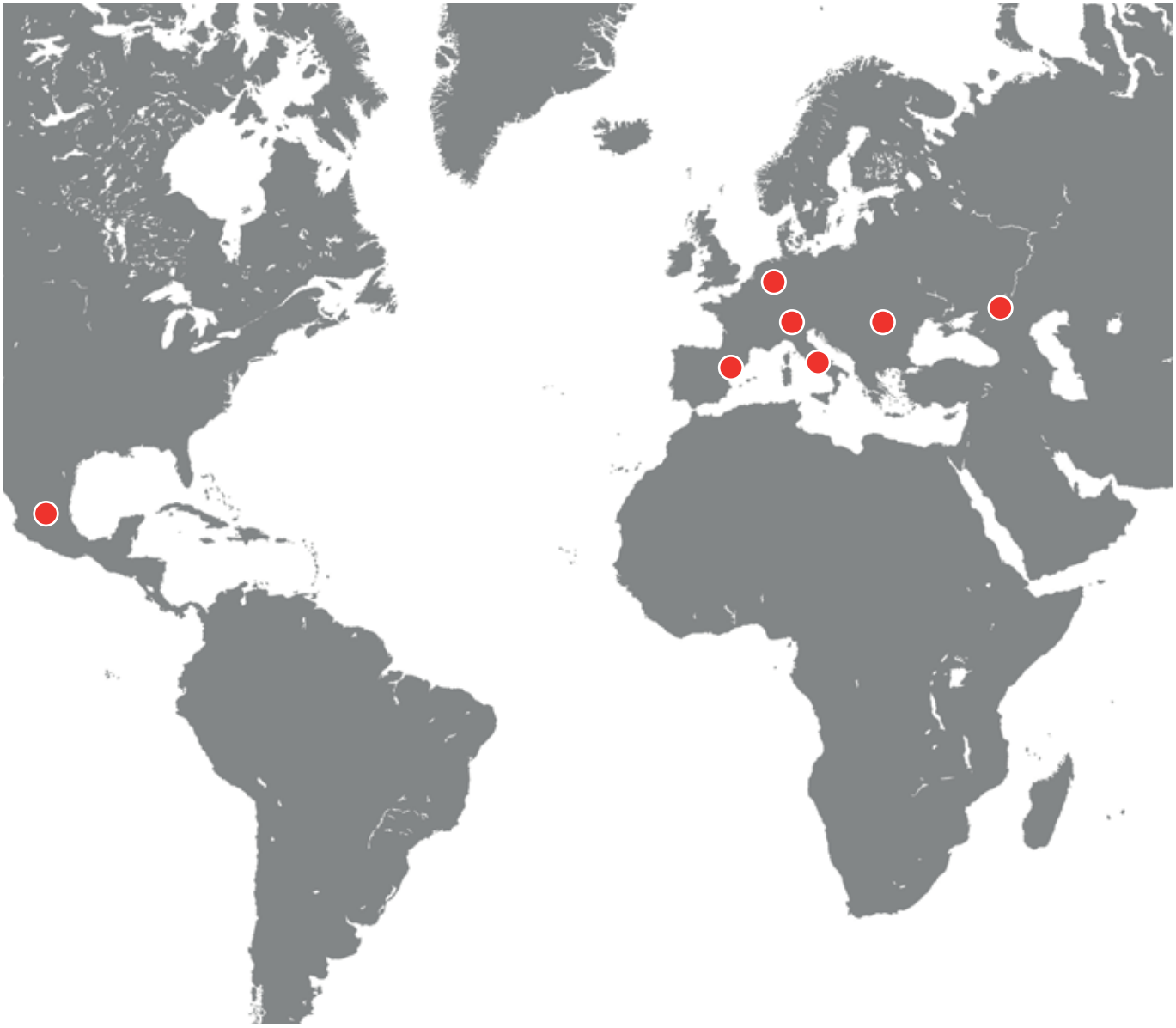
Many markets, one Brand



Isopan is present in Italy with two production facilities in Frosinone and Verona, and in the World with Isopan Ibérica in Tarragona (Spain), Isopan East in Bucharest (Romania), Isopan Deutschland in Halle (Germany), Isopan Rus in Volgograd (Russia), and Isocindu in Silao (Mexico) . There are two sales offices in France and the Czech Republic. A presence throughout the territory and an established network of sales representatives allows the brand to reach the most important markets in the world.
The International Business Division also develops specific solutions for the needs of the different countries where Isopan is distributed. Thanks to the flexibility of manufacturing processes, efficient logistics and efficient technical assistance service, Isopan is able to adapt perfectly to the technical, construction and stylistic standards of the main world markets.

Manni Group HP - Verona (Italy)

Isopan Est - Popești Leordeni (Romania)

Isopan Spa - Frosinone (Italy)

Isopan Deutschland - Plötz (Germany)

Isopan Spa - Verona (Italy)

Isopan Rus - Volgograd (Russia)

Isopan Iberica - Tarragona (Spain)

Isocindu - Guanajuato (Mexico)

ISOPAN
INSULATING DESIGN

Leaf

MORE THAN JUST INSULATION

For over forty years, Isopan has been actively contributing to the global challenge of improving the building industry, in accordance with environmental sustainability.
Isopan has created and launched a new technology that will allow your bulding to achieve better performances, increased sustainability, higher safety and thermal insulation, combined with Isopan's expertise.

Real sustainability

LEAF technology represents a step torward more sustainable buildings, thanks to the continous effort of Isopan R&D.

Commonly used flame retardants improve fire perfomances of insulating materials, but they contain halogenated compounds, potentially dangerous for the environment. With LEAF technology, Isopan offers best fire perfomances without halogenated flame retardants.

Exceptional Fire Protection

LEAF technology has got the best European Fire Reaction Class attainable for polyurethane sandwich panels, namely B-s1,d0.

The "s1" performance is particulary important for a polyurethane-insulated panel, because it implies that no smoke is produced in case of fire exposure.

More comfort, less costs

LEAF technology improves the thermal performance of the insulating material, by lowering the thermal conductivity of polyurethane foam.

LEAF technology provides therefore lower thermal transmittance values compared to standard products.
This improvement leads to lower heat loss (up to 20%) on the building envelope.

Secure
Fire protection

Isopan panels, thanks to special technical characteristics, can help protect the buildings from fire, impeding fire development and limiting its spread (passive protection).

EN13501 regulations concerning fire resistance and reaction attests to the excellent performance of the range of Isopan panels in mineral wool and good performance of products in Polyurethane PIR proposed for such use.

ISOPAN
INSULATING DESIGN

Certified Quality

Quality certification is the first commitment Isopan has made for its Clients; quality also means the product technical compliance. Isopan caters exclusively to selected suppliers, able to provide materials of proven reliability, always guaranteed and certified in complete compliance with international standards.

Isopan companies are certified ISO 9001 and products are certified according to standards of target markets.

Isopan for LEED® Certification

ISOPAN INSULATING PANELS CONTRIBUTE TOWARD SATISFYING PREREQUISITES AND CREDITS UNDER LEED ®

Energy effi ciency and savings are the guiding concepts to Isopan production management as well as our commitment to the research and development of innovative solutions. Our insulating panels for roofs or walls contribute toward satisfying prerequisites and credits unfer LEED BD+C (Building Design and Construction) V4 in the following areas:

IP — INTEGRATIVE PROCESS

SS — SUSTAINABLE SITES

EA — ENERGY AND ATHMOSPHERE

MR — MATERIALS AND RESOURCES

EQ — INDOOR ENVIRONMENTAL QUALITY

AREA IP			
Prerequisite	IPP	Integrative process planning and design - Healthcare	Isopan Team
Credit	IPC	Integrative Process	Isopan Team
AREA SS			
Credit	SSC 4	Rainwather management	Gamma PVC Flat Roof
Credit	SSC 5	Heat island reduction	Gamma PVC Flat Roof
AREA EA			
Prerequisite	EAP 1	Foundamental commissioning and verification	All products
Credit	EAC 1	Enhanced commissioning and verification	All products
Prerequisite	EAP 2	Minimum energy performance	All products*
Credit	EAC 2	optimize energy performance	All products *
AREA MR			
Prerequisite	MRP 2	Construction and demolition waste management planning	All products
Credit	MRC 5	Construction and demolition waste management	All products
Credit	MRC 1	Building life cycle impact reduction - Opt. 4 LCA building	LCA data ref. EPD
Credito	MRC 2	Building product disclosure and optimization Environmental Product Declarations - Opt. 1: EPD	EPD Isocop, Isobox, Isofire **
Credit	MRC 3	Building product disclosure and optimization Sourcing of raw materials - Opt. 2	According to range specification
Credit	MRC 4	Building product disclosure and optimization Material ingredients - Opt. 2: Reach optimization	According to range specification
AREA EQ			
Credit	EQC 3	Construction Indoor air quality management plan	All products
Credit	EQC 5	Thermal comfort	All products *
Credit	EQC 9	Acoustic performance	Isofire Roof Fono, Isofire Wall Fono

* Excluding corrugated sheets
** EPDs: Industry Wide - with Third parte certification - Explicity recognized as partecipant
EPD - EPQ - 20130169 Double skin steel facades sandwich panels with core made of mineral wool
EPD - EPQ - 20130170 Double skin steel facades sandwich panels with core made of polyurethane
Ref. Isocop, isobox, Isofire Roof, Isofire Wall

Mapping Your Green Products greenmap

MAPPED ISOPAN PRODUCTS

Roof panels
Isocop
Isosmart
Isodomus
Isotap
Isodeck PVsteel
Isodeck
Isofire Roof Fono
Isofire Roof

Wall Panels
Exposed fixing system - example Isobox
Concealed fixing system - ex. Isoparete Plissè, Isoparete EVO
Isofrigo
Isofire Wall
isofire Wall Fono
Isofire Wall Plissè

Corrugated sheets
Tipo LG40

Systems
Ark Wall
Isocappotto

10 RULES FOR SANDWICH PANELS

- Identify the product if it is used as wall or as roof.
- Identify the aesthetic and architectonic necessities according to the project, choosing the more adapted product in the Isopan product range.
- Identify the structural needs according to the project, choosing the more adapted product and its related fixing elements after having analysed the resistance to loads.
- Identify needs of fire resistance for the construction elements, in order to comply with the safety requirements in case of fire.
- Identify the thermal and/or sound insulation of the wall in terms of efficiency and energy savings.
- Identify the best face according to the degradation resistance of the exposed faces in order to respect the construction durability.
- Verify that the delivery conditions and the qualitative standards of the panel are compatible with the requirements of the project and the construction site.
- Assign the assembly phase to experienced and qualified staff in order to ensure the installation is performed with great workmanship and in accordance with the correct installation instructions.
- Ensure that the standards on panels handling and storage indicated by Isopan are respected.
- Identify a correct and adapted plan for maintenance and inspection in order to ensure the proper durability of the construction according to the Isopan's indications..

LEGEND

Here below are listed the iconographic symbols that identify the technical characteristics of insulated panels and their type of use: the legend makes it possible to interpret the symbols provided for each panel.

PROJECT TYPOLOGY


Architectonic Project


Industrial Project


Agricultural – Zootechnical Project


Project On Low Temperature Rooms


Project On Prefabricated Boxes

PANEL TECHNICAL CHARACTERISTICS


Wall Panel


Roof Panel / Floor


Incombustibility


Sound Insulation


Thermal Insulation


Concealed Fixing


Exposed Fixing


Polyurethane Expanded Foam


Mineral Wool

ATTENTION

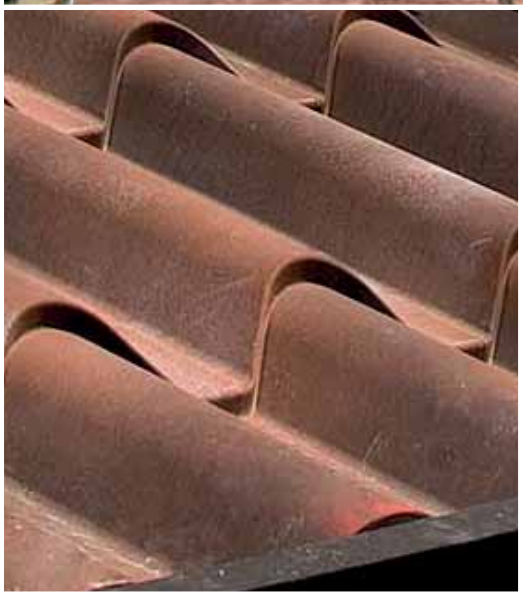
All information given in the overload charts refer only to the features of the panel. They can not replace the project calculations made by a qualified technician, who will apply the rules in force in the referring market.
All information about Isopan product characteristics, in terms of suitability, contained in this catalogue, on the website and in the informational material must be verified by the buyer / purchaser with respect to compliance with local regulations in the country of employment.

Roof Panels

ISOPAN
INSULATING DESIGN

Isodomus & Isodomus Classic

Manufactured in: Italy



Siena - Italy

Isodomus & Isodomus Classic

→ see pag. 16

APPLICATION

Isodomus is appropriate for public and industrial buildings' roofs with sheds located in determined urbanised areas. It can be used for new buildings' roofs, but also for renovation of roofs that are obsolete.

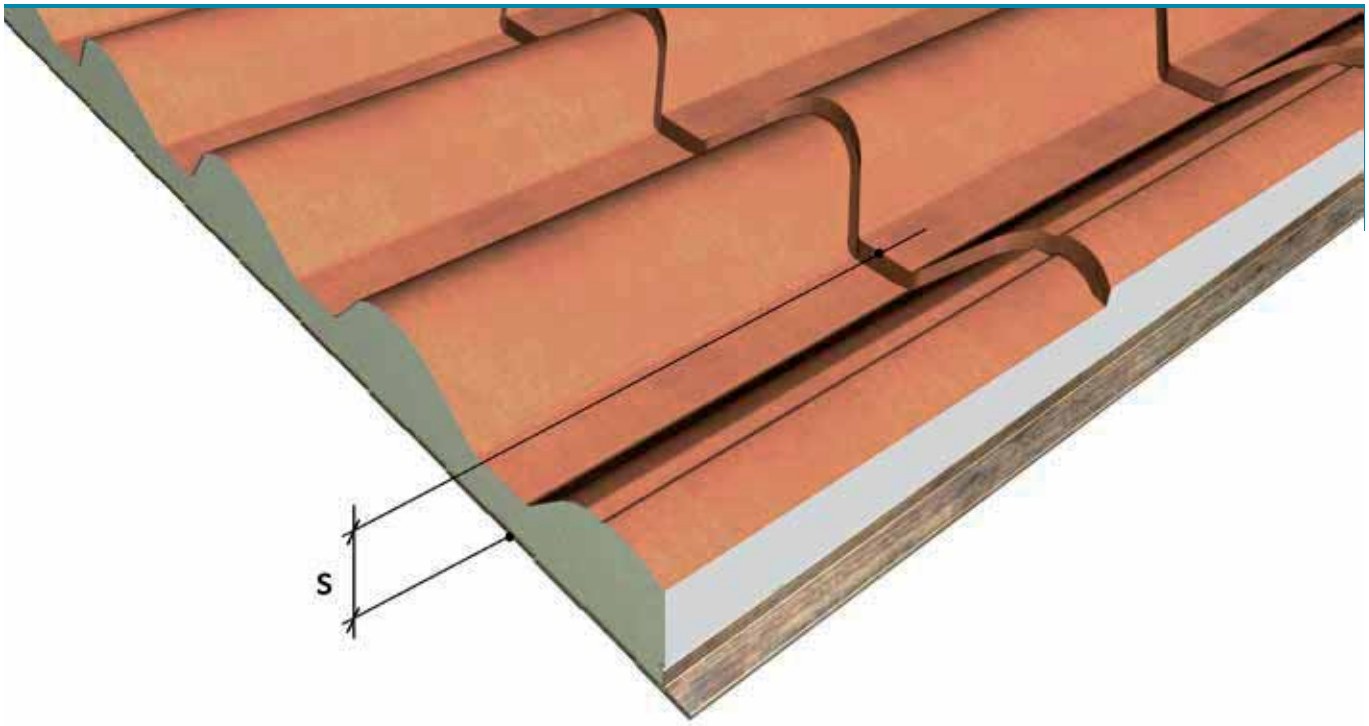
CHARACTERISTICS

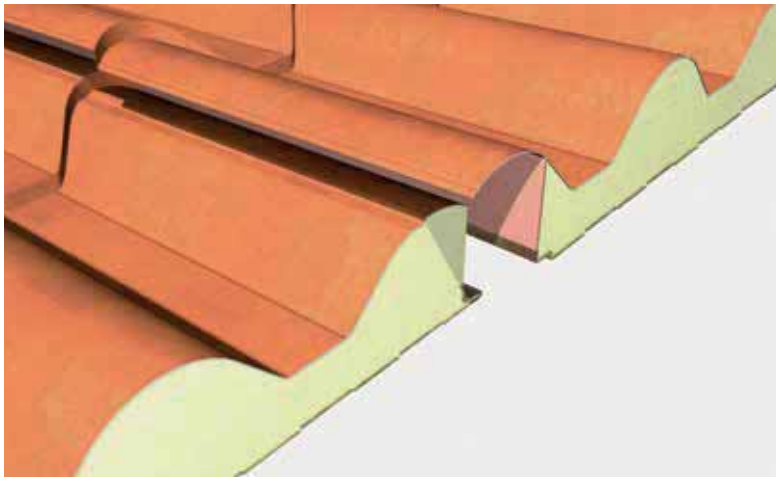
The standard tile or barrel tile shape makes this panel particular with a high aesthetic value that is suitable for public and rural sectors. The fixing system is a penetrating type with the possibility to use exposed caps, the number and the place of the fixing elements should guarantee the stresses resistance.
This range of roof panels is characterised by a wide choice of colours; particularly, colours that simulate the traditional roofs.

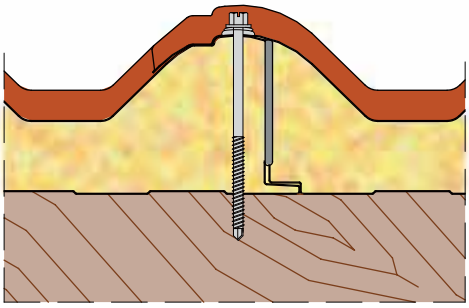
ADVANTAGES

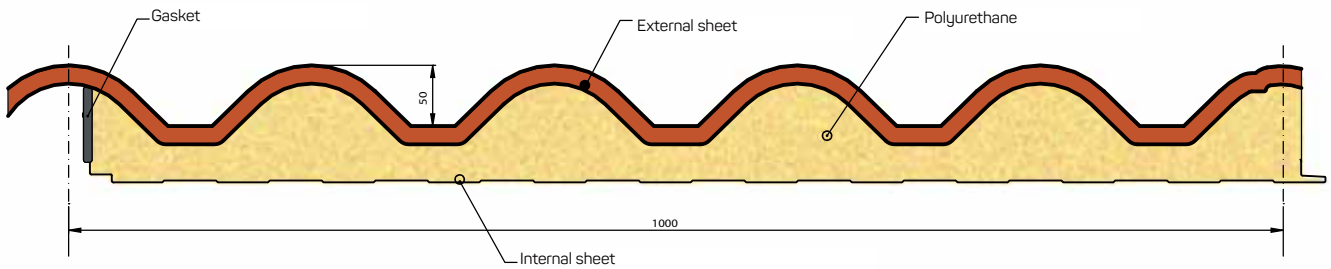
The Isodomus panel made of polyurethane foam allows a high thermal insulation. It is a functional panel fast and easy to install. Moreover, thanks to its special barrel tile shape, it can comply with the standards regarding landscape constraints.

- Architectonic quality
- Earthquake safety
- Lightness
- Versatility
- Functional reliability
- Thermal efficiency

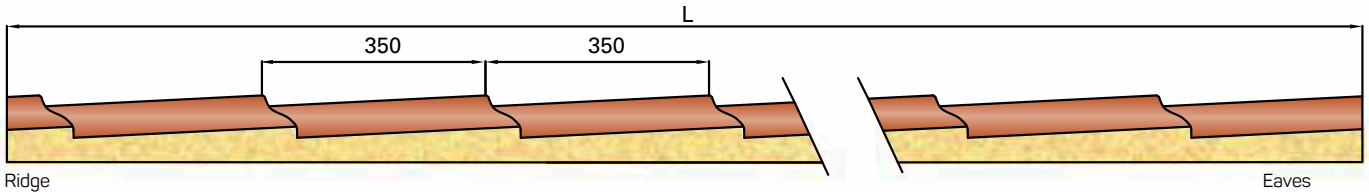




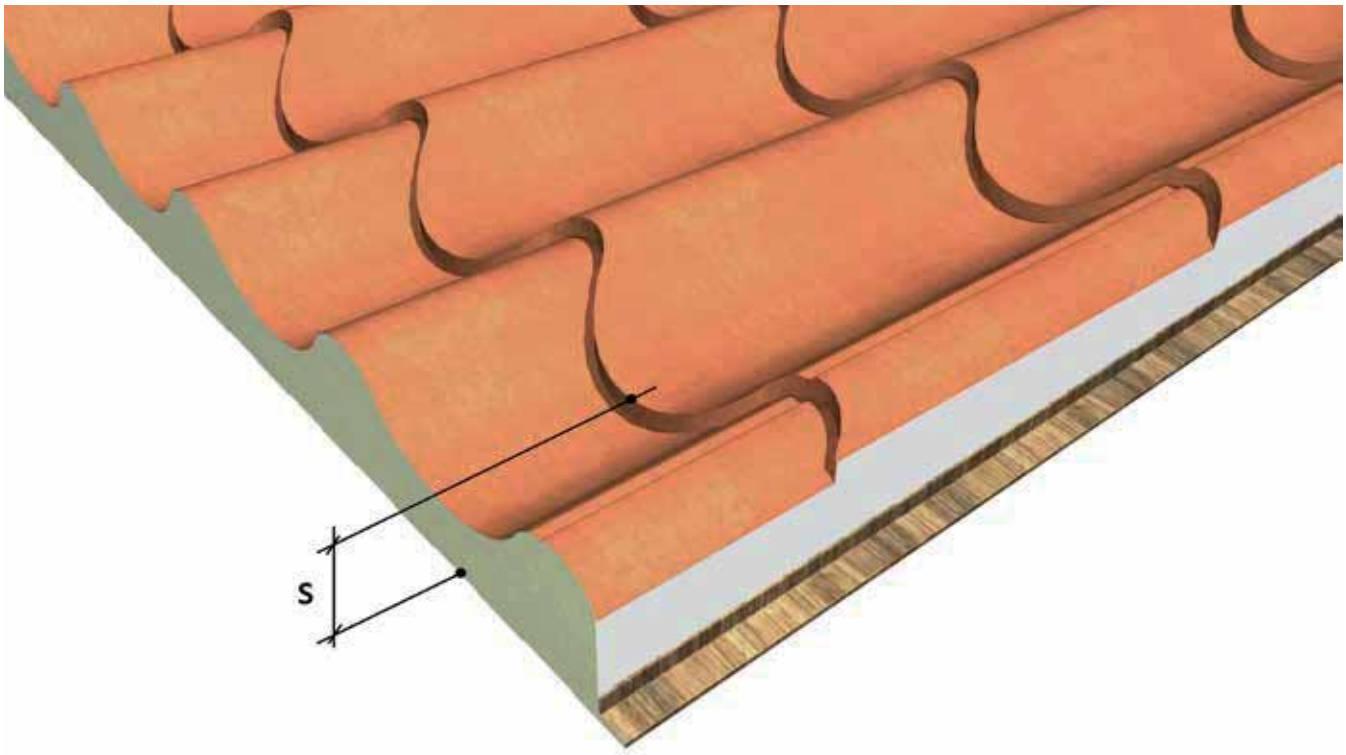


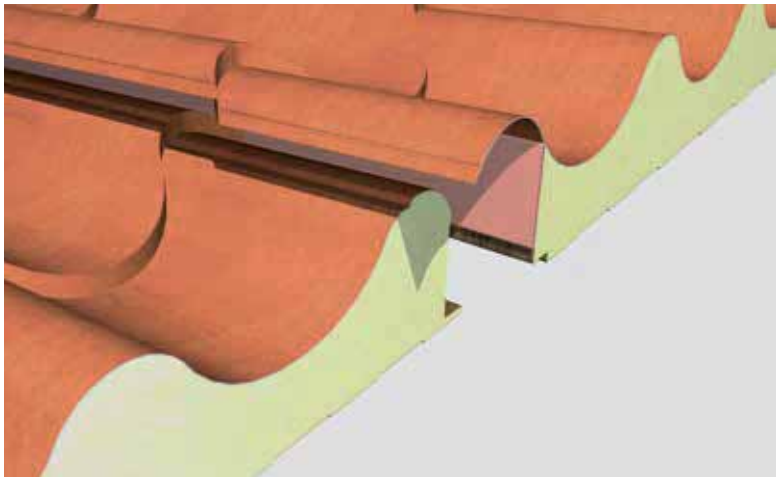


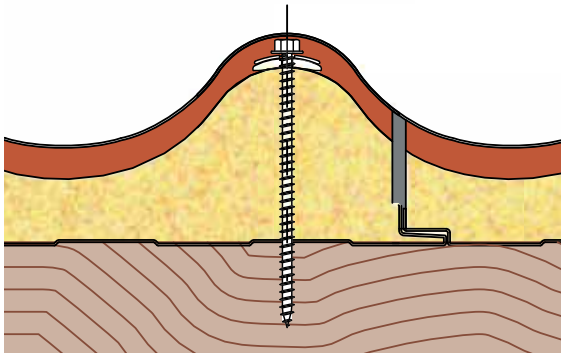
SIDE SECTION

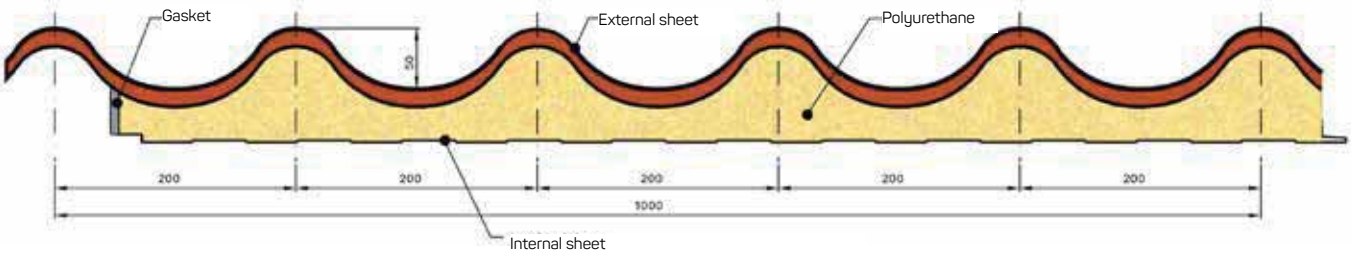


Isodomus & Isodomus Classic

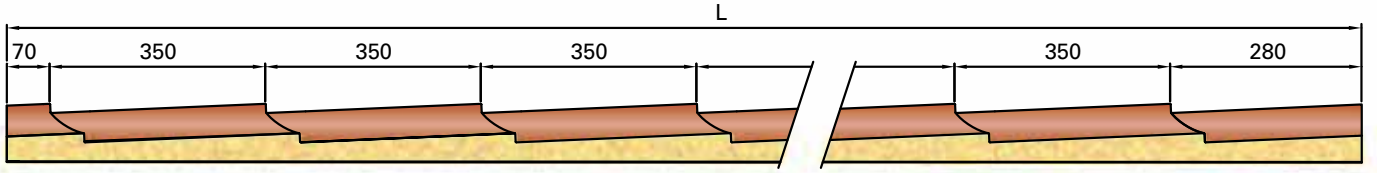








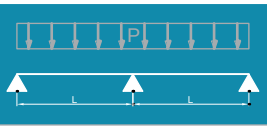
SIDE SECTION



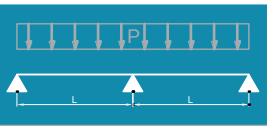
ISOPAN
INSULATING DESIGN

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

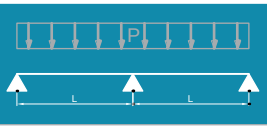
ACCEPTABLE LOADS kg/m²



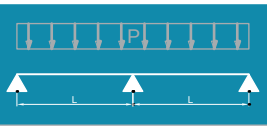
	INSULATING CORE THICKNESS mm	SPAN MM							
		1050	1400	1750	2100	2450	2800*	3150*	3500*
External steel sheet 0.5 mmm Internal steel sheet 0.4 mm	30	320	190	115	85	60			
External aluminium sheet 0.6 mm Internal steel sheet 0.4 mm	30	200	120	60					



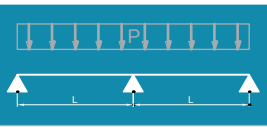
	INSULATING CORE THICKNESS mm	SPAN MM							
		1050	1400	1750	2100	2450	2800*	3150*	3500*
External steel sheet 0.5 mmm Internal steel sheet 0.4 mm	40	415	250	175	130	105	80	54	
External aluminium sheet 0.6 mm Internal steel sheet 0.4 mm	40	285	210	135	100	90	60		



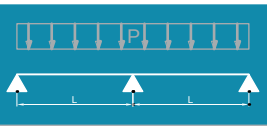
	INSULATING CORE THICKNESS mm	SPAN MM							
		1050	1400	1750	2100	2450	2800*	3150*	3500*
External steel sheet 0.5 mmm Internal steel sheet 0.4 mm	50	440	265	190	140	120	90	60	
External aluminium sheet 0.6 mm Internal steel sheet 0.4 mm	50	315	235	160	115	100	70	50	



	INSULATING CORE THICKNESS mm	SPAN MM							
		1050	1400	1750	2100	2450	2800*	3150*	3500*
External steel sheet 0.5 mmm Internal steel sheet 0.4 mm	60	500	305	230	170	145	110	75	60
External aluminium sheet 0.6 mm Internal steel sheet 0.4 mm	60	375	285	190	140	120	90	65	



	INSULATING CORE THICKNESS mm	SPAN MM							
		1050	1400	1750	2100	2450	2800*	3150*	3500*
External steel sheet 0.5 mmm Internal steel sheet 0.4 mm	80	580	430	320	260	170	140	90	70
External aluminium sheet 0.6 mm Internal steel sheet 0.4 mm	80	460	355	295	200	155	115	70	55



	INSULATING CORE THICKNESS mm	SPAN MM							
		1050	1400	1750	2100	2450	2800*	3150*	3500*
External steel sheet 0.5 mmm Internal steel sheet 0.4 mm	100	620	490	365	275	180	155	95	75
External aluminium sheet 0.6 mm Internal steel sheet 0.4 mm	100	500	390	315	230	170	125	70	60

* On grey facing, no foot traffic on spans. Deflection limit 1/200 ℓ

The indicated values, obtained after laboratory tests on panels not fixed to supports, take into account an adequate safety coefficient. We recommend, during the inspection for maintenance and roof cleaning, to be careful in order to avoid the sheet crush on the deepest ribs. It is recommend to wear shoes with rubber soles and carefully use the tools and / or equipments that could scratch the paint and the underlying zinc, impeding corrosion. It is recommended also to periodically inspect (at least once a year) the roof, to remove eventual wastes that could create unwanted stagnant water. The data's reported in the tables are only indicative. The designer has to check these data's according to the specific application.

Isodomus & Isodomus Classic

ISODOMUS

Weight ISODOMUS (Steel sheet)

THICKNESS SHEETS MM mm		PANEL NOMINAL THICKNESS MM				
		30	40	50	60	80
0,5 / 0,5	kg/m2	10,5	10,9	11,3	11,7	12,5

Weight ISODOMUS MONO (Steel sheet)

THICKNESS SHEETS MM mm		PANEL NOMINAL THICKNESS MM				
		30	40	50	60	80
0,5	kg/m2	7,3	7,7	8,1	8,5	9,3

ISODOMUS CLASSIC

Weight ISODOMUS classic (Steel sheet)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS (mm)					
		30	40	50	60	80	100
0,5 / 0,5	kg/m2	10,8	11,2	11,6	12,0	12,8	13,6

Weight ISODOMUS classic MONO (lamiera acciaio)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS (mm)					
		30	40	50	60	80	100
0,5	kg/m2	7,6	8,0	8,4	8,8	9,5	10,3

ISODOMUS - ISODOMUS CLASSIC

THERMAL INSULATION (K)
EN ISO 6946

K	PANEL NOMINAL THICKNESS (mm)					
	30	40	50	60	80	100
W / m² K	0,47	0,36	0,31	0,27	0,23	0,17
Kcal / m² h °C	0,40	0,32	0,27	0,23	0,20	0,15

THERMAL INSULATION (U)
UNI EN 14509:2007 A.10

U	PANEL NOMINAL THICKNESS(mm)					
	30	40	50	60	80	100
W / m² K	0,55	0,43	0,38	0,29	0,24	0,19
Kcal / m² h °C	0,47	0,37	0,32	0,25	0,21	0,16

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling.

STANDARD LENGTHS

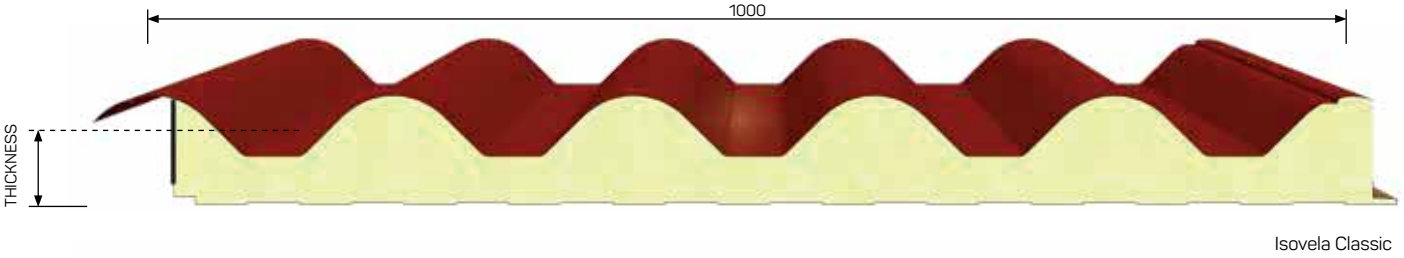
PANEL STANDARD LENGTHS mm													
2100	2450	2800	3150	3500	3850	4200	4550	4900	5250	5600	5950	6300	6650
7000	7350	7700	8050	8400	8750	9100	9450	9800	10150	10500	10850	11200	11550
11900	12250	12600	12950	13300									

ISOPAN
INSULATING DESIGN

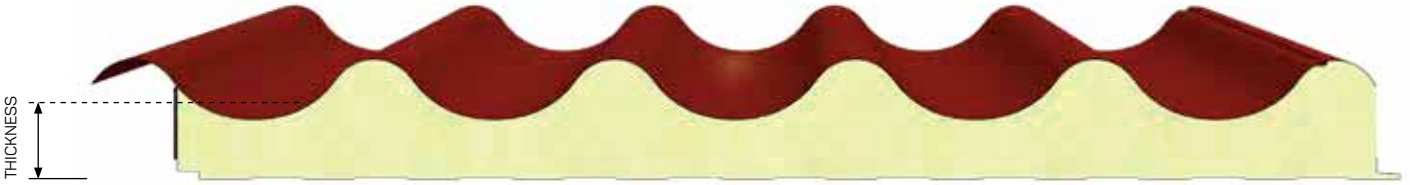
Isovela & Isovela Classic

Manufactured in: Italy

It is a self-supporting double skin roof panel, insulated with polyurethane foam, with a tongue-and-groove joint. On big longitudinal pitches, the panel overlap can be foreseen. The panel is composed by 6 waves that allow to increase the static resistance. It is available in different insulating core thicknesses for building's roofs. The assembly can be made on pitched roofs. The fixing system is a penetrating type with the possibility to use exposed caps.



Isovela Classic



Isovela

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

FIRE CHARACTERISTICS
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

Isovela & Isovela Classic

→ see pag. 16

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm			STEEL SHEETS 0,6 / 0,5 mm - Support 120 mm		
	PANEL NOMINAL THICKNESS mm			PANEL NOMINAL THICKNESS mm		
	60	70	80	60	70	80
kg/m2	MAX SPANS cm			MAX SPANS cm		
80	420	445	470	430	470	500
100	380	410	445	400	430	460
120	360	385	415	370	400	430
140	335	365	390	350	380	400
160	320	345	370	330	355	380
180	300	325	350	315	340	360
200	290	310	335	290	320	345
220	270	300	320	270	310	330
250	240	275	300	240	270	310

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm		
		60	70	80
0,4 / 0,4	kg/m2	9,3	9,7	10,1
0,5 / 0,5	kg/m2	11,1	11,5	11,9
0,6 / 0,6	kg/m2	12,9	13,3	13,7

DIMENSION TOLERANCE (EN 14509)

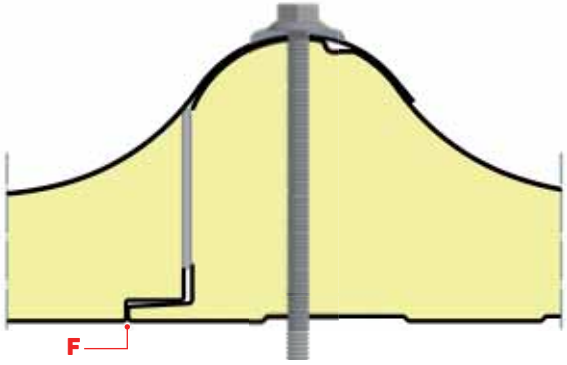
DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

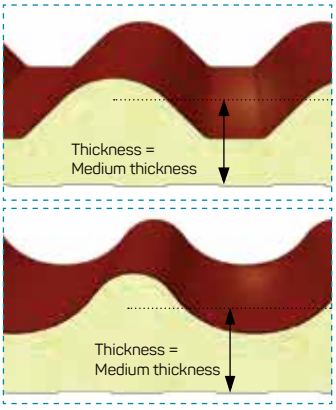
THERMAL INSULATION

According to EN 14509 A.10

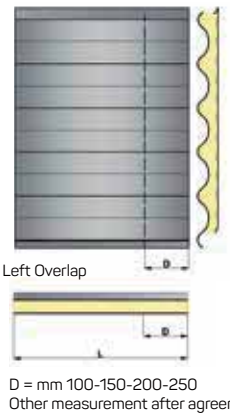
U	PANEL NOMINAL THICKNESS mm		
	60	70	80
W/m² K	0,46	0,38	0,33
kcal/m² h °C	0,40	0,33	0,29



Details of the fixing system and the coupling tolerance



ATTENTION: Nominal thickness value of Isovela and Isovela classic is referred to the the average thickness of panels



D = mm 100-150-200-250
Other measurement after agreement

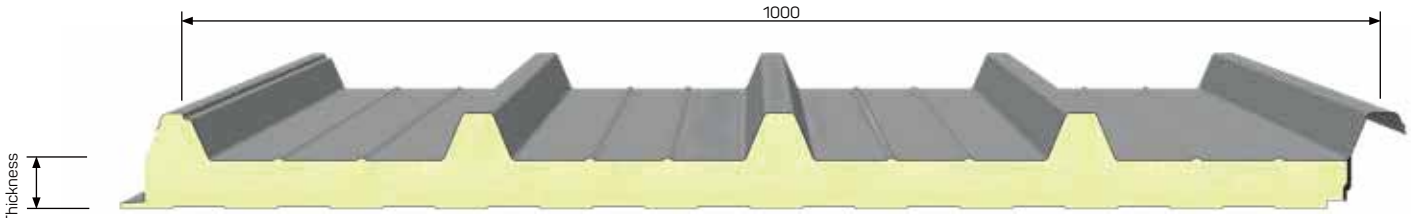
Details of the overlapping system

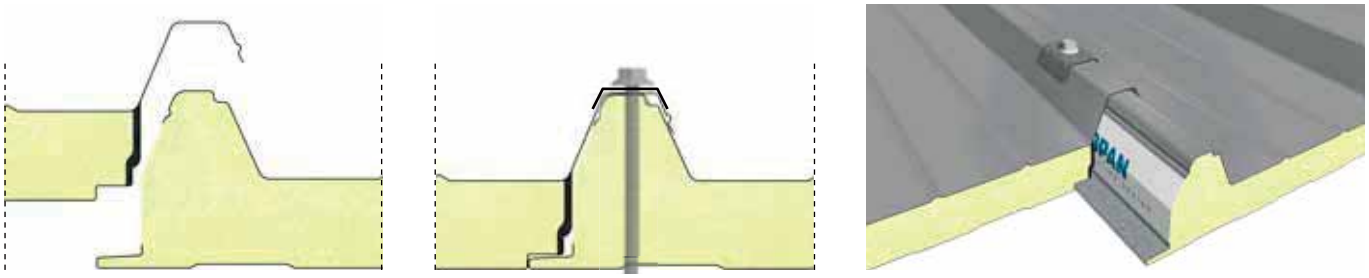
ISOPAN
INSULATING DESIGN

Isocop

Manufactured in: Italy, Germany, Spain, Romania

It is a self-supporting double skin roof panel, insulated with polyurethane foam, with a tongue-and-groove joint. The panel is composed by 5 ribs that allow a good static resistance. It is available in different insulating core thicknesses for building's roofs.





Details of the assembly phase

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

FIRE CHARACTERISTICS
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

Isocop

→ see pag. 16

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,4 / 0,4 mm - Support 120 mm								STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm							
	PANEL NOMINAL THICKNESS mm								PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150	30	40	50	60	80	100	120	150
kg/m²	MAX SPANS cm								MAX SPANS cm							
80	270	290	310	340	390	440	470	500	320	350	390	420	500	570	630	730
100	250	260	280	300	350	390	440	480	295	320	360	390	450	510	580	670
120	230	245	260	280	320	360	400	460	270	300	330	360	420	480	540	620
140	210	230	255	260	290	330	370	420	235	280	315	340	390	450	500	580
160	200	220	230	255	285	310	340	390	210	260	300	320	370	420	480	550
180	185	215	220	230	270	290	320	370	185	235	280	300	355	400	450	520
200	160	200	210	220	260	270	300	340	170	210	250	290	330	380	430	500
220	140	190	200	210	230	260	280	320	150	190	230	270	320	360	410	470
250	115	170	190	200	220	240	260	300	130	170	205	240	300	340	385	445

UNIFORMLY DISTRIBUTED LOAD	ALUMINIUM SHEETS 0,6 / 0,6 mm - Support 120 mm							
	PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150
kg/m²	MAX SPANS cm							
80	255	290	325	370	435	505	565	605
100	225	255	290	315	385	455	510	590
120	205	230	255	285	340	400	460	540
140	190	210	230	255	315	370	420	495
160	170	190	215	230	285	335	385	455
180	155	170	200	215	265	310	360	420
200	145	160	180	200	240	285	335	395
220	130	155	170	190	225	255	310	355
250	110	145	155	165	200	230	275	335

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

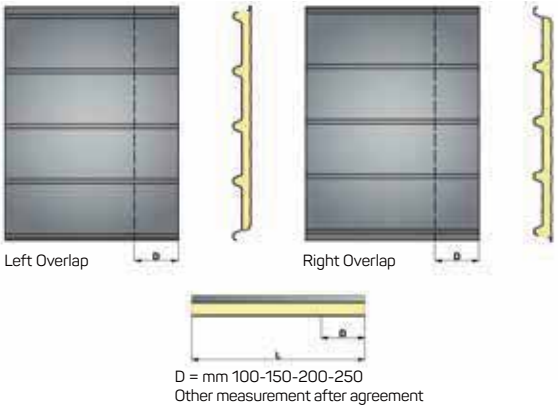
PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm							
		30	40	50	60	80	100	120	150
0,5 / 0,5	kg/m²	9,9	10,3	10,7	11,2	11,9	12,7	13,5	14,7
0,6 / 0,6	kg/m²	11,7	12,1	12,5	12,9	13,7	14,5	15,3	16,5

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling



Details of the overlapping system

THERMAL INSULATION

According to EN 14509 A.10

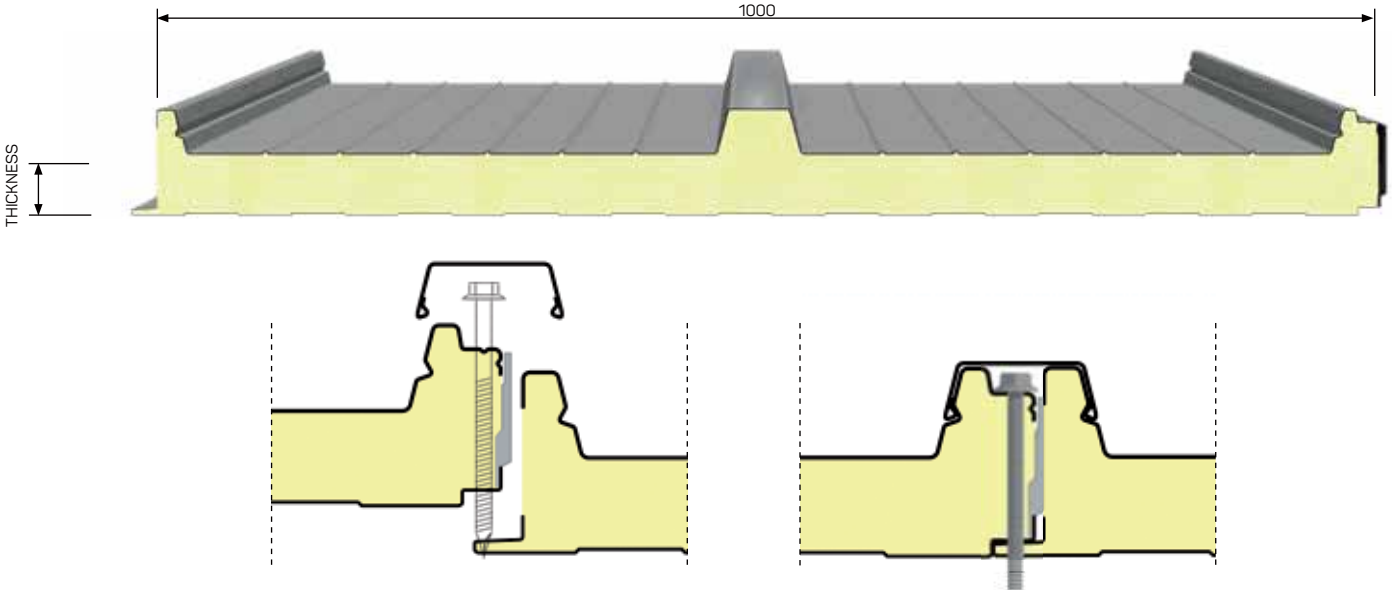
U	PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150
W/m² K	0,71	0,54	0,44	0,37	0,28	0,22	0,19	0,15
kcal/m² h °C	0,61	0,47	0,38	0,32	0,24	0,19	0,16	0,13

ISOPAN
INSULATING DESIGN

Isotap

Manufactured in: Spain

It is a self-supporting double skin panel, insulated with polyurethane foam, with a tongue-and-groove joint, designed for pitched roofs with a minimum slope of 7%. On large longitudinal pitches, the panel overlap can be foreseen. The fixing system is a penetrating type with the possibility to use exposed caps, with the possibility to use caps, in the coupling zone is placed a special flashing.



INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

Isotap

→ see pag. 16

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm							STEEL SHEETS 0,5 / 0,4 mm - Support 120 mm				
	PANEL NOMINAL THICKNESS mm							PANEL NOMINAL THICKNESS mm				
	30	40	50	60	80	100	120	30	40	50	60	80
kg/m²	MAX SPANS cm							MAX SPANS cm				
80	295	330	365	400	470	530	600	290	320	355	400	460
120	230	280	310	340	400	450	500	230	280	310	340	390
150	190	240	280	310	365	410	460	190	240	280	300	360
200	145	180	220	260	320	360	400	145	180	220	260	310
250	115	150	180	220	275	320	360	115	150	180	215	275

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm						
		30	40	50	60	80	100	120
0,4 / 0,4	kg/m²	8,1	8,5	8,9	9,3	10,1	-	-
0,5 / 0,5	kg/m²	9,9	10,3	10,7	11,2	11,9	-	-
0,6 / 0,6	kg/m²	11,7	12,1	12,5	12,9	13,7	14,5	15,3

DIMENSION TOLERANCE (EN 14509)

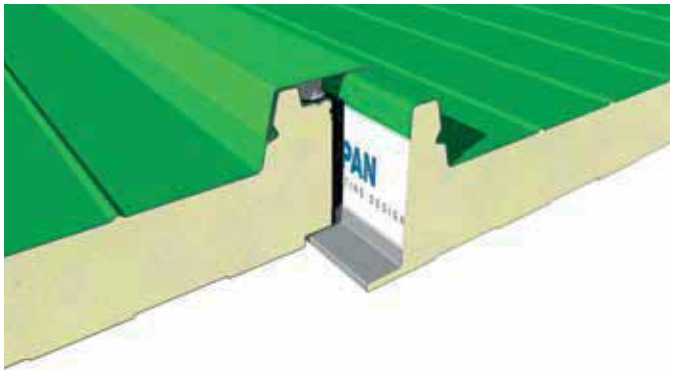
DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

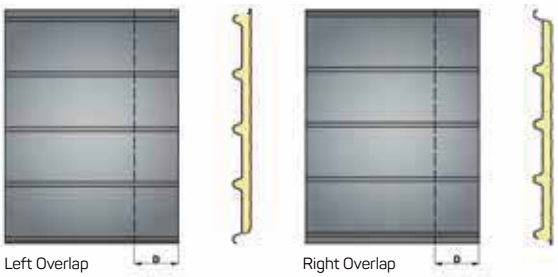
THERMAL INSULATION

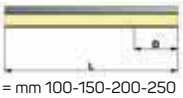
According to EN 14509 A.10

U	PANEL NOMINAL THICKNESS mm						
	30	40	50	60	80	100	120
W/m² K	0,71	0,54	0,44	0,37	0,28	0,22	0,19
kcal/m² h °C	0,61	0,47	0,38	0,32	0,24	0,19	0,16



Details of the fixing system and the coupling tolerance





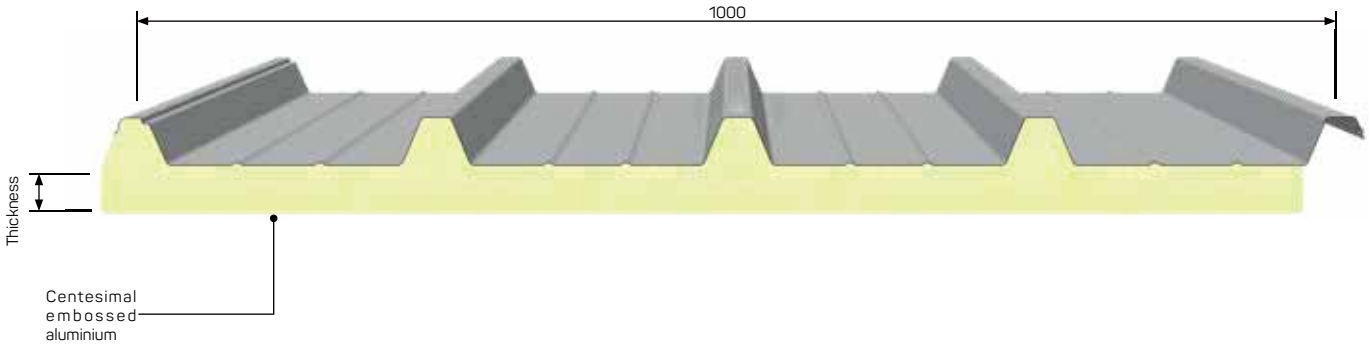
D = mm 100-150-200-250
Other measurement after agreement

ISOPAN
INSULATING DESIGN

Isogrecata

Manufactured in: Italy, Germany, Spain, Romania

Isogrecata is a self-supporting single skin metal faced panel, insulated with polyurethane foam; its internal face is made of centesimal embossed aluminium. The panel is composed by 5 ribs that allow a good static resistance. It is available in different insulating core thicknesses for building's roofs.



INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

Isogrecata

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS

UNIFORMLY DISTRIBUTED LOAD	THICKNESS SHEETS mm					THICKNESS SHEETS mm				
	0,5	0,6	0,7	0,8	1,0	0,5	0,6	0,7	0,8	1,0
kg/m²	MAX SPANS cm					MAX SPANS cm				
80	220*	235	250	265	285	250*	270	285	295	320
100	200*	220*	235	245	265	200*	245*	260	275	295
120	180*	200*	215*	230	250	200*	225*	240*	260	280
140	165*	185*	200*	215*	235	185*	205*	225*	240*	265
160	155*	170*	185*	200*	225	175*	195*	210*	225*	255

ALUMINIUM SHEETS

UNIFORMLY DISTRIBUTED LOAD	THICKNESS SHEETS mm				THICKNESS SHEETS mm			
	0,6	0,7	0,8	1,0	0,6	0,7	0,8	1,0
kg/m²	MAX SPANS cm				MAX SPANS cm			
80	160*	170	180	190	180*	190	200	220
100	140*	155*	165	180	160*	175*	190	205
120	130*	140*	155	170	145*	160*	185	190
140	120*	130*	140*	160	135*	150*	160*	180
160	110*	120*	130*	150	125*	140*	150*	170

* Values with stress limitations. Deflection limit 1/200 ℓ

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm					
		30	40	50	60	80	100
0,6	kg/m²	6,9	7,3	7,7	8,1	8,9	9,7
0,7	kg/m²	7,9	8,3	8,7	9,1	9,9	10,7
0,8	kg/m²	8,7	9,3	9,7	10,1	10,9	11,7

DIMENSION TOLERANCE

DEVIATION mm	
Length	± 10
Working length	± 5
Thickness	± 2
Orthogonality and rectangularity	± 3

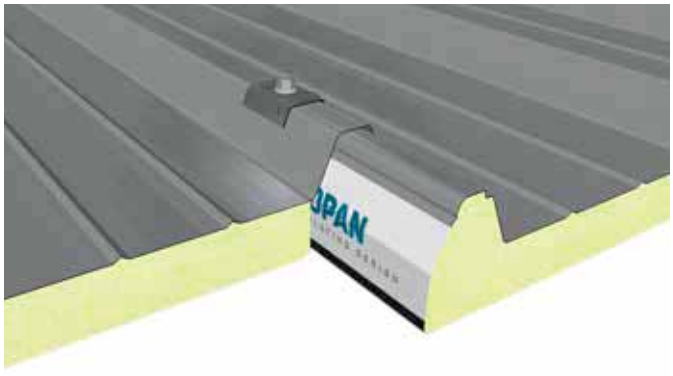
THERMAL INSULATION

According to EN 14509 Annex 10

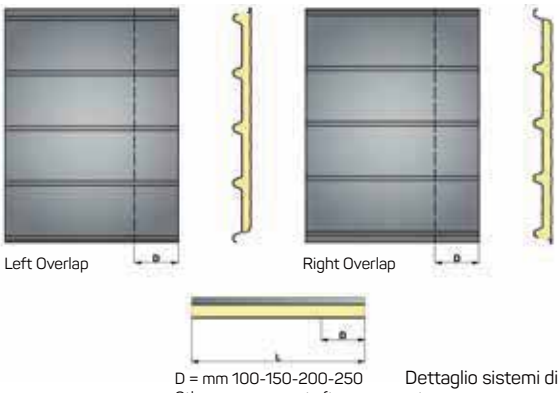
U	PANEL NOMINAL THICKNESS mm					
	30	40	50	60	80	100
W/m² K	0,71	0,54	0,44	0,37	0,28	0,22
kcal/m² h °C	0,61	0,47	0,38	0,32	0,24	0,20

According to the calculation method EN ISO 6946

K	PANEL NOMINAL THICKNESS mm					
	30	40	50	60	80	100
W/m² K	0,55	0,44	0,36	0,31	0,25	0,20
kcal/m² h °C	0,48	0,38	0,32	0,27	0,22	0,17



Details of the fixing system and the coupling tolerance



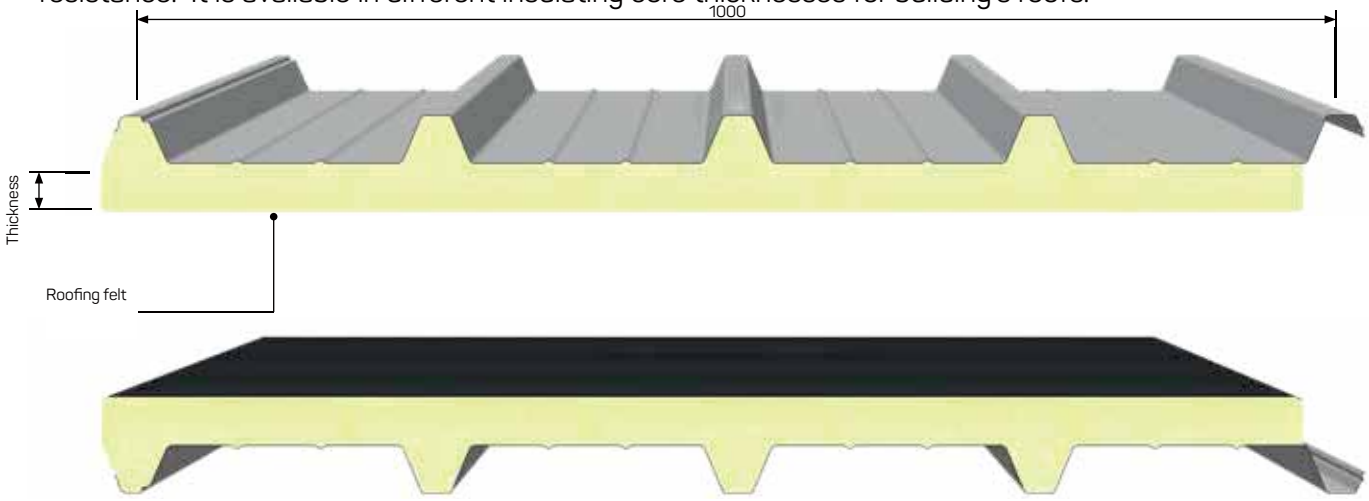
Dettaglio sistemi di sormonto

ISOPAN
INSULATING DESIGN

Isodeck

Manufactured in: Italy, Germany, Spain, Romania

Isodeck is a self-supporting simple skin metal faced panel, insulated with polyurethane foam with internal face made of roofing felt. The panel can be installed upside down for the construction of flat roofs to be waterproofed on site. In fact, the ribbed face is the internal face of the building; it can also be used in the traditional way on hidden faces and continuous slab. The panel is composed by 5 ribs that allow a good static resistance. It is available in different insulating core thicknesses for building's roofs.



INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

Isodeck

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS

UNIFORMLY DISTRIBUTED LOAD	THICKNESS SHEETS mm					THICKNESS SHEETS mm				
	0,5	0,6	0,7	0,8	1,0	0,5	0,6	0,7	0,8	1,0
kg/m²	MAX SPANS cm					MAX SPANS cm				
80	220*	235	250	265	285	250*	270	285	295	320
100	200*	220*	235	245	265	200*	245*	260	275	295
120	180*	200*	215*	230	250	200*	225*	240*	260	280
140	165*	185*	200*	215*	235	185*	205*	225*	240*	265
160	155*	170*	185*	200*	225	175*	195*	210*	225*	255

ALUMINIUM SHEETS

UNIFORMLY DISTRIBUTED LOAD	THICKNESS SHEETS mm				THICKNESS SHEETS mm			
	0,6	0,7	0,8	1,0	0,6	0,7	0,8	1,0
kg/m²	MAX SPANS cm				MAX SPANS cm			
80	160*	170	180	190	180*	190	200	220
100	140*	155*	165	180	160*	175*	190	205
120	130*	140*	155	170	145*	160*	185	190
140	120*	130*	140*	160	135*	150*	160*	180
160	110*	120*	130*	150	125*	140*	150*	170

* Values with stress limitations. Deflection limit 1/200 ℓ

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm					
		30	40	50	60	80	100
0,6	kg/m²	7,3	7,7	8,1	8,5	9,3	10,1
0,7	kg/m²	8,3	8,7	9,1	9,5	10,3	11,1
0,8	kg/m²	9,1	9,7	10,1	10,5	11,3	12,1

DIMENSION TOLERANCE

DEVIATION mm	
Length	± 10
Working length	± 5
Thickness	± 2
Orthogonality and rectangularity	± 3

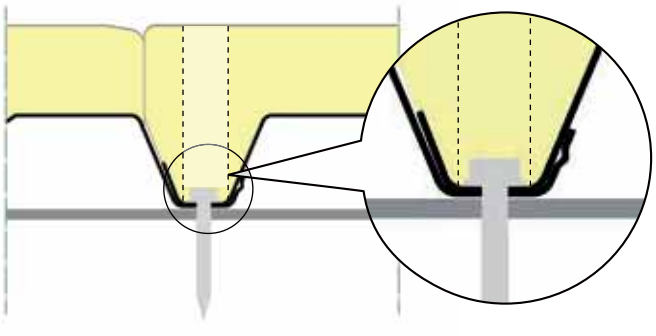
THERMAL INSULATION

According to EN 14509 Annex 10

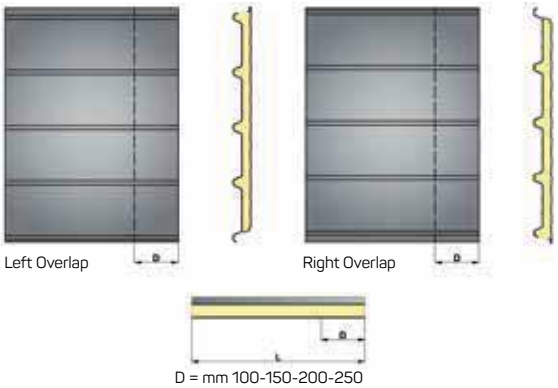
U	PANEL NOMINAL THICKNESS mm					
	30	40	50	60	80	100
W/m² K	0,71	0,54	0,44	0,37	0,28	0,22
kcal/m² h °C	0,61	0,47	0,38	0,32	0,24	0,20

According to the calculation method EN ISO 6946

K	PANEL NOMINAL THICKNESS mm					
	30	40	50	60	80	100
W/m² K	0,55	0,44	0,36	0,31	0,25	0,20
kcal/m² h °C	0,48	0,38	0,32	0,27	0,22	0,17



Details of the fixing system



D = mm 100-150-200-250
Other measurement after agreement

ISOPAN
INSULATING DESIGN

Isoray 3.3 & Isoray 6

Manufactured in: Italy

Isoray 3.3 - Isoray 6

→ see pag. 16

APPLICATION

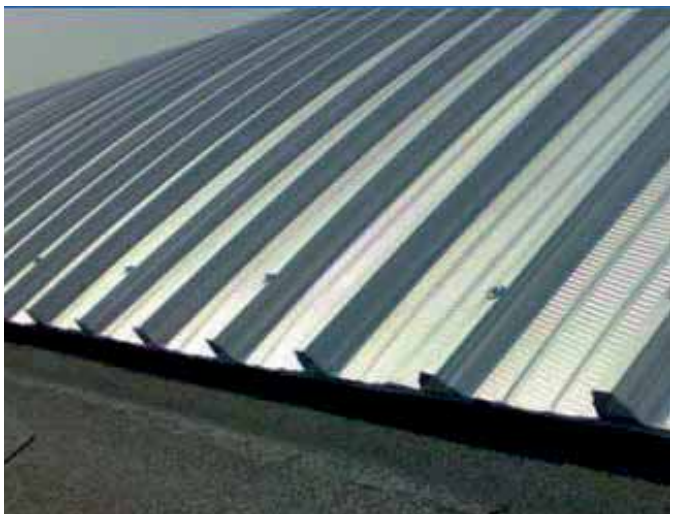
Isoray is a precurved thermo-insulated roof panel. It is designed for roofs that are principally placed on prefabricated structures made of prestressed concrete: it guarantees waterproofness, high thermal insulation and high load resistance.

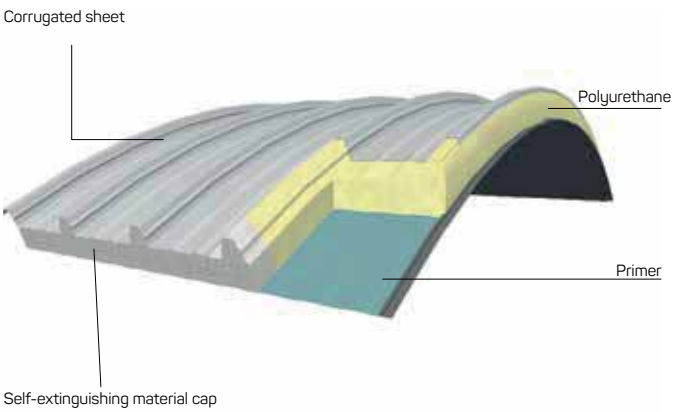
CHARACTERISTICS

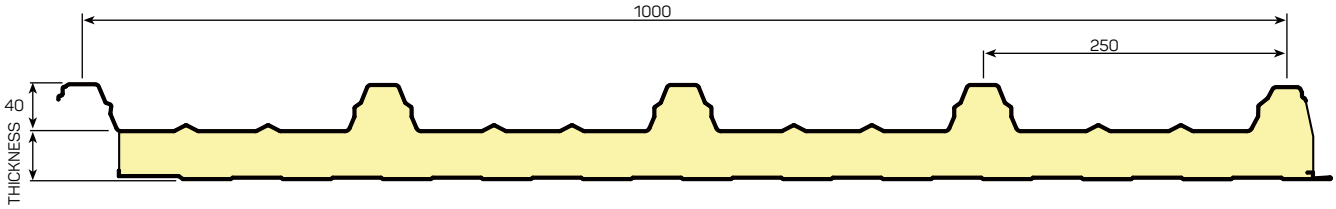
The panel allows you to create curved roofs with a radius of 3.3 m to 6 m, even if it is curved, with the 5 ribs sheet, it shows a high load resistance. The fixing is made at the end of the support structure thanks to steel self-drilling screws.

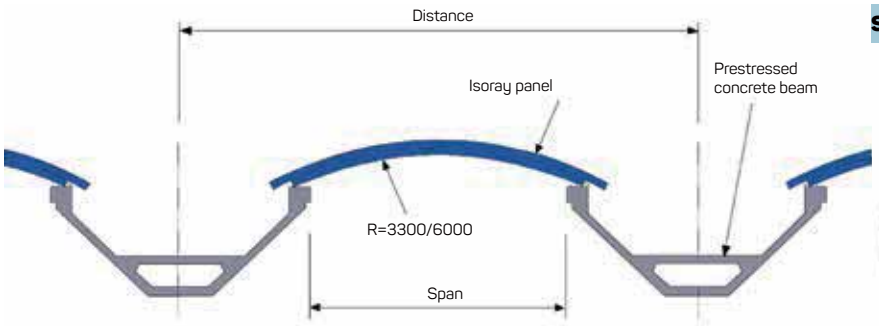
ADVANTAGES

It shows high results of thermal insulation even with a flat roof that is appropriate also for prefabricated elements in prestressed concrete. Isoray is a monolithic solution with a high mechanical resistance and a high thermal insulation power.

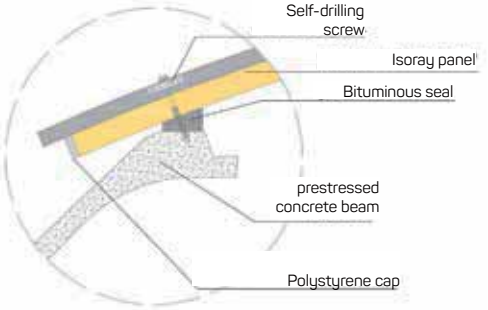




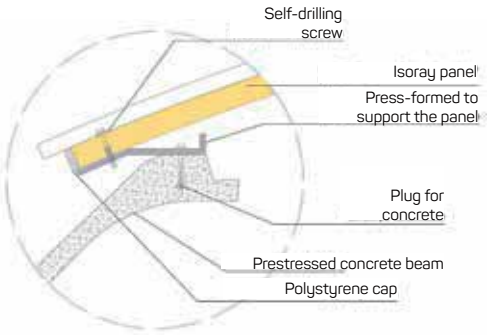




SUPPORT TYPE A



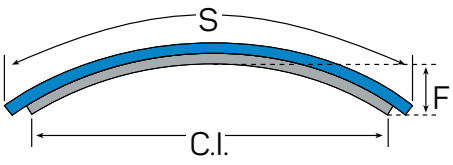
SUPPORT TYPE B



For more information on assembly and fixing systems, please contact Isopan

DEVELOPMENT – CHORD - DEFLECTION (The measures refer to a 40 mm thick panel)

ISORAY 3.3 (measures in cm)			ISORAY 6 (measures in cm)		
Internal chord C.I.	Development S	Deflection F	Internal chord C.I.	Development S	Deflection F
107	120	4	150	162	5
137	151	7	200	214	8
158	173	10	250	265	13
177	194	12	300	317	19
196	214	15	350	370	26
216	235	18	400	423	34
236	257	22	450	477	44
255	278	26	500	533	55
260	284	27	-	-	-
275	300	30	-	-	-



Isoray 3.3 - Isoray 6

ACCEPTABLE LOADS (LOAD BEARING SCHEME (kg/m²)

ISORAY 3.3 with 0.5 mm thick steel faces						
CORE THICKNESS mm	CALCULATED DEFLECTION m					
	1	1,5	2	2,5	2,75	3
40	410	370	290	250	230	210
50	490	425	340	280	260	240
60	590	490	380	300	220	260

ISORAY 3.3 with 0.6 mm thick external aluminium face and 0.5 mm thick internal steel face						
CORE THICKNESS mm	CALCULATED DEFLECTION m					
	1	1,5	2	2,5	2,75	3
40	400	250	210	180	165	150
50	480	315	260	210	185	170
60	580	380	290	230	195	180

ISORAY 6 with 0.5 mm thick steel faces										
CORE THICKNESS mm	CALCULATED DEFLECTION m									
	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5
40	390	256	190	190	170	150	110	85	75	62
50	490	323	240	220	200	170	130	100	83	67
60	590	390	280	240	220	190	150	120	90	73
80	800	520	348	283	264	234	198	173	117	91
100	913	588	383	305	282	255	224	200		

PANEL ISORAY 6 with 0.6 mm thick external aluminium face and 0.5 mm thick internal steel face										
CORE THICKNESS mm	CALCULATED DEFLECTION m									
	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5
40	390	256	190	182	150	130	80	70	60	50
50	490	323	240	210	170	150	100	85	65	52
60	590	390	270	230	180	160	110	105	70	55
80	787	511	342	271	218	197	145	127	82	65
100	889	573	372	292	233	215	164	140		

Note : the red values indicate the acceptable loads for a panel anchored to the support.
The data's reported in the tables are only indicative. The designer has to check them according to the specific application.
Deflection limit 1/200 ℓ

PANEL THICKNESS mm	K		PANEL WEIGHT (kg/m²) WITH STEEL SHEETS 0,5 mm
	Kcal/m² h°C	Watt/m² K	
40	0,38	0,45	10,3
50	0,32	0,38	10,7
60	0,27	0,32	11,2
80	0,22	0,25	11,9
100	0,18	0,20	12,7

DIMENSION TOLERANCE

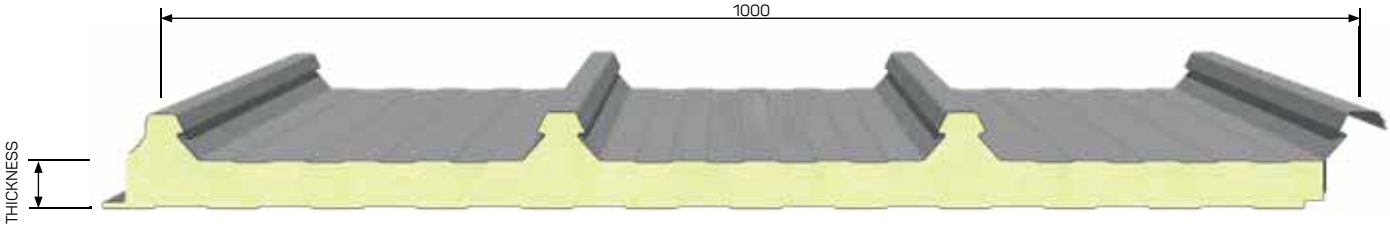
DEVIATION mm	
Lenght of curvature	± 5 mm with L ≤ 3000 / ± 10 mm with L > 3000
Width	± 2
Thickness	± 2
Chord	± 3 %
Radius of curvature	± 2 %
Coupling (Dev. < 3000mm)	± 4 mm
Coupling (Dev. ≥ 3000mm)	± 5 mm

ISOPAN
INSULATING DESIGN

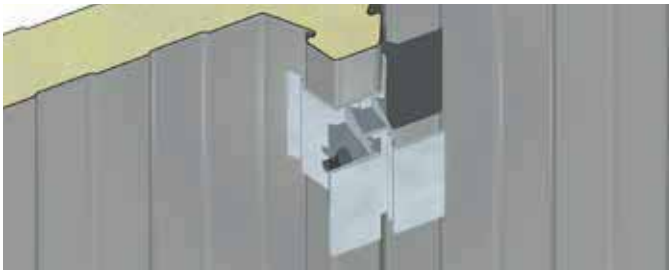
Isocop Multifunction

Manufactured in: Germany

It is a self-supporting double skin panel, insulated with polyurethane foam, with a tongue-groove joint, and it is available in different thicknesses. On large longitudinal pitches, panel overlapping can be provided for. The panel is composed by 4 ribs that allow to increase the static resistance. The rib shape allows to complement the system with covering or wall accessories with simple and quick operations.



Expample with roof accessory



Expample with wall accessory

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

Isocop Multifunction

→ see pag. 16

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm							STEEL SHEETS 0,6 / 0,5 mm - Support 120 mm						
	PANEL NOMINAL THICKNESS mm							PANEL NOMINAL THICKNESS mm						
	30	40	50	60	80	100	120	30	40	50	60	80	100	120
kg/m²	MAX SPANS cm							MAX SPANS cm						
80	295	330	370	400	470	530	590	310	340	390	420	490	550	610
100	260	305	330	370	430	490	540	260	315	350	380	440	500	550
120	220	275	300	330	395	435	490	220	290	330	355	400	450	500
140	195	250	270	295	350	410	460	195	250	295	320	380	420	460
160	170	220	250	270	320	380	420	170	220	270	290	340	390	430
180	150	200	230	245	285	340	400	155	200	245	265	310	360	400
200	140	180	210	225	260	310	360	135	180	225	250	285	330	380
220	125	165	200	210	240	280	330	125	175	200	230	265	305	350
250	110	145	180	195	215	250	280	115	150	180	210	235	270	310

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm						
		30	40	50	60	80	100	120
0,4 / 0,4	kg/m²	8,1	8,5	8,9	9,3	10,1	10,9	11,7
0,5 / 0,5	kg/m²	9,9	10,3	10,7	11,2	11,9	12,7	13,5
0,6 / 0,6	kg/m²	11,7	12,1	12,5	12,9	13,7	14,5	15,3

DIMENSION TOLERANCE (EN 14509)

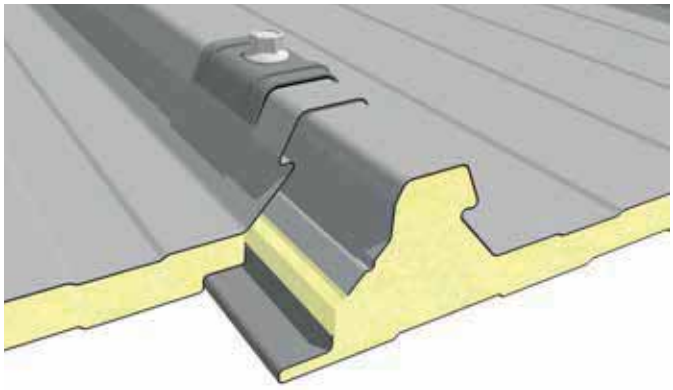
DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

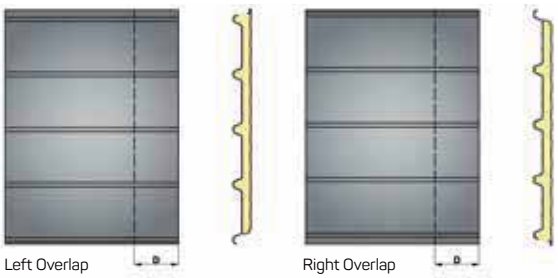
L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm						
	30	40	50	60	80	100	120
W/m² K	0,71	0,54	0,44	0,37	0,28	0,22	0,19
kcal/m² h °C	0,61	0,47	0,38	0,32	0,24	0,19	0,16





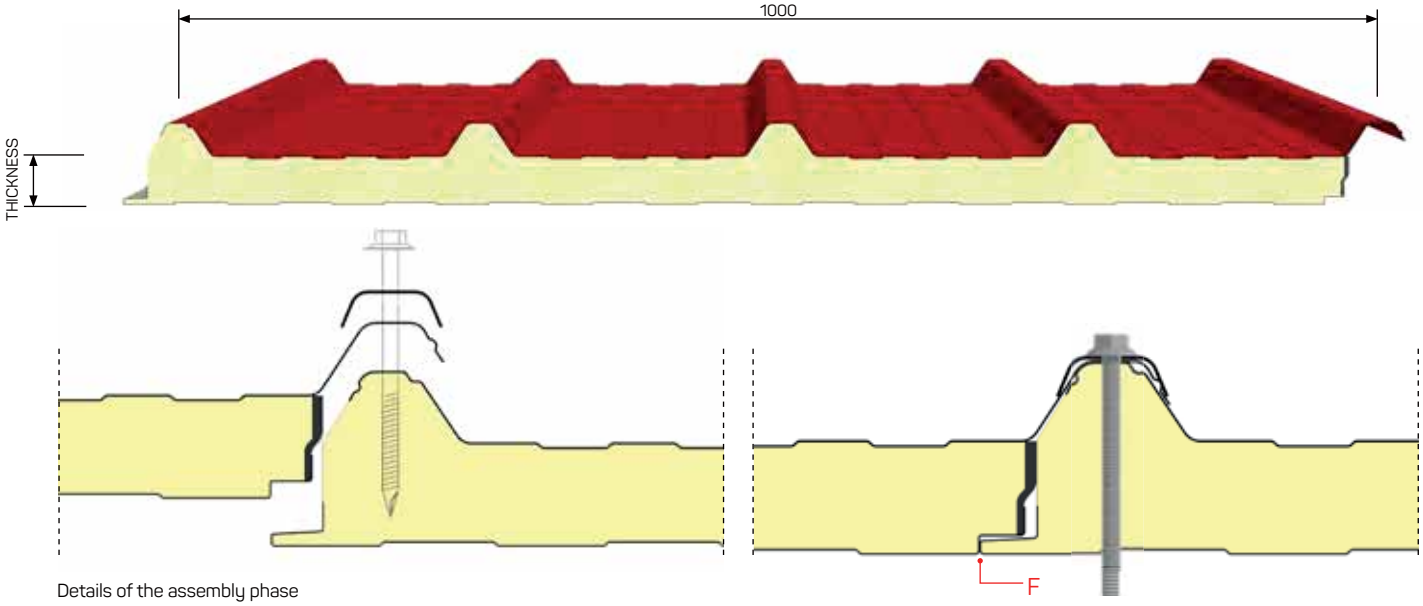
D = mm 100-150-200-250
Other measurement after agreement

ISOPAN
INSULATING DESIGN

Isosmart

Manufactured in: Italy

It is a self-supporting double skin roof panel, insulated with polyurethane foam, with a tongue-and-groove joint. The panel is composed by 5 ribs that allow a good static resistance. It is available in different insulating core thicknesses for building's roofs.



Details of the assembly phase

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

Isosmart

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,4 / 0,3 mm - Support 120 mm				
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm			
	30	40	50	60
kg/m²	MAX SPANS cm			
80	200	225	250	300
100	190	210	230	280
120	175	200	220	250
140	165	190	210	230
160	155	180	200	215
180	145	170	185	205
200	130	160	175	190
220	125	150	160	180
250	110	130	150	170

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm			
		30	40	50	60
0,4 / 0,4	kg/m²	8,1	8,5	8,9	9,3
0,5 / 0,5	kg/m²	9,9	10,3	10,7	11,2
0,6 / 0,6	kg/m²	11,7	12,1	12,5	12,9

DIMENSION TOLERANCE (EN 14509)

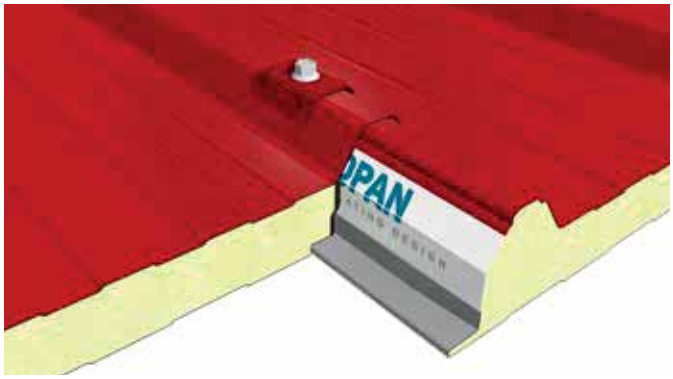
DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

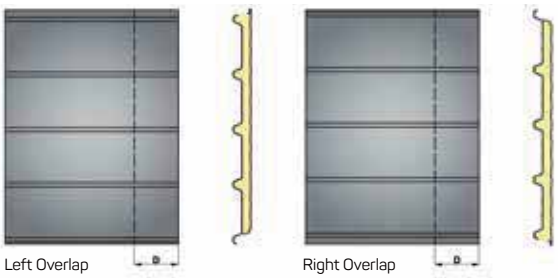
THERMAL INSULATION

According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm			
	30	40	50	60
W/m² K	0,71	0,54	0,44	0,37
kcal/m² h °C	0,61	0,47	0,38	0,32



Coupling detail



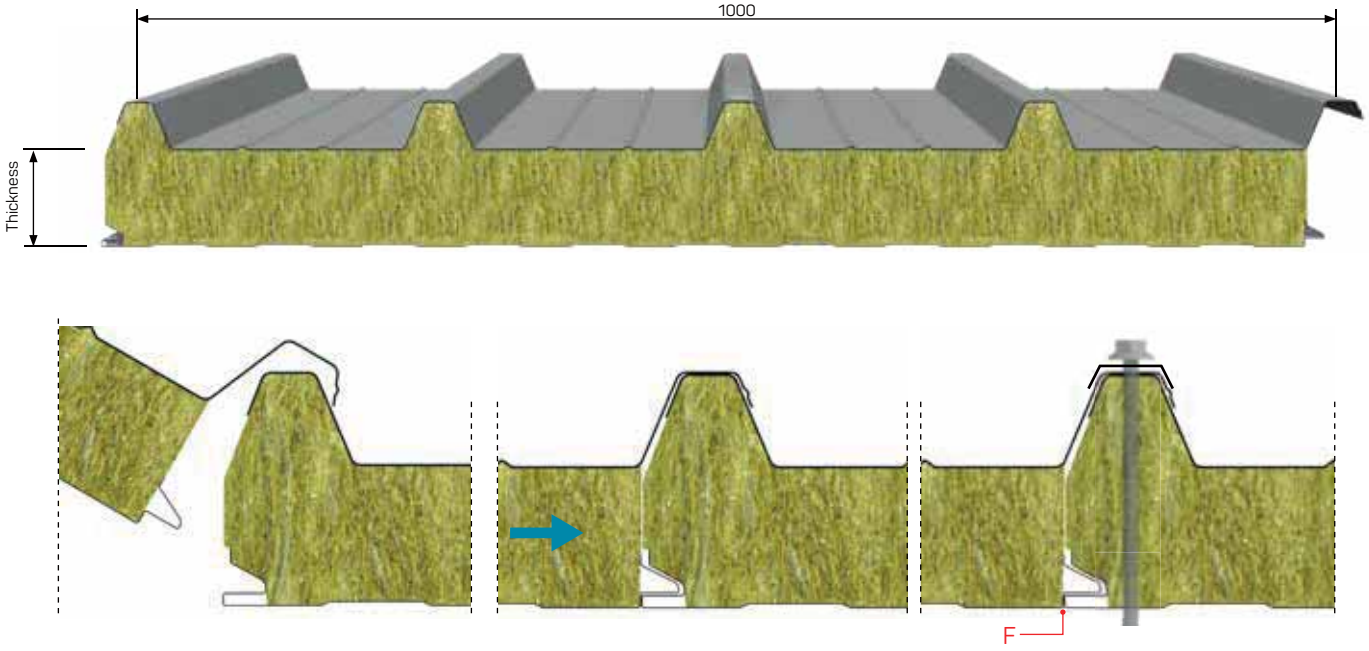
D = mm 100-150-200-250
Other measurement after agreement

ISOPAN
INSULATING DESIGN

Isofire Roof

Manufactured in: Italy

Isofire Roof is a self-supporting double skin panel, insulated with mineral wool fibre made with an exclusive insulation layer composed of mineral wool strips. The fixing system is a penetrating type with the possibility to use exposed caps.



INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

Isofire Roof

→ see pag. 16

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm						STEEL SHEETS 0,6 / 0,6 mm - Support 120 mm					
	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm						MAX SPANS cm					
80	325	355	415	470	515	550	345	370	425	490	535	595
100	300	325	370	425	480	525	310	335	390	445	495	570
120	270	300	345	390	435	505	290	310	355	405	450	515
140	255	270	315	360	405	470	270	290	325	370	415	490
160	245	265	300	335	380	435	255	270	310	355	390	450
180	225	245	280	315	355	405	245	255	290	325	360	425
200	210	225	270	300	335	390	225	245	280	310	345	400
220	195	215	255	285	315	370	210	235	265	300	335	380
250	175	195	230	270	295	345	190	210	245	280	310	355

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm							
		50	60	80	100	120	150	170	200
0,5 / 0,5	kg/m²	14,4	15,4	17,4	19,4	21,4	24,4	26,4	29,4
0,6 / 0,6	kg/m²	16,2	17,2	19,2	21,2	23,2	26,2	28,2	31,2

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

DIMENSION TOLERANCE (EN 14509)

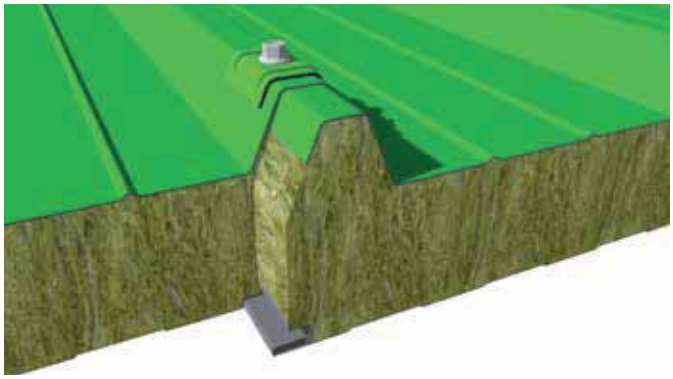
DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

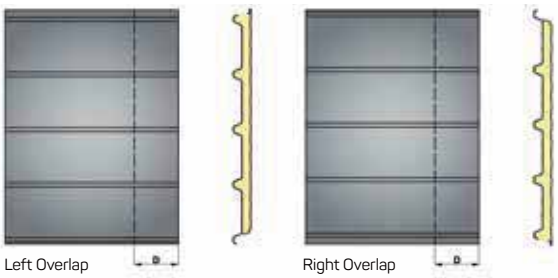
L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm							
	50	60	80	100	120	150	170	200
W/m² K	0,78	0,66	0,50	0,41	0,34	0,28	0,24	0,20
kcal/m² h °C	0,67	0,57	0,43	0,35	0,29	0,24	0,21	0,17





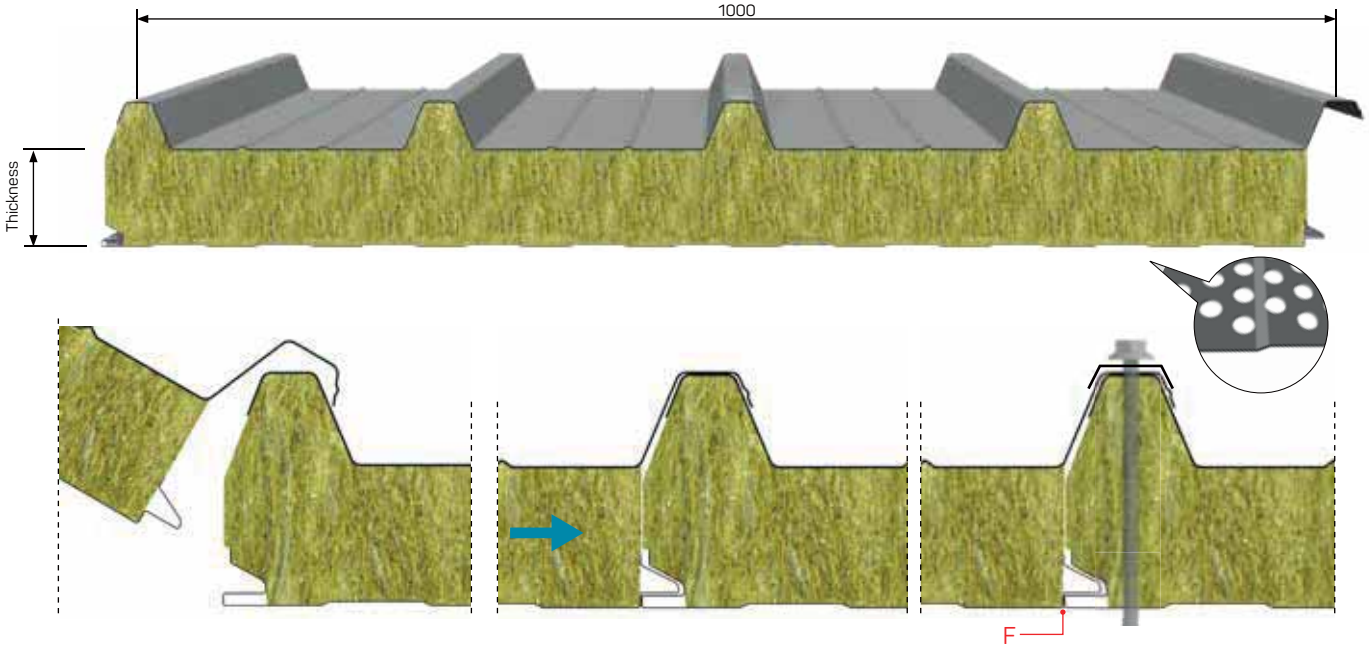
D = mm 100-150-200-250
Other measurement after agreement

ISOPAN
INSULATING DESIGN

Isofire Roof Fono

Manufactured in: Italy

Isofire Roof FONO is a self-supporting double skin panel, insulated with mineral wool fibre made with an exclusive insulation layer composed of mineral wool strips. The fixing system is a penetrating type with the possibility to use exposed caps. The internal sheet is characterised by a micro-drilling that enhances acoustic performances; meaning the sound absorption and insulation.



INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

Isofire Roof Fono

→ see pag. 16

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm						STEEL SHEETS 0,6 / 0,6 mm - Support 120 mm					
	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm						MAX SPANS cm					
80	280	305	360	405	440	470	295	315	360	415	455	510
100	260	280	315	360	410	450	265	285	335	380	425	490
120	230	260	295	335	370	435	250	265	305	350	385	440
140	220	230	270	310	350	405	230	250	280	315	360	415
160	210	225	260	285	325	370	220	230	265	305	335	385
180	195	210	240	270	305	350	210	220	250	280	310	360
200	180	195	230	260	285	335	195	210	240	265	295	340
220	170	180	220	245	270	315	180	205	225	260	285	325
250	150	170	200	230	255	295	165	180	210	240	265	305

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm					
		50	60	80	100	120	150
0,5 / 0,5	kg/m²	12,9	13,9	15,9	17,9	19,9	22,9
0,6 / 0,6	kg/m²	14,7	15,7	17,7	19,7	21,7	24,7

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

ACOUSTIC PERFORMANCES

On client's request, Isopan can provide the following certificates related to the acoustic behaviour:

ACOUSTIC INSULATION
Rw = 31 dB (Roof - Fono 50 mm)
Rw =34 dB (Roof - Fono 100 mm)
Rw =35 dB (Roof - Fono 80 mm)

ACOUSTIC ABSORPTION
coefficient of sound absorption αw = 1

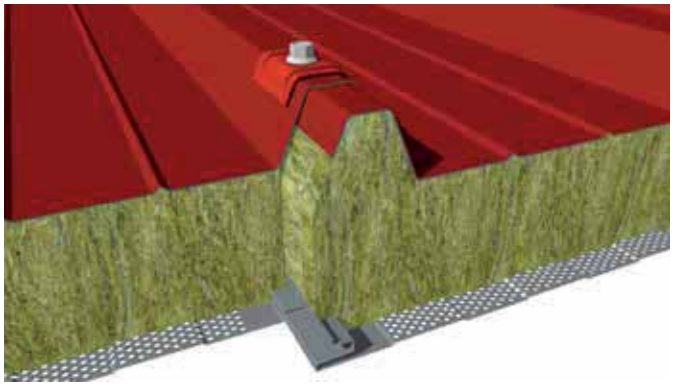
FIRE PERFORMANCES

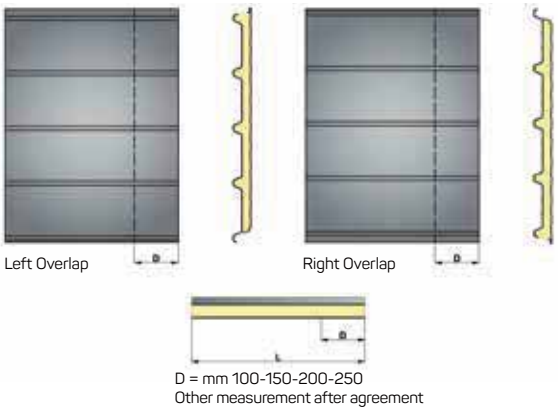
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

THERMAL INSULATION

According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150
W/m² K	0,78	0,66	0,50	0,41	0,34	0,28
kcal/m² h °C	0,67	0,57	0,43	0,35	0,29	0,24





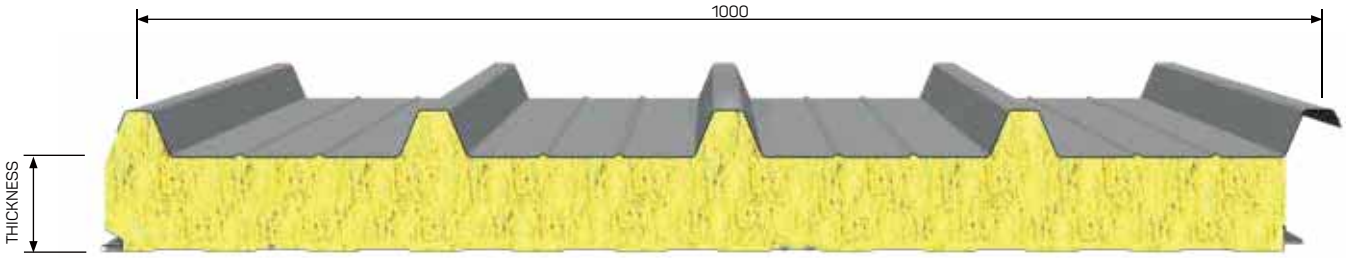
D = mm 100-150-200-250
Other measurement after agreement

ISOPAN
INSULATING DESIGN

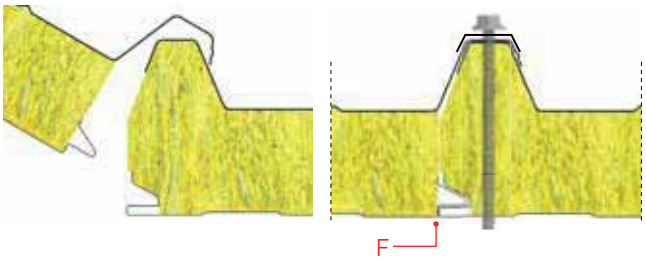
see pag. 16

Isofire Roof FG

Manufactured in: Italy



Isofire Roof FG is a self-supporting double skin panel, insulated with **Glass wool**. The fixing system is a penetrating type with the possibility to use exposed caps.



PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS		PANEL NOMINAL THICKNESS mm							
		50	60	80	100	120	150	170	200
0,5 / 0,5	kg/m²	11,8	12,4	13,5	14,6	15,7	17,3	18,4	20,1
0,6 / 0,6	kg/m²	13,6	14,2	15,3	16,4	17,5	19,1	20,2	21,9

THERMAL INSULATION According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm							
	50	60	80	100	120	150	170	200
W/m² K	0,75	0,63	0,48	0,38	0,32	0,26	0,23	0,19
kcal/m² h °C	0,65	0,54	0,41	0,33	0,28	0,22	0,20	0,16

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm						STEEL SHEETS 0,6 / 0,6 mm - Support 120 mm					
	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm						MAX SPANS cm					
80	290	315	370	420	460	495	310	330	380	440	480	535
100	270	290	330	380	430	470	275	300	350	400	445	510
120	240	270	310	350	390	450	260	275	315	360	405	460
160	220	235	270	300	340	390	225	240	275	315	350	405
200	185	200	240	270	300	350	200	220	250	275	310	360
250	155	175	205	240	265	310	170	185	220	250	275	315

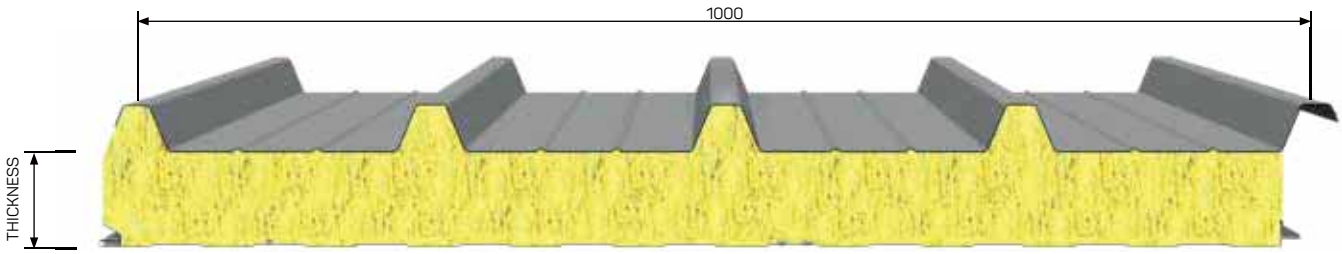
Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

INSTRUCTIONS OF USE: For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

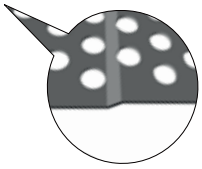
→ see pag. 16

Isofire Roof FG Fono

Manufactured in: Italy



Isofire Roof FONO FG is a self-supporting double skin panel, insulated with **Glass wool**. The fixing system is a penetrating type with the possibility to use exposed caps. The internal sheet is characterised by a micro-drilling that enhances acoustic performances; meaning the sound absorption and insulation.



PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS		PANEL NOMINAL THICKNESS mm					
		50	60	80	100	120	150
0,5 / 0,5	kg/m²	10,3	10,9	12,0	13,1	14,2	15,8
0,6 / 0,6	kg/m²	12,1	12,7	13,8	14,9	16,0	17,6

THERMAL INSULATION According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150
W/m² K	0,75	0,63	0,48	0,38	0,32	0,26
kcal/m² h °C	0,65	0,54	0,41	0,33	0,28	0,22

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Bottom sheet coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

ACOUSTIC INSULATION: On client's request, Isopan can provide the following certificates for the acoustic behaviour:

ACOUSTIC INSULATION
Rw = 31 dB (50 mm)
Rw =34 dB (100 mm)
Rw =35 dB (80 mm)

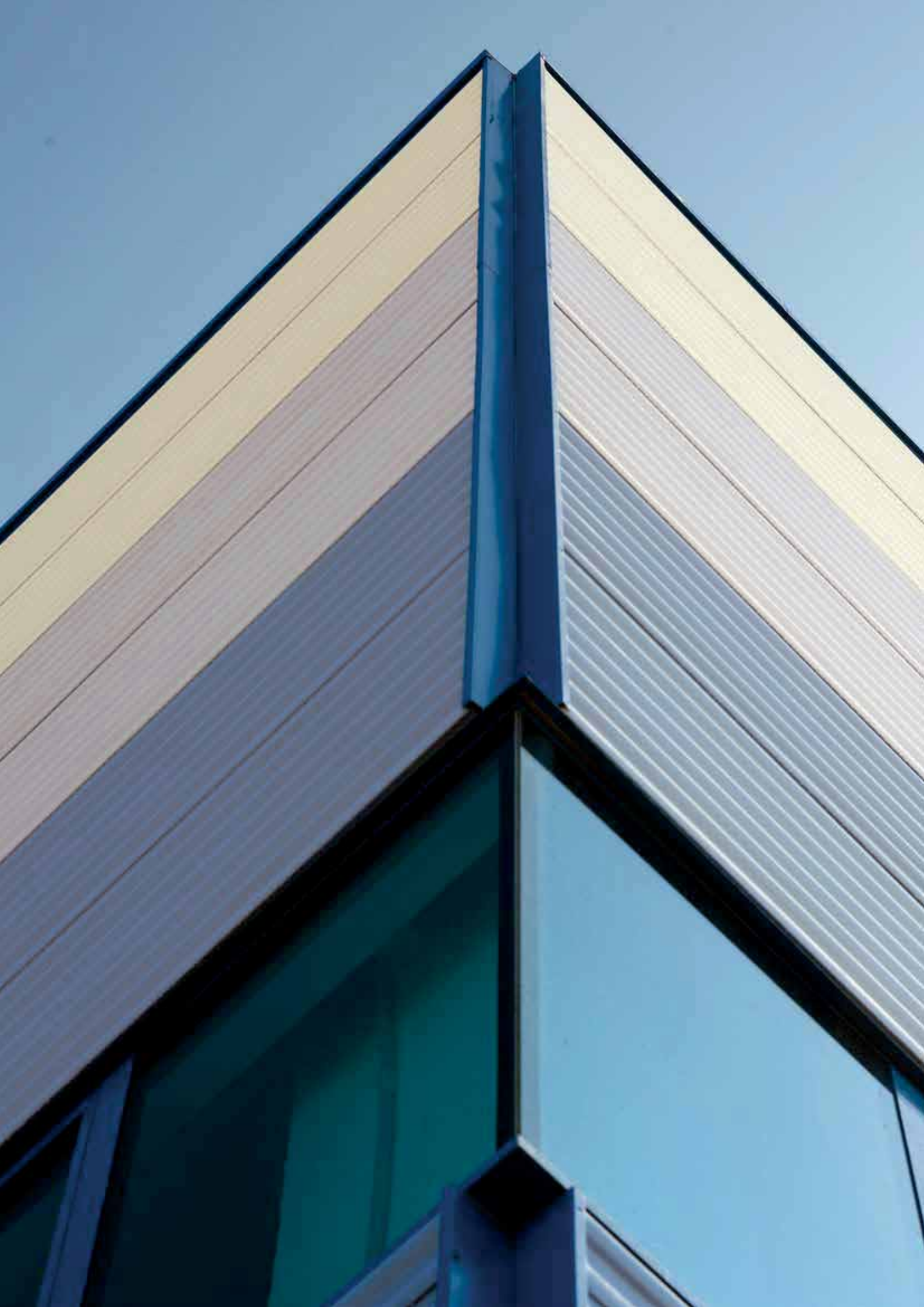
FONOASSORBIMENTO
coefficiente di assorbimento acustico pesato $\alpha_w = 1$

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm PANEL NOMINAL THICKNESS mm						STEEL SHEETS 0,6 / 0,6 mm - Support 120 mm PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm						MAX SPANS cm					
80	250	270	320	360	395	420	265	280	320	370	405	455
100	230	250	280	320	365	405	235	255	300	340	380	440
120	205	230	265	300	330	390	225	235	270	315	345	395
160	185	200	230	255	290	330	195	205	235	270	300	345
200	160	175	205	230	255	300	175	185	215	235	265	305
250	135	150	180	205	225	265	145	160	185	215	235	270

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

INSTRUCTIONS OF USE: For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.



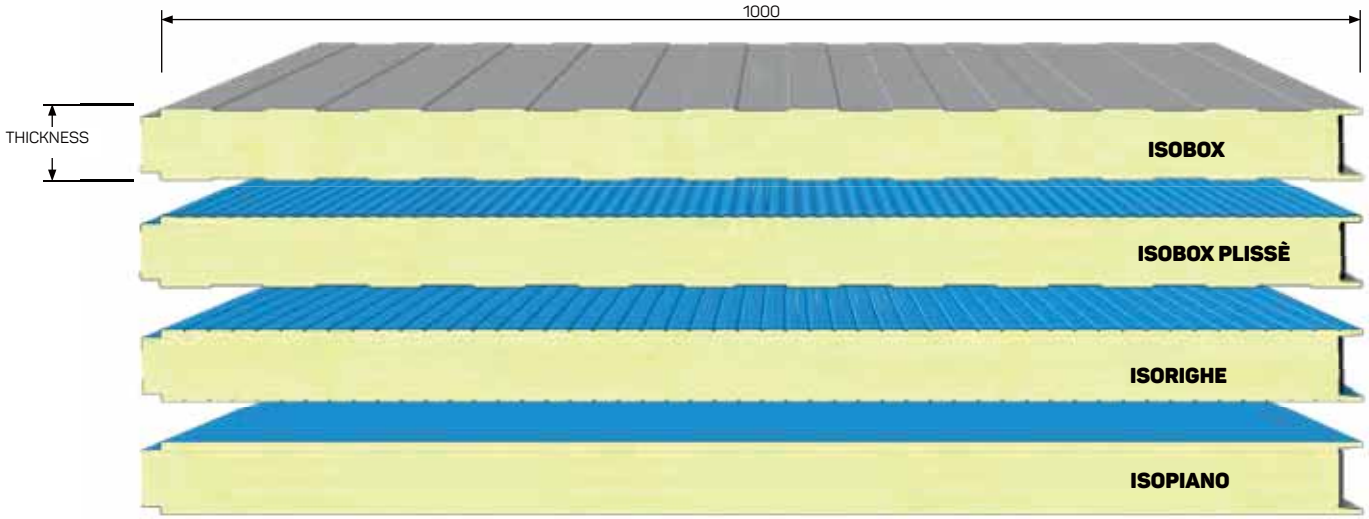
Wall Panels

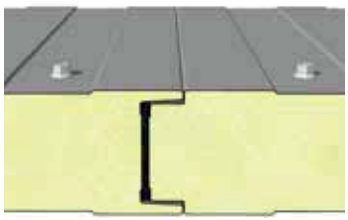
ISOPAN
INSULATING DESIGN

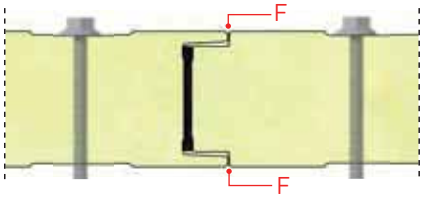
Isobox, Isobox Plissé
Isorighe
Isopiano

Manufactured in: Italy, Germany, Spain, Romania

It is a self-supporting metal faced panel insulated with polyurethane foam with a tongue-and-groove joint. The fixing elements are exposed. It is available with different types of profile.







INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm																
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm								PANEL NOMINAL THICKNESS mm							
	25	30	40	50	60	80	100	120	25	30	40	50	60	80	100	120
kg/m²	MAX SPANS cm								MAX SPANS cm							
50	220	260	320	380	440	550	640	730	260	300	380	450	520	650	740	800
60	215	240	300	350	410	500	590	680	240	270	340	410	470	590	660	710
80	180	205	260	310	350	440	520	600	200	230	290	350	410	500	550	600
100	155	180	230	275	320	395	470	540	170	200	260	310	360	440	490	510
120	140	165	210	250	290	360	430	490	140	170	230	280	320	390	430	460
140	125	150	190	230	265	330	395	455	130	150	200	250	295	360	390	420
160	115	135	175	210	245	310	370	425	120	130	185	220	265	330	360	385
180	105	125	165	195	230	290	345	400	110	120	160	200	240	305	340	360
200	100	115	155	185	215	270	325	375	100	110	145	180	215	285	315	335

ALUMINIUM SHEETS 0,6 / 0,6 mm - Support 120 mm																
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm								PANEL NOMINAL THICKNESS mm							
	25	30	40	50	60	80	100	120	25	30	40	50	60	80	100	120
kg/m²	MAX SPANS cm								MAX SPANS cm							
50	170	200	240	290	330	410	480	550	190	230	290	350	400	490	580	570
60	150	180	230	270	310	380	450	510	175	210	270	320	360	450	530	560
80	135	160	200	240	270	335	390	450	150	185	235	280	320	400	470	540
100	120	145	180	215	245	305	360	400	130	160	210	250	285	360	420	480
120	110	135	165	195	220	280	330	380	120	150	190	225	260	330	390	445
140	105	125	155	185	210	260	310	355	110	135	170	210	240	300	360	410
160	100	115	140	170	195	240	285	335	105	125	160	190	220	280	330	380
180	90	110	135	160	185	230	275	310	95	110	150	180	210	265	310	360
200	85	100	125	150	175	220	260	300	85	100	140	170	195	245	285	335

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm								
		25	30	35	40	50	60	80	100	120
0,4 / 0,4	kg/m²	7,3	7,5	7,7	7,9	8,3	8,7	9,5	10,3	11,1
0,5 / 0,5	kg/m²	9,0	9,2	9,4	9,6	10,0	10,4	11,2	12,0	12,8
0,6 / 0,6	kg/m²	10,6	10,9	11,6	11,3	11,7	12,1	12,9	13,7	14,5

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

According to EN 14509 Annex 10

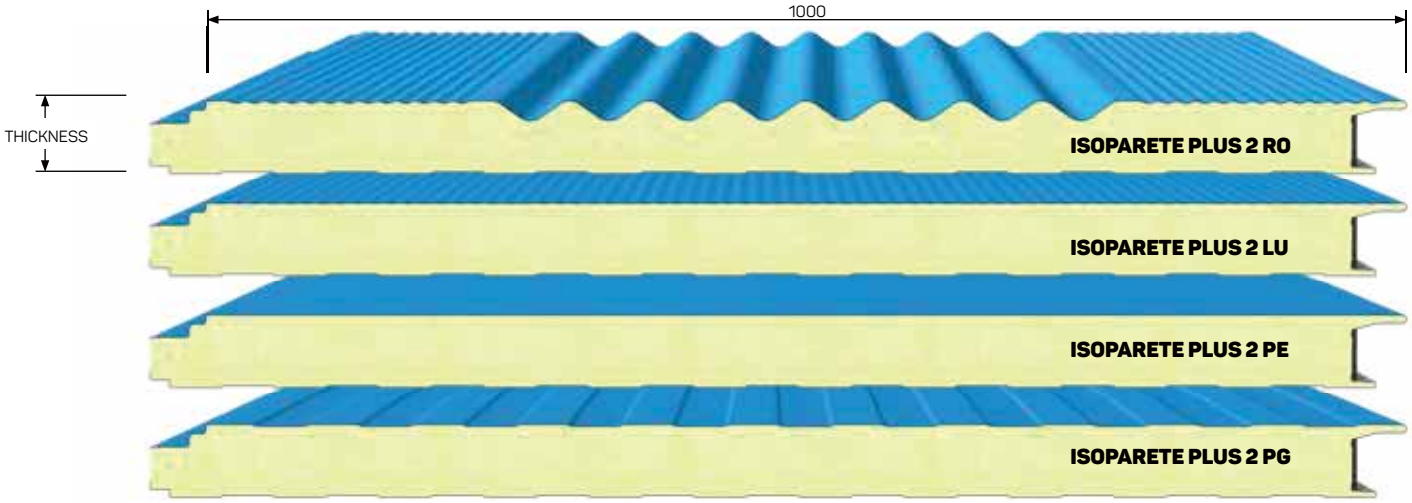
U	PANEL NOMINAL THICKNESS mm								
	25	30	35	40	50	60	80	100	120
W/m² K	0,83	0,70	0,61	0,54	0,44	0,37	0,28	0,22	0,19
kcal/m² h °C	0,71	0,60	0,52	0,46	0,38	0,32	0,24	0,19	0,16

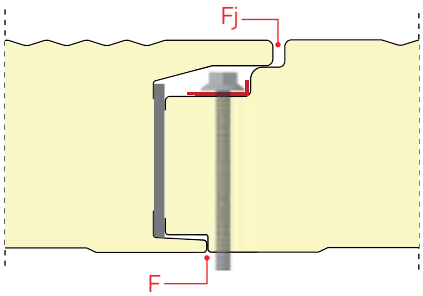
ISOPAN
INSULATING DESIGN

Isoparete Plus 2

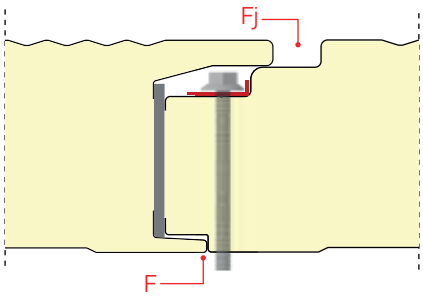
Manufactured in: Italy

It is a self-supporting metal faced panel insulated with polyurethane foam; the labyrinth configuration and the tongue-and-groove joint with a special place for the screw determine the fully concealed fixing element. The fixing elements are concealed. It is available with different types of profile.

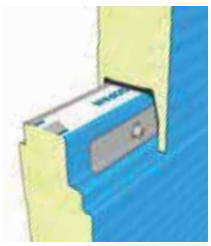




Joint detail (Fj=4mm standard)



Fj=18mm option



Isopan recommends, during the assembly phase, the use of a specific steel plate to distribute the tightening loads of the screw. The number and the place of the fixing elements must guarantee the stresses resistance, included depression loads.

INSTRUCTIONS OF USE

For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

Isoparete Plus 2

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm												
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	40	50	60	80	100	120	40	50	60	80	100	120
kg/m²	MAX SPANS cm						MAX SPANS cm					
50	320	380	440	550	640	730	380	450	520	650	740	800
60	300	350	410	500	590	680	340	410	470	590	660	710
80	260	310	350	440	520	600	290	350	410	500	550	600
100	230	275	320	395	470	540	260	310	360	440	490	510
120	210	250	290	360	430	490	230	280	320	390	430	460
140	190	230	265	330	395	455	200	250	295	360	390	420
160	175	210	245	310	370	425	185	220	265	330	360	385
180	165	195	230	290	345	400	160	200	240	305	340	360
200	155	185	215	270	325	375	145	180	215	285	315	335

ALUMINIUM SHEETS 0,6 / 0,6 mm - Support 120 mm												
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	40	50	60	80	100	120	40	50	60	80	100	120
kg/m²	MAX SPANS cm						MAX SPANS cm					
50	240	290	330	410	480	550	290	350	400	490	580	620
60	230	270	310	380	450	510	270	320	360	450	530	560
80	200	240	270	335	390	450	235	280	320	400	470	540
100	180	215	245	305	360	400	210	250	285	360	420	480
120	165	195	220	280	330	380	190	225	260	330	390	445
140	155	185	210	260	310	355	170	210	240	300	360	410
160	140	170	195	240	285	335	160	190	220	280	330	380
180	135	160	185	230	275	310	150	180	210	265	310	360
200	125	150	175	220	260	300	140	170	195	245	285	335

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm					
		40	50	60	80	100	120
0,5 / 0,5	kg/m²	10,3	10,7	11,1	11,9	12,7	13,5
0,6 / 0,6	kg/m²	12,1	12,5	12,9	13,7	14,5	15,3

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

According to EN 14509 Annex 10

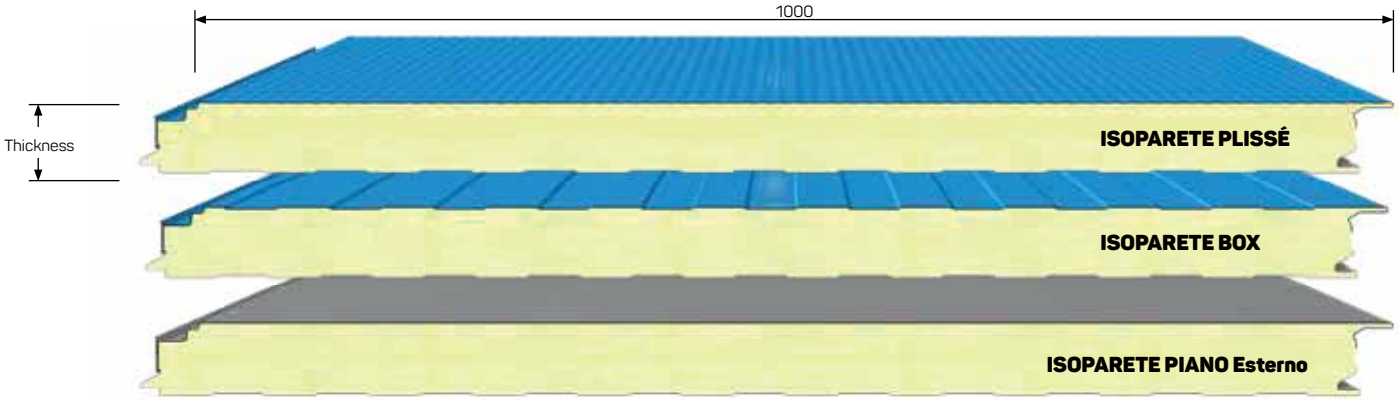
U	PANEL NOMINAL THICKNESS mm					
	40	50	60	80	100	120
W/m² K	0,64	0,49	0,41	0,29	0,23	0,19
kcal/m² h °C	0,55	0,42	0,35	0,25	0,20	0,16

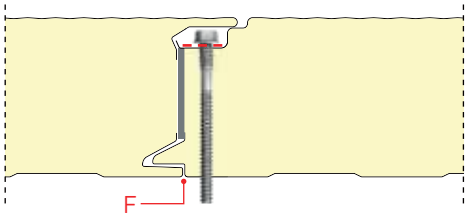
ISOPAN
INSULATING DESIGN

Isoparete Plissé
Isoparete Box
Isoparete Piano External

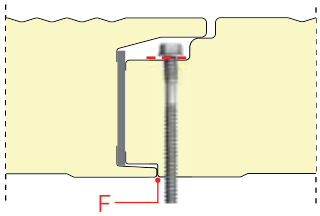
Manufactured in: Italy, Spain, Romania

It is a self-supporting metal faced panel insulated with polyurethane foam; the labyrinth configuration and the tongue-and-groove joint with a special place for the screw determine the fully concealed fixing element. The fixing elements are concealed. It is available with different types of profile.





Joint detail



Joint Detail (Isopan Iberica version)

Isopan recommends, during the assembly phase, the use of a specific steel plate to distribute the tightening loads of the screw. The number and the place of the fixing elements must guarantee the stresses resistance, included depression loads.

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

Isoparete Plissé - Box - Piano

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm														
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm							PANEL NOMINAL THICKNESS mm						
	40	50	60	80	100	120	140	40	50	60	80	100	120	140
kg/m²	MAX SPANS cm							MAX SPANS cm						
50	320	380	440	550	640	730	800	380	450	520	650	740	800	880
60	300	350	410	500	590	680	745	340	410	470	590	660	710	780
80	260	310	350	440	520	600	660	290	350	410	500	550	600	660
100	230	275	320	395	470	540	590	260	310	360	440	490	510	560
120	210	250	290	360	430	490	535	230	280	320	390	430	460	505
140	190	230	265	330	395	455	500	200	250	295	360	390	420	460
160	175	210	245	310	370	425	465	185	220	265	330	360	385	420
180	165	195	230	290	345	400	440	160	200	240	305	340	360	395
200	155	185	215	270	325	375	410	145	180	215	285	315	335	365

ALUMINIUM SHEETS 0,6 / 0,6 mm - Support 120 mm														
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm							PANEL NOMINAL THICKNESS mm						
	40	50	60	80	100	120	140	40	50	60	80	100	120	140
kg/m²	MAX SPANS cm							MAX SPANS cm						
50	240	290	330	410	480	550	605	290	350	400	490	580	620	680
60	230	270	310	380	450	510	560	270	320	360	450	530	560	635
80	200	240	270	335	390	450	495	235	280	320	400	470	540	590
100	180	215	245	305	360	400	440	210	250	285	360	420	480	525
120	165	195	220	280	330	380	415	190	225	260	330	390	445	485
140	155	185	210	260	310	355	390	170	210	240	300	360	410	450
160	140	170	195	240	285	335	365	160	190	220	280	330	380	415
180	135	160	185	230	275	310	340	150	180	210	265	310	360	395
200	125	150	175	220	260	300	330	140	170	195	245	285	335	365

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm						
		40	50	60	80	100	120	140
0,5 / 0,5	kg/m²	9,8	10,2	10,6	11,4	12,2	13,0	13,8
0,6 / 0,6	kg/m²	11,5	11,9	12,3	13,1	13,9	14,7	15,5

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

According to EN 14509 Annex 10

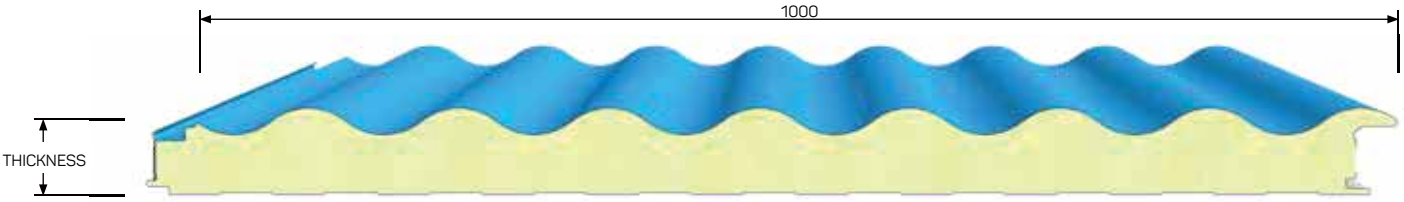
U	PANEL NOMINAL THICKNESS mm						
	40	50	60	80	100	120	140
W/m² K	0,64	0,49	0,41	0,29	0,23	0,19	0,16
kcal/m² h °C	0,55	0,42	0,35	0,25	0,20	0,16	0,14

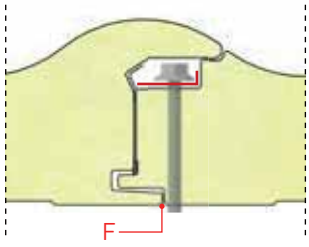
ISOPAN
INSULATING DESIGN

Isoclass

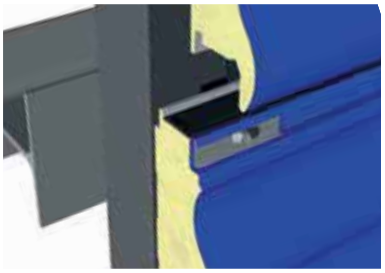
Manufactured in: Italy

Isoclass is a self-supporting metal faced panel insulated with polyurethane foam; the labyrinth configuration and the tongue-and-groove joint with a special place for the screw determine the fully concealed fixing element.





Joint detail



Horizontal installation
(from bottom to the top)

Vertical installation

Isopan recommends, during the assembly phase, the use of a specific steel plate to distribute the tightening loads of the screw. The number and the place of the fixing elements must guarantee the stresses resistance, included depression loads.

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

Isoclass

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm						
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm			PANEL NOMINAL THICKNESS mm		
	72	92	102	72	92	102
kg/m²	MAX SPANS cm			MAX SPANS cm		
50	400	510	560	470	590	630
60	370	470	520	430	550	580
80	320	410	450	370	480	530
100	290	370	410	330	420	470
120	260	340	370	300	380	420
140	240	310	340	270	350	390
160	220	290	320	250	320	360
180	210	270	300	230	300	330
200	200	250	280	210	280	310

STEEL SHEETS 0,6 / 0,6 mm - Support 120 mm						
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm			PANEL NOMINAL THICKNESS mm		
	72	92	102	72	92	102
kg/m²	MAX SPANS cm			MAX SPANS cm		
50	420	540	580	500	620	700
60	390	500	540	450	580	640
80	340	430	480	390	500	550
100	300	390	430	340	440	490
120	270	350	390	310	400	440
140	250	320	360	280	360	400
160	235	300	330	255	330	370
180	215	280	310	230	310	340
200	200	260	290	215	290	320

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm		
		72	92	102
0,5 / 0,5	kg/m²	10,9	11,7	12,1
0,6 / 0,6	kg/m²	12,7	13,5	13,9

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

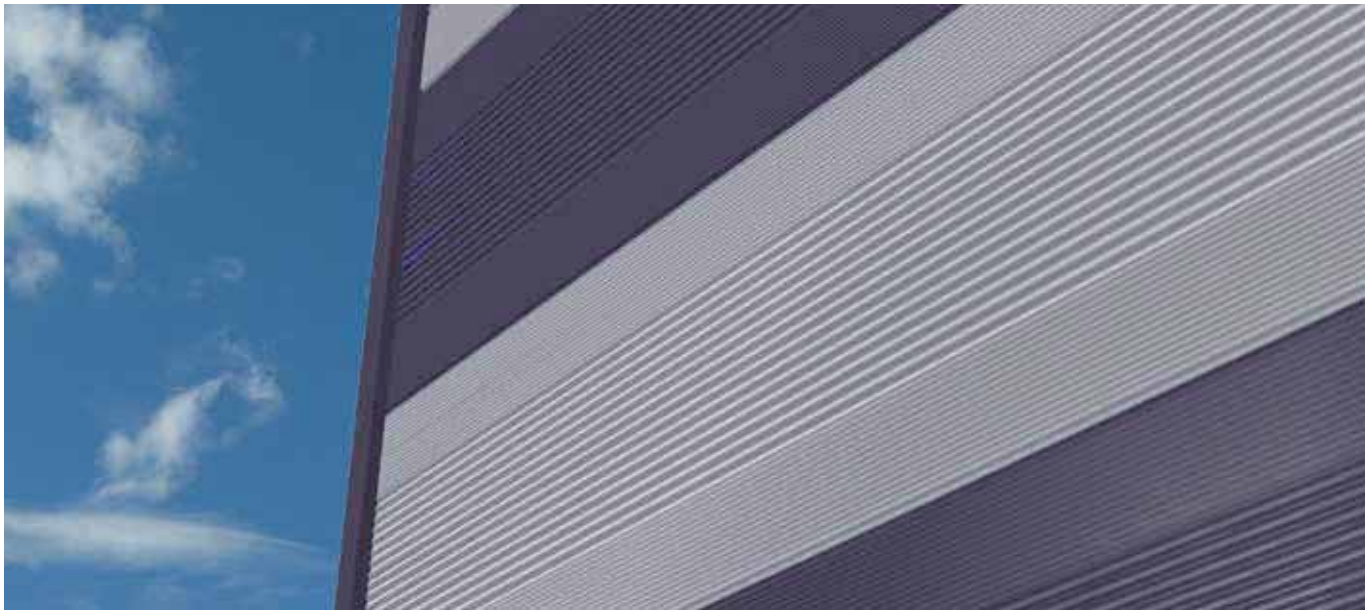
According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm		
	72	92	102
W/m² K	0,34	0,26	0,23
kcal/m² h °C	0,30	0,23	0,20

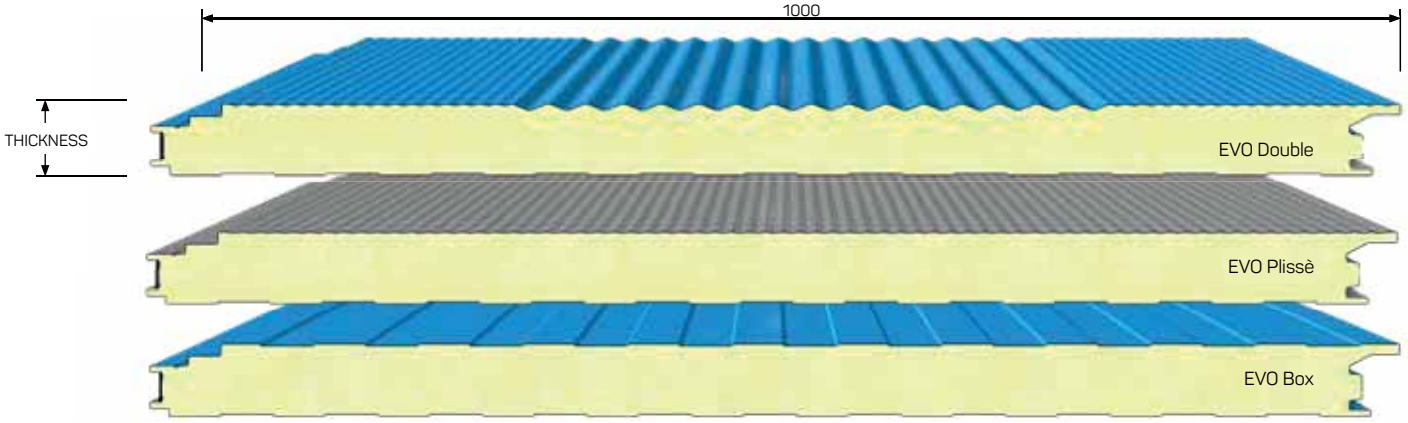
ISOPAN
INSULATING DESIGN

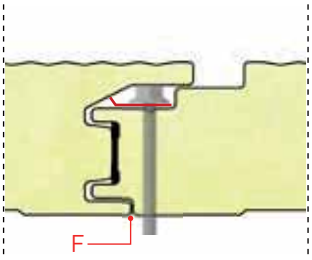
Isoparete Evo

Manufactured in: Germany

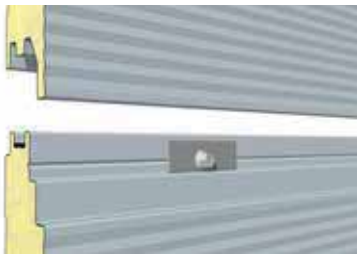


It is a self-supporting metal faced panel insulated with polyurethane foam; the labyrinth configuration and the tongue-and-groove joint with a special place for the screw determine the fully concealed fixing element. The fixing elements are concealed. It is available with different types of profile.

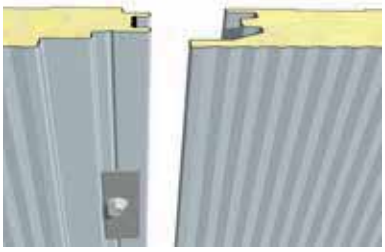




Joint detail



Horizontal installation
(from bottom to the top)



Vertical installation

Isopan recommends, during the assembly phase, the use of a specific steel plate to distribute the tightening loads of the screw. The number and the place of the fixing elements must guarantee the stresses resistance, included depression loads.

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

Isoparete EVO

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm										
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm					PANEL NOMINAL THICKNESS mm				
	60	80	100	120	150	60	80	100	120	150
kg/m²	MAX SPANS cm					MAX SPANS cm				
50	440	550	640	730	820	520	650	740	800	900
60	410	500	590	680	765	470	590	660	710	795
80	350	440	520	600	675	410	500	550	600	675
100	320	395	470	540	605	360	440	490	510	570
120	290	360	430	490	550	320	390	430	460	515
140	265	330	395	455	510	295	360	390	420	470
160	245	310	370	425	475	265	330	360	385	430
180	230	290	345	400	450	240	305	340	360	405
200	215	270	325	375	420	215	285	315	335	375

ALUMINIUM SHEETS 0,6 / 0,6 mm - Support 120 mm										
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm					PANEL NOMINAL THICKNESS mm				
	60	80	100	120	150	60	80	100	120	150
kg/m²	MAX SPANS cm					MAX SPANS cm				
50	330	410	480	550	615	400	490	580	620	695
60	310	380	450	510	570	360	450	530	560	650
80	270	335	390	450	505	320	400	470	540	605
100	245	305	360	400	450	285	360	420	480	540
120	220	280	330	380	425	260	330	390	445	500
140	210	260	310	355	395	240	300	360	410	460
160	195	240	285	335	375	220	280	330	380	425
180	185	230	275	310	345	210	265	310	360	405
200	175	220	260	300	335	195	245	285	335	375

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm				
		60	80	100	120	150
0,5 / 0,5	kg/m²	10,8	11,6	12,4	13,2	14,4
0,6 / 0,6	kg/m²	12,6	13,4	14,2	15,0	16,2

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm				
	60	80	100	120	150
W/m² K	0,41	0,29	0,23	0,19	0,15
kcal/m² h °C	0,35	0,25	0,20	0,16	0,13

ISOPAN
INSULATING DESIGN

Cold storage solutions

Cold storages: application

The cold rooms and rooms for conservation and storage of foods can be so called positive and negative. Generally the first ones with temperatures till -1°C and the second ones till -25°C.

Rooms for the conservation of foods where a major temperature change does not require an adequate airtightness.

Rooms where foods are processed, where a madium temperature change does require an adequate airtightness.

Rooms where finished products are stored. These rooms must be well insulated and a greater airtightness is required, thanks to an adequate joint.

Rooms where frozen products are stored and rooms that impose constraining requirements in terms of minimisation of thermal bridges and air permeability.

NOTE
These indications are just a suggestion for use. The designer has to choose the joint, the panel thickness and the other parameters of the Isopan commercial offer, depending on the performances required by the cold room.

