ISOTEC®

ISOTEC®

The thermal insulating System

λ_D 0,022

contributes to
EAP2,EAC2,MRC3,MRC4
MRC5,EQC1,EQC9,EQC5
credits (v4 NC)
IT04-19070801

The under-roof ventilation and thermal insulating system for new and refurbished pitched roofs.

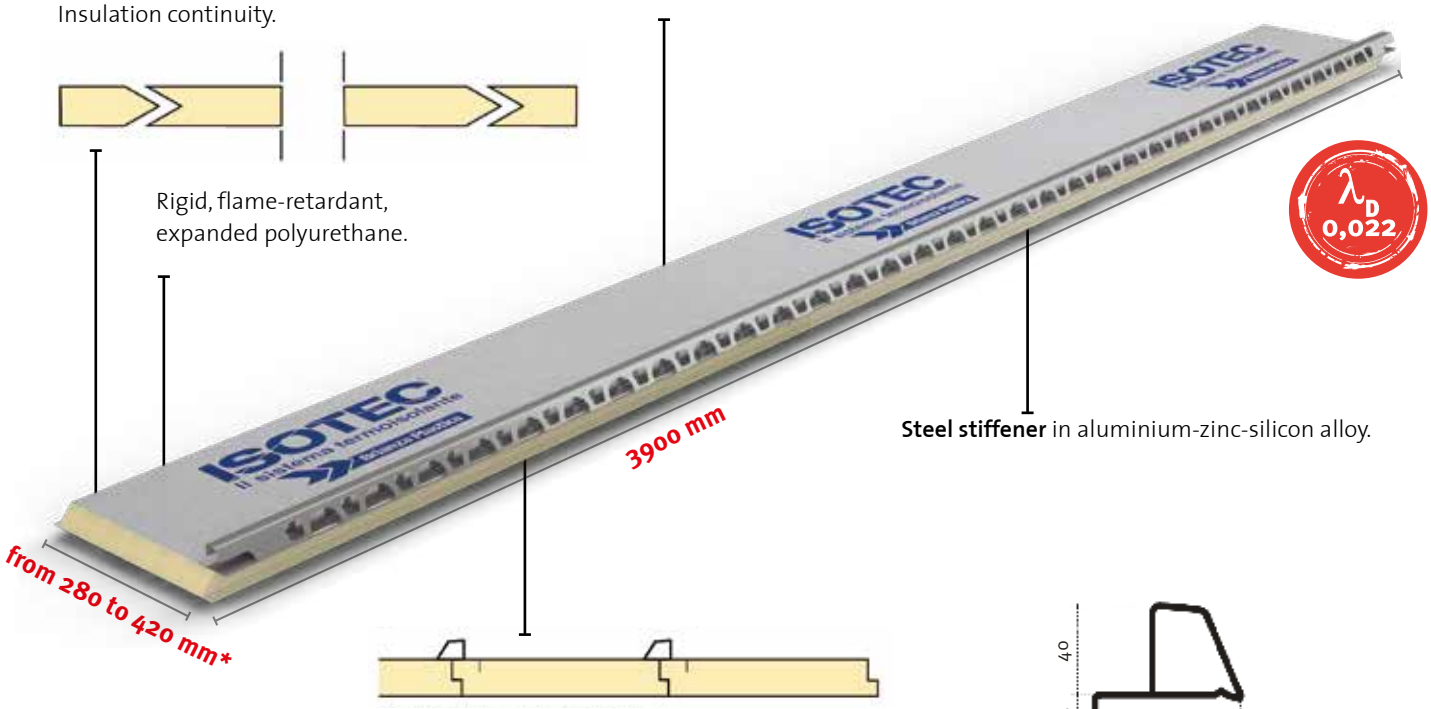
Brianza Plastica

The ISOTEC System.

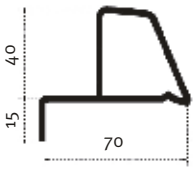
ISOTEC XL is a modular thermal insulating panel, made from rigid polyurethane foam covered with an embossed aluminium foil on both sides and integrated by a tile-supporting perforated steel stiffener in aluminium-zinc-silicon alloy.

