

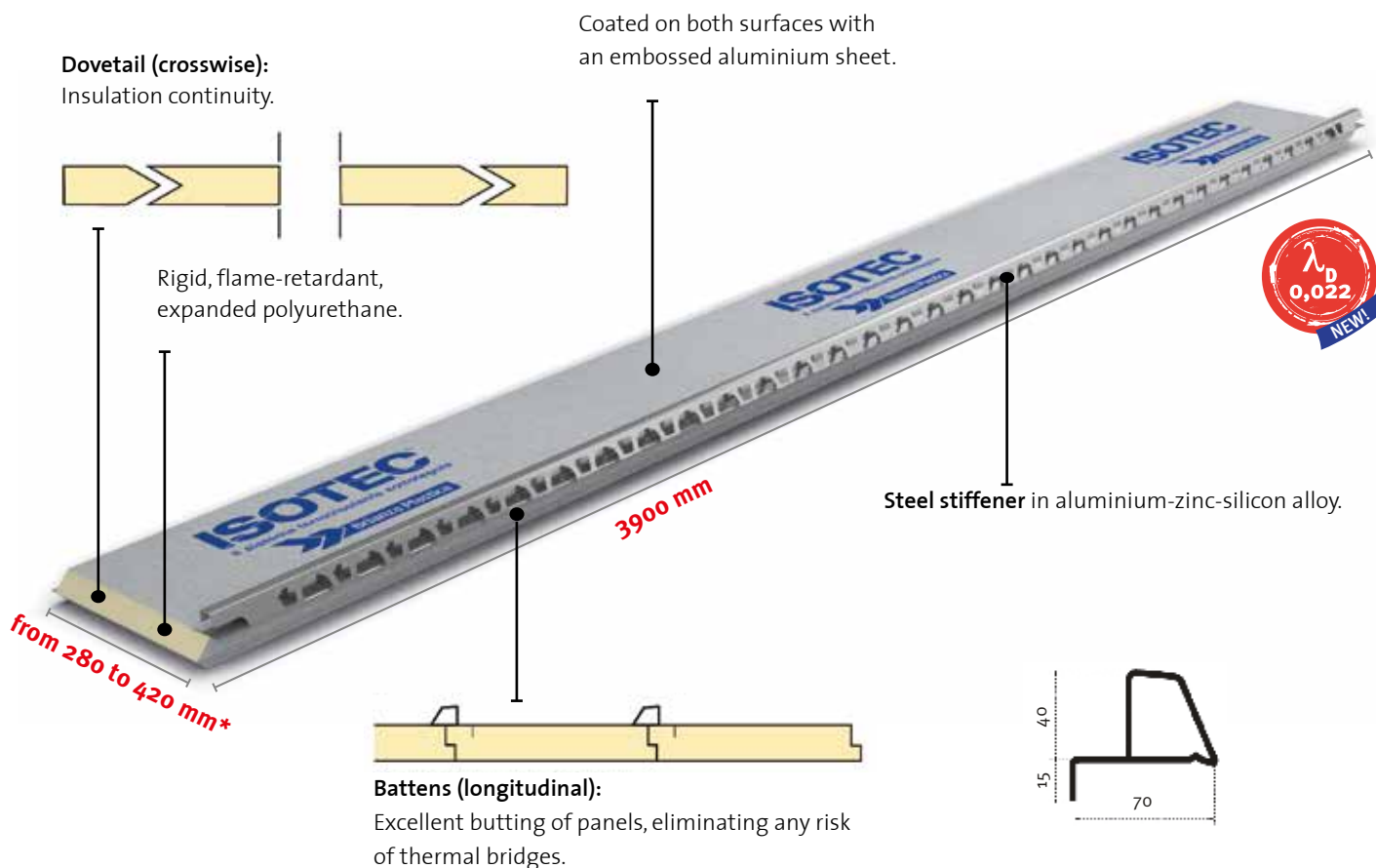
ISOTEC®
Thermal Insulating System



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

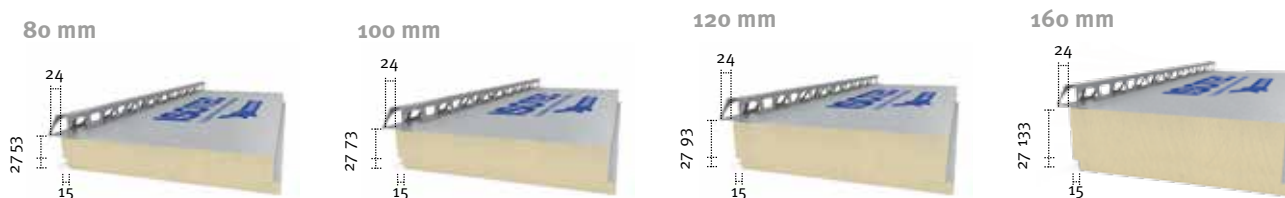
The ISOTEC System.

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.



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

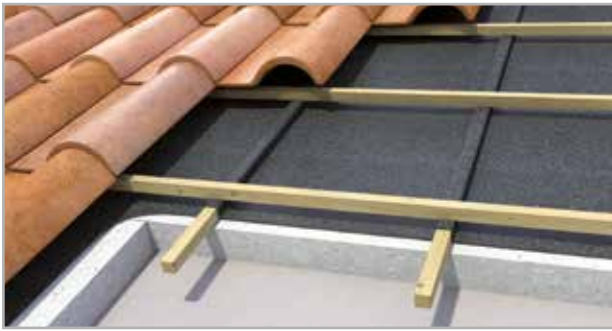
Range of thicknesses.



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**

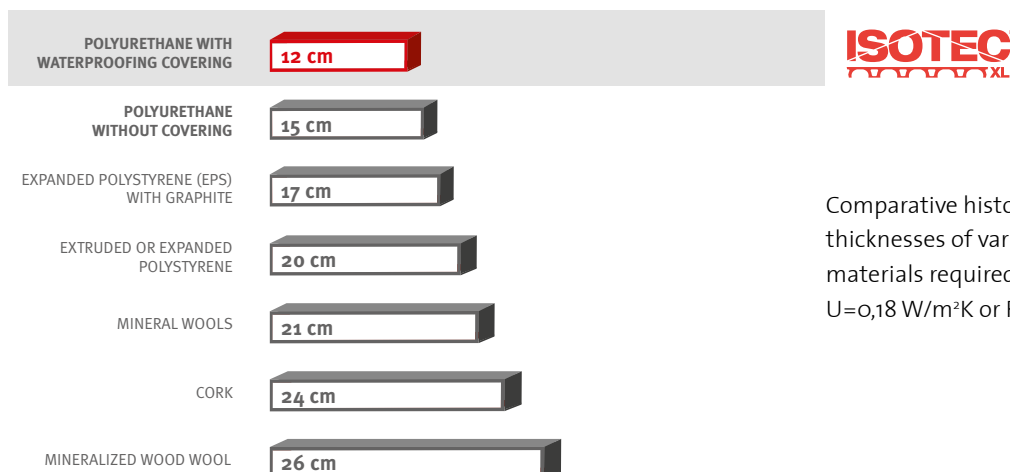
Isotec requires compliance with simple installation rules and strict use of the laying completion accessories. When laid correctly, the roof becomes a real living comfort and energy saving resource for the entire building.

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 $U=0,18 \text{ W/m}^2\text{K}$ or $R = 5,45 \text{ m}^2\text{K/ W}$



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.



10 years guarantee.

The experience gained from our thermal insulation systems on the market over more than 30 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. **Isotec has a 10 years guarantee.**



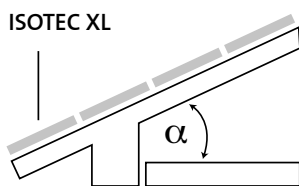
Energy saving.