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ISOPAN
INSULATING DESIGN

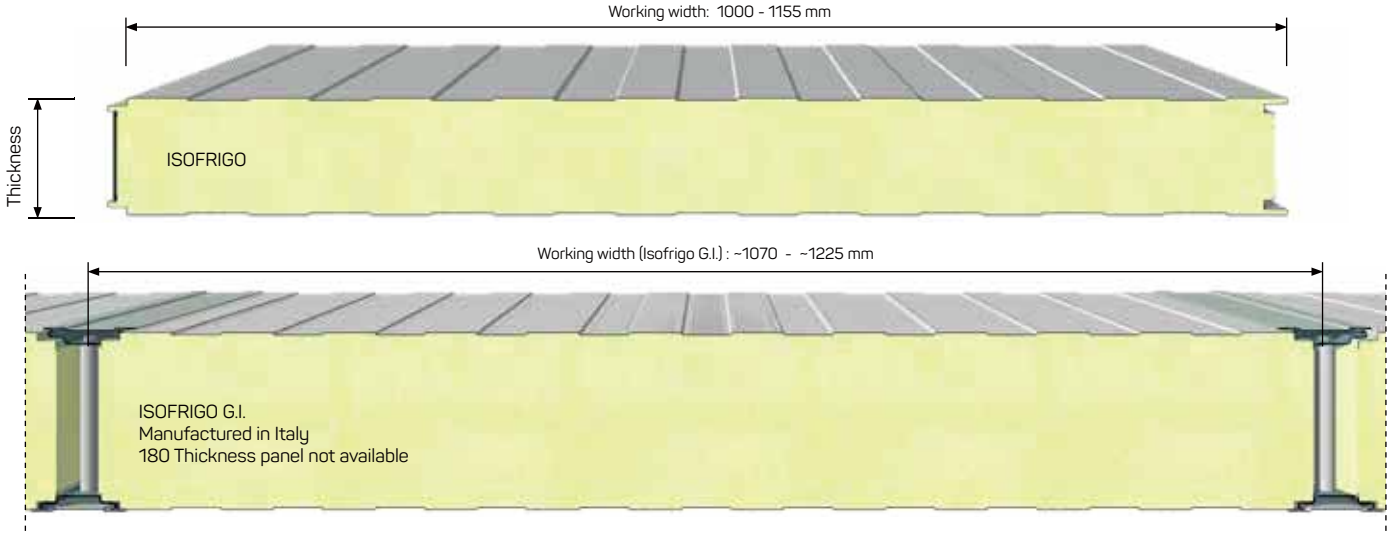
Isofrigo
Isofrozen

Manufactured in: Italy*, Germany, Spain, Romania
*Only Isofrigo G.I. Version is manufactured in Italy

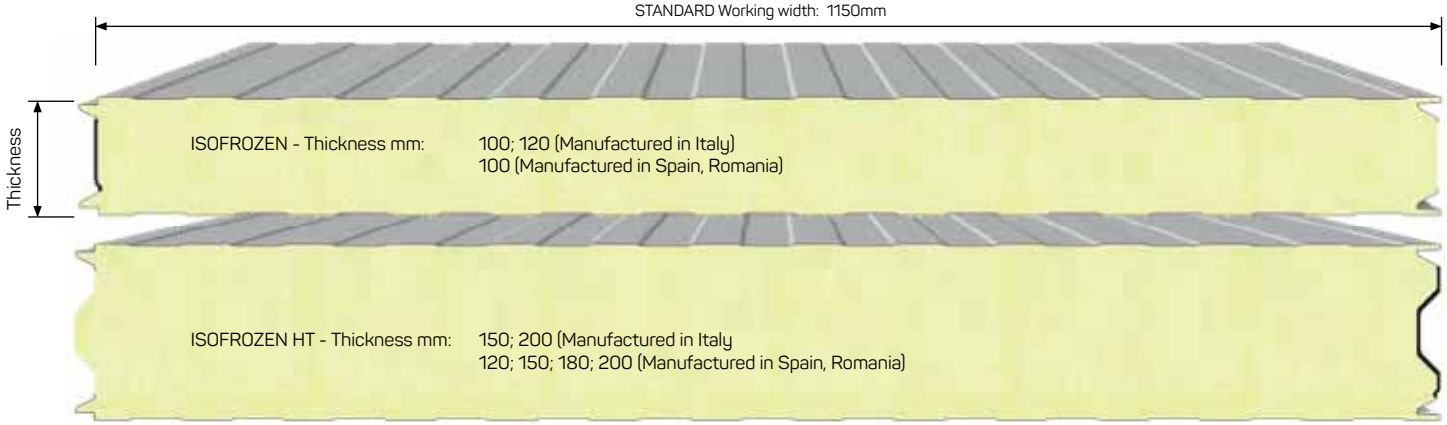
Manufactured in: Italy, Spain, Romania

Self-supporting metal faced panels insulated with polyurethane with a tongue-and-groove joint. The very high performances of thermal insulation and the excellent quality of the jointing system make it particularly appropriate for constructions that require a controlled temperature.

ISOFRIGO & ISOFRIGO G.I.



ISOFROZEN - ISOFROZEN HT



→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm										
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm					PANEL NOMINAL THICKNESS mm				
	100	120	150	180	200	100	120	150	180	200
kg/m²	MAX SPANS cm					MAX SPANS cm				
50	630	700	850	890	920	740	840	900	930	960
60	580	660	750	780	900	650	770	870	900	920
80	500	580	680	720	840	580	670	790	830	850
100	450	510	610	700	760	510	640	680	710	730
120	410	470	560	640	690	460	590	590	620	630
140	340	430	510	590	640	410	530	530	550	560
160	320	400	480	550	600	380	470	480	490	500
180	320	370	440	510	560	350	430	435	440	445
200	300	350	420	480	520	320	400	400	405	410

STEEL SHEETS 0,6 / 0,6 mm - Support 120 mm										
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm					PANEL NOMINAL THICKNESS mm				
	100	120	150	180	200	100	120	150	180	200
kg/m²	MAX SPANS cm					MAX SPANS cm				
50	650	760	850	960	980	760	850	920	940	970
60	610	700	820	930	950	660	790	880	900	925
80	530	610	720	820	890	600	660	810	850	860
100	470	540	640	730	800	530	610	710	720	740
120	420	490	580	660	730	470	540	620	650	660
140	390	450	530	620	660	430	500	550	560	560
160	360	410	500	570	620	390	450	490	500	500
180	330	380	460	530	580	350	420	440	450	450
200	310	360	430	500	550	330	390	400	400	400

Calculation for static sizing according to the Annex E of the EN 14509 standard. Deflection limit 1/200 ℓ. Values in load tables don't consider thermal load.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm				
		100	120	150	180	200
0,5 / 0,5	kg/m²	12,2	13,0	14,2	15,4	16,2
0,6 / 0,6	kg/m²	13,9	14,7	15,9	17,1	17,9

FIRE CHARACTERISTICS
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual, General Sales Terms and Annexes.

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION (In accordance with EN 14509 Annex 10)

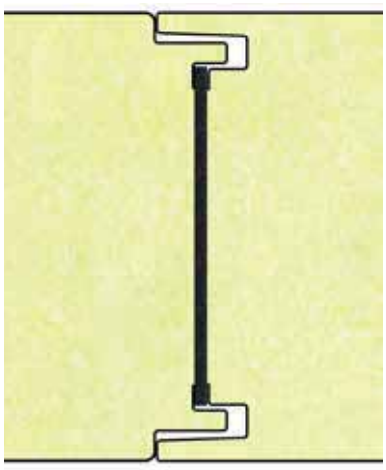
U	PANEL NOMINAL THICKNESS mm				
	100	120	150	180	200
W/m² K	0,22	0,18	0,15	0,12	0,11
kcal/m² h °C	0,19	0,16	0,13	0,11	0,09

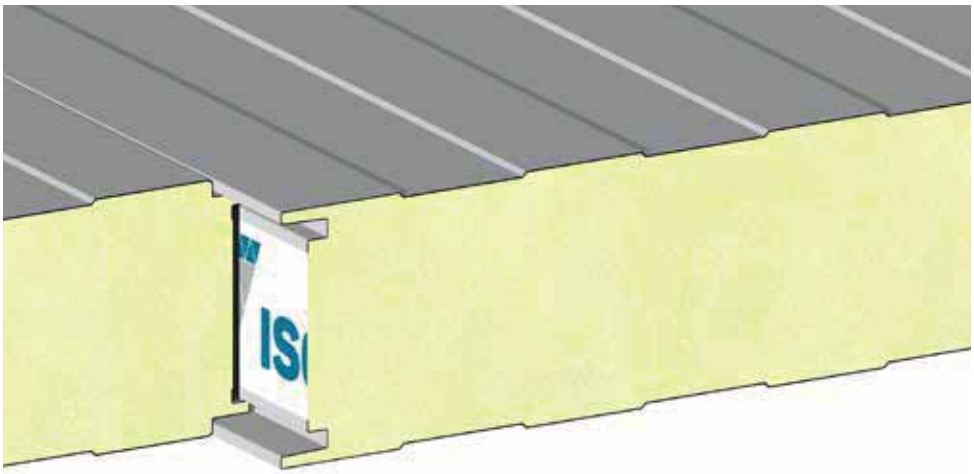
ISOPAN
INSULATING DESIGN

Dry joint

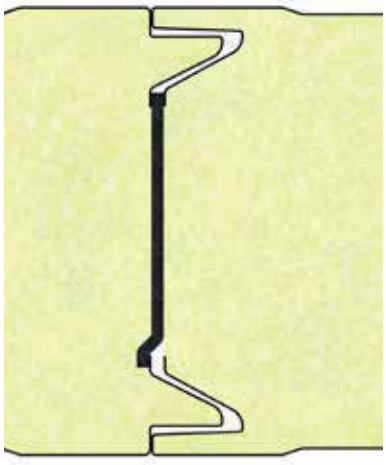
Standard solution. The dry joint is designed for use at positive temperature, with low thermal gradient.

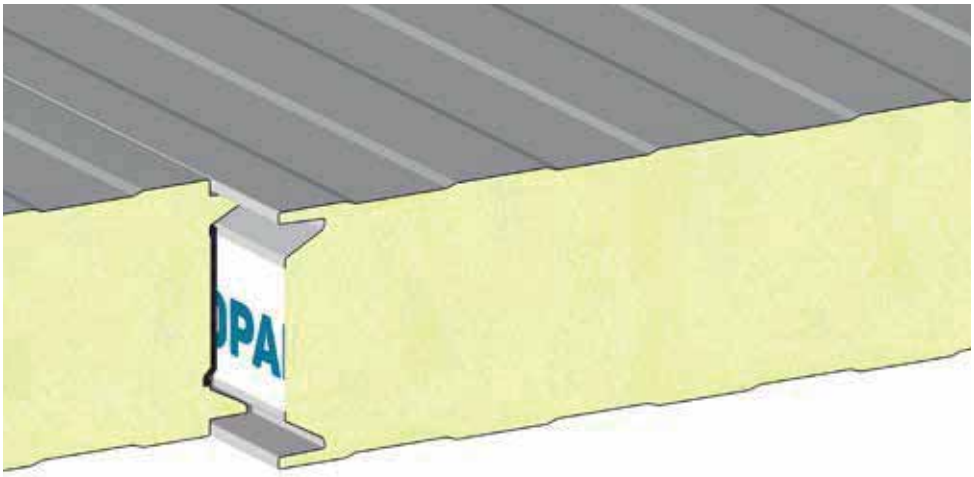
ISOFRIGO



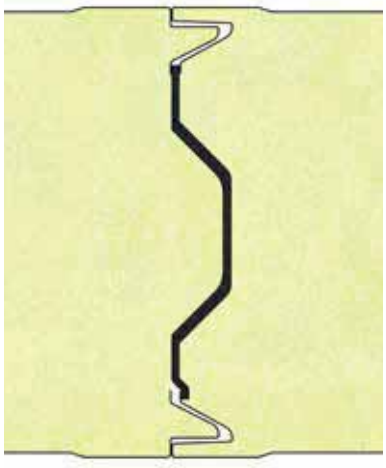


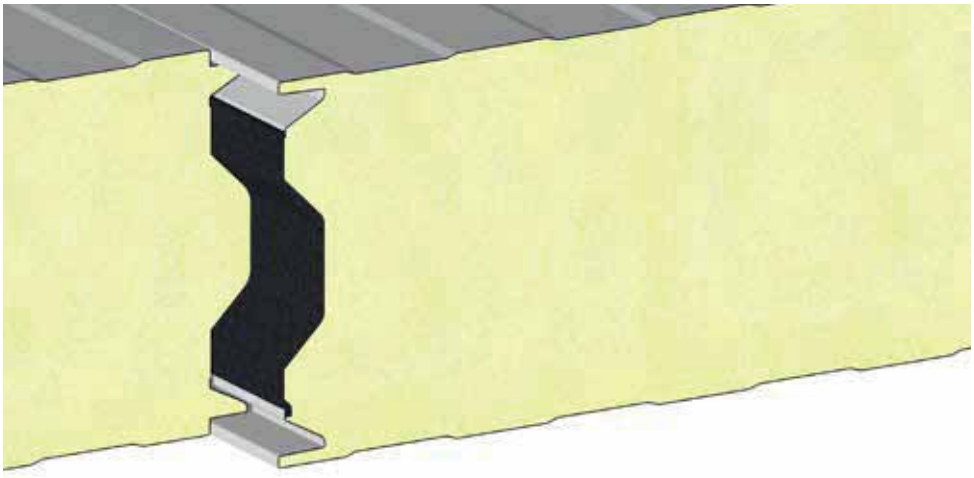
ISOFROZEN





ISOFROZEN HT

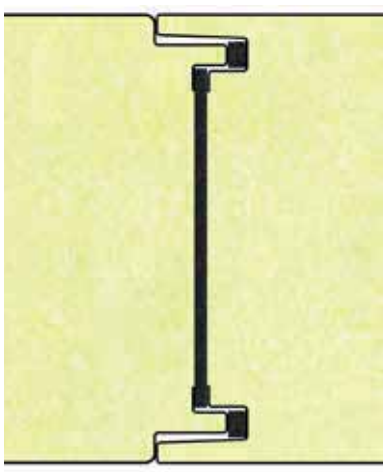


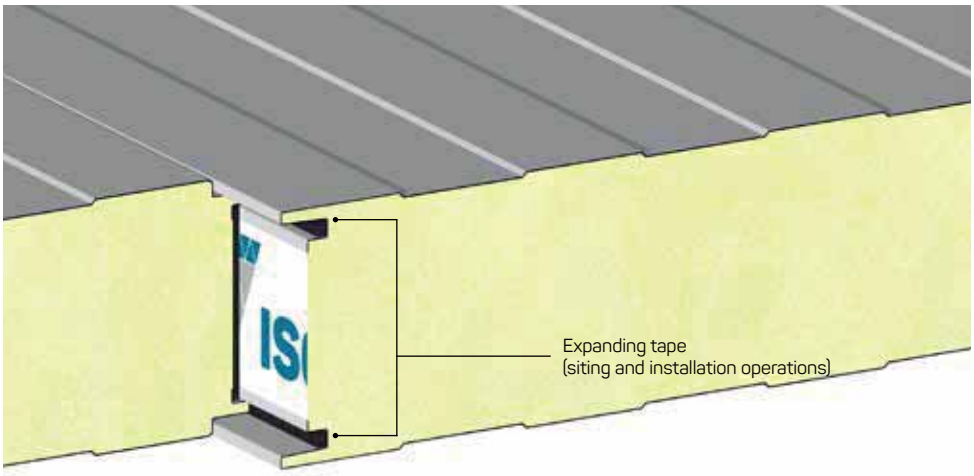


Expanding tape

The joint with bituminous expanding tape offers a good airtightness. Thanks to the two thermo-expanding tapes, the capacity to prevent air flow between the inner and outer wall is increased.

ISOFRIGO





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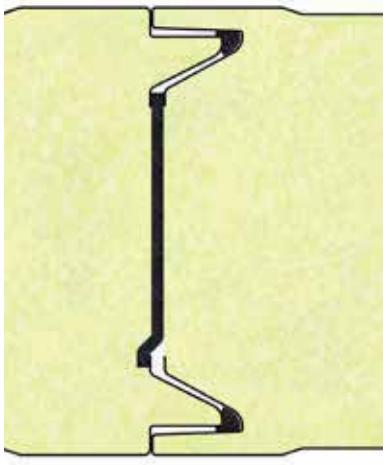

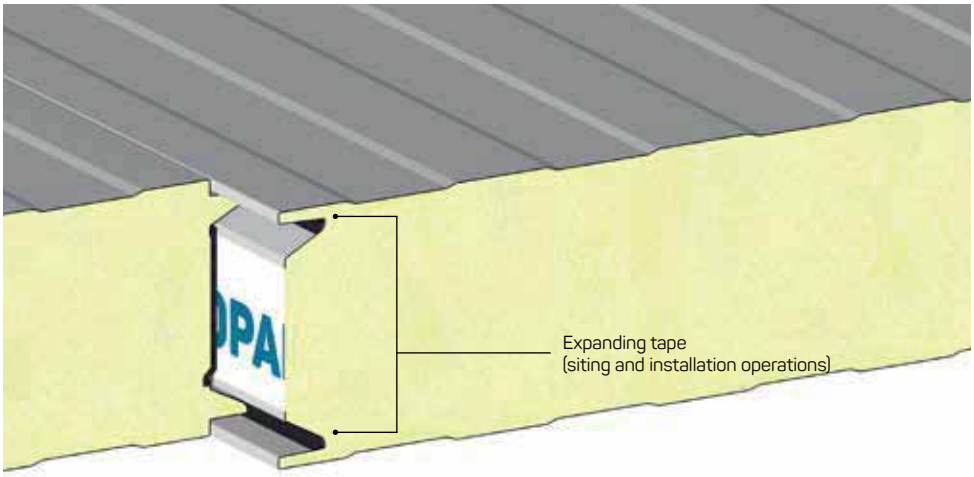

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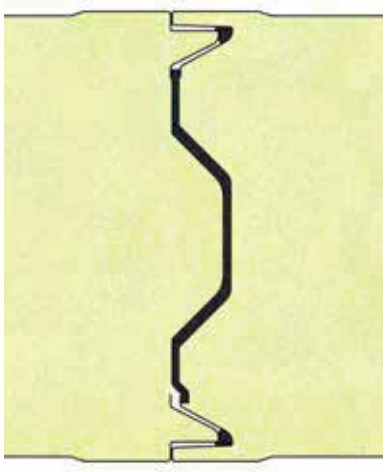
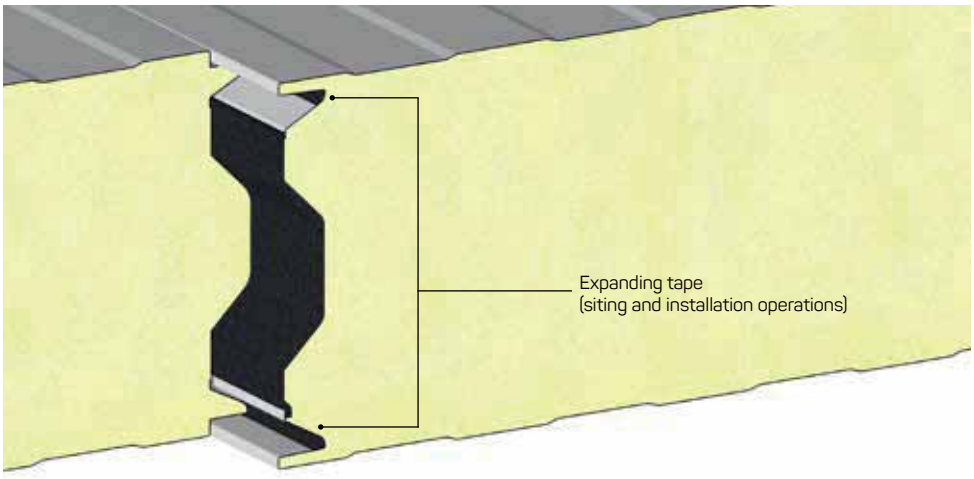


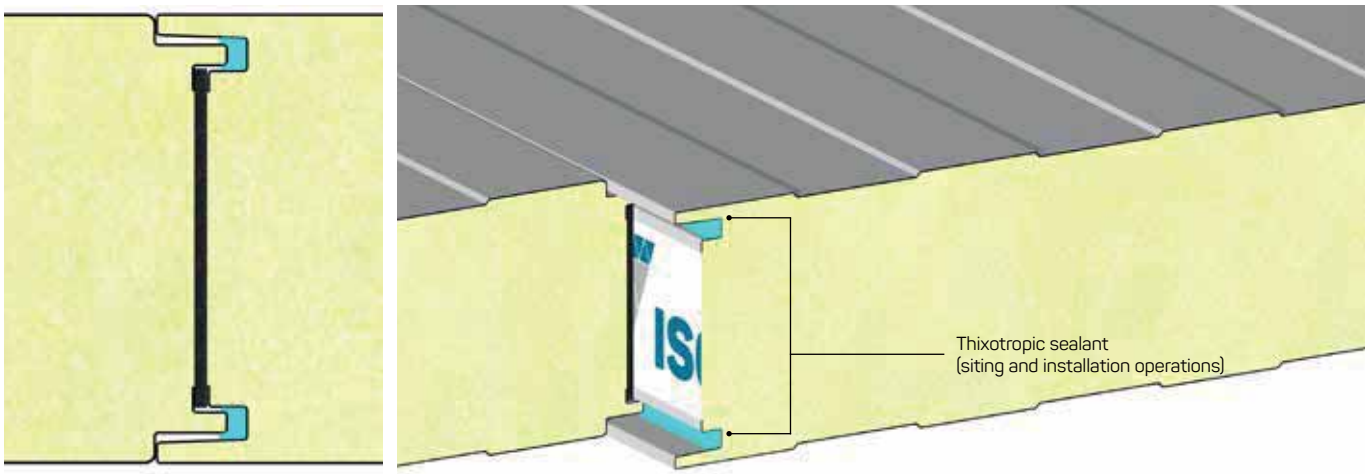


ISOPAN
INSULATING DESIGN

Thixotropic sealant

The airtightness is excellent, thanks to the lack of cracks guaranteed by the sealant, whose thixotropic characteristic offers an excellent airtightness without impacting on the assembly easiness.

ISOFRIGO



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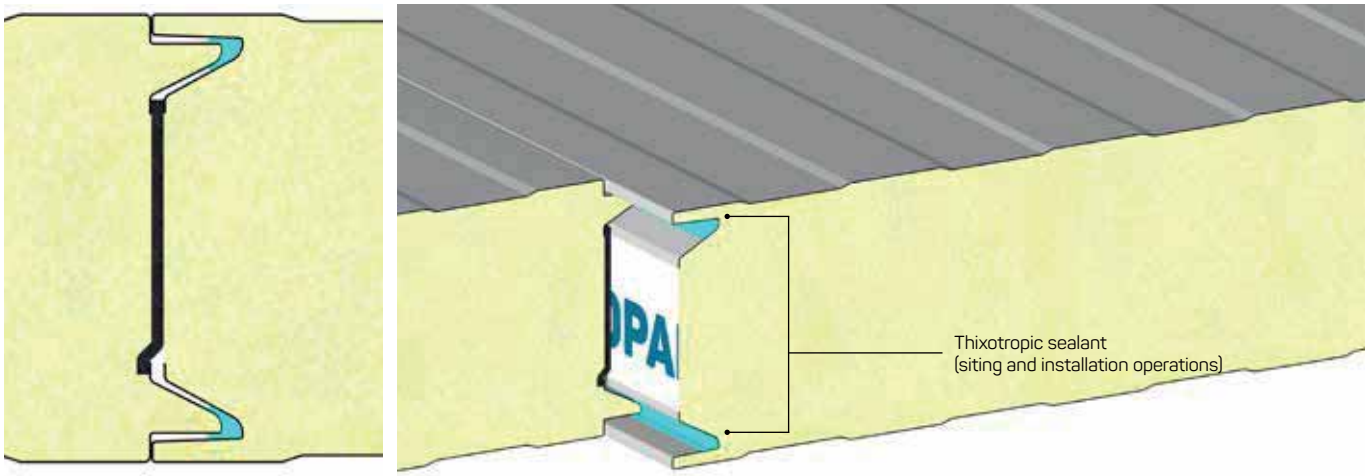

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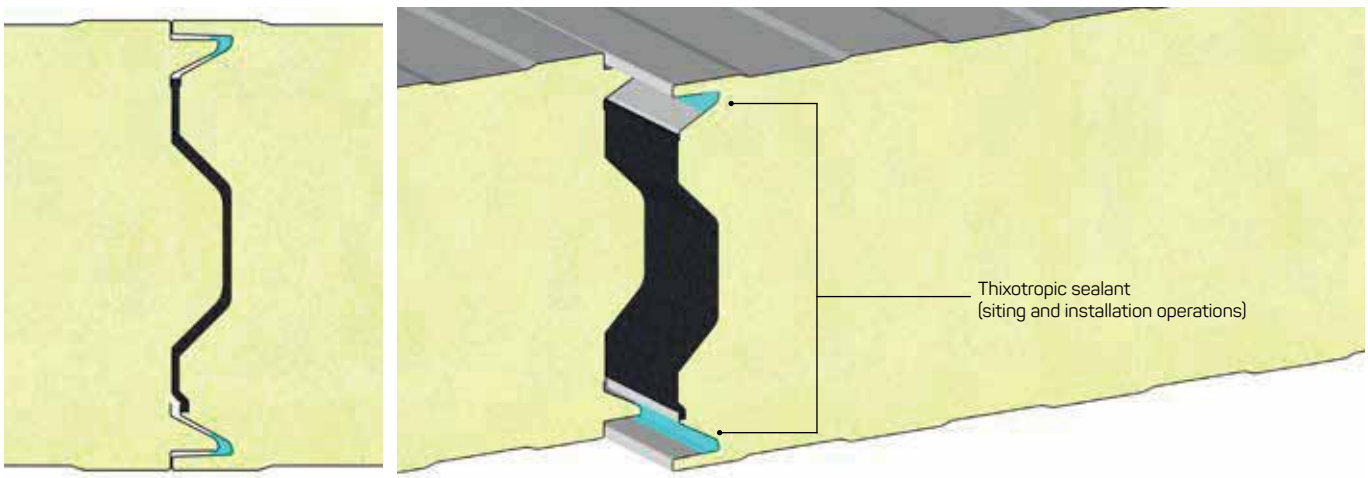
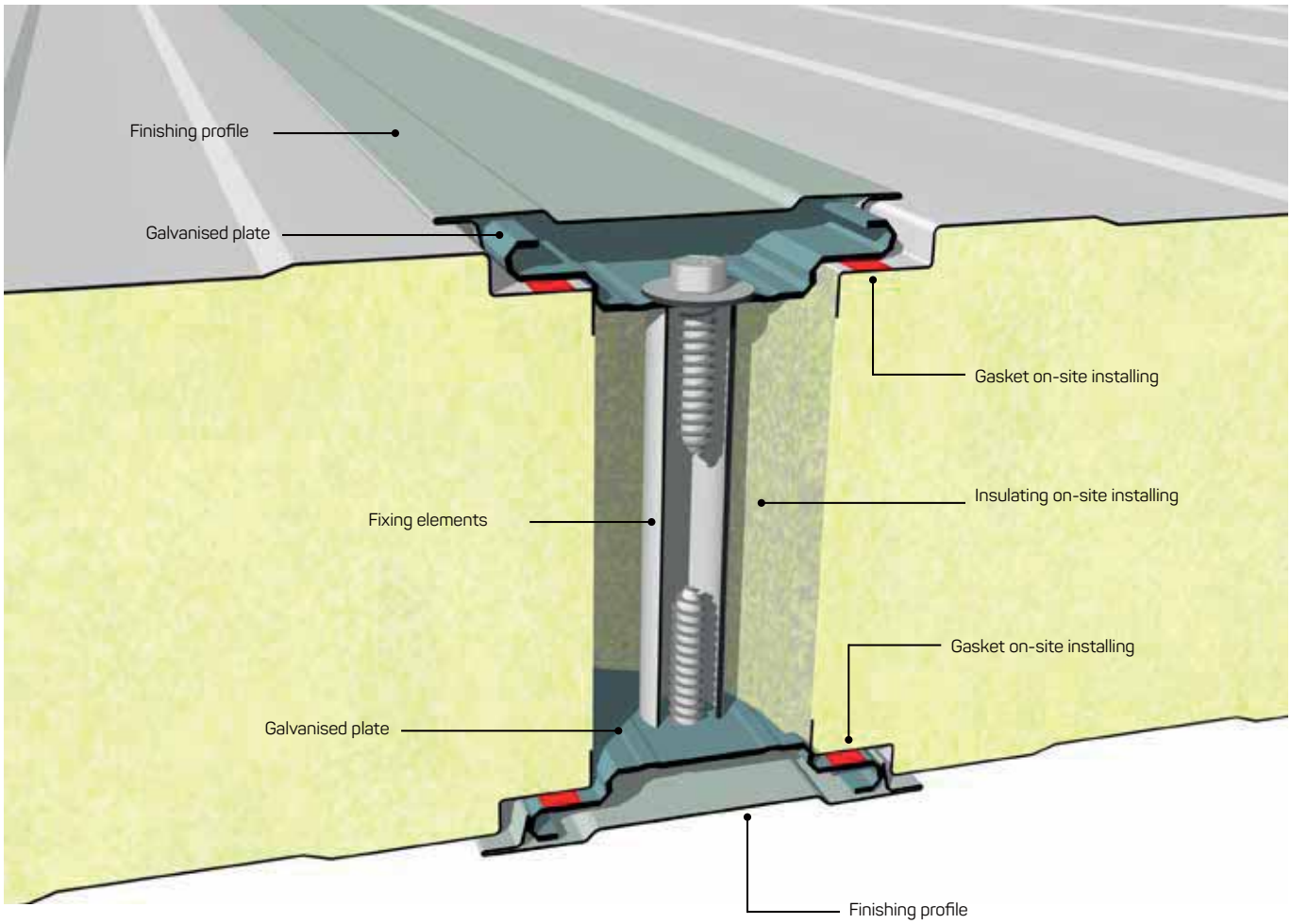
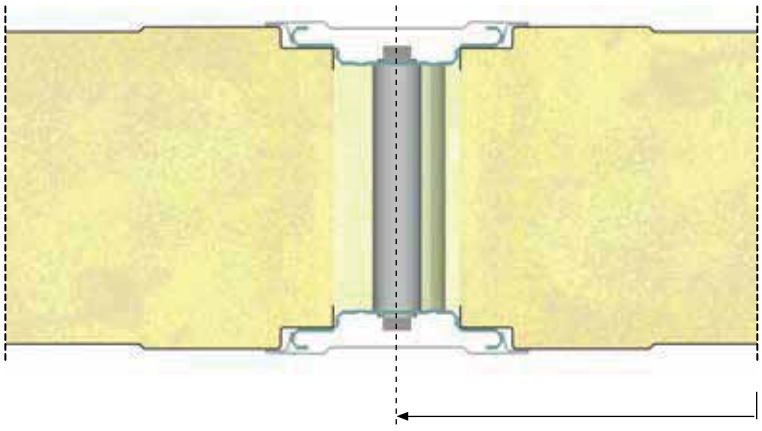


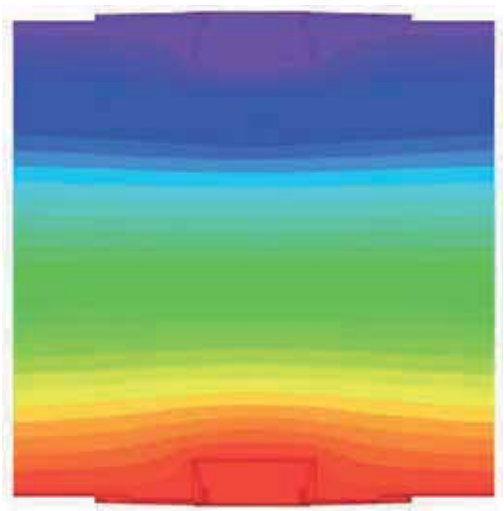
ISOFRIGO G.I. (Foamed joint)

Thanks to the lack of cracks and the use of PVC gaskets under the plates, an optimal airtightness is obtained and consequently all thermal bridges caused by the joints are eliminated.





HEAT LOSS IN THE JOINT:
Uf = 0,119 W/m² K

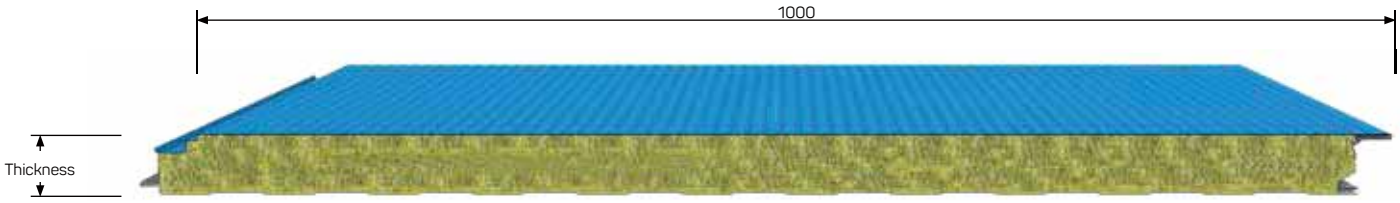


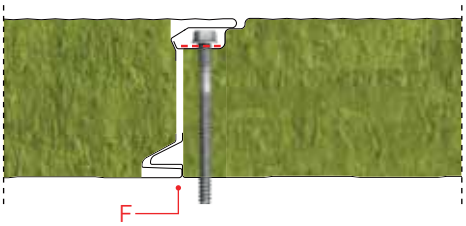
ISOPAN
INSULATING DESIGN

Isofire Wall Plissé

Manufactured in: Italy

It is a self-supporting metal faced panel insulated with mineral wool; the labyrinth configuration and the tongue-and-groove joint with a special place for the screw determine the fully concealed fixing element. The fixing elements are concealed.





Isopan consiglia, durante la fase di montaggio, di utilizzare opportuna **piastrina di acciaio** per distribuzione sforzi di fissaggio. Il numero e la posizione deve essere tale da garanire la resistenza alle sollecitazione agenti sul pannello, compresianche gli sforzi di depressione.

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

Isofire Wall Plissè

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm

UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm						MAX SPANS cm					
50	345	400	475	545	640	665	400	460	525	555	640	695
60	315	365	440	495	545	610	355	420	475	535	570	630
80	270	315	380	430	470	525	305	355	410	450	485	535
100	240	280	345	380	420	470	270	305	365	400	430	470
120	215	250	310	350	380	430	225	275	325	365	390	420
140	195	230	285	325	355	395	210	245	300	335	355	380
160	190	210	270	300	335	375	190	225	280	305	330	355
180	175	190	245	285	315	350	185	205	265	285	305	330
200	155	185	230	275	295	335	165	190	245	275	290	310

STEEL SHEETS 0,6 / 0,6 mm - Support 120 mm

UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm						MAX SPANS cm					
50	365	420	525	590	650	715	420	485	570	640	685	725
60	335	380	475	545	590	665	375	440	515	570	620	675
80	285	325	410	470	515	580	315	365	440	485	525	570
100	250	285	365	380	450	510	270	315	390	430	460	495
120	220	260	325	380	420	470	240	280	355	390	410	450
140	200	235	325	355	390	440	210	250	325	355	380	410
160	190	215	275	330	365	410	190	230	295	330	355	380
180	180	195	255	305	345	385	180	205	270	305	330	355
200	165	190	235	285	330	370	165	190	250	290	305	330

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm						
		50	60	80	100	120	150	170
0,5 / 0,5	kg/m²	13,2	14,2	16,2	18,2	20,2	23,2	25,2
0,6 / 0,6	kg/m²	14,9	15,9	17,9	19,9	21,9	24,9	26,.9

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

According to EN 14509 Annex 10

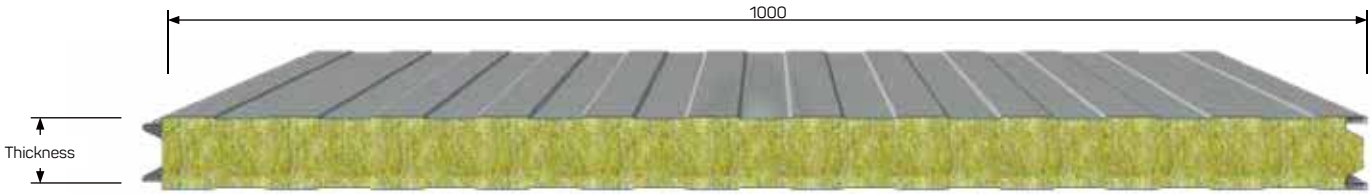
U	PANEL NOMINAL THICKNESS mm						
	50	60	80	100	120	150	170
W/m² K	0,86	0,72	0,52	0,41	0,35	0,28	0,24
kcal/m² h °C	0,73	0,62	0,44	0,36	0,30	0,24	0,21

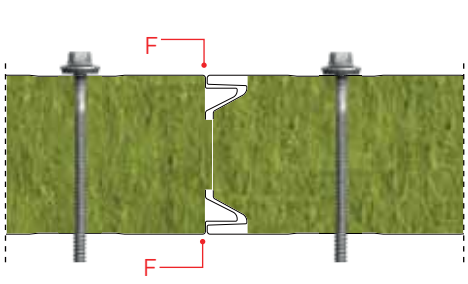
ISOPAN
INSULATING DESIGN

Isofire Wall

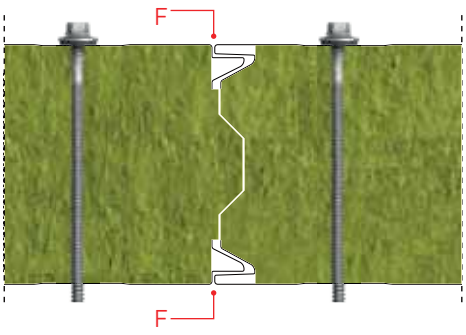
Manufactured in: Italy

It is a self-supporting metal faced panel insulated with mineral wool. The fixing elements are exposed. The fixing elements are exposed.





Joint detail



Joint Detail (thickness ≥ 120mm)

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

Isofire Wall

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm

UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm							PANEL NOMINAL THICKNESS mm						
	50	60	80	100	120	150	200	50	60	80	100	120	150	200
kg/m²	MAX SPANS cm							MAX SPANS cm						
50	345	400	475	545	640	665	760	400	460	525	555	640	695	775
60	315	365	440	495	545	610	690	355	420	475	535	570	630	705
80	270	315	380	430	470	525	610	305	355	410	450	485	535	625
100	240	280	345	380	420	470	560	270	305	365	400	430	470	560
120	215	250	310	350	380	430	515	225	275	325	365	390	420	505
140	195	230	285	325	355	395	480	210	245	300	335	355	380	465
160	190	210	270	300	335	375	450	190	225	280	305	330	355	435
180	175	190	245	285	315	350	410	185	205	265	285	305	330	400
200	155	185	230	275	295	335	375	165	190	245	275	290	310	360

STEEL SHEETS 0,6 / 0,6 mm - Support 120 mm

UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm							PANEL NOMINAL THICKNESS mm						
	50	60	80	100	120	150	200	50	60	80	100	120	150	200
kg/m²	MAX SPANS cm							MAX SPANS cm						
50	365	420	525	590	650	715	780	420	485	570	640	685	725	795
60	335	380	475	545	590	665	720	375	440	515	570	620	675	735
80	285	325	410	470	515	580	635	315	365	440	485	525	570	650
100	250	285	365	380	450	510	595	270	315	390	430	460	495	595
120	220	260	325	380	420	470	540	240	280	355	390	410	450	525
140	200	235	325	355	390	440	505	210	250	325	355	380	410	485
160	190	215	275	330	365	410	485	190	230	295	330	355	380	465
180	180	195	255	305	345	385	450	180	205	270	305	330	355	440
200	165	190	235	285	330	370	420	165	190	250	290	305	330	400

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm							
		50	60	80	100	120	150	170	200
0,5 / 0,5	kg/m²	13,2	14,2	16,2	18,2	20,2	23,2	25,2	28,2
0,6 / 0,6	kg/m²	14,9	15,9	17,9	19,9	21,9	24,9	26,9	28,8

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

According to EN 14509 Annex 10

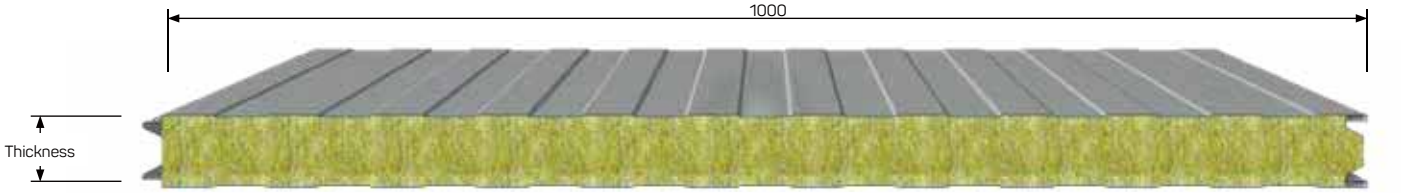
U	PANEL NOMINAL THICKNESS mm							
	50	60	80	100	120	150	170	200
W/m² K	0,75	0,63	0,49	0,39	0,33	0,27	0,24	0,20
kcal/m² h °C	0,65	0,54	0,42	0,34	0,28	0,23	0,21	0,17

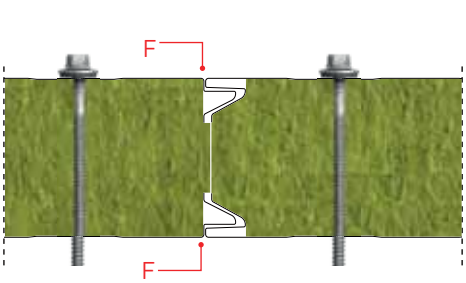
ISOPAN
INSULATING DESIGN

Isofire Wall - Fono

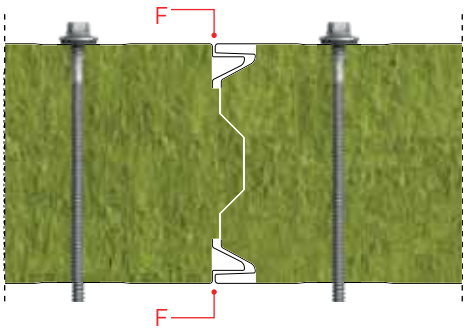
Manufactured in: Italy

It is a self-supporting metal faced panel insulated with mineral wool. The fixing elements are exposed. The internal sheet is characterised by a micro-drilling that enhances acoustic performances; meaning the sound absorption and insulation.

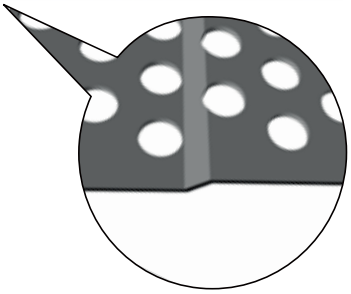




Joint detail



Joint Detail (thickness ≥ 120mm)



INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

FIRE PERFORMANCES
Regarding the specifications related to the fire characteristics, please consult the synthesis available in the catalogue or on the website.

Isofire Wall Fono

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm

UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm						MAX SPANS cm					
50	290	340	400	460	540	560	340	385	440	465	540	585
60	265	305	370	420	460	515	300	355	400	450	480	530
80	225	265	320	360	395	440	260	300	345	380	410	450
100	200	235	290	320	355	395	225	260	305	340	360	395
120	180	210	260	295	320	360	190	230	275	305	330	355
140	165	195	240	275	300	335	180	205	255	280	300	320
160	160	180	225	255	280	315	160	190	235	260	280	300
180	145	160	205	240	265	295	155	175	220	240	260	280
200	130	155	195	230	250	280	140	160	205	230	245	260

STEEL SHEETS 0,6 / 0,6 mm - Support 120 mm

UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm						MAX SPANS cm					
50	305	355	440	500	545	600	420	525	590	650	715	610
60	280	320	400	460	500	560	380	475	545	590	665	570
80	240	275	345	395	435	490	325	410	470	515	580	480
100	210	240	305	320	380	430	285	365	380	450	510	420
120	185	220	275	320	355	395	260	325	380	420	470	380
140	170	200	275	300	330	370	235	325	355	390	440	345
160	160	180	230	280	305	345	215	275	330	365	410	320
180	150	165	215	260	290	325	195	255	305	345	385	300
200	140	160	200	240	280	310	190	235	285	330	370	280

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm					
		50	60	80	100	120	150
0,5 / 0,5	kg/m²	11,8	12,9	14,5	16,3	18,5	21,7
0,6 / 0,6	kg/m²	13,5	14,5	16,2	18,0	20,4	23,4

ACOUSTIC PERFORMANCES: On client's request, Isopan can provide the following certificates for the acoustic behaviour:

ACOUSTIC INSULATION
Rw = 34 dB (Wall - Fono, spess. 50)
Rw =35 dB (Wall - Fono, spess. 80)
Rw =35 dB (Wall - Fono, spess. 100)

ACOUSTIC ABSORPTION
Coefficient of sound absorption $\alpha_w = 1$

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

THERMAL INSULATION

According to EN 14509 Annex 10

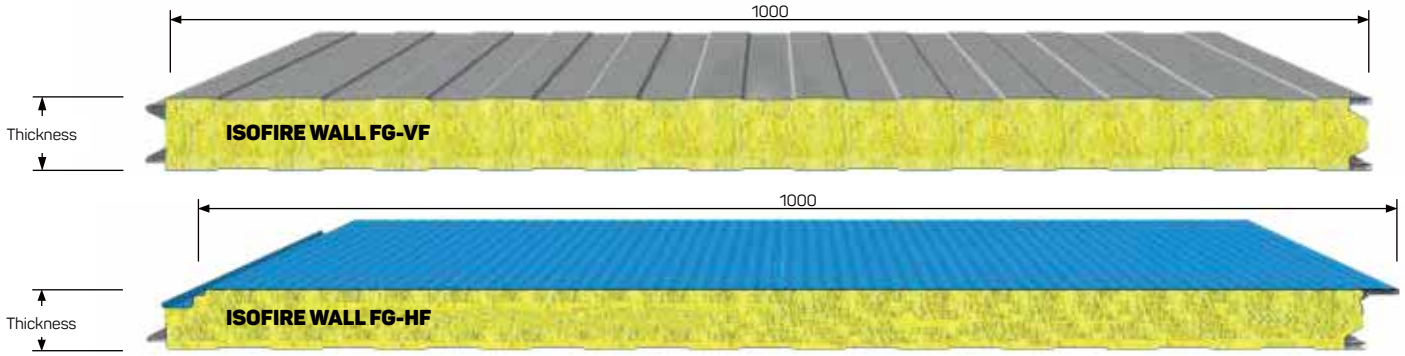
U	PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150
W/m² K	0,75	0,63	0,49	0,39	0,33	0,27
kcal/m² h °C	0,65	0,54	0,42	0,34	0,28	0,23

ISOPAN
INSULATING DESIGN

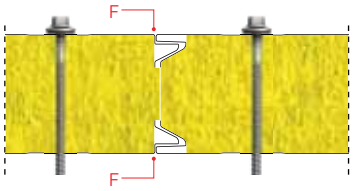
see pag. 16

Isofire Wall FG-VF
Isofire Wall FG-HF

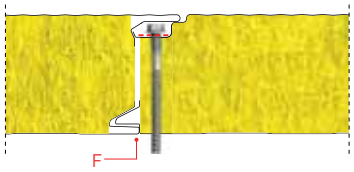
Manufactured in: Italy



Sandwich panels with double metal support and insulated with **Glass wool**. The fixing elements are exposed (Isofire Wall FG-VF) or hidden (Isofire Wall FG-HF).