Dovetail (crosswise):
Insulation continuity.

Coated on both surfaces with
an embossed aluminium sheet.



Battens (longitudinal):
Excellent butting of panels, eliminating any risk of thermal bridges.



** Width variable according to the tile pitch (other widths available by request).*

Range of thicknesses.

80 mm

100 mm

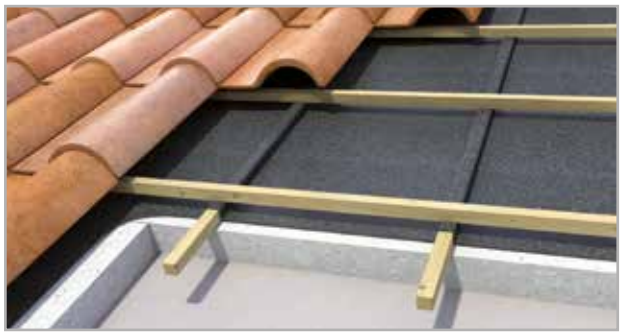
120 mm

160 mm

Tolerance - UNI EN 13165 (4.2.2, 4.2.3)

Panel thickness	80 - 100 - 120 - 160 mm
Tolerance (mm) Class T2	+ 5 ÷ -3 mm
Length (3900 mm)	± 10 mm
Width	± 5 mm

Why the ISOTEC System?



ISOTEC is a thermal insulating system for pitched roofs, designed for repairing and refurbishing roofs on old buildings or creating new roofs. Its light-weight and easy handling speed up the correct installation of the panels, which, when laid in sequence, quickly form a loadbearing, thermal insulating, ventilated platform.

Isotec system provides 4 functions:

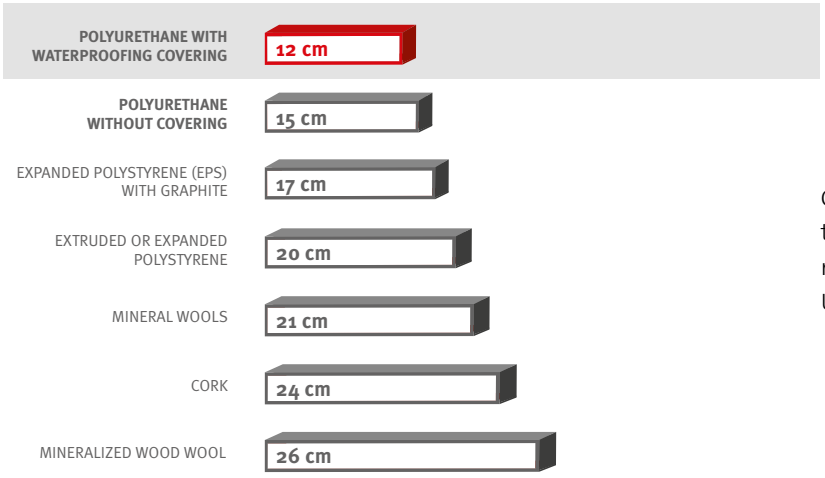
- **thermal insulation**
- **second-stage waterproofing**
- **under-tile ventilation**
- **support for tiles**

Isotec requires compliance with simple installation rules and strict use of the laying completion accessories.
When laid correctly, the roof becomes a real living comfort and energy saving resource for the entire building.

Advantages.

Thermal insulation.

Isotec has a central core made of **rigid**, closed cell **expanded polyurethane** with a **density of 38 kg/m³**. This is currently one of the best thermal insulation materials available. It drastically limits heat exchanges with the outside and **eliminates heat dispersion during winter** while in **summer it limits increases in the temperature** of the spaces under the roof, saving energy for heating and cooling. The use of expanded polyurethane coated with aluminium guarantees the best thermal performance possible, along with being **extremely light-weight, long lasting and thermally constant** (-50/+100°C), which makes it ideal for use under tiles. The IARC (International Agency for Research on Cancer) has added polyurethane foam to the group of agents that **cannot** be classified as a carcinogenic for human health. Isotec panels can be recycled mechanically and chemically according to current standards or used as filling material. They can also be disposed of at dumpsites as they are classified in the general code of plastics and are suitable for treatment as solid urban waste.