Wall FG-VF: Joint detail



Wall FG-HF: Joint detail

THERMAL INSULATION According to EN 14509 Annex 10

ISOFIRE WALL FG-VF

U	PANEL NOMINAL THICKNESS mm							
	50	60	80	100	120	150	170	200
W/m² K	0,79	0,65	0,48	0,38	0,32	0,26	0,23	0,19
kcal/m² h °C	0,68	0,56	0,41	0,33	0,28	0,22	0,20	0,16

ISOFIRE WALL FG-HF

U	PANEL NOMINAL THICKNESS mm							
	50	60	80	100	120	150	170	200
W/m² K	0,97	0,75	0,51	0,40	0,33	0,26	0,23	0,20
kcal/m² h °C	0,83	0,65	0,44	0,34	0,28	0,22	0,20	0,17

OVERLOAD SPANS

STEEL SHEETS THICKNESS0,6 / 0,6 mm - Support 120 mm						
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150
kg/m²	MAX SPANS cm					
60	335	395	460	510	555	605
80	280	325	395	435	470	510
100	240	280	350	385	410	445
140	185	225	290	315	340	365
180	160	180	240	270	295	315
200	145	170	225	260	270	295

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

THICKNES SHEETS mm		PANEL NOMINAL THICKNESS mm							
		50	60	80	100	120	150	170	200
0,5 / 0,5	kg/m²	10,9	11,4	12,5	13,6	14,7	16,4	17,5	19,2
0,6 / 0,6	kg/m²	12,6	13,1	14,2	15,3	16,4	18,1	19,2	20,9

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

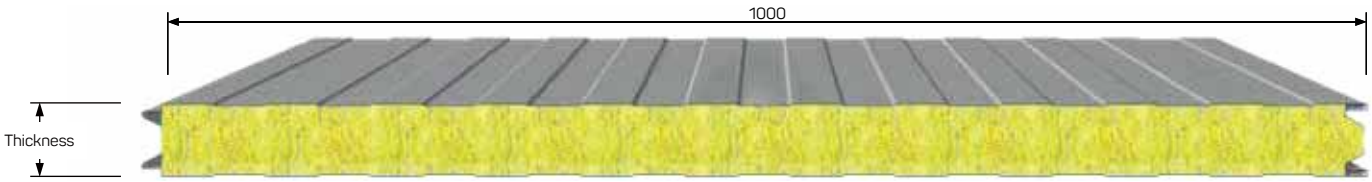
L = working length, D = panels thickness, F = sheets coupling

INSTRUCTIONS OF USE: For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

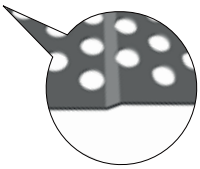
see pag. 16

Isofire Wall FG-VF Fono

Manufactured in: Italy



Sandwich panels with double metal support and insulated with **Glass wool**. The fixing elements are exposed. The internal sheet is characterised by a micro-drilling that enhances acoustic performances; meaning the sound absorption and insulation.



PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm					
		50	60	80	100	120	150
0,5 / 0,5	kg/m²	9,4	9,9	11,0	12,1	13,2	14,9
0,6 / 0,6	kg/m²	11,1	11,6	12,7	13,8	14,9	16,6

THERMAL INSULATION According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150
W/m² K	0,79	0,65	0,48	0,38	0,32	0,26
kcal/m² h °C	0,68	0,56	0,41	0,33	0,28	0,22

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm 0
Working length	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal faces	± 3 mm	
Sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling

ACOUSTIC INSULATION: On client's request, Isopan can provide the following certificates for the acoustic behaviour:

ACOUSTIC INSULATION
Rw = 34 dB (FG-VF Fono 50mm)
Rw =35 dB (FG-VF Fono 80mm)
Rw =35 dB (FG-VF Fono 100mm)

ACOUSTIC ABSORPTION
Coefficient of sound absorption $\alpha_w = 1$

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS THICKNESS0,6 / 0,6 mm - Support 120 mm											
	PANEL NOMINAL THICKNESS mm						PANEL NOMINAL THICKNESS mm					
	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm						MAX SPANS cm					
60	250	285	360	410	450	500	340	425	490	530	595	510
80	215	245	310	355	390	440	290	365	420	460	520	430
100	185	215	270	285	340	385	255	325	340	405	455	375
140	150	180	245	270	295	330	210	290	315	350	395	310
180	135	145	190	230	260	290	175	225	270	310	345	270
200	125	140	180	215	250	275	170	210	255	295	330	250

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

INSTRUCTIONS OF USE: For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.


Tenuta Castellani - Tregnago


Maneggio - Lodi


Cella Frigo - Romania


Centro logistico - Verona

Special Products

ISOPAN
INSULATING DESIGN

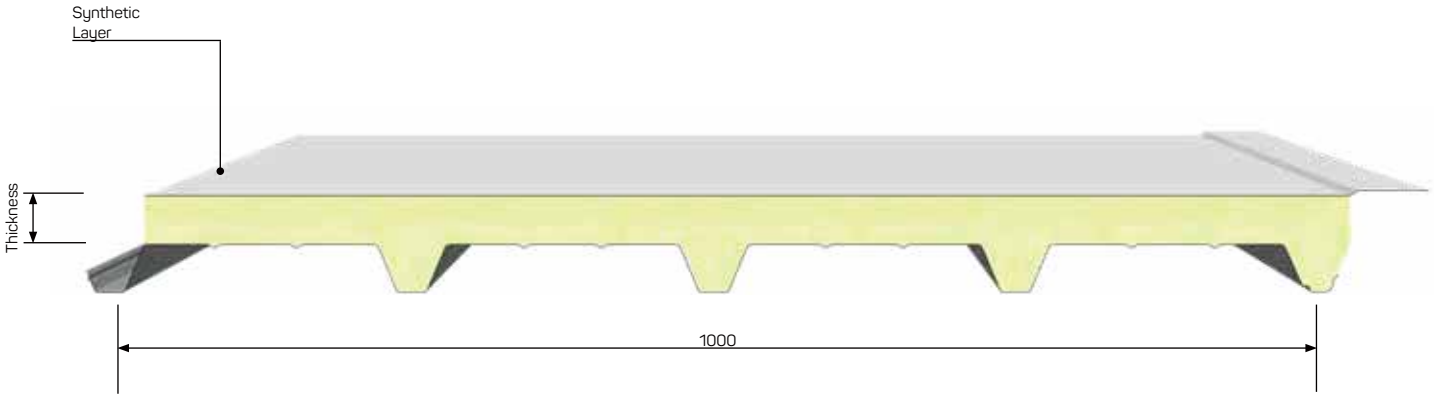
ISOPAN FLAT ROOF

The product range for flat roofs includes the new panels studied by Isopan for the realisation of flat covers. The choice of both the type of metal facing and of the membrane used for the extrados facing gives the product range a high flexibility, thanks to simple skin panels coated with a bituminous membrane or with a PVC membrane and double skin panels. They can be applied for new constructions or to substitute existing roofs. The buildings constructed with these panels are characterised by the speed of installation, the thermal insulation power, the waterproofing capabilities and the flexibility of use.

ISOPAN
INSULATING DESIGN

Isodeck Synth

Panel designed for the construction of flat or slightly pitched roofs, characterised by an excellent waterproofing capacity and, at the same time, high values of thermal insulation. It is a simple skin panel with the second surface made of a synthetic PVC/TPO layer.



APPLICATION

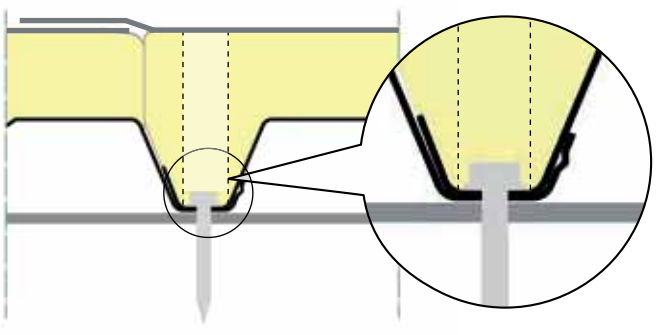
Isodeck Synth is a panel that can be used on any type of loadbearing structure and that offers a great versatility, conferred by the lightness of the panel and the speed of installation. Particularly adapted for flat or slightly pitched roofs and roof floors.

CHARACTERISTICS

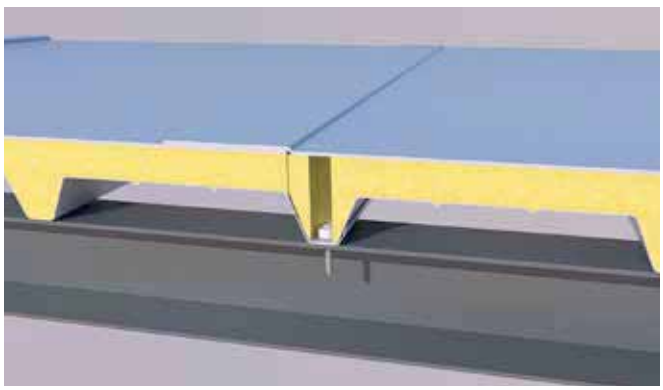
- Internal face: prepainted galvanised steel (EN 10346)
- Insulating core: expanded polyurethane foam
- External face: Synthetic layer

ADVANTAGES

- A simple, versatile, quick and economic solution
- Excellent resistance to UV rays
- High waterproofing capacity



Fixing system detail



Isodeck Synth

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS										
UNIFORMLY DISTRIBUTED LOAD	THICKNESS SHEETS mm					THICKNESS SHEETS mm				
	0,5	0,6	0,7	0,8	1,0	0,5	0,6	0,7	0,8	1,0
kg/m²	MAX SPANS cm					MAX SPANS cm				
60	245	260	275	290	315	275	295	310	325	350
80	220*	235	250	265	285	250*	270	285	295	320
100	200*	220*	235	245	265	220*	245*	260	275	295
120	180*	200*	215*	230	250	200*	225*	240*	260	280
140	165*	185*	200*	215*	235	185*	205*	225*	240*	265
160	155*	170*	185*	200*	225	175*	195*	210*	225*	255
180	145*	160*	175*	190*	215*	165*	180*	200*	210*	240*
200	140*	155*	165*	180*	200*	155*	170*	185*	200*	225*

ALUMINIUM SHEETS								
UNIFORMLY DISTRIBUTED LOAD	THICKNESS SHEETS mm				THICKNESS SHEETS mm			
	0,6	0,7	0,8	1,0	0,6	0,7	0,8	1,0
kg/m²	MAX SPANS cm				MAX SPANS cm			
60	160*	170	180	190	180*	190	200	220
100*	130*	155*	165	180	160*	175*	190	205
120	130*	140*	155	170	145*	160*	185	190
140	120*	130*	140*	160	135*	150*	160*	180
160	110*	120*	130*	150	125*	140*	150*	170

* Values with stress limitations. The calculation considers only the snow load , so it is intended to be indicative.

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm					
		30	40	50	60	80	100
0,6	kg/m²	9,0	9,4	9,8	10,2	11,0	11,8
0,7	kg/m²	10,0	10,4	10,8	11,2	12,0	12,8
0,8	kg/m²	10,8	11,4	11,8	12,2	13,0	13,8

DIMENSION TOLERANCE

DEVIATION mm	
Length	± 10
Working length	± 5
Thickness	± 2
Orthogonality and rectangularity	± 3

THERMAL INSULATION

According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm					
	30	40	50	60	80	100
W/m² K	0,76	0,57	0,45	0,38	0,28	0,22
kcal/m²h°C	0,61	0,47	0,38	0,32	0,24	0,20

According to the calculation method EN ISO 6946

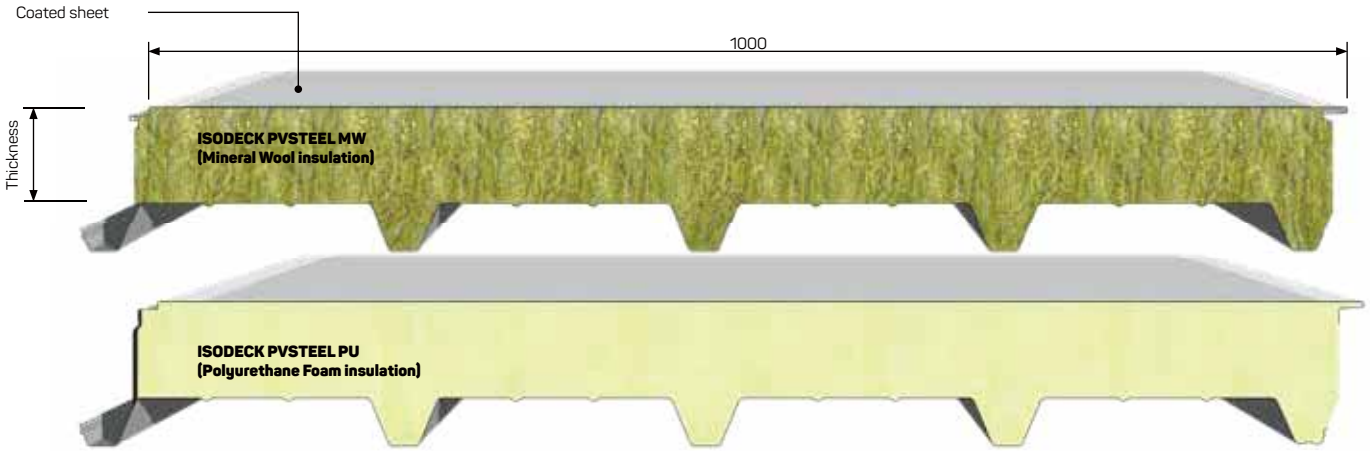
K	PANEL NOMINAL THICKNESS mm					
	30	40	50	60	80	100
W/m² K	0,55	0,44	0,36	0,31	0,25	0,20
kcal/m²h°C	0,48	0,38	0,32	0,27	0,22	0,17

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

ISOPAN
INSULATING DESIGN

Isodeck PVSteel

Double skin panel with metal facing coated with a very resistant thin PVC/TPO seal.



APPLICATION

Isodeck PVSteel is a roof panel designed for flat or slightly pitched roofs, thanks to its metal PVC/TPO coated facing. Thanks to both metal facings, the panel is characterised by a high mechanical resistance.

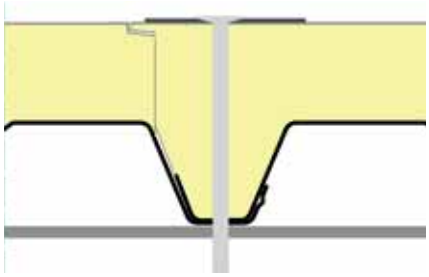
CHARACTERISTICS

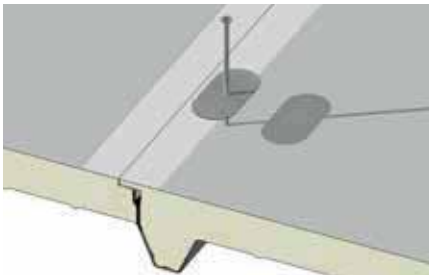
- Internal facing: prepainted galvanised steel (EN 10346)
- Insulating core: expanded polyurethane foam or mineral wool
- External face: Synthetic layer Coated sheet

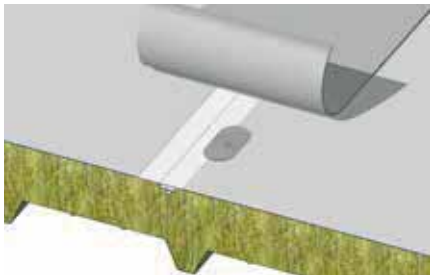
The insulating core can be made of polyurethane foam or mineral wool. Thanks to its double skin, the panel is more resistant to static and dynamic loads on small or large spans compared to a simple skin product. The panel is installed upside down (the ribbed face is the internal face of the building) in order to realise a flat roof in coated sheet. If it is traditionally installed (extrados profiled face) instead, it is possible to create roofs with the coated face exposed.

ADVANTAGES

- High resistance to static and dynamic loads
- Quick installation
- Excellent resistance to UV rays
- High waterproofing capacity







INSTRUCTIONS OF USE
For informations about panels utilization, technical instructions and and related limits, please consult the Technical Manual, General Sales Terms and Annexes.

Isodeck PVSteel

→ see pag. 16

OVERLOAD SPANS

Int. sheet 0,6mm Thick	ISODECK PVSTEEL PU - Support 120 mm								ISODECK PVSTEEL MW - Support 120 mm					
UNIFORMLY DISTRIBUTED LOAD	PANEL NOMINAL THICKNESS mm								PANEL NOMINAL THICKNESS mm					
	30	40	50	60	80	100	120	150	50	60	80	100	120	150
kg/m²	MAX SPANS cm								MAX SPANS cm					
80	305	335	385	405	485	495	520	580	295	320	365	380	420	470
100	280	310	360	395	440	450	485	525	265	290	330	350	390	450
120	250	290	325	360	410	425	450	485	250	265	305	320	355	405
140	215	270	305	340	390	400	420	455	230	250	280	290	325	380
160	185	245	300	310	360	370	405	435	215	230	265	280	305	355
180	165	210	280	300	350	355	380	410	210	215	250	255	285	335
200	150	185	235	295	320	340	365	400	190	210	240	240	270	310
220	140	160	215	270	305	320	345	375	175	200	225	235	265	295
250	115	140	180	225	295	305	325	355	160	175	210	220	240	280

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

PANELS WEIGHT (Steel sheets)

INTERNAL SHEET THICKNESS mm		PU	PANEL NOMINAL THICKNESS mm								MW	PANEL NOMINAL THICKNESS mm					
			30	40	50	60	80	100	120	150		50	60	80	100	120	150
0,6	kg/m²		14,4	14,8	15,2	15,6	16,4	17,2	18,0	19,2		18,4	19,4	21,4	23,4	25,4	28,4
0,8	kg/m²		16,3	16,7	17,1	17,5	18,3	19,1	19,9	21,1		20,4	21,4	23,4	25,4	27,4	30,4

THERMAL INSULATION

U	PU	PANEL NOMINAL THICKNESS mm							MW	PANEL NOMINAL THICKNESS mm					
		30	40	50	60	80	100	120		50	60	80	100	120	150
W/m² K		0,71	0,54	0,44	0,37	0,28	0,22	0,19		0,78	0,66	0,50	0,41	0,34	0,28
kcal/m² h °C		0,61	0,47	0,38	0,32	0,24	0,19	0,16		0,67	0,57	0,43	0,35	0,29	0,24

DIMENSION TOLERANCE

DEVIATION mm		
Length	L ≤ 3 m	± 5 mm
	L > 3 m	± 10 mm
Thickness	D ≤ 100 mm	± 2 mm
	D > 100 mm	± 2 %

DEVIATION mm	
Working length	± 2 mm
Deviation from perpendicularity	6 mm
Misalignment of the internal metal faces	± 3 mm
Bottom sheet coupling	F = 0 + 3 mm

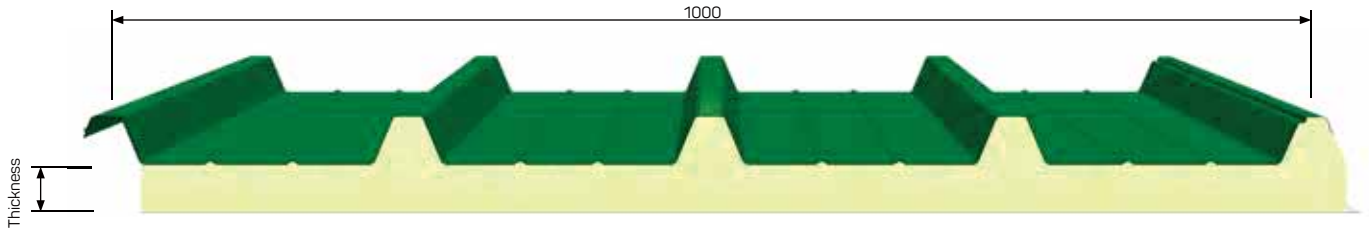
ISOPAN
INSULATING DESIGN

Isofarm

Isofarm is the new range of roofs with insulating panels adapted for zootechnical constructions. Economical advantage, resistance to aggressive agents, high aesthetic quality, high load bearing characteristics are only a few of the qualities that promote the multiple solutions available for the professionals who design zootechnical structures and look for products that meet the diverse requirements imposed by the sector. Isofarm is also a valid alternative solution, quick, safe and environmentally friendly to solve the problem of asbestos roofs substitution.

ISOPAN
INSULATING DESIGN

Isovetro



APPLICATION

Isovetro is a self-supporting simple skin metal faced roof panel, with a polyurethane insulating core; its internal face is made of a particular glass-reinforced sheet for exposed use; it is cleanable and is indicated to solve the typical problems of the roofs used in the agricultural and zootechnical sector. The fixing system is a penetrating type with the possibility to use exposed caps.

CHARACTERISTICS

- Internal support: flat glass-reinforced sheet
- Insulating core: expanded polyurethane foam
- External face: prepainted galvanised steel (EN 10346)

ADVANTAGES

- Ideal solution for performance requirements and cost saving project
- Hygienic
- Mildew resistance
- Resistant to aggressive agents

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

→ see pag. 16

OVERLOAD SPANS

STEEL SHEETS										
UNIFORMLY DISTRIBUTED LOAD	THICKNESS SHEETS mm					THICKNESS SHEETS mm				
	0,5	0,6	0,7	0,8	1,0	0,5	0,6	0,7	0,8	1,0
kg/m²	MAX SPANS cm					MAX SPANS cm				
80	220*	235	250	265	285	250*	270	285	295	320
100	200*	220*	235	245	265	200*	245*	260	275	295
120	180*	200*	215*	230	250	200*	225*	240*	260	280
140	165*	185*	200*	215*	235	185*	205*	225*	240*	265
160	155*	170*	185*	200*	225	175*	195*	210*	225*	255

ALUMINIUM SHEETS								
UNIFORMLY DISTRIBUTED LOAD	THICKNESS SHEETS mm				THICKNESS SHEETS mm			
	0,6	0,7	0,8	1,0	0,6	0,7	0,8	1,0
kg/m²	MAX SPANS cm				MAX SPANS cm			
80	160*	170	180	190	180*	190	200	220
100	140*	155*	165	180	160*	175*	190	205
120	130*	140*	155	170	145*	160*	185	190
140	120*	130*	140*	160	135*	150*	160*	180
160	110*	120*	130*	150	125*	140*	150*	170

* Values with stress limitations.Deflection limit 1/200 ℓ

PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm		
		30	40	50
0,6	kg/m²	7,3	7,7	8,1
0,7	kg/m²	8,3	8,7	9,1
0,8	kg/m²	9,1	9,7	10,1

DIMENSION TOLERANCE

DEVIATION mm	
Length	± 10
Working length	± 5
Thickness	± 2
Orthogonality and rectangularity	± 3

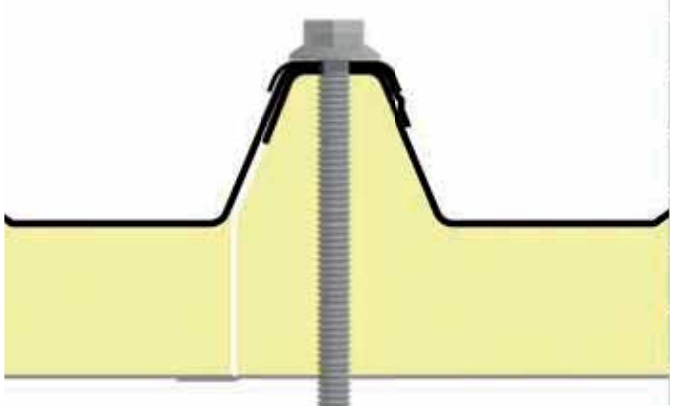
THERMAL INSULATION

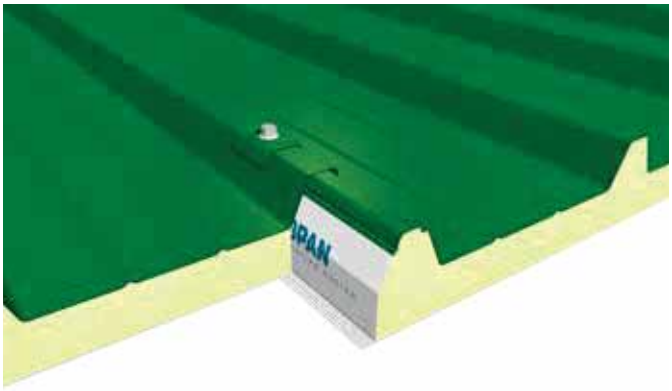
According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm		
	30	40	50
W/m² K	0.71	0.54	0.44
kcal/m² h °C	0.61	0.47	0.38

According to the calculation method EN ISO 6946

K	PANEL NOMINAL THICKNESS mm		
	30	40	50
W/m² K	0.55	0.44	0.36
kcal/m² h °C	0.48	0.38	0.32

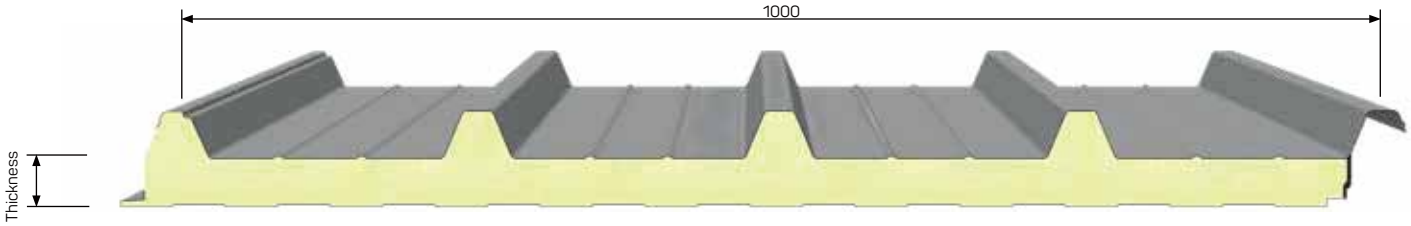




ISOPAN
INSULATING DESIGN

Isocop Farm Coat

A roof panel with high aesthetic qualities, characterised by the presence of a specific prepainted internal sheet that is particularly resistant to aggressive agents present in agricultural and zootechnical environments.



APPLICATION

Isocop Farm Coat is a self-supporting double skin panel, insulated with polyurethane foam, with a tongue-and-groove joint. On large longitudinal pitches, the panel overlap can be foreseen. The panel is composed by 5 ribs that allow to increase the static resistance. The internal face is characterised by a specific prepainted sheet that is resistant to aggressive agents present in zootechnical environment. The fixing system is a penetrating type with the possibility to use exposed caps, the number and the place of the fixing elements should guarantee the stress resistance.

CHARACTERISTICS

- Internal support: Specific prepainted sheet resistant to aggressive agents
- Insulating core: expanded polyurethane foam
- External face: prepainted galvanised steel (EN 10346)

ADVANTAGES

- Medium/high load bearing capacities
- Hygienic
- Cleanable
- Resistant to aggressive agents
- Mildew resistant

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

Isocop Farm Coat

→ see pag. 16

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,4 / 0,4 mm - Support 120 mm								STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm							
	PANEL NOMINAL THICKNESS mm								PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150	30	40	50	60	80	100	120	150
kg/m²	MAX SPANS cm								MAX SPANS cm							
80	270	290	310	340	390	440	470	500	320	350	390	420	500	570	630	730
100	250	260	280	300	350	390	440	480	295	320	360	390	450	510	580	670
120	230	245	260	280	320	360	400	460	270	300	330	360	420	480	540	620
140	210	230	255	260	290	330	370	420	235	280	315	340	390	450	500	580
160	200	220	230	255	285	310	340	390	210	260	300	320	370	420	480	550
180	185	215	220	230	270	290	320	370	185	235	280	300	355	400	450	520
200	160	200	210	220	260	270	300	340	170	210	250	290	330	380	430	500
220	140	190	200	210	230	260	280	320	150	190	230	270	320	360	410	470
250	115	170	190	200	220	240	260	300	130	170	205	240	300	340	385	445

UNIFORMLY DISTRIBUTED LOAD	ALUMINIUM SHEETS 0,6 / 0,6 mm - Support 120 mm							
	PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150
kg/m²	MAX SPANS cm							
80	255	290	325	370	435	505	565	605
100	225	255	290	315	385	455	510	590
120	205	230	255	285	340	400	460	540
140	190	210	230	255	315	370	420	495
160	170	190	215	230	285	335	385	455
180	155	170	200	215	265	310	360	420
200	145	160	180	200	240	285	335	395
220	130	155	170	190	225	255	310	355
250	110	145	155	165	200	230	275	335

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

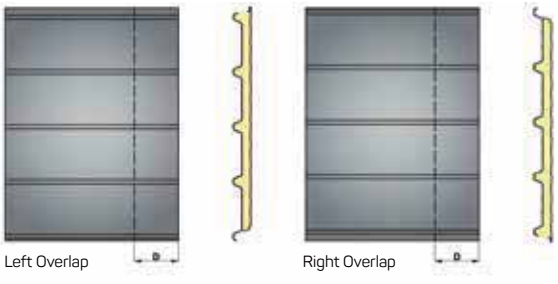
PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm							
		30	40	50	60	80	100	120	150
0,5 / 0,5	kg/m²	9,9	10,3	10,7	11,2	11,9	12,7	13,5	14,7
0,6 / 0,6	kg/m²	11,7	12,1	12,5	12,9	13,7	14,5	15,3	16,5

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working width	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal facing	± 3 mm	
Bottom sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling



THERMAL INSULATION

According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150
W/m² K	0,71	0,54	0,44	0,37	0,28	0,22	0,19	0,15
kcal/m² h °C	0,61	0,47	0,38	0,32	0,24	0,19	0,16	0,13

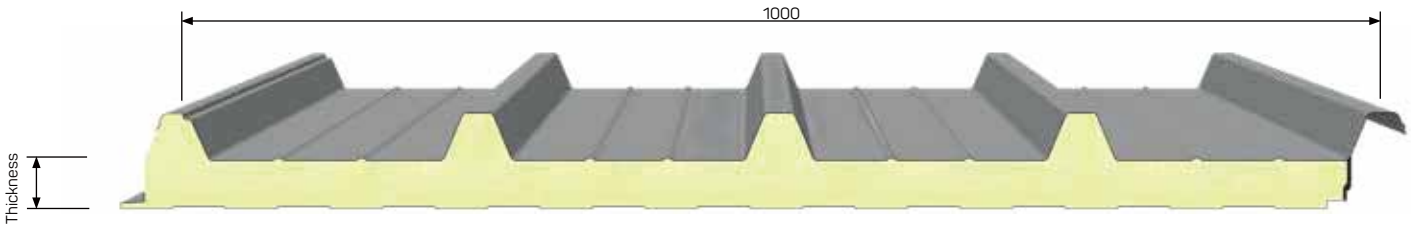
According to the calculation method EN ISO 6946

K	PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150
W/m² K	0,55	0,44	0,36	0,31	0,25	0,20	0,17	0,15
kcal/m² h °C	0,48	0,38	0,32	0,27	0,22	0,17	0,15	0,13

ISOPAN
INSULATING DESIGN

Isocop Topclass

A roof panel with high aesthetic qualities, characterised by the presence of a specific gavanised internal sheet with PVC facing that is particularly resistant to aggressive agents present in agricultural environments.



APPLICATION

Isocop Topclass is a self-supporting double skin panel, insulated with polyurethane foam, with a tongue-and-groove joint. On large longitudinal pitches, the panel overlap can be foreseen. The panel is composed by 5 ribs that allow to increase the static resistance. Different thicknesses of insulating core are available; the internal face is characterised by a specific galvanised sheet with PVC facing that is resistant to aggressive agents in zootechnical environment. The panels can be used for pitched roof, but you can also use it vertically for walls cladding.

CHARACTERISTICS

- Internal support: galvanised steel with PVC facing (EN 10346)
- Insulating core: expanded polyurethane foam
- External face: prepainted galvanised steel (EN 10346)

ADVANTAGES

- Resistant to corrosion in particularly aggressive environments
- Medium high load bearing capacities
- Cleanable
- Resistant to aggressive agents and mildew

INSTRUCTIONS OF USE
For the use of the panels and the related limits, please consult the Technical Manual available on www.isopan.com, General Sales Terms and Annexes defined by ISOPAN.

→ see pag. 16

OVERLOAD SPANS

UNIFORMLY DISTRIBUTED LOAD	STEEL SHEETS 0,4 / 0,4 mm - Support 120 mm								STEEL SHEETS 0,5 / 0,5 mm - Support 120 mm							
	PANEL NOMINAL THICKNESS mm								PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150	30	40	50	60	80	100	120	150
kg/m²	MAX SPANS cm								MAX SPANS cm							
80	270	290	310	340	390	440	470	500	320	350	390	420	500	570	630	730
100	250	260	280	300	350	390	440	480	295	320	360	390	450	510	580	670
120	230	245	260	280	320	360	400	460	270	300	330	360	420	480	540	620
140	210	230	255	260	290	330	370	420	235	280	315	340	390	450	500	580
160	200	220	230	255	285	310	340	390	210	260	300	320	370	420	480	550
180	185	215	220	230	270	290	320	370	185	235	280	300	355	400	450	520
200	160	200	210	220	260	270	300	340	170	210	250	290	330	380	430	500
220	140	190	200	210	230	260	280	320	150	190	230	270	320	360	410	470
250	115	170	190	200	220	240	260	300	130	170	205	240	300	340	385	445

UNIFORMLY DISTRIBUTED LOAD	ALUMINIUM SHEETS 0,6 / 0,6 mm - Support 120 mm							
	PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150
kg/m²	MAX SPANS cm							
80	255	290	325	370	435	505	565	605
100	225	255	290	315	385	455	510	590
120	205	230	255	285	340	400	460	540
140	190	210	230	255	315	370	420	495
160	170	190	215	230	285	335	385	455
180	155	170	200	215	265	310	360	420
200	145	160	180	200	240	285	335	395
220	130	155	170	190	225	255	310	355
250	110	145	155	165	200	230	275	335

Calculation for static sizing according to the Annex E of the UNI EN 14509 standard. Deflection limit 1/200 ℓ. Thermal load is not considered.

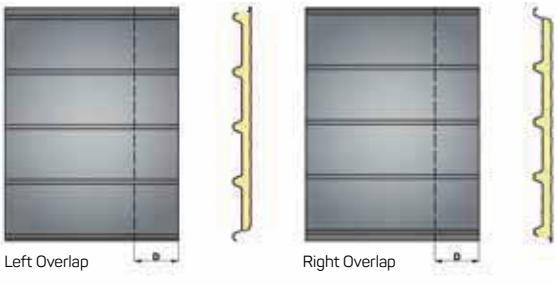
PANELS WEIGHT (Steel sheets)

THICKNESS SHEETS mm		PANEL NOMINAL THICKNESS mm							
		30	40	50	60	80	100	120	150
0,5 / 0,5	kg/m²	9,9	10,3	10,7	11,2	11,9	12,7	13,5	14,7
0,6 / 0,6	kg/m²	11,7	12,1	12,5	12,9	13,7	14,5	15,3	16,5

DIMENSION TOLERANCE (EN 14509)

DEVIATION mm		
Length	L ≤ 3 m L > 3 m	± 5 mm ± 10 mm
Working width	± 2 mm	
Thickness	D ≤ 100 mm D > 100 mm	± 2 mm ± 2 %
Deviation from perpendicularity	6 mm	
Misalignment of the internal metal facing	± 3 mm	
Bottom sheets coupling	F = 0 + 3 mm	

L = working length, D = panels thickness, F = sheets coupling



THERMAL INSULATION

According to EN 14509 Annex 10

U	PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150
W/m² K	0,71	0,54	0,44	0,37	0,28	0,22	0,19	0,15
kcal/m² h °C	0,61	0,47	0,38	0,32	0,24	0,19	0,16	0,13

According to the calculation method EN ISO 6946

K	PANEL NOMINAL THICKNESS mm							
	30	40	50	60	80	100	120	150
W/m² K	0,55	0,44	0,36	0,31	0,25	0,20	0,17	0,15
kcal/m² h °C	0,48	0,38	0,32	0,27	0,22	0,17	0,15	0,13

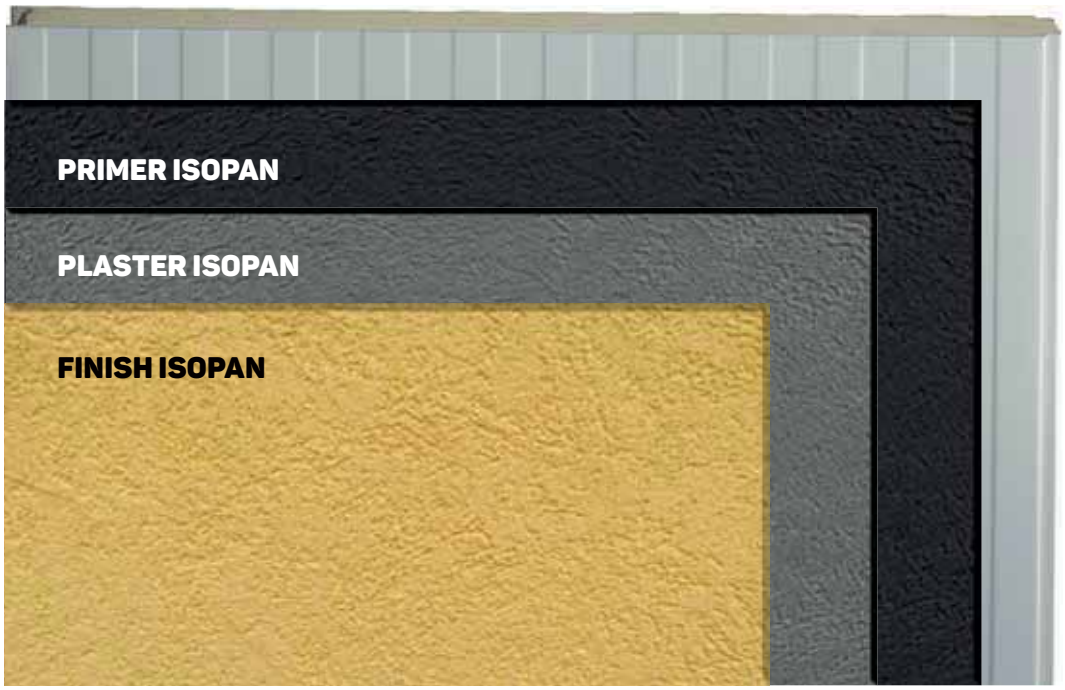
ISOPAN
INSULATING DESIGN

Building technical systems

ISOPAN
INSULATING DESIGN

Isocappotto

Thanks to this Product, Isopan can offer its customers a fast laying system with an insulating power alike to a sandwich-structured composite. Its aesthetic and performance are similar to traditional EIFS walls. ISOCAPPOTTO system is similar to an EIFS wall, but it differs from a classic traditional wall system because it has a double metal cladding insulating panel covered in different materials. This way you can conceal the sandwich-structured composite and have a wall which looks like a classic plastered wall. ISOCAPPOTTO system can be applied to any kind of building, to new industrial or manufacturing buildings (office buildings, factories, warehouses) and to housing estates like condominii and cottages as well. This system is also a valuable solution when refurbishing or modernizing existing buildings.



ISOPAN PRIMER - It is a primer obtained by blending synthetic resin, special asphalt and quartz filler. The mix obtained, once dried, is highly elastic, it adheres to the support and it is waterproof

ISOPAN PLASTER - It is a pre-mixed plaster made of lime, concrete, selected aggregates and additives that make this plaster highly breathable and easy to work with. Applying the Product in a consistent and uniform manner is mandatory in order to obtain a high quality finish.

ISOPAN FINISH - It is a decorative ready-to-use cladding made of synthetic resin in water emulsion, coloured oxides, fine and selected quartz aggregates and additives that make the product easier to work with. Using light and alkali resistant pigments ensures the dye's stability even when exposed to bad weather or sunlight radiations. The cladding is highly elastic and tight-fitting to the supports.

Special solutions

METAL SHEET - PERFORATED SHEETS FOR FACADES

Ark-wall metal Sheet is a system of metallic facades made of perforated sheets, an innovative and versatile product used to cutomize the buildings with a trendy new language that is emerging between professionals companies for the sense of freshness and novelty that it communicates with immediacy; it is a perfectly suited system to the advanced requirements of the contemporary architecture, which is looking for new expressive models, and for new opportunities for visual communication.

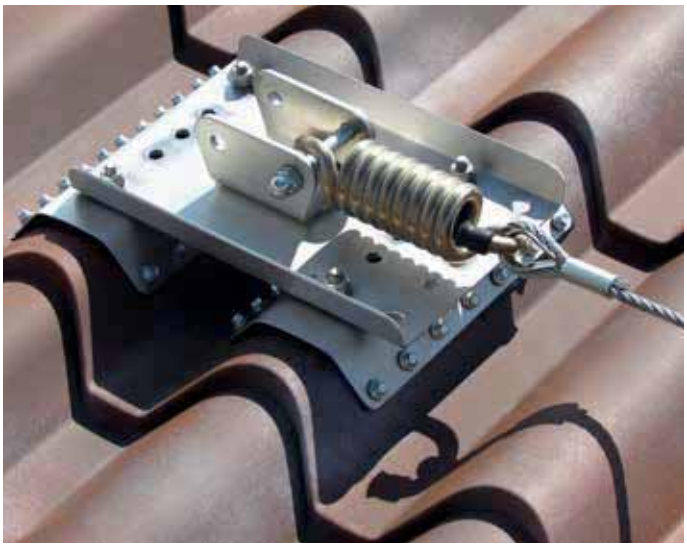
R.A.C. - INSULATED ANGULAR SHEETS

The R.A.C. systems (insulated angular sheets) are angular elements, especially studied to be fitted on Isopan sandwich panels fassades.
The insulated angular sheets are made upon a technical design, on demand of the building site: in so doing it is possible to obtain a practical, elegant finishing, tailor-made for the project.

ISOPAN
INSULATING DESIGN

Isopansafe

Isopansafe brand's objective is to solve any problem related to working at heights. In the construction industry, working at heights expose the workers to high risks concerning their health and safety, in particular fall risks and other serious work injuries which represent a high percentage of fatal injuries.
Every property manager, employer and manager could be involved in a criminal or civil procedure if violations or ommissions of the current legislation emerge.In accordance with the most severe national and European legislations, Isopansafe includes a series "linea vita" and accessories, which are adaptable to every building need and type, in order to ensure the workers a high degree of safety during building operations and maintenance. The experiences made on the field and the substantial knowledge of Isopan, Sistemi certificati S.r.l and Ejot allowed the development of innovative technologies and Products concerning both the installed systems' safety and their adaptability and compatibility with every supporting structure



ISOPANSAFE anti-fall systems guarantee worker safety when working at heights on roofs and allow them complete freedom of movement during interventions; the devices are EC type marked and certified according to UNI EN 795 2002 regulation.
ISOPAN has created in particular two Product lines which, depending on the needs, can be used on industrial, commercial and private housing buildings of any size. Both systems are cheap and quick to install. The differences between this two systems consist of Isopansafe Structural being recommended in ridge operations, while ISOPANSAFE BASE is recommended when installing anti-fall systems to work on slopes.
The collaboration between ISOPAN S.p.A. and EJOT (fixing technology specialist) allows the customer to have an EJOT technician at his disposal for inspection on the construction site, who then will be able to recommend the best technical solution for the intervention.

ISOPANSAFE STRUCTURAL RIDGE FIXING SYSTEM

ISOPAN SAFE STRUCTURAL system is a flat-base ridge fixing system used on wooden, metal or concrete beams. This horizontal device can be used by four workers simultaneously and it is made of external poles (100m distance at most) spaced out by internal poles at 15 m of interaxle distace at most. If needed, the latter allow to redirect the path (bent poles). The base plate dimensions are 150mm x 250mm, while the pole is available in different heights depending on the roof set; they are both made of INOX or zinc-coated steel.

ISOPANSAFE BASE SLOPE FIXING SYSTEM

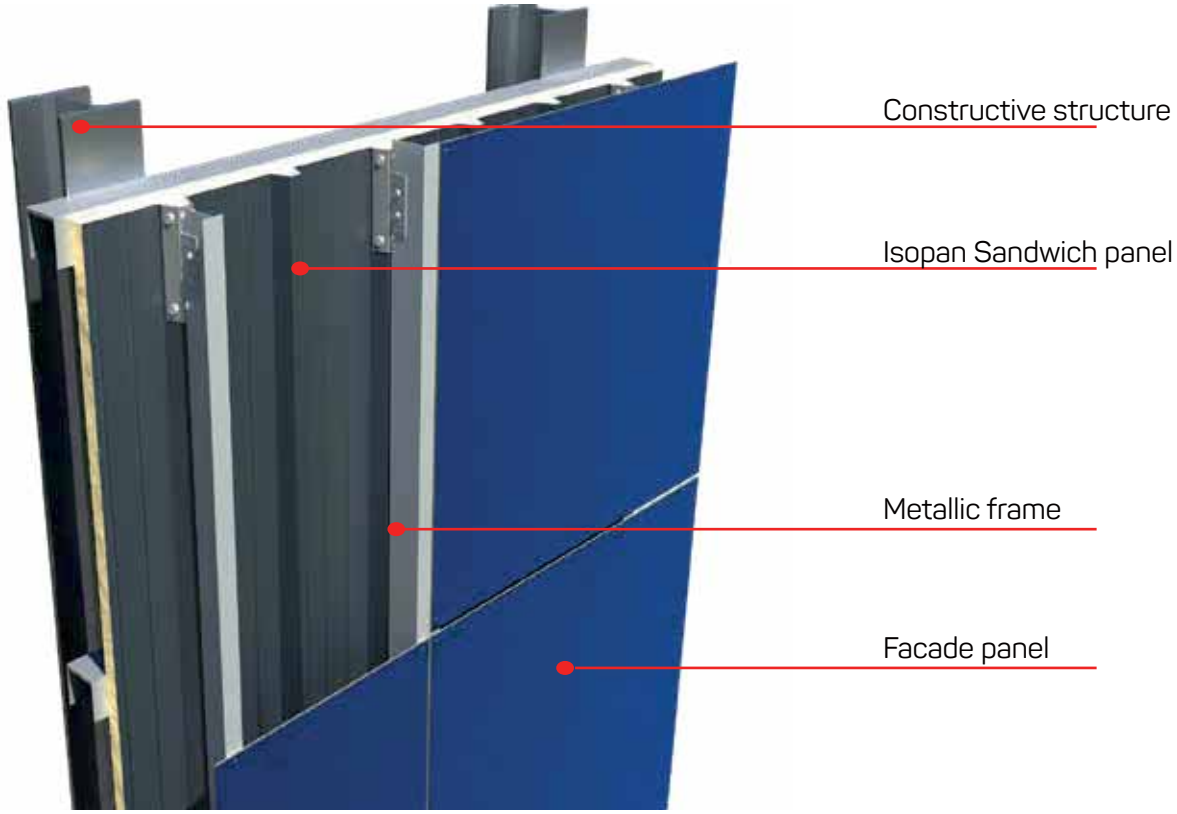
ISOPAN SAFE BASE is a slope fixing system that can be used only with roof made of ISOCOP-5 1000 or ISODOMUS panels; 3 fixing models are available, the superstructure fixing, the substructure fixing and the hybrid. This system can be used by four workers simultaneously and it can be installed in a kit up to 100m with internal span interaxle of 15m at most. ISOPAN SAFE BASE is completely waterproof thanks to the seals inserted on the screws' head and caps and to the seals deployed before the trestles. The plate dimensions are 195mm x 300mm; the dimesions of the trestle are 250mm x 56mm with a 25mm interaxle when used with an ISOCOP-5 1000 panel, and 250mm x 137mm with 200mm interaxle when used with ISODOMUS panel. All components are made with INOX steel.

ISOPAN
INSULATING DESIGN

ARK WALL

Ark-Wall is a technological system constituted by several layers, mechanically fixed to the building by means of metallic supports, that, applied to the external walls of the buildings gurantees two fondamental conditions for the well-living: insulation and transpirability. From the structural point of view ARK-WALL is made out of three main components:

- sandwich panel with double metal support, which ensures thermal and acustic insulation thanks to its internal insulating mass made of high-density polyurethane foam or mineral wool;
- facade panel, strong and of a high aesthetic quality. At disposal in the HPL version, so as in pressed mineral wool;
- fixing systems to the wall.



ADVANTAGES

- Thermal insulation;
- Acustic insulation;
- technical spaces easy to obtain from the air gap;
- Completeness and stability of the system,due to the insulating sandwich panel and to the facade panel;
- Big weight reduction of the structure on the building due to the use of light meterials;
-
- Elimination of detachment problems, thanks to the mechanical fixing system;
- Elimination of the risk to break the cladding, thanks to the thermal expansion of all components;
- Easy cleaning of the walls;
- Resistance to earthquakes;
- High architectural and aesthetic value;
- Great possibility to customize the system, due to a wide range of thickness of the sandwich panel so as of the facade colours..

ARK WALL

REALIZATIONS

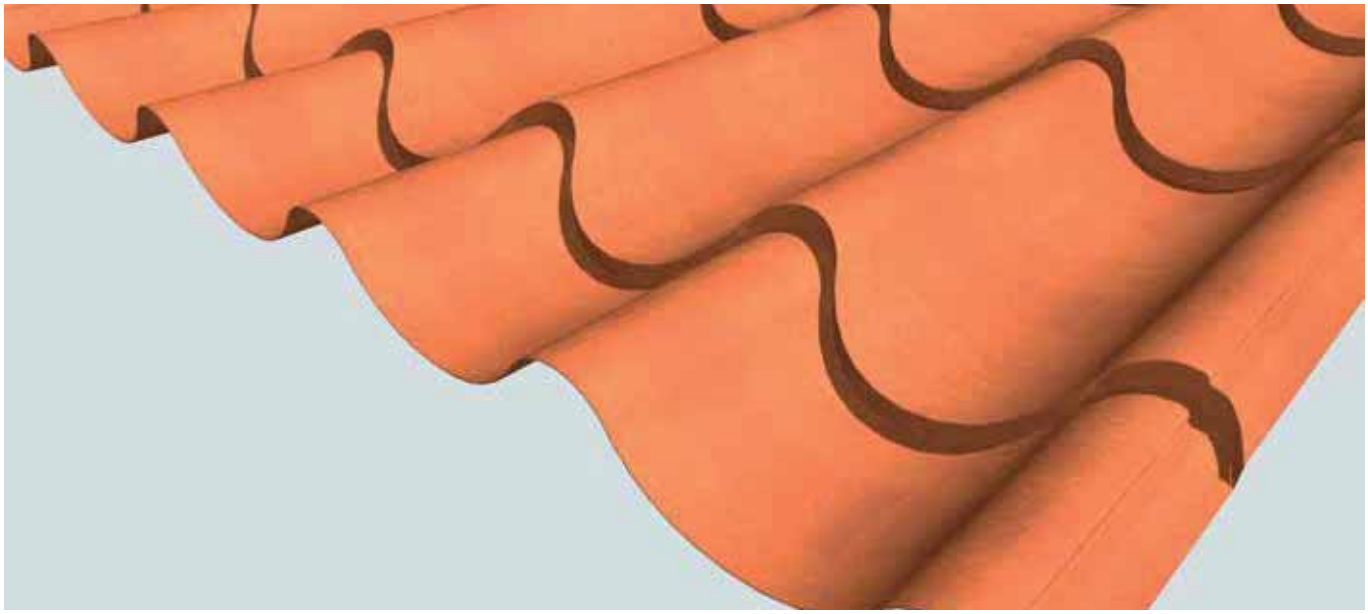
Corrugated Sheets

ISOPAN
INSULATING DESIGN

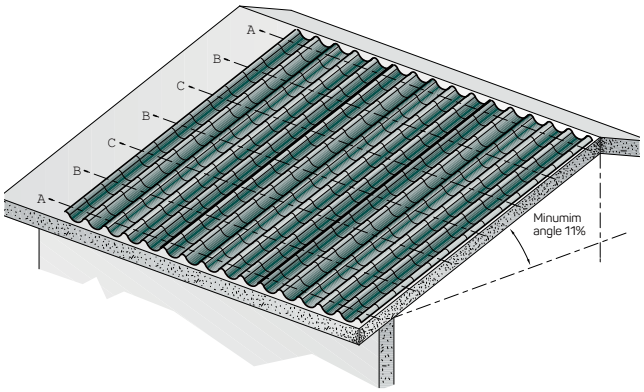
LG 50

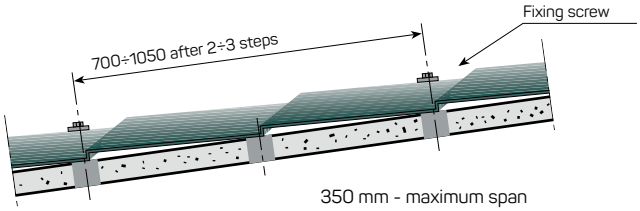
Manufactured in: Italy

It is a profiled sheet with a tile shape, that represents the best aesthetic evolution of a roof sheet made for public construction. The design, with a standard tile shape, allows for the creation of functional roofs that are aesthetically pleasing, light, extremely easy to install and waterproof.



Standard length mm								
1200	2250	2950	4000	4700	5050	5750	6100	6450



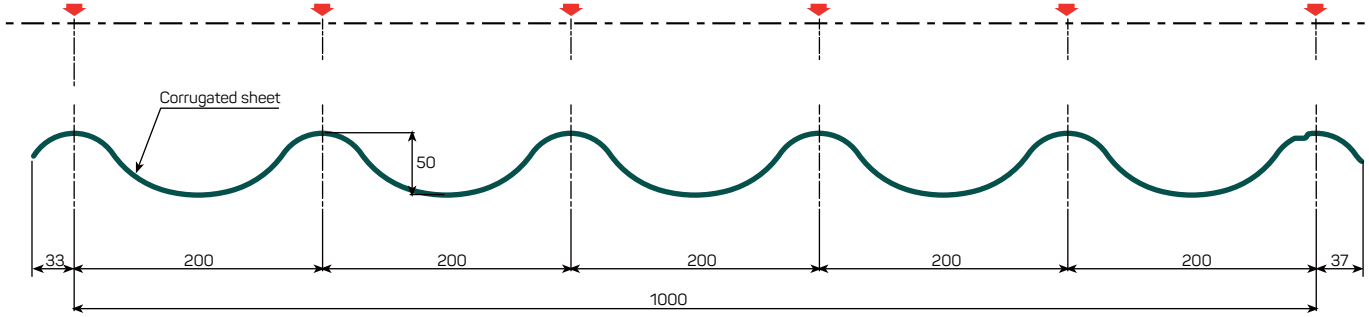


DEVIATION mm	
Length	± 10 mm
Working width	± 5 mm

Fixing screws position C

Fixing screws position B

Fixing screws position A

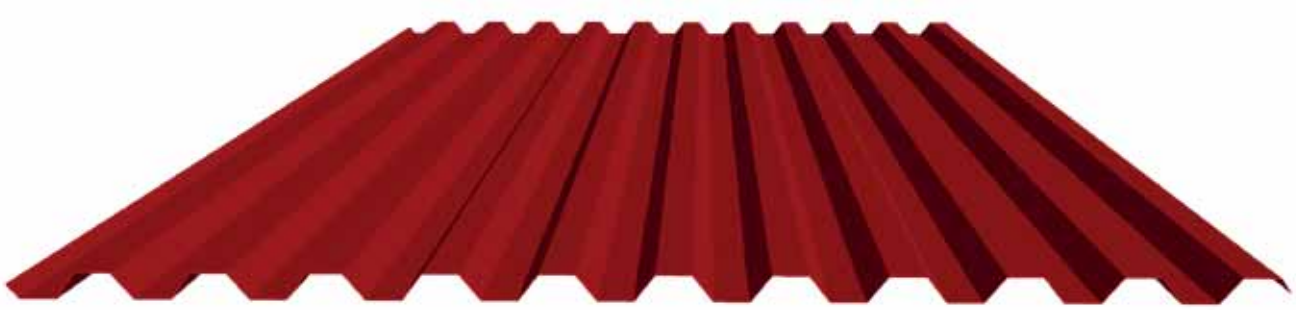


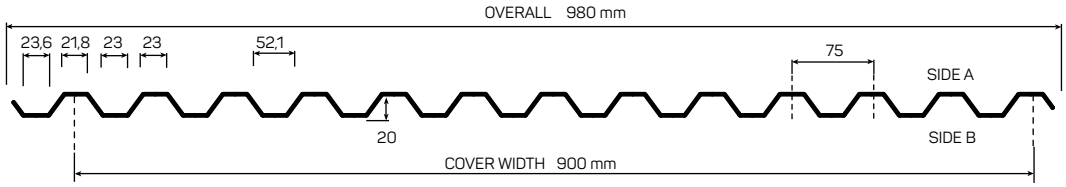
The sheet can be provided with anticondensation material whose major characteristics are defined in the "technical data" section (only on request).

ISOPAN
INSULATING DESIGN

LG 20

Produced in: Italy



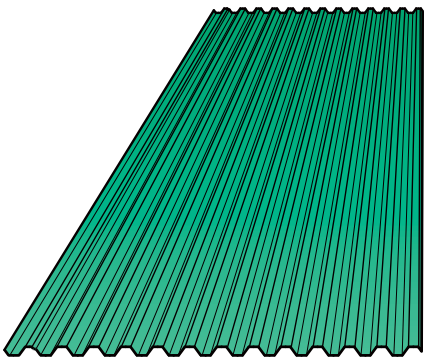


DIMENSION TOLERANCE

Length	+10 mm up to 3000 mm +20 mm over 3000 mm -5 mm for all length
Cover width	± 5 mm
Deviation from cutting line squareness	S ≤ 0,5% Cover width

SVILUPPO 1250 mm

Overlap example



CARICO MASSIMO UNIFORMEMENTE DISTRIBUITO IN kg/m² LG 20

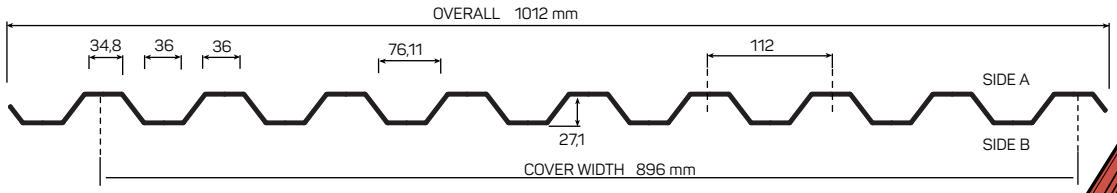
Thickness mm	ACCIAIO - INTERASSE m							ALLUMINIO - INTERASSE m					
	1,00	1,25	1,50	1,75	2,00	2,25	2,50	1,00	1,25	1,50	1,75	2,00	2,25
0,5	430	220	128	80	54	38	28	138	70	41	26	17	12
0,6	530	270	155	100	65	45	34	168	86	50	31	21	15
0,7	630	320	185	115	78	55	40	200	102	58	37	25	17
0,8	700	370	215	135	90	62	45	230	118	68	43	29	20

ISOPAN
INSULATING DESIGN

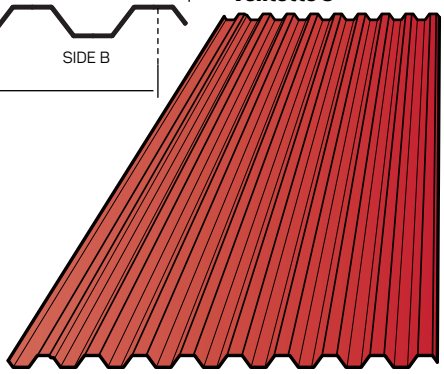
LG 28

Produced in: Italy

VENTOTTO 9 - STANDARD



Ventotto 9



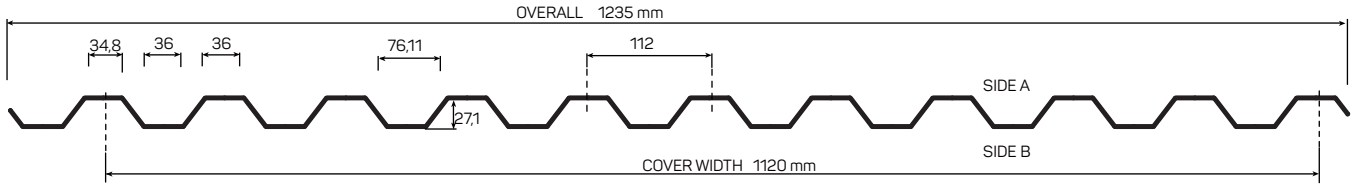
DIMENSION TOLERANCE

Length	+10 mm up to 3000 mm +20 mm over 3000 mm -5 mm for all length
Cover width	± 5 mm
Deviation from cutting line squareness	S ≤ 0,5% della Cover width

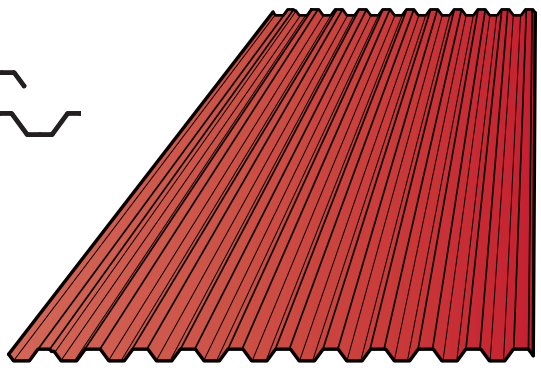
Overlap example

SVILUPPO 1250 mm

VENTOTTO 11 - NOT STANDARD



Ventotto 11



Section Characteristics

		Thickness mm			
		0,5	0,6	0,7	0,8
Weight (steel) (kg/m2 gross)		4,77	5,73	6,68	7,64
Weight (aluminium) (kg/m2 gross)		1,65	1,98	2,32	2,65
J	(cm^4/m)	5,96	7,29	8,62	9,94
W	(cm^3/m)	4,10	4,99	5,88	6,76

Overlap example

SVILUPPO 1500 mm

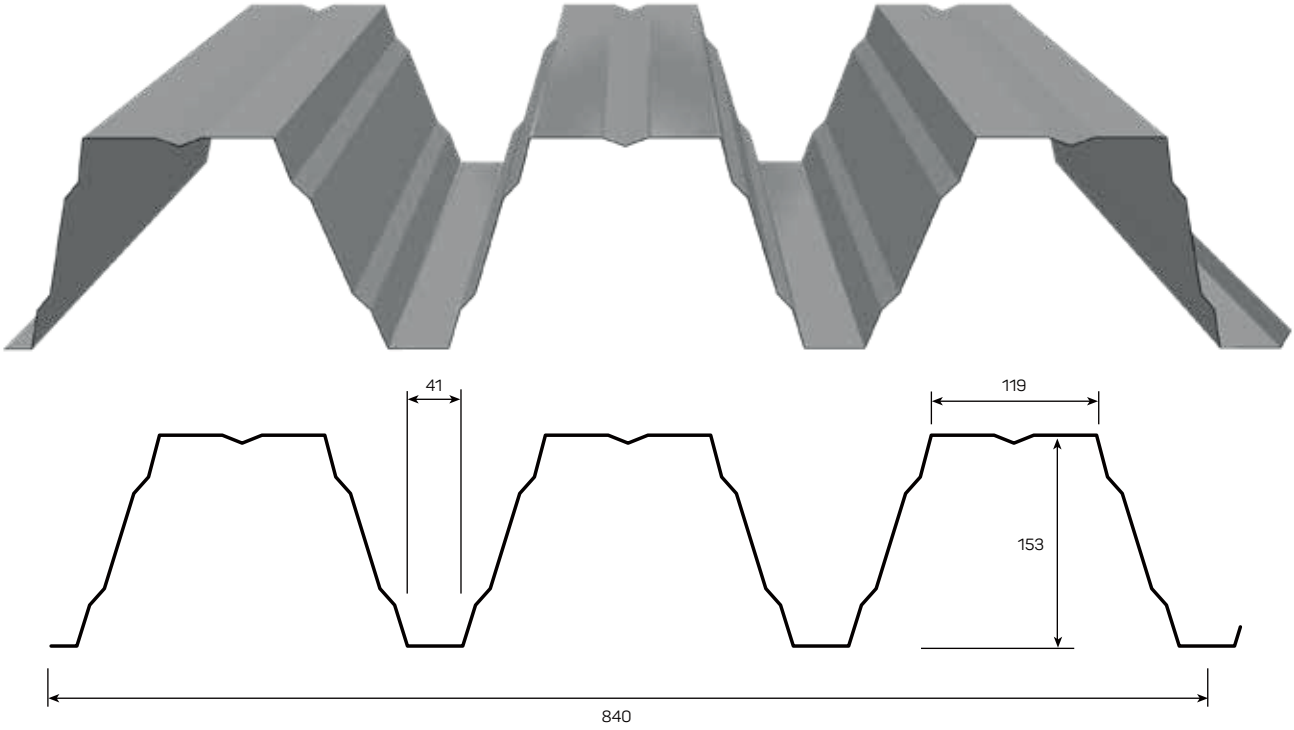
UNIFORMLY DISTRIBUTED MAXIMUM LOADkg/m² LG 28

THICKNESS mm	STEEL - SPAN m							ALUMINIUM - SPAN					
	1,00	1,25	1,50	1,75	2,00	2,25	2,50	1,00	1,25	1,50	1,75	2,00	2,25
0,5	690	350	205	128	85	60	44	220	112	65	41	28	19
0,6	820	430	250	155	105	74	53	268	138	80	50	34	24
0,7	1000	510	290	185	125	88	63	315	160	94	60	40	28
0,8	1110	580	340	215	145	100	75	365	185	108	68	46	32

ISOPAN
INSULATING DESIGN

LG 153

Manufactured in: Romania



Section Characteristics

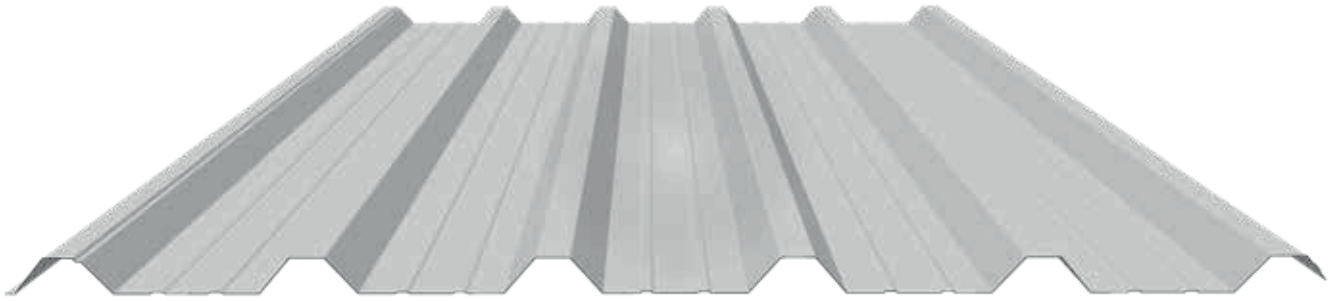
	THICKNESS mm			
	0,75	0,88	1,00	1,25
Weight (steel) (kg/m2 gross)	10,51	12,34	14,02	17,52

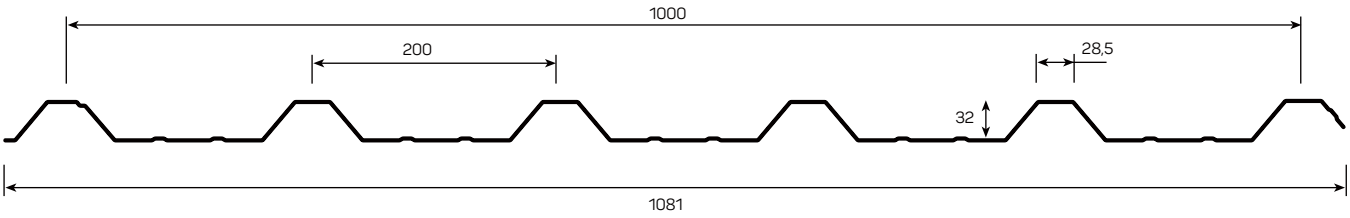
UNIFORMLY DISTRIBUTED MAXIMUM LOADkg/m² LG 153 - f=L/200																		
THICKNESS mm		SPAN m																
		4,00	4,25	4,50	4,75	5,00	5,25	5,50	5,75	6,00	6,25	6,50	6,75	7,00	7,25	7,50	7,75	8,00
	0,75	466	387	324	274	233	200	173	151	131	115	101	89	79	70	62	55	49
	0,88	564	467	392	332	282	243	209	182	158	138	123	108	95	84	75	67	60
	1,00	655	543	455	385	328	282	243	211	184	161	142	125	111	98	88	78	70
	1,25	822	682	572	484	412	353	305	265	231	202	178	157	139	124	111	98	88
	0,75	1141	950	799	677	579	499	432	377	331	291	258	229	204	183	164	148	134
	0,88	1377	1145	963	817	699	602	522	455	399	352	311	277	247	221	198	178	161
	1,00	1597	1328	1117	947	811	698	605	528	463	408	361	321	286	256	230	207	187
	1,25	2007	1671	1404	1191	1018	878	761	664	582	513	454	404	360	322	289	261	235
	0,75	904	752	632	535	457	394	341	297	260	229	203	180	160	144	129	115	104
	0,88	1091	908	763	647	553	476	412	359	314	277	245	217	194	173	155	139	126
	1,00	1266	1053	886	751	642	552	479	416	365	321	284	252	225	201	180	162	146
	1,25	1590	1322	1111	943	805	693	601	524	459	404	357	317	282	253	226	203	183

ISOPAN
INSULATING DESIGN

LG 32

Manufactured in: Spain





Section Characteristics

	THICKNESS mm				
	0,5	0,6	0,7	0,8	1,0
WEIGHT (kg/m²)	4,70	5,66	6,60	7,55	9,45

DIMENSION TOLERANCE

Length	+10 mm up to 3000 mm +20 mm over 3000 mm -5 mm for all length
Cover width	± 5 mm
Deviation from cutting line squareness	S ≤ 0,5% della Cover width

UNIFORMLY DISTRIBUTED MAXIMUM LOADkg/m² LG 32

THICKNESS mm		SPAN m								
		1,00	1,25	1,50	1,75	2,00	2,25	2,50	2,75	3,00
	0,5	300	200	140	120	80	60			
	0,6	380	240	180	140	105	60			
	0,7	440	280	200	150	115	80			
	0,8	520	320	220	160	120	90	60		
	1,0	600	420	260	200	140	100	80	60	
	0,5	400	260	200	140	120	80	60		
	0,6	500	320	220	180	135	100	90	60	
	0,7	580	380	260	200	150	120	95	65	
	0,8	660	440	300	220	160	130	100	80	60
	1,0	800	540	400	260	200	140	120	95	80

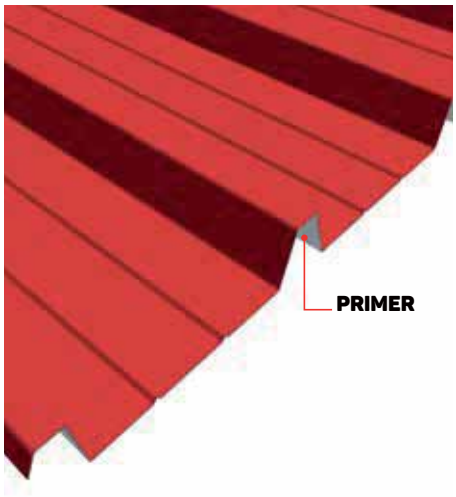
ISOPAN
INSULATING DESIGN

LG 40 - LG 40R

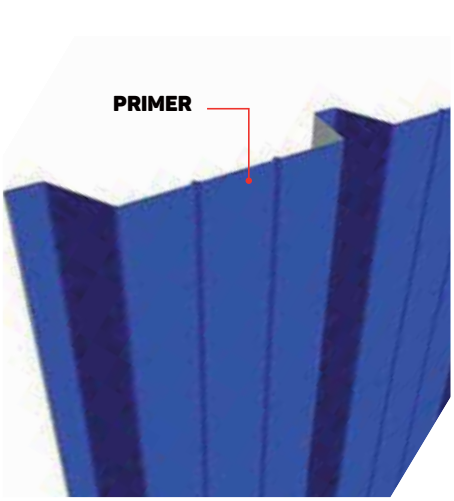
Manufactured in: Italy, Romania

The LG40 system is particularly easy to handle and install, with straight and curved sheets; if it is made of aluminium, it can be curved on site, depending on the thickness.

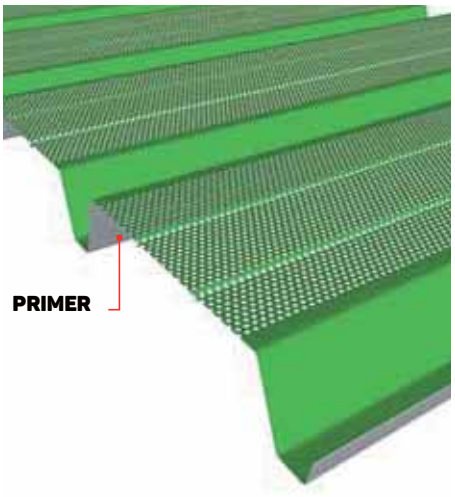
LG 40



LG 40R
N.B. LG 40R can be used for facade installatios

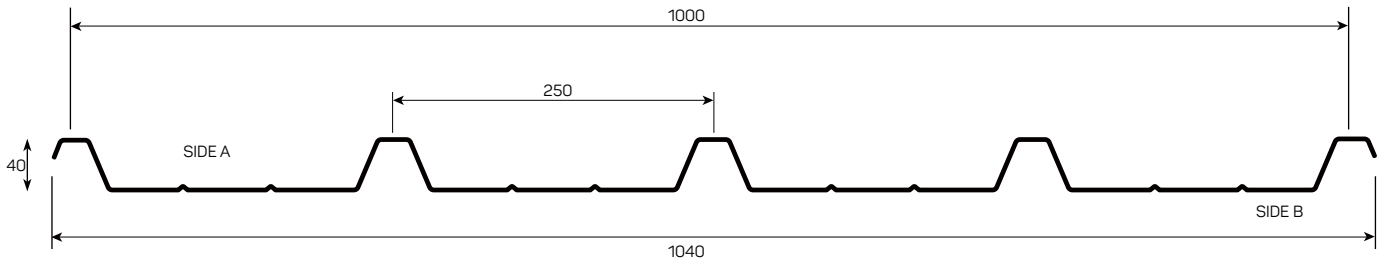


LG 40 forata

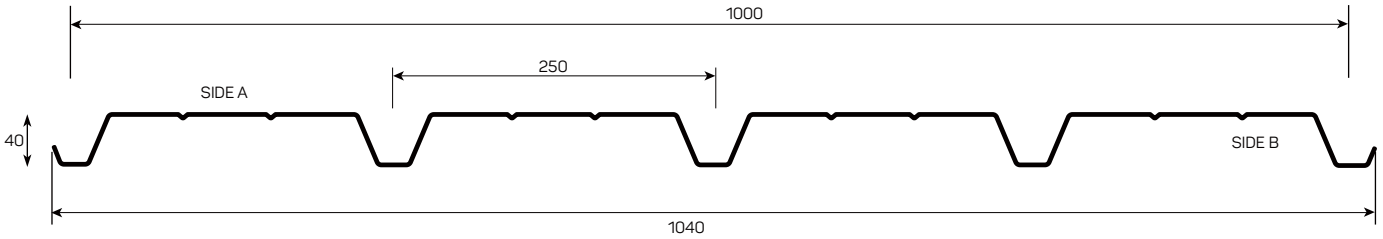


LG 40 - LG 40R

LG 40



LG 40 R



Section Characteristics

		THICKNESS mm				
		0,5	0,6	0,7	0,8	1,0
WEIGHT	(kg/m²)	4,9	5,89	6,87	7,85	9,81
J	(cm⁴/m)	12,3	16,05	18,72	21,40	26,75
W	(cm³/m)	3,92	5,30	6,18	7,07	8,83

DIMENSION TOLERANCE

Length	+10 mm up to 3000 mm +20 mm over 3000 mm -5 mm for all length
Cover width	± 5 mm
Deviation from cutting line squareness	S ≤ 0,5% della Cover width

UNIFORMLY DISTRIBUTED MAXIMUM LOADkg/m²

THICKNESS mm	LG 40 SPAN m													LG 40R SPAN m											
	1,00	1,25	1,50	1,75	2,00	2,25	2,50	2,75	3,00	3,25	3,5	3,75	4	1,00	1,25	1,50	1,75	2,00	2,25	2,50	2,75	3,00	3,25	3,5	3,75	4
0,5	439	281	185	143	109	86	63 70	47 58	36 48					360	230	152	104 117	84 109	59 74	37 57	27 47						
0,6	614	393	273	200	153	115 121	84 98	63 81	48 68	38 58				504	322	224	145 164	97 126	68 99	49 80	37 66						
0,7	716	458	318	234	179	135 141	98 114	73 94	57 79	67 44	35 58			603	386	268	178 196	119 150	84 119	61 96	46 79	35 66					
0,8	820	524	364	267	205	154 162	112 131	84 108	65 91	51 77	41 67	33 58		701	449	311	214 229	143 175	100 138	73 112	55 92	42 78	33 65	27 56			
1,0	1024	655	455	334	256	193 202	140 163	105 135	81 113	64 97	51 83	41 72	34 64	903	578	401	289 295	194 225	136 178	99 144	74 119	57 100	45 85	36 73	29 64	24 56
0,5	570	365	252	180	141	111	90	67 73	51 62	40 53				467	300	207	147	115	83 91	61 73	41 60	30 51					
0,6	768	491	341	251	192	152	123	101	81 85	64 72	51 62			630	403	280	205	157	113 124	83 100	62 83	48 70					
0,7	896	573	398	292	224	177	143	118	95 99	74 84	59 73	48 63		754	482	335	246	188	140 148	102 120	76 99	59 83	46 71	37 61			
0,8	1025	656	455	334	256	202	164	135	108 113	85 97	68 83	55 72	45 64	877	561	389	286	219	168 173	122 140	92 116	71 97	55 83	44 71	36 62		
1,0	1280	819	569	418	320	253	204	169	135 142	106 121	85 104	69 91	57 80	1129	722	502	368	282	223	165 180	124 149	95 125	75 106	60 92	49 80	40 70	

Red values don't consider deflection limits

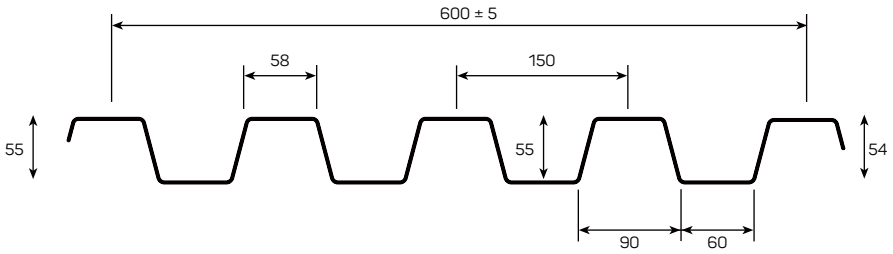
ISOPAN
INSULATING DESIGN

LG 55/600 - 750

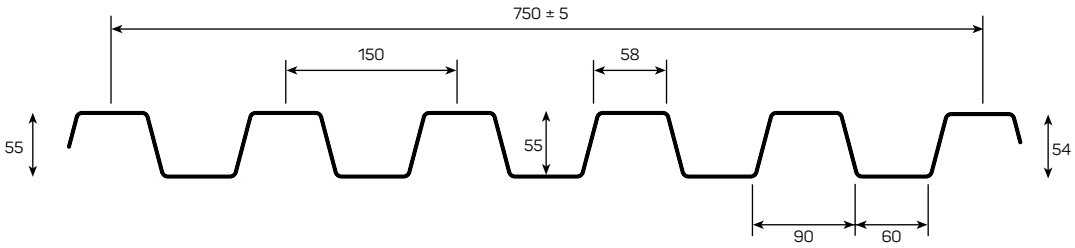
Manufactured in: Italy

LG 55/600 - 750

LG 55/600



LG 55/750



Section Characteristics

		THICKNESS mm				
		0,6	0,7	0,8	1,0	1,25
Peso	(kg/m²)	7,8	9,1	10,5	13,1	16,3
J	(cm⁴/m)	38,8	47,2	55,8	73,7	96,3
W	(cm³/m)	11,3	13,9	16,8	23	31,3

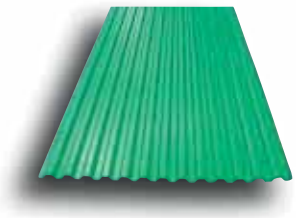
DIMENSION TOLERANCE

Length	+10 mm up to 3000 mm +20 mm over 3000 mm -5 mm for all length
Cover width	± 5 mm
Deviation from cutting line squareness	S ≤ 0,5% della Cover width

UNIFORMLY DISTRIBUTED MAXIMUM LOADkg/m²

UNIFORMLY DISTRIBUTED MAXIMUM LOADkg/m² LG 55/600-750																	
THICKNESS mm		SPAN m															
		1,00	1,25	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
	0,6	1433	914	633	463	352	266 277	192 223	183 142	108 152	83 128	65 110	51 94	41 82	33 72	26 63	21 56	17 50
	0,7	1776	1133	784	573	436	324 343	233 276	173 226	131 188	101 159	79 136	62 117	49 102	40 89	32 78	25 69	20 61
	0,8	2142	1367	946	693	528	385 415	278 334	206 275	157 229	121 194	95 166	75 143	60 124	49 109	39 96	32 85	26 76
	1,0	2929	1871	1295	948	730 723	509 569	368 459	273 377	208 315	161 266	126 228	101 197	81 172	65 151	53 133	43 116	36 106
	1,25	3990	2548	1765	1293	955 986	666 776	482 626	358 515	272 430	211 364	166 312	132 270	106 235	86 207	70 183	57 163	47 145
	0,6	1794	1145	793	580	442	348	280	230	185 192	144 163	114 139	91 120	73 105	60 92	49 81	41 72	34 64
	0,7	2224	1420	984	721	550	433	349	287	227 240	177 203	140 174	112 151	91 132	75 116	62 102	51 91	43 81
	0,8	2680	1711	1185	868	662	521	420	346 351	268 289	208 245	165 210	132 181	107 158	88 139	72 123	60 109	50 98
	1,0	3685	2341	1622	1189	907	714	576	464 474	354 397	276 336	219 288	176 249	143 218	117 192	97 170	80 151	67 135
	1,25	4991	3189	2210	1620	1237	974	786	607 647	464 541	362 459	287 394	230 341	187 298	153 262	127 232	106 207	88 185

Red values don't consider deflection limits



STRAIGHT PROFILED SHEETS
It is possible to profile the sheets of the Venti and Ventotto systems.

Characteristics:
- minimum working thickness: 0,5 mm;
- maximum working thickness: 0,8 mm;
- maximum working length: 14.000 mm;
- minimum working length: 1.000 mm.

CURVED SHEETS
It is possible to bend the sheets of the Venti and Ventotto systems with a die.

Characteristics:
- sheet minimum length 1.000 mm;
- minimum radius of curvature 700 mm;
- sheet maximum length 6.000 mm.

For sheets with different dimensions than the indicated ones, we recommend to contact Isopan's technical office in order to valuate the feasibility.

BENT SHEETS WITH DIES
It is possible to bend the sheets with the Venti and Ventotto profiles with customized dies.

Characteristics:
- sheet minimum length 1.000 mm;
- sheet maximum length: 6.000 mm.

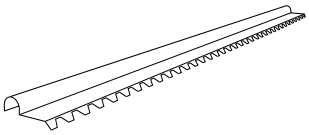
For sheets with different dimensions than the indicated ones or very complex sheets (with more than one curve or with different angles), we recommend to contact Isopan's technical office in order to valuate the feasibility.