Comparative histogram of the thicknesses of various insulating materials required to achieve a value U=0,18 W/m²K or R = 5,45 m²K/ W

Second stage waterproofing.

If laid according to our "Laying instructions" and preferably on a **structure with a pitch > 17°** (or the minimum pitch limit guaranteed by the roof covering), Isotec is an **excellent second stage waterproofing** against accidental infiltration of raindrops. In addition, it helps to guarantee temporary waterproofing of the building until the roof covering is laid, only against short and light rainfalls.

Ventilation.

The steel stiffener built into the panel has holes that allow **an under tile ventilation of more than 200 cm²/m between the gutter and the ridge.**
In summer this flow provides an improvement in the roof's thermal performance and in winter the disposal of the condensate under the tiles, increasing the lifespan of the roof covering.

Fast and low-cost laying.

Isotec panels realize a load-bearing deck that can be easily walked on the metal stiffeners.
The modularity of the Isotec panels allows a faster and safer installation compared to the traditional panels.

Long lifespan.

The experience gained from our thermal insulation systems on the market over more than 35 years, along with the good quality of the materials they are made, has allowed us to achieve quality level that has made us certain of its lifespan.

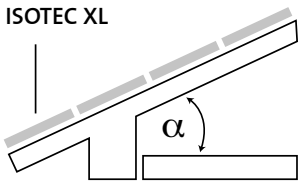
Energy saving.

SAVING OF UP TO 50% ON HEATING COSTS
The characteristics of the modular panel (thermo insulation plus under-tile ventilation) guarantee efficient thermal insulation by the roofing, which makes it possible to achieve a considerable saving on heating costs of up to about 50%!*

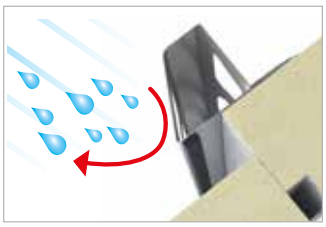
* Value calculated for a pitched roof with a beam and block slab structure and clay tiles.

Roof pitch.

ISOTEC XL



In order to guarantee second-stage waterproofing performance, the ISOTEC system must preferably be used on roofs with an angle higher than 17°.



The Isotec system is used for pitched roofs, allowing for the pitch as recommended below (in any case follow the technical instructions issued by the manufacturers of the various tiles).

	α	%	LAYING WITH ISOTEC XL
	≥17°	≥30%	Any type of roof covering
	<17°	<30%	Only with continuous roof covering (slabs) or additional waterproofing systems

ISOTEC XL PLUS

With pitches under 17°, we suggest ISOTEC XL PLUS, a version with a seal at the bottom of the metal stiffener. This gasket ensures a high impermeability already with a compression of 30%, increasing the waterproofing capacity against accidental leakages from roof covering.

Technical characteristics.

λ_D 0,022

CHARACTERISTIC	U.M.	VALUE	TEST METHOD
Density	Kg/m³	38,0	UNI EN ISO 845
Declared Thermal Conductivity λ_D ***(after pondered ageing of 25 years)***	**W/mK**	**0,022**	UNI EN 13165 Appendix A and C
Thermal Conductance **U**	W/m²K	0,37 60 mm 0,28 80 mm 0,22 100 mm 0,18 120 mm 0,14 160 mm	$U= \lambda_D /d$ (d= thickness panel in m)
Declared Thermal Resistance **R_D** *(after pondered ageing of 25 years)*	m² K/W	2,73 60 mm 3,64 80 mm 4,55 100 mm 5,45 120 mm 7,27 160 mm	$R_D= d/ \lambda_D$ (d= thickness panel in m)
Constant temperature	°C	- 50 ÷ +100	UNI 9051
Dimensional stability **DS(70,-)**	level	3	UNI EN 1604
Stress resistance to 10% deformation **CS(10\Y)**	kPa	≥ 120	UNI EN 826
	kg/cm²	≥ 1,22	UNI EN 826
Water vapor Resistance **MU**	μ	> 50.000	UNI EN 12086
Long term Water Absorption **WL(T)**	%	< 0,6	UNI EN 12087
Specific heat	J/KgK	1400	UNI EN 10456
Emission of dangerous substances	//	conform	UNI EN 13165 Appendix ZA
Fire reaction	euroclass	F (PUR)	EN 13501-1
	euroclass	D (PIR)*	EN 13501-1, EN 13823, EN 11915-2

Isotec XL and XL Plus bears the CE mark in compliance with the European Regulation 305/2011/CE, norms UNI EN 13165:2016 and UNI EN 13172:2012. System 3 (Organism certified by CSI S.p.A. n° 0497).