FOR RIDGE USE

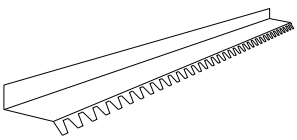
SYMMETRIC ROOF/WALL JOINT

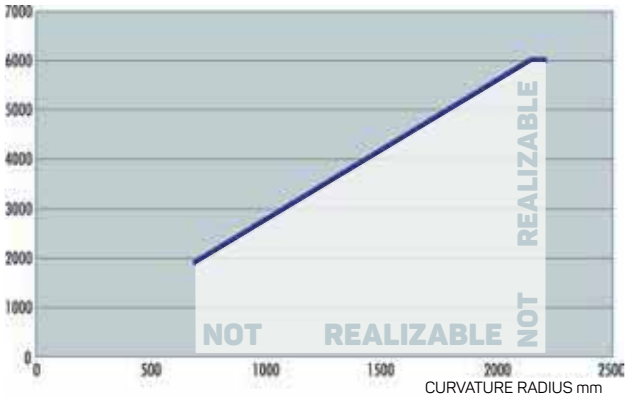
ASYMMETRIC ROOF/WALL JOINT

DIE-CUT HINGED RIDGE



DIE-CUT FLASHING





CURVED SHEET

SPECIAL CURVED SHEET PARTIALLY BENT WITH DIE

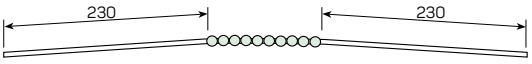
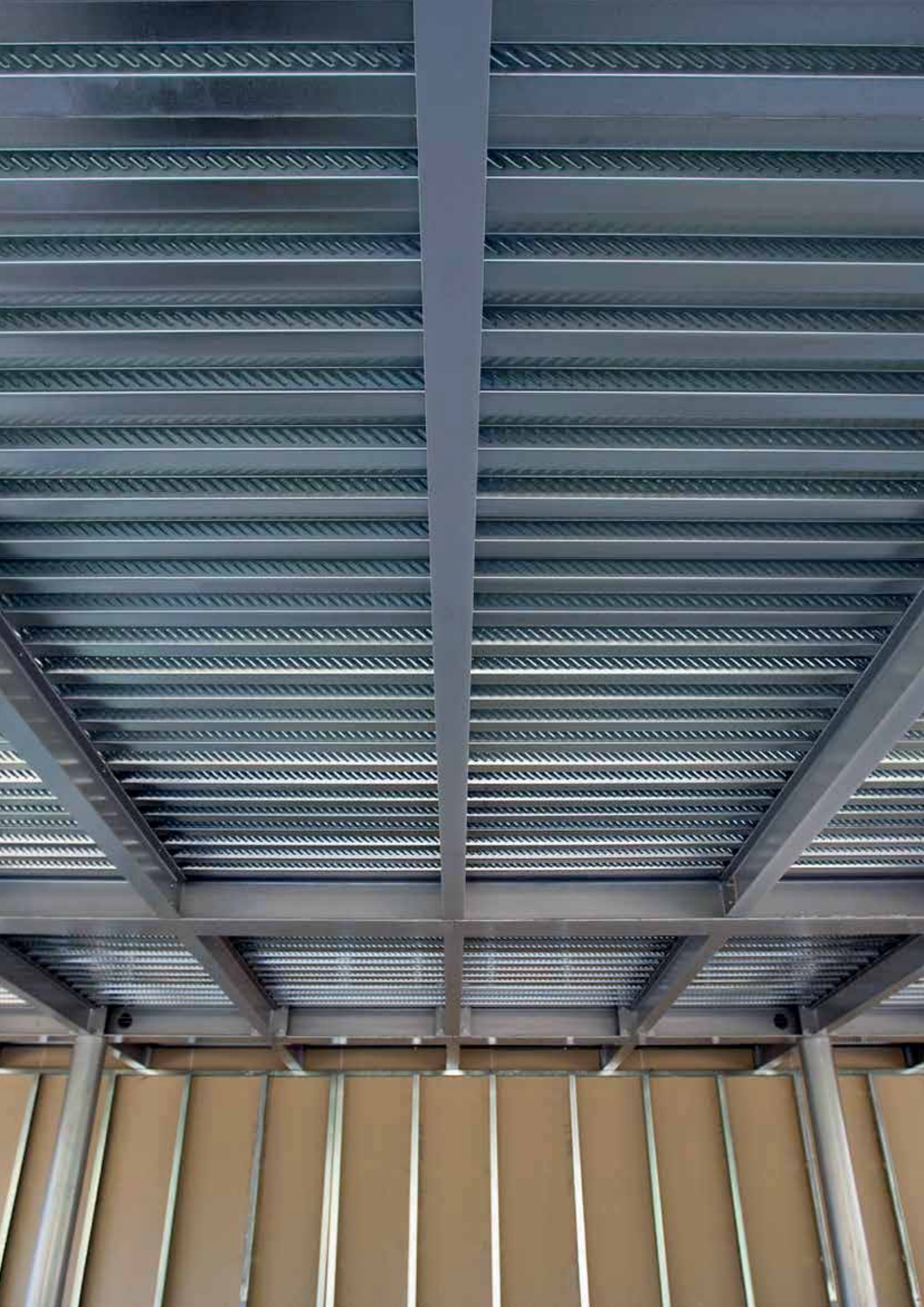
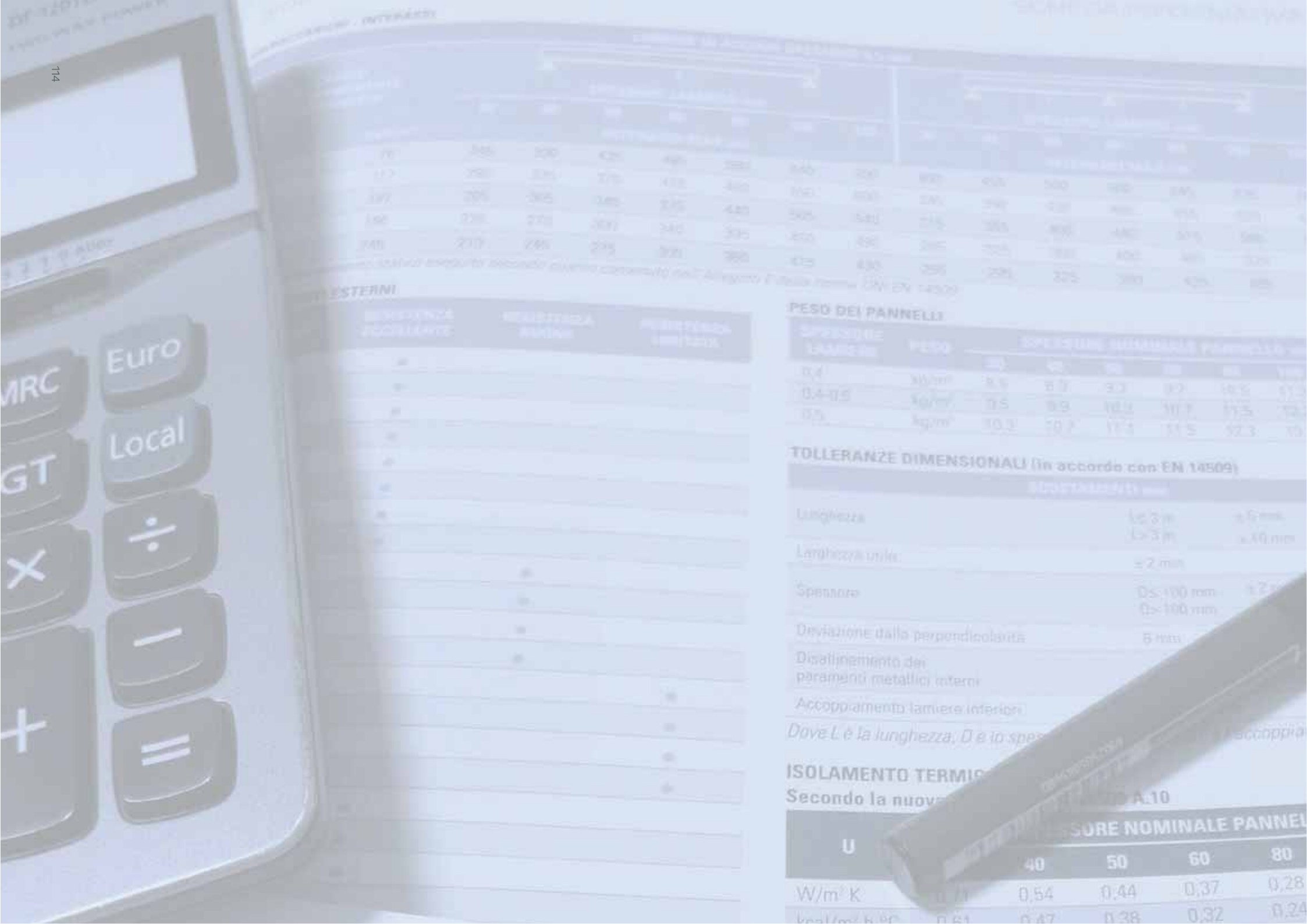


TABLE OF THE TECHNICAL CHARACTERISTICS OF THE ANITCONDENSATION FELT APPLICABLE DURING THE PRODUCTION PHASE

Colour	bianco grigio		
Thickness - felt	DIN EN ISO 9073 - 2	mm	1
Water absorption		g/m²	> 900
Reaction to fire	DIN 4102/1		B 1
Sound absorption	DIN EN 20354	125 Hz 500 Hz 1000 Hz 2000 Hz 4000 Hz	Reduction 2% Reduction 4% Reduction 4% Reduction 1,2% Reduction 4,2%
Heat conductivity	DIN 52612	W/mK	0,045





PESO DEI PANNELLI

TOLLERANZE DIMENSIONALI (in accordo con EN 14509)

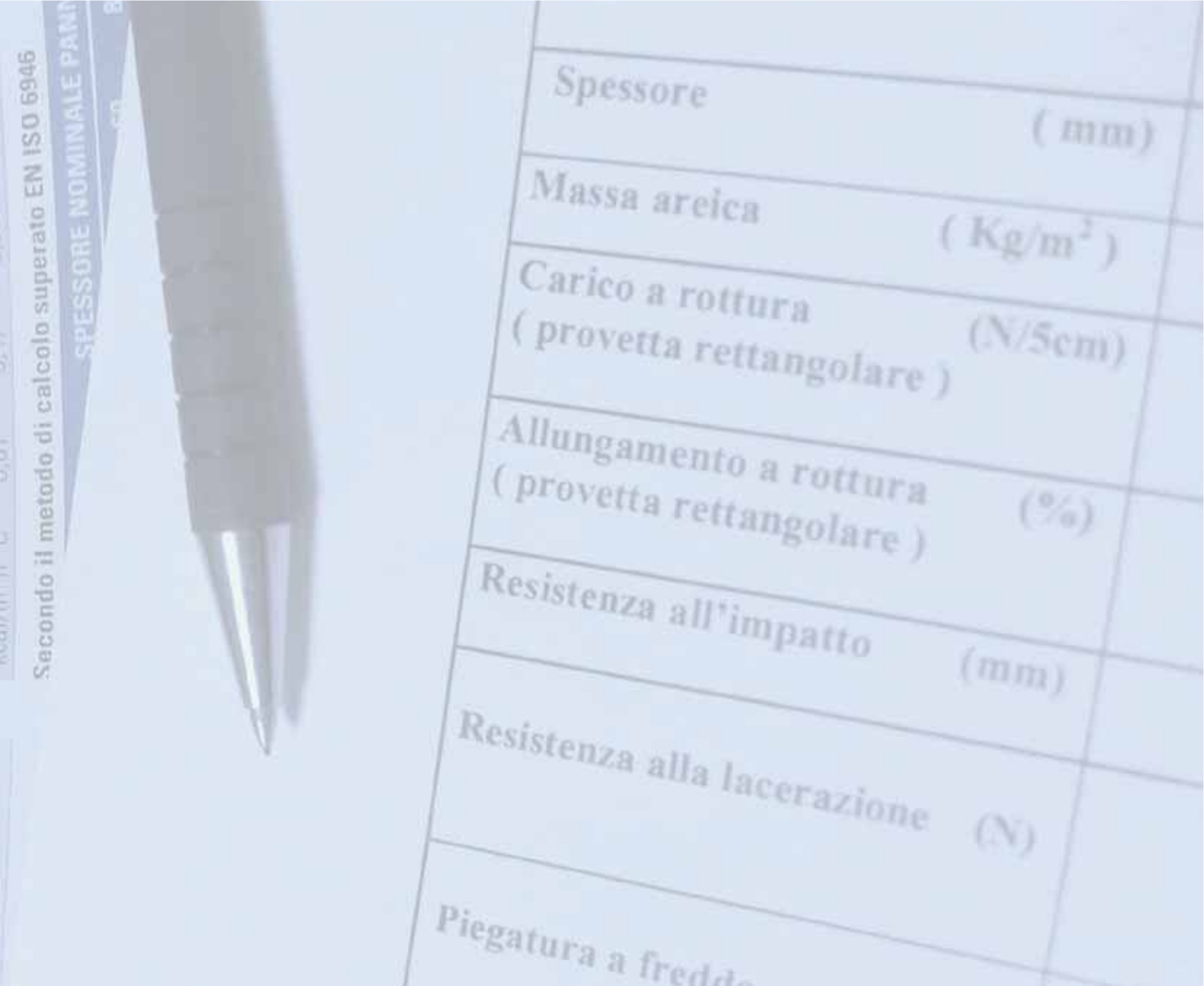
Lunghezza	L≤3 m ±5 mm L>3 m ±10 mm
Larghezza utile	±2 mm
Spessore	D≤100 mm ±2 mm D>100 mm
Deviazione dalla perpendicolarità	5 mm
Disallineamento dei paramenti metallici interni	
Accoppiamento lamiere interiori	

Dove L è la lunghezza, D è lo spes… accoppia…

ISOLAMENTO TERMI…

Secondo la nuov… A.10

U	SPESSORE NOMINALE PANNEL…			
	40	50	60	80
W/m² K	0,54	0,44	0,37	0,28
kcal/m² h °C	0,47	0,38	0,32	0,24



Certifications

ATTENTION

Performance declared in the following tables, associated with the available insulating materials, may vary depending on the Production Plant, in accordance with current National and Local standards.
Please check by contacting Isopan.

If not specifically requested, no performance will be provided.

ISOPAN
INSULATING DESIGN

Performance declared in the following tables, associated with the available insulating materials, may vary depending on the Production Plant, in accordance with current National and Local standards. Please check by contacting Isopan.

If not specifically requested, no performance will be provided.

Fire Performance Roof Panels

Indications

- Not produced
- Without certification
- ✓ Certified performance
- ✓ Performance available (Certification extension)
- ✓ Performance available Technical declaration)

	INSULATING MATERIAL	PANEL	PANEL NOMINAL THICKNESS- mm																
FIRE REACTION			30	35	40	50	60	70	72	80	92	100	102	120	140	150	170	180	200
A2 s1 d0	Mineral Wool	Isofire Roof				✓	✓			✓		✓		✓		✓	✓		✓
B s1 d0 [1]	PIR	Isocop	✓		✓	✓	✓			✓		✓		✓		✓			
		Isotego	✓		✓	✓	✓			✓		✓		✓					
		Isotap	✓		✓	✓	✓			✓		✓							
B s2 d0	PIR	Isocop	✓		✓	✓	✓			✓		✓		✓		✓			
		Isotego	✓		✓	✓	✓			✓		✓		✓					
		Isotap	✓		✓	✓	✓			✓		✓							
		Isovela					✓	✓		✓									
B s3 d0	PU	Isocop	✓		✓	✓	✓												
C s3 d0	PU	Isocop								✓		✓		✓		✓			
		Isotego								✓		✓		✓					
		Isotap	✓		✓	✓	✓			✓		✓		✓					
		Isodeck PVSteel PU	✓		✓	✓	✓			✓		✓		✓		✓			
		Isodomus Classic	✓		✓	✓	✓			✓		✓							

Fire reaction Class achieved according to EN 13501-1 and EN 14509/2013.

(1) SPECIAL FORMULA - For further information, please contact Isopan.

RESISTENZA AL FUOCO			30	35	40	50	60	70	72	80	92	100	102	120	140	150	170	180	200
REI 240	Mineral Wool	Isofire Roof																	✓
REI 180	Mineral Wool	Isofire Roof [1]										✓		✓		✓	✓		
REI 120	Mineral Wool	Isofire Roof										✓		✓		✓	✓		
	Mineral Wool	Isofire Roof-Fono												✓		✓	✓		✓
	Mineral Wool	Isodeck PVSteel MW [1]												✓		✓			
REI 60	Mineral Wool	Isofire Roof								✓									
		Isofire Roof-Fono								✓		✓		✓		✓	✓		✓
REI 30	Mineral Wool	Isofire Roof				✓	✓												
	PIR	Isocop [1]										✓		✓		✓			
REI 15	PIR	Isodeck PVSteel [1]										✓		✓		✓			
	PIR	Isocop [1]					✓			✓									
	PU	Isocop [1]								✓		✓		✓		✓			

Fire Resistance Class achieved according to 13501-2 and EN 14509/2013

(1) Performance achievable according to Assembly Instruction

Broof			30	35	40	50	60	70	72	80	92	100	102	120	140	150	170	180	200
Broof (t3)	PU	Isocop	✓		✓	✓	✓			✓		✓		✓					
		Isodomus Classic			✓	✓	✓			✓									
		Isogrecata	✓		✓	✓	✓			✓		✓		✓					
		Isoray			✓	✓	✓			✓		✓		✓					
Broof (t4)	PU	Isocop	✓		✓	✓	✓			✓		✓		✓					

If not specifically requested, Product provided will have no Fire Performance.

ISOPAN
INSULATING DESIGN

Performance declared in the following tables, associated with the available insulating materials, may vary depending on the Production Plant, in accordance with current National and Local standards. Please check by contacting Isopan.

If not specifically requested, no performance will be provided.

Fire Performance Wall Panels

Indications

- Not produced
- Without certification
- ✓ Certified performance
- ✓ Performance available (Certification extension)
- ✓ Performance available Technical declaration)

	INSULATING MATERIAL	PANEL	PANEL NOMINAL THICKNESS- mm															
FIRE REACTION			30	35	40	50	60	70	72	80	92	100	102	120	140	150	170	180	200
A2 s1 d0	Mineral Wool	Isofire Wall				✓	✓			✓		✓		✓		✓	✓		✓
		Isofire Wall Plissé				✓	✓			✓		✓		✓		✓	✓		✓
B s1 d0 [1]	PIR	Isofrigo, Isofrozen, Isofrozen HT								✓		✓		✓		✓		✓	✓
		Isobox	✓	✓	✓	✓	✓			✓		✓		✓					
		Isoparete Plus			✓	✓	✓			✓		✓		✓					
		Isoparete (Plissè, Box)			✓	✓	✓			✓		✓		✓	✓				
		Isoparete Evo					✓			✓		✓		✓		✓			
		Isoclass							✓		✓		✓						
B s2 d0	PIR	Isobox, Isopiano, Isorighe	✓	✓	✓	✓	✓			✓		✓		✓					
		Isoparete (Plissè, Piano, Box)			✓	✓	✓			✓		✓		✓	✓				
		Isoparete Evo					✓			✓		✓		✓		✓			
		Isoparete Plus			✓	✓	✓			✓		✓		✓					
		Isoclass							✓		✓		✓						
		Isofrigo, Isofrozen, Isofrozen HT								✓		✓		✓		✓		✓	✓
	PU	Isofrigo G.I. (Giunto Iniettato)										✓		✓		✓		✓	✓
		Isoparete (Plissè, Piano, Box)			✓	✓	✓			✓		✓		✓	✓				
		Isoclass							✓		✓		✓						
B s3 d0	PU	Isobox, Isopiano, Isorighe	✓	✓	✓	✓	✓			✓		✓		✓					

Fire reaction Class achieved according to EN 13501-1 and EN 14509/2013.

(1) SPECIAL FORMULA - For further information, please contact Isopan.

RESISTENZA AL FUOCO			30	35	40	50	60	70	72	80	92	100	102	120	140	150	170	180	200
EI 180	Mineral Wool	Isofire Wall														✓	✓		✓
EI 120 [1]	Mineral Wool	Isofire Wall										✓		✓		✓	✓		✓
EI 90	Mineral Wool	Isofire Wall												✓		✓	✓		✓
EI 60	Mineral Wool	Isofire Wall								✓		✓							
EI 60 [1]	PIR	Isofrigo, Isofrozen, Isofrozen HT																	✓
EI 30 [1]	Mineral Wool	Isofire Wall				✓	✓												
	PIR	Isofrigo, Isofrozen, Isofrozen HT										✓		✓		✓		✓	
EI 20 [1]	PIR	Isobox, Isopiano, Isorighe					✓			✓		✓		✓					
		Isofrigo, Isofrozen, Isofrozen HT								✓									
EI 15	Mineral Wool	Isofire Wall				✓	✓												
	PIR	Isobox, Isopiano, Isorighe (ceiling)					✓			✓		✓		✓					
EW 240 [1]	Mineral Wool	Isofire Wall														✓	✓		✓
EW 60 [1]	PU	Isobox, Isopiano, Isorighe								✓		✓		✓					

Fire Resistance Class achieved according to 13501-2 and EN 14509/2013

(1) Performance achievable according to Assembly Instruction

If not specifically requested, Product provided will have no Fire Performance.

ISOPAN
INSULATING DESIGN

Performance declared in the following tables, associated with the available insulating materials, may vary depending on the Production Plant, in accordance with current National and Local standards. Please check by contacting Isopan.

If not specifically requested, no performance will be provided.

Acoustic Performance

Indications

- Not produced
- Without certification
- ✓ Certified performance
- ✓ Performance available (Certification extension)
- ✓ Performance available Technical declaration)

	INSULATING MATERIAL	PANEL	PANEL NOMINAL THICKNESS- mm															
ROOF PANELS																		
SOUND INSULATION			30	35	40	50	60	70	72	80	92	100	102	120	140	150	170	180	200
RW = 35 dB	Mineral Wool	Isofire Roof FONO								✓									
RW = 34 dB	Mineral Wool	Isofire Roof FONO										✓		✓		✓	✓		✓
RW = 31 dB	Mineral Wool	Isofire Roof FONO				✓	✓												
RW = 30 dB	Mineral Wool	Isofire Roof				✓													
RW = 29 dB	PIR	Isocop										✓		✓		✓			
RW = 24 dB	Poliurethane	Isodomus Classic			✓	✓	✓			✓									
SOUND ABSORPTION			30	35	40	50	60	70	72	80	92	100	102	120	140	150	170	180	200
αW = 1	Mineral Wool	Isofire Roof FONO				✓	✓			✓		✓		✓		✓	✓		✓

	INSULATING MATERIAL	PANEL	PANEL NOMINAL THICKNESS- mm															
WALL PANELS																		
SOUND INSULATION			30	35	40	50	60	70	72	80	92	100	102	120	140	150	170	180	200
RW = 35 dB	Mineral Wool	Isofire Wall FONO								✓		✓		✓		✓	✓		✓
RW = 34 dB	Mineral Wool	Isofire Wall FONO				✓	✓												
RW = 30 dB	Mineral Wool	Isofire Wall								✓		✓		✓		✓	✓		✓
RW = 29 dB	PIR	Isoparete Plissé										✓		✓	✓				
SOUND ABSORPTION			30	35	40	50	60	70	72	80	92	100	102	120	140	150	170	180	200
αW = 1	Mineral Wool	Isofire Wall FONO				✓	✓			✓		✓		✓		✓	✓		✓

General Technical data

ISOPAN
INSULATING DESIGN

Colour range

Indications

Not available Standard

Available for external sheet support

Available for internal sheet support

Available for both metal supports

Colours available - ITALY Colours match the original colours within the limitations of printing	ISODOMUS (GAMMA)	ISOVELA (GAMMA)	ISOCOP	ISOGRECATA ISODECK	ISOSMART	ISOFIRE ROOF (GAMMA)	ISOBOX (GAMMA)	ISOPARETE	ISOPARETE PLUS	ISOCLASS	ISOFRIGO & ISOFROZEN	ISOFIRE WALL (GAMMA)
White simil-9010	●	●●	●●	●	●●	●●	●●	●●	●●	●●	●●	●●
White simil-9002		●	●	●		●			●●	●●	●●	
White Grey	●●	●●	●●	●	●●	●●	●●	●●	●●	●●	●●	●●
Light Ivory simil-1015							●●	●●	●●		●●	●●
Silver Alluminium simil-9006	●	●	●	●	●	●	●●	●	●	●	●	●
Grey Alluminium simil-9007	●	●	●	●	●	●	●●	●	●	●	●	●
Grey ancient	●	●	●	●	●	●			●	●		
Anthracite grey simil-7016	●	●	●	●	●	●	●	●●	●	●	●●	
Flame red simil-3000								●●	●●	●●	●●	●●
Oxide red simil-3009	●●	●	●●	●		●●						
Testa di Moro	●●	●	●●	●	●●	●●						
Gentian blue simil-5010		●	●	●	●	●●	●●	●●	●●	●●	●●	●●
Grey blue simil-5008		●	●	●		●						
Olive green simil-6003												
Moss green simil-6005		●	●	●	●	●	●●	●	●	●		●
Colza yellow simil-1021												
Rosso Coppo	●	●	●		●	●						
Reale Antico	●											
Antichizzato	●											
Alvero Ellenico	●											
Finto Legno Chiaro	●	●	●		●	●	●● (1)					
Finto Legno Scuro	●	●	●		●	●	●● (1)					

(1) Color not available for panels with flat support (ex: Isopiano)

IMPORTANT: The colours listed above represent the range available for Isopan Italy. For information about the current stock availability, support thicknesses that can be produced, non-standard colours, guarantees and types of supports, contact Isopan Spa. The colours may differ depending on the production lot, therefore the uniformity of shades can be guaranteed only on a single production lot.
The number code indicates the more similar RAL-code.

ISOPAN
INSULATING DESIGN

Services

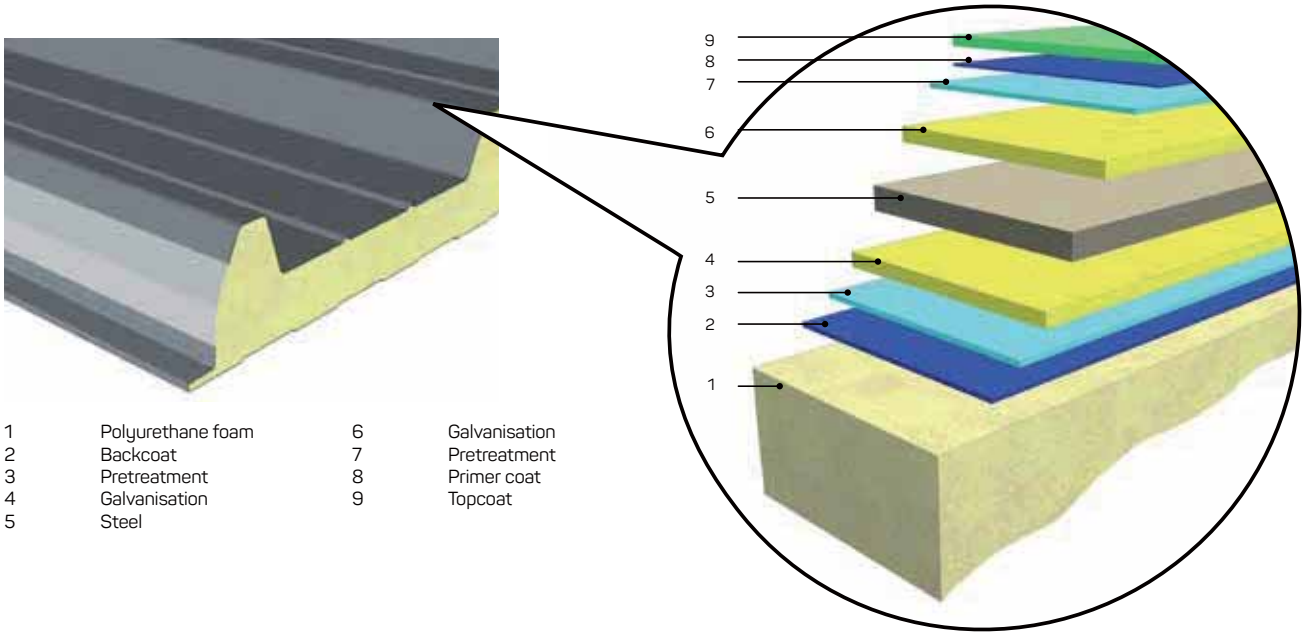
1. Architectonical consulting on design
2. Static consulting on design
3. Consulting on the facing choice
4. Static tests on real scale
5. Technical consulting on product specificities
6. Technical consulting on product certifications
7. Technical consulting on product assembly and fixing
8. Technical consulting on certifications and REI product use
9. Calculation and sizing systems for thermal insulation with calculation report
10. Calculation and static sizing of sandwich panels in compliance with the UNI EN 14509 standard
11. Bending test (resistance to uniformly distributed load) on the product with test report
12. Bending test (resistance to concentrated load) on the product with test report
13. Bending test (resistance to permanent load) on the product with test report
14. Conditioning test in climatic room (temperature-time cycles) on the product with test report
15. Technical assistance on construction site with verification report

The services mentioned above are to be considered as an aid for designing; and in no case they can be considered as project executive elements.
Isopan S.p.A is absolutely not responsible if these services are used or integrated in a project without prior authorization.

ISOPAN
INSULATING DESIGN

Guide to choose the perpainted facing

A steel prepainted product is generally composed of a steel substrate with a galvanised coating, of a surface treatment, a coat of paint called primer and a topcoat called finishing.



1	Polyurethane foam	6	Galvanisation
2	Backcoat	7	Pretreatment
3	Pretreatment	8	Primer coat
4	Galvanisation	9	Topcoat
5	Steel		

THE COATED FACES AND THE CHOICE OF USE

The final user and/or the designer must be helped to choose the fundamental characteristics of the panel and of its metal faces as defined in the "chose the prepainted facing" section of the catalogue.
The choice of the organic coating and its colour must be made considering the final-use of the product with a careful initial design.


CORROSION


CHEMICAL AGGRESSIONS


CONDENSATION


UV RAYS


ABRASION

BOTH METAL FACES

The designer must take into account that both panel faces are in contact with two very different environments. The external face will be in contact with the atmospheric pollution, the wind, the sun and the UV rays of the solar spectrum that, in addition to raising the temperature of the external metal face, have a chemical and physical action on the organic coatings. The internal surface will have a significantly lower temperature thanks to the thermal insulation of the panel, and will not be affected by the action of UV rays and by the direct action of the weather, but will have to do with the internal environment in terms of pollutants due to the production lines, condensation, contact with chemicals used in washing or coming from the vapours, and an

environment also completely different from the outside. The user must then consider these aspects before deciding the panel type and, above all, the metal face to use.
The choice of metal must be done according to some considerations, like the durability related to the environment where the constructions will be installed, the aesthetics and the economic aspect.
A wide range of metal faces can be offered by Isopan :
1) hot dip galvanized steels with different ranges of zinc, aluminium-zinc steels, prepainted steels.
2) Natural or prepainted aluminium, copper, stainless steel

THE PANEL PREPAINTED SHEETS

The prepainted sheets can be supplied on hot dip galvanized substrate or on aluminium.
General considerations: The prepainted steel sheets are part of the panel structural characteristics, thanks to the quality of the steel used, but significantly contribute to the panel durability, protecting the insulating core and giving a unique aesthetic value to the panel and the building, like the colour, the aesthetic and the long-lasting performances. The environmental changes together with the increase of industrial production and the urban pollution, made necessary a higher resistance to corrosion than for natural metals; for this reason, different solutions are available for each requirement and project.
The Isopan products are made with metal substrates faced with materials as described in the diagram.
The organic coating quality must be chosen following the diagram below, depending on the environment where the panels will be installed.

For further information, the designers and our clients are invited to consult our manual for the choice of prepainted metal faces.

ISOPAN
INSULATING DESIGN

ISOPAN S.P.A GENERAL SALES TERMS

THE DOCUMENT HAS BEEN EDITED ACCORDING TO "AIPPEG GENERAL SALES TERMS"

1. SUBJECT AND PARTIES TO THE CONTRACT

1.1 These General Conditions of Sale shall apply to all sales of products manufactured and/or sold by ISOPAN S.p.A. (hereinafter the "Products") entered into by the same ISOPAN S.p.A. (hereinafter "ISOPAN" or the "Seller") with any customer purchasing such Products (hereinafter the "Customer").

1.2 These General Conditions of Sale shall automatically supplement the provisions of any order of Products confirmed by the Seller and/or contract entered into between ISOPAN and the Customer, and they shall supersede any conflicting clause or provision (even if not expressly challenged by the Seller) contained in any order, form, offer or other document whatsoever coming from the Customer.

1.3 Seller shall be entitled to introduce – at any time, even after order confirmation, and without the need of any prior notice or publicity - any modifications or technical improvements to the Products as it may deem necessary or appropriate, without the Customer being entitled to raise any claim or complaint in relation thereto. Being however understood that in no event shall ISOPAN be bound to offer to the Customer any improved or modified version of the Products ordered to it by the Customer, if such improvement or modification to the Products was introduced after the date of issue of the relevant order by the Customer.

2. ORDER – ACCEPTANCE

2.1 Customer's orders shall be transmitted in writing using the ordering forms provided by the Seller, shall be considered as offers and shall remain firm and irrevocable for a period of 30 (thirty) days after their receipt by the Seller.

2.2 Orders shall be deemed accepted and binding upon ISOPAN only upon receipt by the Customer of the relevant written order confirmation sent to it by the Seller, which shall determine acceptance of the order and whose contents shall bind the parties and discipline – together with the provisions of these General Conditions of Sale – the contractual relationship entered into among them.

2.3 Should the order confirmation contain any modifications compared to the order, such modifications shall be deemed forthwith accepted by the Customer once elapsed 10 (ten) days after receipt by the latter of such order confirmation, unless written notice of disagreement is given by the Customer to ISOPAN within the same term.

2.4 Without prejudice to what set forth in article 8.5, should the order confirmation provide for the supply of different types of Products and/or staggered deliveries, each such supply of different types of Products and/or batch of deliveries shall be considered as contractually autonomous in respect to the others.

3. DELIVERY, SHIPPING AND TRANSPORT

3.1 Terms of delivery indicated in the order confirmation shall be calculated in working days, shall not be of the essence, and may be subject to changes by the Seller, by giving notice thereof to the Customer as soon as possible. In all cases, a 15 (fifteen) working days grace period and partial deliveries shall always be allowed.

3.2 Terms of delivery shall be deemed automatically extended in case of (even partial) failure by the Customer to pay any amount owed to ISOPAN, under any title whatsoever.

3.3 Should an advance payment on the order, the opening of a letter of credit or the issuance of a bank guarantee be agreed by the parties, delivery terms will start running as from receipt by ISOPAN of such advance payment or of the documents attesting the opening of the letter of credit or the issuance of the bank guarantee.

3.4 Seller shall not be held liable towards the Customer on account of any delay, loss, damage, cost or expense which may be caused – by way of example and without limitation – by strikes, union agitations, lock-outs, interruption or suspension of transport, accidents, fire, import bans, delay and/or failure by suppliers in delivering raw materials and/or utilities, scarcity or absence of raw material, compliance with any law, regulation or other governmental order, whether or not valid, insurrection, war-like acts, war, the elements, embargoes, acts of God or any other cause beyond its reasonable control.

Seller shall not be deemed responsible for any such event, even in case at the time the impediment occurs it is already late in complying with the agreed terms.

Should the impediment last for more than 30 (thirty) days, the Seller shall be entitled to withdraw from the order, or from such portion of the order not yet fulfilled, by giving written notice thereof to the Customer, who shall not be entitled to raise any complaint or claim whatsoever towards the Seller for any damages which may have been suffered by the Customer, whether directly or indirectly, in consequence of such delay and/or of the Seller's withdrawal.

3.5 As soon as the Products ordered by the Customer are ready for delivery, and within 15 (fifteen) calendar days of receipt by the Customer of the notice of goods ready for delivery sent to it by ISOPAN, the Customer shall collect the Products.

In case of failure by the Customer to collect the Products within the afore mentioned term, the Seller shall be entitled to stock the Products outdoor, and will be relieved from any responsibility or liability in case of possible defects or non-conformities in the Products which may occur in consequence of their exposure to the weather and the elements. In all such cases the Customer shall further forfeit any and all warranty rights, and it shall be charged with handling and stocking costs of the Products, in an amount equal to 1% of the Products' value per each week.

3.6 In cases provided for under article 3.5 above, the Seller shall be further entitled, at its sole discretion, (i) to designate a forwarding agent/carrier of its choice with the shipment of the Products, giving prompt notice to the Customer of the terms and conditions of shipment (all the relevant costs being for the Customers' sole account), or (ii) to stock them at third party's premises at the expense of the Customer, or (iii) to sell the non-collected Products to third parties (without prejudice to the Seller's right to proceed against the Customer in order to obtain payment by the latter of an amount equal to the difference between the contractual price of the Products originally agreed upon with the Customer and the sum actually recovered by ISOPAN from the sale of the Products to third parties, as well as of any further damages suffered by the Seller in consequence thereof).

3.7 In any case, after 8 (eight) days from the date of issue by the Seller of the notice of goods ready for delivery referred to in article 3.5 above, Seller shall be entitled to issue and deliver to the Customer the relevant invoice, and all payment terms of the Products shall start running.

3.8 Any possible apparent defects and non-conformities in the Products and/or missing Products which can be detected by the Customer upon delivery using the ordinary diligence, shall be promptly notified by the Customer to ISOPAN in writing, by reporting them on the relevant bill of lading, under penalty of forfeiture from any warranty.

4. PACKAGING AND PROTECTION

4.1 Products are supplied unpackaged. Any possible packaging desired by the Customer shall be requested by the latter when issuing the relevant order, and shall be charged by ISOPAN in the relevant invoice.

4.2 The choice of the type of packaging shall be made by the Customer, on a case by case basis, in view of the different needs and conditions of shipment, stocking and destination of the Products, and all responsibility and liability for any consequences deriving from such choice shall be entirely and solely borne by the Customer, with express exclusion of any liability or responsibility of the Seller in relation thereto.

Customer is hereby expressly warned and advised that the use of a wrong or inadequate type of packaging, as well as the adoption of erroneous or improper methods of shipping, transport, stocking, handling or assembly (which must be carried out in strict compliance with the Movement, handling and storage instructions and the Assembly instructions respectively attached as annexes A and C to these General Conditions of Sale) may determine condensation and oxidation phenomena and may significantly compromise and jeopardize – in some cases permanently – the Products' qualities and functionality.

4.3 In order to ensure the aesthetic integrity of panels and pre-painted ribbed sheets during the manufacturing, handling, and transport phases, the relevant surfaces are protected with a polyethylene adhesive film. Such firm must be necessarily removed by the Customer during assembling the Products and, in any case, within, and not later than 8 (eight) days after delivery of the Products

Failure by the Customer to remove the film within the term set forth above may cause phenomena, such as an extreme stickness of the film, difficulty of removal of the same, and, sometimes, even unexpected interactions between the film and the underlying organic layer, which may jeopardize and compromise both the Product's quality and its aesthetic aspect.

Therefore, should Customer not timely adopt the above suggested measures, it shall forthwith and automatically forfeit all warranty rights towards the Seller with regard to any possible non-conformities in the Products consisting in the excessive stickness of the adhesive protective film and/or any other consequences possibly caused by, or deriving from (whether directly or indirectly) the afore mentioned adhesive film, or its late removal by the Customer.

4.4 Should the Customer require or accept the supply of painted panels and/or ribbed sheets without any adhesive protective film, it shall assume full responsibility for such choice, it shall be deemed to have waived the right to raise any claim towards ISOPAN in connection with any possible defects or non-conformities in the Products deriving from, or ascribable to the absence of such protective film, and it shall keep ISOPAN harmless from any claim or liability possibly deriving to the latter (whether directly or indirectly) in consequence of the absence of such protective film.

5. TOLERANCES

The Customer accepts the tolerances set forth in Seller's catalogues and/or technical sheets (as from time to time updated by the Seller).

6. WARRANTY

6.1 Seller hereby warrants to Customer that the Products are free from any defect in material and workmanship, within the usual tolerances and within the limits indicated in the technical specifications set forth in the Seller's catalogues and/or technical sheets (without prejudice to what set forth in article 6.11).

6.2 The warranty set forth above shall remain valid for a period of 12 (twelve) months from delivery of the Products to the Customer (the "Warranty Period") and may not be extended or interrupted.

6.3 Without prejudice to what set forth in article 3.8, any possible claims concerning alleged shortages, non-conformities or apparent defects in the Products supplied by ISOPAN to the Customer, shall be notified in writing by the Customer to the Seller (by means of telegram or registered letter with return receipt, anticipated by fax), within 3 (three) days of delivery of the Products, under penalty of forfeiture. In turn, any possible hidden defects shall be notified in writing by the Customer to the Seller prior to expiry of the Warranty Period referred to in article 6.2 and within 8 (eight) days of the relevant discovery (of from the moment when they should have been discovered using ordinary diligence), under penalty of forfeiture.

All claims concerning alleged defects in the Products shall be as much as possible detailed, so as to allow the Seller to carry out a prompt and accurate check. All Products concerned by any such claim shall be hold by Customer at the Seller's disposal, in the same conditions as they have been delivered, and shall be kept and stored in strict compliance with the Movement, handling and storage instructions attached as annexe A to these General Conditions of Sale, as well as with any possible additional instructions provided by the Seller.

6.4 Subject to full compliance by the Customer with the provisions set forth above, should the Seller acknowledge the existence of any defects timely notified by the Customer, the Seller - within the time reasonably required – will, at its sole discretion, either (i) repair and/or replace the defective Products free of charge Ex Works (EXW) (Incoterms 2010), or (ii) refund to the Customer an amount equal to the difference between the purchase price of the defective Products paid by the Customer and the actual value of the same Products depreciated in consequence of their defects (being it however understood that in no case the amount owed by the Seller to the Customer pursuant to paragraph (ii) hereof may exceed the original purchase price of the defective Products paid by the Customer).

The warranty on any Products repaired or replaced by the Seller pursuant to this clause shall expire upon expiry of the original Warranty Period relevant to the defective Products originally purchased by the Customer.

Should any claim raised by the Customer concerning alleged defects in the Products prove to be ungrounded, the Seller will charge to the Customer all costs borne by the former to carry out (whether directly or through third parties) reviews, inspections, and any possible surveys.

6.5 Without prejudice to non-derogable rights set forth in favor of consumers by the applicable law, the warranty provided for above is the sole warranty offered by the Seller to the Customer in relation to the sale of the Products.

No other warranty, intervention, remedy and/or reimbursement (whether conventional or by operation of law) may be required or claimed by the Customer towards the Seller, being in particular hereby expressly excluded and waived by the Customer - to the maximum extent permitted by law – any responsibility of the Seller for direct, indirect, incidental or consequential damages which may derive to the Customer in consequence of any possible defects and/or non-conformities in the Products (as well as from any delay in the relevant delivery).

In addition to the above, the Customer hereby expressly waives the right to terminate the contract in consequence of any possible defects in the Products.

6.6 In case of supplies by staggered deliveries, any possible claim for defects raised by the Customer with respect to a part of the supplied Products will not relieve the Customer from its obligation to accept the delivery of all the remaining quantities of Products ordered by the latter.

6.7 It is hereby understood that the following circumstances may not be considered as defects in the Products (and, therefore, no claim or request of warranty intervention may be grounded on the same):

(i) the presence – in any panels manufactured using a continuous production line - of possible cutting imperfections with less than 1,5 mm. protrusion compared to the relevant metal support plane; and/or

(ii) the presence – in case of manufacture with "overlapping", to allow the element lenghtwise overalpping – of any foam residual on the metal surface after the automatic removal of the insulation (removal up to bare metal shall, in any case, be completed during the assembly phase at site, and shall be the Customer's responsibility).

6.8 Moreover, in express derogation to what set forth above, no warranty whatsoever is offered by the Seller in relation to any metal layer Products without organic coating; the Seller is therefore exempt from any responsibility or liability whatsoever in relation to the possible (and likely) occurrence of oxidation phenomena onto such Products.

6.9 Liekwise, no warranty whatsoever is offered in relation to any used or second hand Products, or to any Products which are purchased on an "as is" basis, i.e. material (whether first choice, second choice or scrap) which is available at the Seller's premises and is sold at discounted prices.

6.10 The warranty provided for in this Article 6 shall automatically lapse and expire (and no warranty whatsoever shall be offered in relation to the Products) in case of:

(i) use and/or installation by the Customer or a third party of any allegedly defective Products after the date when the relevant alleged defect appears or is notified to the Seller, whichever occurs first;

(ii) improper use of the Products or use of the same not in compliance with the relevant purpose and/or the relevant technical instructions provided by the Seller;

(iii) use, storage, maintenance, handling or assembly of the Products not carried out in strict compliance with the "Movement, handling and storage instructions and the Assembly instructions respectively attached as annexes A and C to these General Conditions of Sale and any possible further instructions provided by the Seller.

(iv) Assembly of the Products by using systems or accessories not in accordance with what prescribed in the Products' technical data sheets (as from time to time updated by the Seller), or using accessories (such as, for instance, fixing systems, corrugation sealing plugs, heading closing profiles, ridges, flashings, etc.) not supplied and/or expressly approved by the Seller;

(v) Prodotti which, after their delivery, have undergone interventions or modifications of any kind and nature by third parties other than the Seller.

6.11 Calculations, reference values, lists of materials, graphics and any other document provided by the Seller to the Customer shall be considered as simple orientation elements, and shall not imply or determine any joint responsibility or liability of the Seller in the design and engineering of any structure and/or building on which such Products are to be installed by the Customer or by third parties. The design, engineering, works management, supervision, testing and commissioning, as well as any other activity prodromic to, or connected with the design, engineering and construction of such buildings and/or structures (including verification of the fact that the Products are fit for being used in the construction of such buildings) shall remain the sole and exclusive responsibility and duty of the Customer. Unless otherwise expressly declared in writing by the Seller, Products supplied by the Seller to the Customer, do not contribute in any way to the building structure global and/or partial stability; therefore, they are not suitable to sustain any permanent vertical, horizontal or static load (except for their own weight and for the weight of the photovoltaic system possibly installed on them, in case of roof panels) since their only purpose is that of serving as wall and/r roof cladding of an existing supporting structure, whose design, engineering and construction shall be provided and arranged by the Customer, under its own and exclusive responsibility.

6.12 The Products are manufactured in compliance with Italian laws and with the applicable EU legislation, and they are provided with the certifications expressly listed in the relevant technical data sheet. No warranty whatsoever is offered by the Seller as to the compliance of Products with any requirements provided for by any legislation other than the Italian and EU legislation, nor does the Seller offer any warranty that the Products comply with any standards, technical specifications or regulations other than those expressly listed in the relevant technical data sheet. Therefore, it shall be the Customer's exclusive duty and responsibility to verify that the Products comply with any legislation and technical requirements in force in the Countries where the Customer intends to use such Products

7. PRICES AND PRICE REVISION

7.1 Prices of the Products (for Products delivered Ex Works of the Seller - Incoterms 2010) shall be those indicated in the Seller's order confirmation, and do not include packaging, shipping and transport costs of the Products, which shall remain for the Customer's sole cost and account.

7.2 In no case prices of Products offered and confirmed by the Seller with respect to an order may be considered binding also with respect to other subsequent orders.

7.3 The Seller reserves the right to adjust prices of the Products, even after the relevant order confirmation, in case of variations in the costs of labor and/or raw materials exceeding 2%; in such cases, in adjusting the Products' price according to the variations occurred in the costs of labor and/or raw materials, the Seller shall take into account that each of the factors listed here below proportionally influences the Product's price composition as follows:

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ISOPAN S.P.A GENERAL SALES TERMS

THE DOCUMENT HAS BEEN EDITED ACCORDING TO "AIPPEG GENERAL SALES TERMS"

Product type	Incidence of labor's cost	Incidence of metal's cost	Incidence of insulating components' cost	Incidence of external parameters' cost
Ribbed metal sheets	10%	90%	-	-
Sandwich-panels	10%	-	30%	60%

7.4 In determining the variation in the costs of labor and raw materials, reference will be made to the following:
- for labor costs: the A.N.I.M.A. charts;
- for metals: the pricelist published by the Chamber of Commerce of Milan;
- for insulating components and other raw materials: what declared by the Seller's supplier.

As for accessories, the relevant price revision shall be made conventionally by applying to the same the possible variation in the official ISTAT life cost index.
In case of supplies by staggered deliveries, revision of prices shall apply only to Products delivered after the price change.
7.5 Any adjustment of Products' prices decided by the Seller pursuant to article 7.3 shall be notified in writing by the Seller to the Customer, who will be entitled to withdraw from the portion of the relevant order still not executed, by giving written notice thereof to the Seller (by means of registered letter with return receipt, anticipated by fax) within the subsequent 2 (two) days.

8. PAYMENTS

8.1 Terms and conditions of payment relevant to each order of Products shall be those indicated by the Seller in the relevant order confirmation. Notwithstanding anything to the contrary, payments shall be deemed made at the Seller's facilities.
8.2 The possible acceptance and collection by the Seller of any advance payment made by the Customer upon placement of the order, shall not be deemed as order confirmation. Therefore, even after receipt of such payment, the Seller shall be entitled to refuse, at its discretion, the relevant order, and in such a case it shall return to the Customer any amount possibly anticipated by the latter, without interest.
8.3 Without prejudice to article 9, should payment of the Products be agreed by means of bills of exchange, promissory notes, checks or other instruments, the same shall be delivered in original to the Seller prior to (or upon) collection of the Products. In any case, the presentation by the Customer (and acceptance by Seller) of a bill of exchange, promissory note, check or other instrument shall not constitute payment, until Seller has collected the full amount in cash, and shall not determine any modification in the place of execution or novation of the pre-existing obligation. All the relevant costs and banking charges shall be entirely borne by the Customer.
8.4 The Customer shall not be entitled, in any case whatsoever, to suspend or delay payments, not even in the event of defects in the Products, dispute, claim or delay in delivery of the Products by the Seller, or for any other reason whatsoever, nor shall the Customer be entitled to set off any amounts owed to it by the Seller with the price to be paid to the latter by the Customer for the purchase of the Products
8.5 Without prejudice to any other right provided for in favor of the Seller by the applicable law or by these General Conditions of Sale, in case of non-payment or delayed payment of the Products by the Customer, whether in whole or in part, the Seller shall be entitled, without any prior notice, to forthwith suspend the supply and delivery of any orders of Products pending or in progress (even if other than those in relation to which the Customer's breach has occurred) and to retain, as penalty, any down-payment or other amounts so far paid by the Customer (without prejudice to the Seller's right to further proceed for the recovery of any additional damages), as well as to invoke the operation of the acceleration clause with respect to all pending supplies of Products, and thus request Customer to pay immediately the entire relevant price.
8.6 The statement of account sent by the Seller to the Customer shall be deemed accepted by the latter, should it fail to raise any written objection thereto within 15 (fifteen9 days of the relevant receipt.