*Product available on request.

Accessories.

Polyurethane foam

Silicone sealer

Butyl coated aluminium tape


Steel stiffener


Ridge brackets


Zinc and lead ridge


Aluminium ridge


Ventilated gutter batten


Screw anchors for cement


Self tapping screws for wood

Descendant allowable load (daN/m²)*

Distance between supports - l - (cm)	60	70	80	90	100	110	120
Maximum distance allowed between the supports: 120 cm							
Thickness	**ALLOWABLE LOADS**						
80 mm	689	595	515	447	396	358	335
100 mm	798	708	628	557	495	442	393
120/160 mm	911	808	715	633	562	502	452
Safety factor	3 (1/3 - tensile strength)						
Vertical deflection	The allowable loads shown always meet the threshold condition $f \leq 1/200 - l$						

*Load test performed on panels ISOTEC width 34,2 cm, laid on joists supporting sec. 5 x 5 cm, permanent downward load due to the roofing tiles (ca. 45 daN/m²) at ITC (test report 3675/RP/03 of 05/11/2003).

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ISOTEC range and the LEED® V.4 rating system

LEED® - Leadership in Energy and Environmental Design - is a certification system for buildings that is created on a voluntary basis and is applied in over 140 countries worldwide. The LEED standard was born in America by U.S. Green Building Council (USGBC), a non-profit association founded in 1993, which currently has more than 20,000 members and whose aim is to promote and develop a global approach to sustainability, acknowledging virtuous performance in key areas of health human and environmental.

LEED® is a voluntary and consensus-based system for the design, construction and management of sustainable buildings and high performance territorial areas that is developing more and more internationally; it can be used on any type of building and promotes an integrated design system that covers the entire building.

The LEED® rating system certifies the building, does not certify the individual products or building components, but the latter can help meet the requirements of the protocol and consequently obtain the relative scores for the building.

All the protocols are structured in the same areas. All these areas / chapters contain the prerequisites and credits. The prerequisites are mandatory and do not give points, while the credits can be chosen or not by the design team but they are the ones that give the score, which must be achieved to obtain the certification level defined as a certification objective.

How ISOTEC, ISOTEC XL and ISOTEC XL PLUS can contribute to achieving the LEED® v.4 certification score in the credits and prerequisites:

EAp2 - Minimum Energy Performance

EAc2 - Optimize Energy Performance

MRc3 - Building product Disclosure and Optimization – Sourcing of Raw Material

MRc4 - Building product Disclosure and Optimization – Material Ingredient

MRc5 - Construction and Demolition Waste Management

EQc1 - Enhanced Indoor Air Quality Strategies

EQc5 - Thermal Comfort

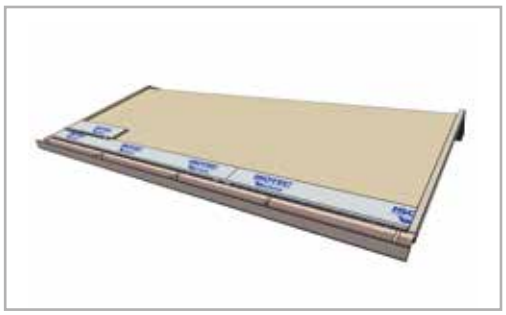
EQc9 - Acoustic Performance

For more detailed information, contact the technical sales department at the address sales-insulation@brianzaplastica.it and consult the documentation on http://isotec.brianzaplastica.it/it/.

The compliance document of Brianza Plastica Products has been written by Quality Net® and the products can be found on https://www.greenitop.com/.