9. RETENTION OF TITLE

9.1 The Products shall remain the property of the Seller until full payment of the relevant price by the Customer. As from delivery of the Products to the Customer and until they remain the property of the Seller, Customer shall be fully liable towards the Seller for (and shall keep the Seller harmless from) any damages, losses, risks, costs, expenses or liabilities which may derive to the Seller, whether directly or indirectly, from, or arising out of, or in connection with the Products, their loss or damage (for any reason whatsoever) and/or their use or disposal by the Customer or third parties.
The Customer shall bear any possible costs and expenses for the registration of the retention of title clause, as required under the laws of the Country in which the Products are located.
9.2 Without prejudice to the Customers' obligation to pay the Products' price to the Seller, the Customer shall be free to transfer the property of the Products to third parties even before full payment of the relevant price by the latter. In this case, however, the Customer shall arrange and meet the expenses necessary for implementing all deeds and formalities required under local statutory regulations to render the retention of title clause in favor of the Seller effective in respect of such third parties.
9.3 The Customer shall inform the Seller in writing, within 24 hours of any enforcement or precautionary measures carried out by third parties with respect to the Products subject to retention of title. The Customer shall be liabile towards the Seller and shall keep harmless the latter, at all events, from any cost or damage suffered by the Seller as a result of such third party measures carried out with respect to the Products.

10. WITHDRAWAL

Without prejudice to any other withdrawal right provided for by these General Conditions of Sale, the Seller shall be entitled – by giving written notice to the Customer – shall be entitled to withdraw from any order or contract for the sale of Products entered into with the Customer (with limited extent to the part of such order or contract not yet executed at the date of withdrawal) in the following cases:
(i) in case of occurrence of any facts and circumstances which are capable of jeopardizing the market stability, the currency's value, the industry of raw materials manufacturers and/or the suppiers' market; and/or
(ii) in case the Seller becomes aware of the existence of any protests, or court orders, or judicial or extra-judicial claims, or bankruptcy proceedings towards the Customer.

11. APPLICABLE LAW AND JURISDICTION

11.1 These General Conditions of Sale and all orders and contracts for the sale of the Products disciplined by the same, shall be governed by, and construed in accordance with the laws of Italy with express exclusion of the 1980 Vienna Convention on the international sale of goods.
11.2 As for what not expressly provided for by these General Conditions of Sale and by the order confirmed by the Seller, reference shall be made to the rules on sales contained in articles 1470 and following of the Italian Civil Code, even in case of supply with installation of the Products.
11.3 Any possible controversy between the Seller and the Customer arising out of, or relevant to, or connected with the interpretation, application, execution or termination of these General Conditions of Sale and/or of any orders of sales contracts of the Products disciplined by the same, shall pertain to the exclusive jurisdiction and sole venue of the competent Courts of Verona (Italy), even in case of connected proceedings.

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ANNEXE A
Rules on movement, handling and storage of ribbed sheets, insulated metal panels and accessories

1. WRAPPING AND PACKAGING

Paragraph 9.9.1 of Standard UNI 10372:2004 is quoted in its entirety .
To maintain their durability in use, metal components for roofs must not be damaged during storage, transport, movement and laying operations.
It is therefore advisable to provide temporary protection systems for the products relating to the performance required, especially of an aesthetic nature.
During fabrication processes the above materials are generally protected with polythene fi lm (adhesive or simply in contact), or with other solutions.
During subsequent stages precautions must be taken to ensure that the following aspects are guaranteed:
- protection of the surface from abrasion, especially during movement;
- protection of corners and edges against knocks and crushing;
- protection against water or condensed moisture collecting;
- protection of the components which bear the weight of the entire pack, or of superimposed packs, against permanent deformation.

The profi led sheets and panels are generally packaged in packs. The number of sheets in the pack is such as to contain the overall weight of the pack itself within the limits imposed by the available means of lifting and transport.
Generally the materials used for packaging are: timber, expanded plastic materials, cardboard, polythene fi lm (heat-shrink or stretchable) or others; binding is done with bands (never with iron wire) and suitable protection is used (edge protectors etc.). The bands must not be used as slings for lifting.
It is also advisable to provide attachment points for subsequent movement and lifting operations, indicating them appropriately.
The packs of products must therefore always be provided with a support system which is such as to distribute the weight homogeneously and to make it possible to pick up the pack for movement.
By way of example and without limiting effect, the support system may be constituted by joists made of expanded plastic material or dry timber, or alternatively by sheets of composite materials, located at suitable spacing for the characteristics of the product.
The packaging must be appropriately specifi ed at the ordering stage, depending on the modalities of transport (for example cage or crate for transportation which involves transshipment, or transport by train or by sea). A suitable type of packaging will need to be provided depending on the performance which is required of the product.
The making-up of the packages will be performed according to parameters preset by the manufacturer. Any different division of components and/or particular packaging, in relation to specifi c requirements of the Purchaser, must be agreed at the time of placing the order.

2. TRANSPORT

Paragraph 9.9.2 of Standard UNI 10372:2004 is quoted in its entirety .
The packs must be transported with suitable means in such a way that:
- the packs are supported on spacers made of timber or expanded plastic material, located at spacing appropriate to the characteristics of the product;
- the supporting surface is compatible with the shape of the pack (fl at if the pack is fl at, or if the pack is curved, a support must be created which maintains the same curvature);
- when stacking packs, suitable spacers made of timber or expanded plastic material are always interposed, if not present in the packaging;
- the packs do not overhang by more than 1 metre;
- the points are clearly marked on the packs where slings may be placed for lifting, if these are not otherwise identifi able;
- any other instructions from the manufacturer are observed.

In particular, the packs must be positioned on the fl at, and underneath the packs themselves, spacers of timber or expanded plastic material must be placed, of suitable dimensions and in adequate numbers, positioned in perfect vertical alignment.
The packs must be secured by the carrier to the transport vehicle by transverse ties, with straps placed at a maximum spacing of 3 m, and each pack must in any event be provided with no fewer than two transverse ties.
When travelling, the load must always be covered, and above all the side facing in the direction of travel must be made impermeable. Purchasers arranging collection must instruct the drivers on the subject.
The load must be carried on a vehicle bed which is clean and free of obstructions. Vehicles already partly occupied by other materials or with an unsuitable bed are not acceptable for the load.
The goods must be positioned on the vehicles in accordance with the instructions of the carrier, who alone is responsible for the integrity of the load. The carrier must take particular care that the weight bearing on the lowest pack, and also the pressure exercised by the tie-points, do not cause damage, and that the straps do not in any way cause deformation of the product. Special loading conditions can be accepted only on the written proposal of the Purchaser, who assumes complete responsibility for them.

3. STORAGE

Paragraph 9.9.3 of Standard UNI 10372:2004 is quoted in its entirety .
The shape of the components has been designed to allow them to be stored by stacking them so as to reduce to a minimum the space occupied in storage and transport; care must however be taken when stacking them so that no damage occurs to the surfaces.
The packs must always be kept raised off the ground, both in the warehouse and, even more so, on site. They must have supports preferably of timber or expanded plastic material with fl at surfaces, with a length greater than the width of the sheets and at suitable spacing for the characteristics of the product.
The supporting surface must be compatible with the shape of the packs (fl at if the pack is fl at, or if the pack is curved, a support must be created which maintains the same curvature).
The packs must be stored in places which are not damp, otherwise condensation will collect on the less well-ventilated internal components. This condensation is particularly aggressive towards metals, and cause the formation of oxidisation products (for example white rust on zinc).
The packs must be stored in such a way as to encourage water to drain, especially if it is necessary to store them temporarily in the open air
(see illustration).

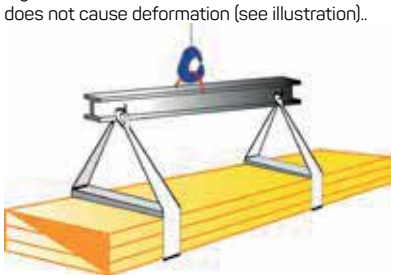
If storage is not followed shortly by picking the sheets up for laying, it is as well to cover the packs with protective tarpaulins. Attention must be paid to any electrochemical corrosion caused by contact between different metals, including during the period of storage. Generally it is preferable not to stack the packs; if it is considered possible to stack them because of their light weight, spacers of timber or expanded plastic material, with as large a supporting surface as possible, must always be interposed, in suitable numbers and always located in line with the supports of the packs below (see illustration).

The best storage conditions are in closed areas, with light ventilation, free from damp and dust.
In any event, and in particular for storage on site, a suitable, stable support surface must be provided, which will not allow water to collect.
The packs must not be positioned in areas close to manufacturing processes, for example metal cutting, sanding, painting, welding etc., nor in areas where the crossing or parking of operating vehicles could cause damage (collisions, splashing, exhaust gases etc.).
A maximum of three packs may be stacked, with an overall height of approximately 2.6 metres, and in this case the supports must be suitably thickened.
In the event that the materials are covered with protective fi lm, this fi lm must be completely removed at the fi tting stage, and at all events not later than sixty days from the date of readiness of the materials. Any further specifi c instructions from the supplier must be followed.
On the basis of knowledge acquired, in order to maintain the product's original performance, it is advisable, subject to compliance with these rules, not to exceed six months of continuous storage in a closed and ventilated environment, while the period of storage in the open air must never exceed sixty days. The materials must anyway always be protected from direct solar radiation, because this can produce alterations.

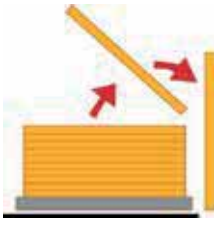
In the case of protection by tarpaulins, it is necessary to ensure that they are waterproof, and that there is adequate ventilation to avoid condensation collecting and pockets of water forming..

4. LIFTING AND HANDLING

Si riporta integralmente (testo in corsivo) il punto 9.9.4 della 4. LIFTING AND HANDLING Paragraph 9.9.4 of Standard UNI 10372:2004 is quoted in its entirety.
The packs must always be lifted by slings positioned at a minimum of two points, separated by a distance not less than half the length of the packs themselves.
Lifting must preferably be carried out using slings woven from synthetic fibre (nylon), of a width not less than 10 cm so that the load on the sling is distributed and does not cause deformation (see illustration)..



Suitable spacers must be used consisting of robust lengths of fl at timber or plastic located above and below the pack, in order to prevent direct contact between the slings and the pack.
These spacers must have a length at least 4 cm greater than the width of the pack, and a width not less than that of the sling. In any event, the lower spacers must have a width suffi cient to prevent the weight of the pack from causing permanent deformation to the lower sheets.
Care must be taken to ensure that the slings and the supports cannot move during lifting, and that the manoeuvres are performed gradually and with caution.
When the packs are offl oaded onto the roof structure, they must be placed only on surfaces which are suitable for supporting them, both in terms of strength and of support conditions, and also in relation to other work which is in progress. It is advisable always to ask the works manager for authorisation for offl oading the packs.
Suitable protective equipment must be used (gloves, safety shoes, overalls etc.) when handling the sheets, in compliance with the applicable regulations.
When an individual sheet needs to be moved, this must always be done without dragging it over the one below. It should be rotated to a vertical
position beside the pack and then carried by two or more people depending on its length, keeping it vertical (see illustration).



Gloves and lifting equipment must be clean and of a kind that will not cause damage to the sheets.
The use of fork-lift trucks for moving the sheets is not recommended, as this is likely to cause damage.
Packs offl oaded at roof height must be suitably secured to the structure.

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ANNEX B
Standards qualitativi delle lamiere grecate e dei pannelli metallici coibentati

Ribbed sheets and insulated metal panels are used for walls, roofs and fl oors in civil and industrial buildings. The quality standards quoted in the present Annexe must be the subject of prior agreement between Purchaser and Vendor at the time of confi rming the order. The aesthetic factor lies outside the intrinsic characteristics of the products and does not constitute a normal supply requirement. The harmonised European product standards, valid for obtaining CE Marking, are UNI EN 14782:2006 and UNI EN 14783:2006 for ribbed sheets, UNI EN 14509:2007 for double-skinned insulated metal panels (with two metal sheets), and ETAG 016 for single-skin insulated metal panels.

Materials	Standard	Reference	Value - notes
1. RIBBED SHEETS			
1.1 Characteristics			
1.1.1 Carbon steel	UNI EN 14782:2006		
	UNI EN 14783:2006		
	UNI EN 508-1:2002	3.2 e 4.2	
	UNI EN 10326:2004	5.1 e 7.	S250GD DM (min. yield stress = 250 N/mm2)
	UNI EN 10327:2004	5.1 e 7.	Non-structural steels
	UNI 10372:2004	8.1.4	
1.1.2 Aluminium	UNI EN 14782:2006		
	UNI EN 14783:2006		
	UNI EN 508-2:2002	3.2 e 4.2	Alloys: Vendor's declaration (min. breaking load = 150 MPa)
	UNI 10372:2004	8.1.2	
	UNI EN 573-3:1996	3.	
	UNI EN 1396:1998	5.	
1.1.3 Stainless steel	UNI EN 14782:2006		
	UNI EN 14783:2006		
	UNI EN 508-3:2002	3.2 e 4.2	Type 1.3401 (AISI 304)
	UNI 10372:2004	8.1.3	
	UNI EN 10088-1:2005	4.	
	UNI EN 10088-2:2005	6.	
1.1.4 Copper	UNI EN 14782:2006		
	UNI EN 14783:2006		
	UNI EN 506:2002	3.2 e 3.4	Type: Vendor's declaration (except by specifi c request of the Purchaser, accepted by the Vendor)
	UNI 10372:2004	8.1.1	
	UNI EN 1172:1998	4 – 5 – 9	
	UNI EN 1173:1998	3.	
	UNI EN 1412:1998	4.	
1.1.5 Metal facings	UNI EN 508-1:2002	3.2 e 3.4	
	UNI EN 10326:2004	7.	
	UNI EN 10327:2004	7.	
	UNI 10372:2004	8.1.4	Including different facings
1.1.6 Organic facings (preoainted and plasticised)	UNI EN 10169-1:2007		
	UNI ENV 10169-2:2003		
	UNI EN 10169-3:2006		
	UNI EN 508-1-2-3:2002	Annex B	
	UNI 10372:2004	8.1.4.3	
	UNI EN 1396:1998	6.	
1.1.7 Multi -layer bituminous facings	UNI EN 14782:2006	Annex A	
	UNI EN 14783:2006	Annex A	
	UNI EN 508-1:2002	3.2.6	
	UNI 10372:2004	8.1.4.4	
1.2 DIMENSION TOLERANCE			
1.2.1 Carbon steel	UNI EN 10143:2006		Normal tolerances unless requested otherwise
	UNI EN 508-1:2002	Appendix D	
1.2.2 Aluminium	UNI EN 485-4:1996	3.1	
	UNI EN 508-2:2002	Appendix B	
1.2.3 Stainless steel	UNI EN 10088-2:2005	6.9	Annex B
	UNI EN 508-3:2002	Appendix B	
1.2.4 Copper	UNI EN 1172:1998	6.4	
	UNI EN 506:2002	Appendix A	
	UNI EN 1172:1998		
1.3 REQUIREMENTS			
1.3.1 Performance	UNI EN 14782:2006		
	UNI EN 14783:2006		
	D.M. 09.01.1996	Parte II	
	D.M. 14.09.2005	11.2.4.8.1.1	
	Direttiva 89/106/CEE	Annex 1	Values declared by the Vendor for the purposes of CE Marking

Materials		Standard	Reference	Value - notes
1.3.2	Test methods (metallic coated tapes)	UNI EN 13523-0÷24		Values declared by the Vendor
1.3.3	Durability	UNI EN 10169-1:2007 ENV 10169-2:2003 UNI EN 10169-3:2006 UNI EN 1396:1998		
1.3.4	FIRE PERFORMANCES	UNI EN 14782.2006 UNI EN 14783:2006	Annex C Annex B	
1.3.5	Calculation procedures (concentrated loads)	UNI EN 14782:2006	Annex B	
1.3.6	Inspection and maintenance	UNI 10372:2004 AIPPEG general conditions of sale	Cap. 11 Annex D	
2. INSULATED METAL PANELS (DOUBLE SKINNED)				
2.1 Characteristics				
2.1.1	Rigid metal facings	Valgono gli stessi riferimenti di cui al precedente punto 1.1 (sono escluse le prescrizioni specifiche della UNI EN 14782:2006 e della UNI EN 14783:2006)		
2.1.2	Insulants			
2.1.2.1	Rigid cellular plastics	UNI EN 13165:2006 UNI EN 13164:2006 UNI EN 13172:2003		PUR e PIR Polistirene Valutazione e conformità
2.1.2.2	MIneral fibre	UNI EN 13162:2003		
2.2 DIMENSIONAL TOLERANCES				
2.2.1	Rigid metal facings	The same regulations, references, values and notes apply as in para. 1.2 above		
2.2.2	PANEL	UNI EN 14509:2007	Annex D	
2.2.3	Blisters	Blisters are defi ned as convex areas with a lack of adhesion between insulation and facing. In the absence of regulations,it is considered on the basis of experience that any blisters up to 5% of the area of the individual panel and with maximum dimensions per blister of 0.2 m2 are to be presumed not to prejudice the functionality of the panel. The above is to be considered valid even for panels where the insulation has the function of transmitting loads.		
2.3 REQUIREMENTS				
2.3.1	Performance	UNI EN 14509:2007 UNI 10372:2004 Direttiva 89/106/CEE	Punti 5 e 6 Punto 8.1.6 Annex 1	 Values declared by the Vendor for the purposes of CE Marking
2.3.2	Test methods	UNI EN 14509:2007	Annex A	
2.3.3	Durability	UNI EN 14509:2007	Annex B	
2.3.4	FIRE PERFORMANCES	UNI EN 14509:2007	Annex C	
2.3.5	Calculation procedures	UNI EN 14509:2007	Annex E	
2.3.6	Inspection and maintenance	UNI 10372:2004 AIPPEG general conditions of sale	Cap.11 Annex D	
3. INSULATED METAL PANELS (SINGLE SKINNED)				
3.1 Characteristics				
3.1.1	Rigid metal facings	The same references apply as in para. 1.1 above (excluding the specifi c prescriptions of UNI EN 14782:2006 and UNI EN 14783:2006)		
3.1.2	Insulants			
3.1.2.1	Rigid cellular plastic	UNI EN 13165:2006		PUR e PIR
		UNI EN 13164:2006 UNI EN 13172:2003		Polistirene Valutazione e conformità
3.2 DIMENSION TOLERANCE				
3.2.1	Rigid metal facings	Valgono le stesse normative, riferimenti, valori e note di cui al precedente punto 1.2		
3.2.2	Panel	ETAG 016	Parte 1 e 2	Valori dichiarati dalla Venditrice
3.2.3	Blisters	Riferimento Punto 2.2.3		
3.3 REQUIREMENTS				
3.3.1	Performance	UNI 10372:2004 Direttiva 89/106/CEE	Punto 8.1.6 Annex 1	 Values declared by the Vendor for the purposes of CE Marking
3.3.2	Other requirements	ETAG 016	Parte 1 e 2	Values declared by the Vendor
3.3.3	Inspection and maintenance	UNI 10372:2004 AIPPEG general conditions of sale	Cap. 11 Annex D	

National and European regulations, as well as the needs of the market, are in a state of continuous evolution. The members of AIPPEG are available to examine requests for products with qualitative standards different from the performance characteristics quoted in the present Annexe.

ISOPAN
INSULATING DESIGN

ANNEXE C
Recommendations for fi tting ribbed sheets and insulated metal panels

1. INTRODUCTION

These recommendations are intended to provide a reference informational support for fi tting ribbed sheets and insulated metal panels.
They are however supplementary to Standard UNI 10372:2004 "Discontinuous roofi ng. Code of practice for design and execution with metal sheets".
Each job must take account of the needs of the specifi c site, which must be provided with suitable equipment for movement and laying, in accordance with the applicable legislation on safety and accident prevention.
The fi rm charged with the job of fi tting the ribbed sheets/panels, besides knowing the characteristics of the materials used, must employ suffi cient skilled manpower for the work on site, ensuring that the work is correctly performed in compliance with the plan specifi cations.
Failure to observe these recommendations and incorrect execution of the operations on site exonerate the Vendor from all responsibility.
Effi cient organisation and a coordinated method of working provide the best conditions for overall working productivity.
Irrespective of the delivery location of the goods, the operations referred to in Annexe A, as well as those of unloading and installation, are carried out under the care and responsibility of the Purchaser, unless otherwise agreed. The instructions on the subject provided by the Vendor must be strictly followed.

2. CONSTRUCTION COMPONENTS

Ribbed sheets/panels are used in civil and industrial buildings for the construction of roofs, walls and fl oors; they are fi tted to every kind of supporting structure: metal frameworks, normal reinforced and prestressed concrete, and timber.
The supporting structures and the relative fi xing devices as well as the ribbed sheets/panels themselves, must be suitably dimensioned and must satisfy the intended design conditions in respect of safety, stability and functionality. Ribbed sheets and insulated metal panels are quick and easy to install, with the possibility of covering in one stretch the entire length of the slope of a roof, or the entire height of a wall or several spans of the fl oor. The length of the metal components is conditioned predominantly by transport and handling needs, as well as by the nature of the material used and the production technology.
The supporting surfaces should be compatible with the use and the fi xing modalities of the ribbed sheets and insulated metal panels.
The most common types are:

1. ROOFS
   - 1.1 ribbed sheets
     - 1.1.1 plain ribbed sheets
     - 1.1.2 sandwich construction executed on site
     - 1.1.3 deck executed on site
   - 1.2 monolithic insulated panels
     - 1.2.1 prefabricated monolithic sandwich
     - 1.2.2 pre-insulated deck
2. WALLS
   - 2.1 ribbed sheets
     - 2.1.1 plain ribbed sheets
     - 2.1.2 sandwich construction executed on site
   - 2.2 monolithic insulated panels
     - 2.2.1 prefabricated monolithic sandwich
3. FLOORS
   - 3.1 plain sheets
   - 3.2 sheets with collaborating concrete
   - 3.3 ribbed sheets with disposable formworke

The fi tting sequence for roofs, walls and fl oors is different depending on the type involved.

3. PRELIMINARY OPERATIONS

Before undertaking the work of fi tting on site, the installer must:
1. view the printouts of the plans and study the relative instructions
2. check the alignment of the supporting structures for the ribbed sheets/panels
3. check that the surfaces of the supporting structures which will be in contact with the ribbed sheets/panels, are compatible with each other or otherwise protected from possible corrosion by electrochemical action
4. make sure that there is no interference with aerial electrical lines in the manoeuvring area for the ribbed sheets/panels
5. make certain that the work at ground level and at a height is compatible with the other work on site
6. check the suitability of the area of the site chosen for the offl oading and handling of materials, so that they do not suffer damage.

The installer must carry out all fi tting operations in accordance and compliance with all applicable safety regulations. In addition, for lifting, handling and offl oading the ribbed sheets/panels at height, see Paragraph 4 of Annexe A.
Personnel engaged in fi tting must be equipped with footwear with soles that will not damage the external facing. For cutting operations on site, suitable equipment must be used (jigsaw, shears, nibbler etc.). The use of equipment with abrasive discs is not recommended.
For fi xing operations it is advisable to use a power screwdriver with torque limiter.
For roofi ng work in particular, the alignment and overlap of adjoining panels must be perfectly carried out to avoid the formation of condensation

4. COPERTURE

SLOPES
The slope of the roof depends on the environmental conditions, the design solution chosen and the type of roof itself.
For roofs with pitch without intermediate end-to-end joints (i.e. with sheets of a length equal to the length of the roof), the slope to be adopted is usually not less than 7%. For lower slopes the supplier's instructions must be followed.
In cases where there is an end-to-end overlap, the slope must take account of the type of joint and the material used, besides the specifi c environmental conditions.
For deck roofs, the slope may be reduced to the minimum which will allow the water to drain off properly.

FITTING SEQUENCES
These are the essential points for a correct fi tting sequence.

A) Plain ribbed sheets and prefabricated monolithic sandwich (types 1.1.1 and 1.2.1)
1. Fit the gutters and any under-ridge pieces and connecting fl ashings.
2. Remove any protective fi lm from the roofi ng panels/sheets and from the accessories.
3. Lay the roofi ng panels/sheets starting from the eaves and from one end of the building, taking care to align and overlap the panels/ sheets correctly and to check that they are perfectly square with respect to the underlying structure.
4. Secure the panels/sheets systematically, after checking that they are perfectly lined up. All left-over materials must be promptly removed, with particular attention to metal offcuts.
5. Lay subsequent courses of panels/sheets overlapping the eaves course (in the case of a pitch requiring two or more courses). In the case of panels, the insulation must fi rst be removed in the overlap area.
6. Fix the panels/sheets at every rib along the lines of the ridge, eaves, valleys and end-to-end overlaps.
7. Fit the fi nishing parts (ridges, cappings and fl ashings in general) and any corresponding insulation.
8. Remove all left-over materials and make a general inspection of the roof, with particular attention to the fi xings and the areas connecting with other elements making up the roof.

B) Sandwich construction executed on site (type 1.1.2)

B.1) Sandwich construction with parallel ribbed sheets
1. Fit the gutters and any connecting fl ashings: depending on the plan specifi cations, this may be done before laying the inner sheet or before laying the outer sheet.
2. Remove any protective fi lm from the roofi ng sheets and from the accessories.
3. Lay the inner sheet starting from the eaves and from one end of the building, taking care to align and overlap the sheets correctly and to check that they are perfectly square with respect to the underlying structure.
4. Secure the sheets systematically, after checking that they are perfectly lined up. All left-over materials must be promptly removed, with particular attention to metal offcuts.
5. Lay subsequent courses of sheets overlapping the eaves course (in the case of a pitch requiring two or more courses).
6. Fix the sheets at every rib along the lines of the ridge, eaves, valleys and end-to-end overlaps.
7. Fit suitably-sized rigid spacing pieces, positioned as on the plans. In the case of metal spacing pieces, it is advisable to provide a thermal break between these distance pieces and the outer ribbed sheet. If the secondary support structure provides a direct housing for the inner sheet, the rigid spacing pieces mentioned above are superfl uous.
8. Lay the insulation (taking care to ensure that the thermal insulation is uniform) and any layers which have a specifi c function (e.g. vapour barriers, separating layers etc.), and any head-end "buffers".

9. Lay the outer sheet, following steps 2–6 of sequence B1.
10. Remove all left-over materials and make a general inspection of the roof, with particular attention to the fi xings and the areas connecting with other elements making up the roof.

B.2) Sandwich construction with crossed ribbed sheets
1. Remove any protective fi lm from the roofi ng sheets and from the accessories.
2. Lay the inner sheets starting from the eaves and from one end of the building, taking care to align and overlap the sheets correctly and to check that they are perfectly square with respect to the underlying structure.
3. Secure the sheets systematically, after checking that they are perfectly lined up. All left-over materials must be promptly removed, with particular attention to metal offcuts.
4. Fit the fl ashing pieces which connect to the fi rst sheet (under-ridge pieces, connectors, special components).
5. Fit suitably-sized rigid spacing pieces, positioned as on the plans. In the case of metal spacing pieces, it is advisable to provide a thermal break between these distance pieces and the outer ribbed sheet. In the event that the inner sheet consists of continuous metal strips, the spacers are not necessary, but it is always advisable to provide a thermal break.
6. Lay the insulation (taking care to ensure that the thermal insulation is uniform) and any layers which have a specifi c function (e.g. vapour barriers, separating layers etc.), and any head-end "buffers".
7. Lay the outer sheet, following steps 1–8 of sequence A (Plain ribbed sheet).

C) Deck executed on site (type 1.1.3) and pre-insulated deck (type 1.2.2)
Follow the fi tting instructions for the inner sheets in sequence B.1. Carry out the seam fi xing along the longitudinal overlaps.
In the case of decks executed on site, the insulation is provided by the insulant applied subsequently.
In the case of pre-insulated decks, temporary local removal of the insulation needs to be carried out before fi xing.
The seal is provided by the layers applied subsequently (bituminous sheathing or synthetic membrane etc.).

5. WALLS

FITTING SEQUENCES
The following are the essential points for a correct fi tting sequence.
A) Plain ribbed sheets and prefabricated monolithic sandwich (types 2.1.1 and 2.2.1)
1. Fit the base fl ashing (when specifi ed) at the foot of the wall, aligned with the level of the supporting structure, as well as the fl ashing which necessarily has to be fi tted before the wall (drip above the window-frames, connectors for openings, internal corner connectors etc.), after removing any protective polythene fi lm.
2. Remove any protective fi lm from the wall panels/sheets.
3. Fit the panels/sheets starting from the foot of the wall, taking care that joints are correctly aligned and executed, and checking that the panels are upright.
4. Secure the panels/sheets systematically, after checking that they are perfectly lined up.
5. In the event that the height of the wall or the nature of the material necessitates fi tting successive courses of sheets/panels in vertical sequence, the joints must be made in line with a frame element of the structure. The procedure is as follows:
- flat panel: butt joint, with a suitably-profi led connecting flashing between the panels
- ribbed panel and ribbed sheet: like fl at panel but sealed by means of an overlap.
6. Fit the fi nishing components (corner strips, perimeter edging, wall-to-roof connectors etc.).
7. Carry out a general inspection and cleaning of the wall, paying particular attention to the fi xings and the joints with the door and window frames, and with other components of the wall itself. In the case of walls with horizontally positioned ribbed sheets/panels, refer to the plan specifications.

B) Sandwich construction executed on site (type 2.1.2)

B.1) Sandwich construction with parallel ribbed sheets
1. Fit the base fl ashing (when specifi ed) and any connecting flashings: depending on the plan specifi cations, this may be done before fitting the inner sheet or before fi tting the outer sheet, after removing any protective polythene fi lm.
2. Remove any protective fi lm from the wall sheets.
3. Fit the sheets starting from the foot of the wall, taking care that joints are correctly aligned and executed, and checking that the panels are upright.
4. Secure the sheets systematically, after checking that they are perfectly lined up.
5. In the event that the height of the wall or the nature of the material necessitates fi tting successive courses of sheets in vertical sequence, the joints must be made by overlapping the sheets in line with a frame member of the structure.
6. Fit suitably-sized rigid spacing pieces, positioned as on the plans. In the case of metal spacing pieces, it is advisable to provide a thermal break between these distance pieces and the outer ribbed sheet. If the secondary support structure provides a direct housing for the inner sheet, the rigid spacing pieces mentioned above are superfl uous.
7. Lay the insulation (taking care to ensure that the thermal insulation is uniform) and any layers which have a specifi c function (e.g. vapour barriers, separating layers etc., according to the particular requirements dictated by the use of the building). This operation must be carried out simultaneously with fi tting the inner sheet.
8. Fit the outer sheet, following steps 2–5 of sequence B.1.
9. Fit the fi nishing components (corner strips, perimeter edging, connectors to the roof and to the walls etc.).
10. Carry out a general inspection and cleaning of the wall, paying particular attention to the fi xings and the joints with the door and window frames, and with other components of the wall itself.

B.2) Sandwich construction with crossed ribbed sheets
1. Remove any protective fi lm from the wall sheets and from the accessories.
2. Fit the sheets starting from the foot of the wall, taking care that joints are correctly aligned and executed.
3. Secure the sheets systematically, after checking that they are perfectly lined up.
4. Fit the fl ashing pieces which connect to the fi rst sheet (connectors, special components etc.).
5. Fit suitably-sized rigid spacing pieces, positioned as on the plans. In the case of metal spacing pieces, it is advisable to provide a thermal break between these distance pieces and the outer ribbed sheet. In the event that the inner sheet consists of continuous metal strips, the spacers are not necessary, but it is always advisable to provide a thermal break.
6. Fit the base fl ashing (when specifi ed) at the foot of the wall.
7. Fit the insulant (taking care to ensure that the thermal insulation is uniform) and any layers which have a specifi c function (e.g. vapour barriers, separating layers etc., according to the particular requirements dictated by the use of the building). This operation must be carried out simultaneously with fi tting the outer sheet.
8. Fit the outer sheet, following steps 2–5 of sequence B.1.
9. Fit the fi nishing components (corner strips, perimeter edging, connectors to the roof and to the walls etc.).
10. Carry out a general inspection and cleaning of the wall, paying particular attention to the fi xings and the joints with the door and window frames, and with other components of the wall itself.

6. FLOORS

FITTING SEQUENCES
The following are the essential points for a correct fi tting sequence.

A) Plain sheets (type 3.1)
1. Fit any perimeter fl ashings.
2. Remove any protective fi lm from the fl oor sheets.
3. Lay the sheets, taking care to butt or overlap them correctly. Check that they are perfectly aligned and square with the underlying structure.
4. Secure the sheets systematically according to the plan specifi cations, after checking that they are perfectly lined up. Carry out the seam fi xing along the longitudinal overlaps. All left-over materials must be removed, with particular attention to metal offcuts.
5. Finish the fl oor according to the plan specifi cations, avoiding stressing the fl oor panels with concentrated loads.
B) Sheets with collaborating concrete (type 3.2)
1. Erect the formwork for containing the poured concrete.
2. Lay the sheets taking care to butt or overlap them correctly. Check that they are perfectly aligned and square with the underlying structure.
3. Secure the sheets systematically according to the plan specifi cations, after checking that they are perfectly lined up. Carry out the seam fi xing along the longitudinal overlaps. Check that the ribbed sheets are free of oxides and oil stains and any other substances which would prevent adhesion to the concrete. All left-over materials must be removed, with particular attention to metal offcuts.
4. To avoid leakage of concrete at end-to-end joints between the ribbed sheets, apply a strip of adhesive sealing tape.
5. Position the welded mesh and/or any reinforcing steel in line with the supports or located by supplementary supports, depending on the plan specifi cations.
6. Pour the concrete, avoiding accumulations especially in the central area of the span.
7. If the plan specifi cations require the use of props to break up the spans, these

must obviously be positioned before pouring the concrete, providing the ribbed sheets with any necessary braces against deformation.

C) Ribbed sheets with disposable formwork (type 3.3)
1. Erect the formwork for containing the poured concrete. The fi tting instructions for sequence B apply, except for point 5, in which the reinforcing steel is obviously obligatory.

7. FIXING DEVICES

The fixing devices are an essential part of the roofi ng, wall and floor system. For this reason it is essential to use the fi xing devices specified by the manufacturer of the ribbed sheets/panels.
Correct fi tting requires the following:
For roofs:
- external facing (types 1.1.1 – 1.1.2 – 1.2.1): a complete set usually made up of screws, caps and the relative sealing gaskets, to be located at the crest of the ridge:
- external facing (types 1.1.2 – 1.1.3 – 1.2.2): screws with any gasket required
For walls:
- external facing (types 2.1.1 -2.1.2 -2.2.1): screws with gasket
- internal facing (type 2.1.2): screws with any gasket required
- prefabricated monolithic panels with "concealed" fi xings: specific fi xing kit
For floors: screws, nails, washers to be welded on site.
The density and positioning of the fi xings depends on the characteristics of the building component, on the type and size of supports, and on the local climatic situation (winds in particular). Refer in any event to the plan specifi cations.
In the most frequently-occurring situations, the ribbed sheets/panels are fi xed by means of screws which are different depending on the type of supporting structure.

1. Fixing to a metal framework:
- self-tapping screws and thread-forming/self-piloting screws (depending on the thickness of the support)
- self-drilling screws
- nails shot from a nail gun (for fl oors and inner sheets in siting and installation operations sandwich construction)
- threaded hooks with nut (in general for anchorage to tubular components)

2. Fixing to a timber framework:
- woodscrews
- threaded hooks

3. Fixing to reinforced and pre-stressed concrete:
Fixing is to steel or timber support components by the methods listed in paragraphs 1 and 2.
Direct fi xing to reinforced and pre-stressed concrete is not recommended.
For deck roofs and for fl oors, seam fi xing must be used, generally by means of rivets, along the longitudinal overlap, at not more than 1000 mm seam fi xing centres.
For other roofi ng and wall components, seam fi xing is recommended, depending on the shape of the overlap.

8. FINISHING COMPONENTS

The fi nishing components are an integral part of the job and make a decisive contribution to determining the project's performance characteristics. The manufacturer of ribbed sheets/panels is generally able to supply the fi nishing components, which must be used in accordance with the
plan and/or supply specifi cations.
The Purchaser must specify the type and range of fi nishing components which are of interest, depending on the requirements of the job. The manufacturer of ribbed sheets/panels is responsible for the conformity of materials to the confi rmed order, solely and exclusively for those parts directly supplied and correctly used.
The fi nishing components include variously profi led gaskets, metalwork (ridges, under-ridge pieces, guttering, valleys and downpipes, fl ashings, drips, corner strips etc., translucent sheets, domes, ventilators, door and window frames and accessory components.

ANNEXE D
Instructions for the inspection and maintenance of roofs and walls in insulated metalpanels and ribbed sheets

All buildings require a periodic systematic inspection and programmed maintenance, in order to ensure that the building will continue to function over time and maintain the required performance.
The checks to be performed at the time of the inspection are intended to be addressed both to the roof and wall components, and to the complementary works (joints, fi xing devices, ridges, fl ashings, snow barriers, gutters, hips etc.), and to any technological equipment present (chimneys, smoke extractors, lightning protection etc.).

1. INSPECTION

1.1 During and immediately after the completion of fi tting the insulated metal panels or ribbed sheets, it is the responsibility of the installing firm to arrange the removal of all the materials no longer necessary, including any traces of the temporary protection fi lm. In particular, the fi rm must take the greatest care in removing metal swarf and abrasive items which have been deposited on the roof.
The work can only be signed off after the building envelope (i.e. the roof and walls, including the fi nishing components and in particular the gutters) has been adequately cleaned and is free from all extraneous material.
1.2 Inspections must be carried out at regular intervals. The first one must coincide with the signing-off of the works executed or with the corresponding test inspection. The test must be addressed both to the functionality of the specific operations performed (roof and/or walls) and to the building in its entirety according to the plan specifi cations or as regards compliance with the contractual relationship between the Purchaser and the supplier, general contractor or fi tting firms. Inspections must take place at six-monthly intervals (preferably in the spring and autumn of each year).
At the fi rst inspection, to be carried out by the installing firm or by the purchaser/owner according to what is specifi ed in the contract or agreed between the parties, a check must be made to ensure that no extraneous materials or swarf from the work have been abandoned which could give rise to corrosion or damage with respect to the building envelope, or which could impede the correct drainage of rainwater.
It is in any event necessary to check that an accumulation of undesirable substances cannot be produced, such as dust, sand, leaves etc. It is also desirable for the purchaser/owner to be notifi ed of potential weak points (such as lack of surface protection) over the entire building envelope, which could be sources of corrosion (for example by electrochemical action), with consequent premature deterioration also as regards the appearance of the building (rust stains, for example).
A comment should also be made on the location of the building: the purchaser/owner should be told about the type of atmosphere on the site, in relation to possible sources of accelerated corrosion (such as smoke) caused by adjacent buildings. The existing type of atmosphere should be known before purchasing the materials.
Subsequent inspections consist of a check on the general condition of the building envelope: state of conservation (i.e. durability) and functionality both of the ribbed sheets and/or insulated metal panels and of all the fi nishing and complementary components, including ridges, fl ashings, gutters, tightness of the fi xings and any sealing which could
have an effect on the building envelope. The progress of ageing should be monitored, both physiological and pathological, so that any necessary ordinary and extraordinary maintenance can be scheduled.
At the same time, the effi ciency of the system for draining rainwater, and of the other technological equipment should be checked.

2. MAINTENANCE

2.1 The building envelope, like any other product, must be periodically checked so as to detect in good time any problems which are about to occur and be able to deal with them promptly, thus reducing maintenance work to a minimum.
Maintenance operations must also be addressed to the principal fi nishing components (for example, anchoring devices and the interface with the supporting framework, and the secondary ones (for example rainwater downpipe inlets) which could compromise the overall functionality of the building envelope.
2.2 Programmed ordinary maintenance must be established and carried out by the owner, on items and at intervals which depend on the results of the inspections as well as on the general condition of the building and the existing environmental situation, as well as the conditions of use. It is in any event aimed at maintaining and adjusting to the functional needs of the fabric.
It may be suffi cient to carry out regular cleaning of the surface of the roof and walls. Localised repairs my be necessary due to breakages, scratches and damage. Any dirt stains indicate the evaporation of liquids which have run down the surfaces. During maintenance, therefore, besides removing the stains, it is necessary to eliminate the cause of water collecting (such as movement of the gutters in which it runs, settlement of the framework or distortion of the ridges, fl ashing etc.).
2.3 If the results of the inspections establish that there are conservation problems at work, an extraordinary maintenance operation must be performed by the owner and at his/her expense, with the aim of restoring the initial conditions.
These operations are intended to address the premature occurrence of problems of corrosion of the metal components, not envisaged at the design stage. These problems can arise from a general situation of the fabric being compromised by fi nishing works not meeting expectations in terms of durability, or from factors not pertaining to the works, such as flooding, ageing, condensation, electrochemical incompatibility, new sources of pollution, change of use etc.
The present Instructions govern the contractual relations between the Vendor party and the Purchasing party (addressee of the invoice).
Failure to carry out or incorrect execution of inspection and maintenance operations exonerates the Vendor from all responsibility in the period between the despatch of the materials and the time limit for their presumed involvement under the terms of the applicable legislation (Article 1495 of the Civil Code, and Legislative Decree no. 24 of 2 February 2002).
The Purchasing party undertakes on its own account to adopt and to see that third parties concerned adopt the present Instructions, to the extent that they are limited to the obligations on the part of the Vendor provided by the applicable legislation (regarding instructions, limitations and expiry).
'Third parties concerned and involved by the Purchaser' is to be understood as meaning: trading companies, construction fi rms, fitting operators, contracting and commissioning organisations, and owners of the premises and subsequent owners who may take part in the transfer of ownership.
The commitment to inspection and maintenance is undertaken by the Purchasing party in relation to the Vendor party. The Purchasing party is to transmit the present commitment in its turn when it in its turn becomes a vendor, and so forth in succession as far as the owner of the premises.
For validation of the inspection and maintenance operations, the owner must in any event sign the acceptance of the commitment, on its own responsibility and at its own expense, to carry out inspection and maintenance operations. These operations are to be recorded in chronological order in a suitable register with all the technical checks noted, and with the description of the ordinary maintenance jobs and
any extraordinary maintenance jobs performed.
This register is to be set up on the initiative of the owner, and maintained and updated by the owner or by the building administrator under delegation from the owner. The register must be available and consultable as a document recording the proper management of the premises, always within the context of the Vendor's relevant legal conditions.
The register must contain a record of the supply of the insulated metal panels and ribbed sheets, stating the name of the supplier, the details of the order confi rmation, the type and characteristics of the materials (including catalogue references), the date of delivery to the site and the relative transport documents, and the subsequent chronology of
the installation.
The names and addresses must also be entered in the register of: the designer, the works manager, the site safety manager, the tester, the main contractor and the fi tting contractor (or the individual operators).
The identifi ability and traceability of the supplies must thus be ensured for the entire duration of the validity of the present Instructions, which will terminate with the cessation of the relationship with the company producing the insulated metal panels or the ribbed sheets, with respect to its possible involvement under the terms of the law.

Siena - Italy

Verona - Italy

Mantova - Italy

Lodi - Italy

Mantova - Italy

Treviso - Italy

Verona - Italy

Verona - Italy

Case History

Verona - Italy

Milano - Italy

Verona - Italy

Padova - Italy

Verona - Italy

Asti - Italy

Verona - Italy

Milano - Italy

Imola - Italy

Messina - Italy

Verona - Italy

Tarragona - Spain

Valencia - Spain

Barcelona - Spain

Saragoza - Spgna

Leiria - Portugal

Case History

Querétaro - Mexico

Querétaro - Mexico

Querétaro - Mexico

Mexico City - Mexico

Querétaro - Mexico

Bucarest - Romania

Querétaro - Mexico

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EN - Edition n.12D - 01/2020

ISOPAN
INSULATING DESIGN

www.isopan.com

ITALY

REGISTERED AND ADMINISTRATIVE HQ
Via Augusto Righi 7
37135 Verona | Italy
T. +39 045 8088911

ISOPAN SPA
Verona | Italy
T. +39 045 7359111

Frosinone | Italy
T. +39 07752081

WORLD

ISOPAN IBERICA
Terragona | Spain
T. +34 977 52 45 46

ISOPAN EST
Popești Leordeni | Romania
T. +40 21 3051 600

ISOPAN DEUTSCHLAND GmbH
OT Plötz | Germany
T. +49 3460 33220

ISOPAN RUS
Volgogradskaya oblast' | Russia
T. +7 8443 21 20 30

ISOCINDU
Guanajuato | Mexico
T. +52 1 472 800 7241

SALES COMPANIES

ISOPAN FRANCE
Paris | France
T. +33 5 56021352

ISOPAN MANNI GROUP CZ
Praha | Czech Republic
contact@isopansendvicovepanely.cz