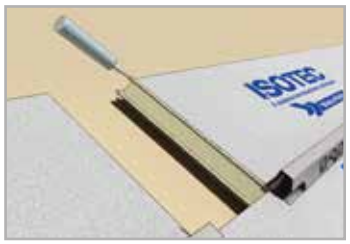
Laying instructions.

Starting installation.



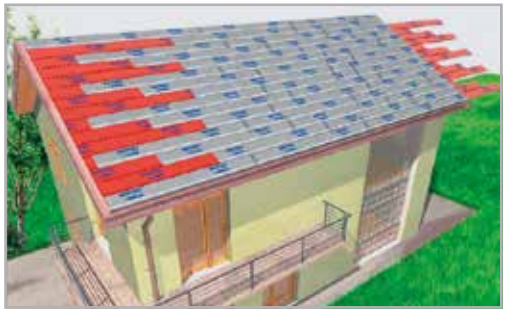
Fix a wooden safety base joist (same thickness as panel) along the entire roof perimeter.
To allow the first row of tiles to overlap the gutter, place the first Isotec panel after trimming it along the longitudinal side or, as an alternative, use the specific Isotec panel with a shorter width. Interpose a butyl aluminium tape as insulation between the metal profile and the gutter.

Sealing and fixing.



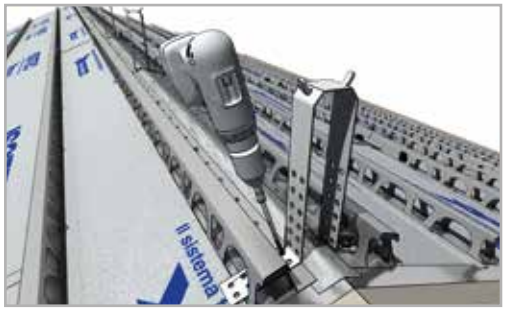
Seal the lateral dovetails of the panels with single-component silicone before their joint. After the panel has been installed and fixed, waterproof the joint with the butyl aluminum tape.

Completing the roof pitch.



Continue with the second and following rows with the panels, cutting their length in order to stagger with the lateral joints of the previous row.
The cut parts of panels can be used for the next rows, until you reach the ridge of the roof.
This procedure reduces the percentage of wasted material, which is averagely about 3%.

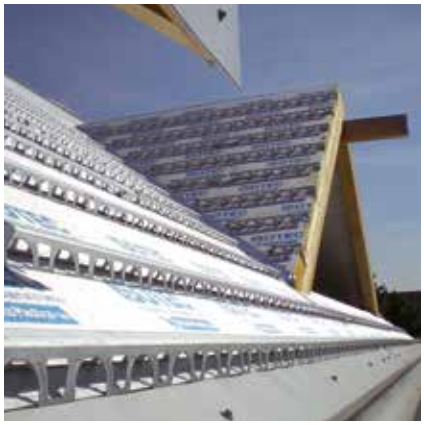
Ventilated ridge.

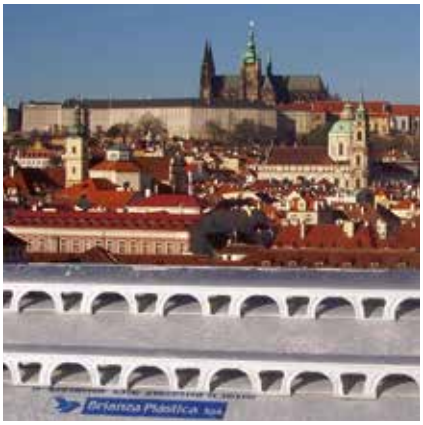


After having reached the ridge, seal with PU foam the space between the panels at the ridge, trim the foam in excess and seal by applying butyl aluminum tape.
Place the metal profile and fix it to the bottom frame at an appropriate distance to support the last row of tiles. Install the under-ridge plate, fold and fix it.

See the complete laying instructions on our website http://isotec.brianzaplastica.it/en and YouTube channel.

Examples of installations.





INSTALLATION VIDEO

contributes to
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Quality Management System
UNI EN ISO 9001:2015
CERT. N°. 106

ISO 9001:2015
CERTIFIED QUALITY
MANAGEMENT SYSTEM

CTL 149/EN - REV.4 - 03.20
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