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.



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).

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

	α	%	LAYING WITH ISOTEC XL
	$\geq 17^\circ$	$\geq 30\%$	Any type of roof covering
	$< 17^\circ$	$< 30\%$	Only with continuous roof covering (slabs) or additional waterproofing systems



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.

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) - permanent+variable.

Distance between supports - l - (cm)	60	70	80	90	100	110	120
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)						
Arrow	The allowable loads shown always meet the threshold condition $f \leq 1/200 \cdot l$						

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).

Technical characteristics.

CHARACTERISTIC	U.M.	VALUE	TEST METHOD
Density	Kg/m³	38,0	UNI EN ISO 845
Initial Thermal Conductivity $\lambda_{mean,i}$	W/mK	0,021	UNI EN 12667
Declared Thermal Conductivity λ_0 <i>(after pondered ageing of 25 years)</i>	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	$u = \lambda_0 / d$ (d= thickness panel in m)
Declared Thermal Resistance R₀ <i>(after pondered ageing of 25 years)</i>	m² K/W	2,70 60 mm 3,60 80 mm 4,50 100 mm 5,45 120 mm 7,25 160 mm	$R_0 = d / \lambda_0$ (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	D (PIR)	EN 13501-1, EN 13823, EN 11915-2
	euroclass	F (PUR)	EN 13501-1

Isotec XL and XL Plus bears the CE mark in compliance with the European Regulation 305/2011/CE, norms UNI EN 13165:2015 and UNI EN 13172:2012. System 3 (Organism certified by CSI S.p.A. n° 0497).

Laying instructions.

Starting installation.



Fix a wooden safety base joist (same thickness as panel) along the entire roof perimeter.

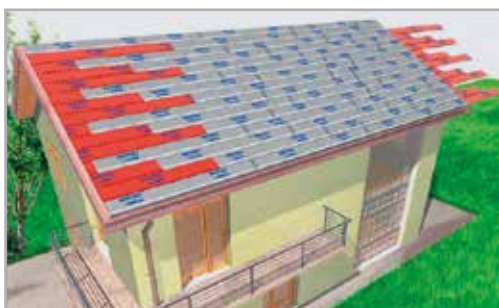
To allow the first row of tiles to overlap the gutter, place the first Isotec panel after trimming it along the longitudinal side or, as an alternative, use the specific Isotec panel with a shorter width. Interpose a butyl aluminium tape as insulation between the metal profile and the gutter.

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.

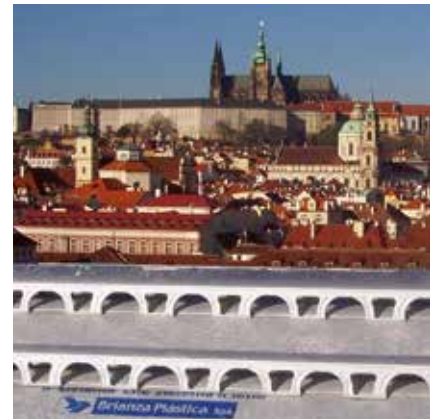
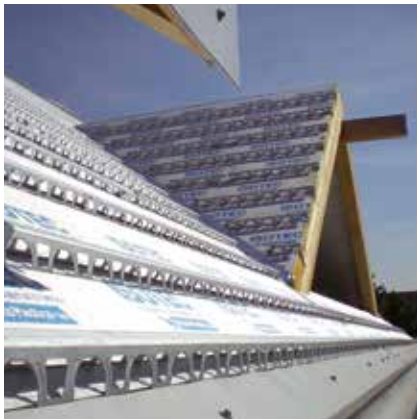


After having reached the ridge, seal with PU foam the space between the panels at the ridge, trim the foam in excess and seal by applying butyl aluminium tape.

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://brianzaplastica.it/inglese/> and YouTube channel.

Examples of installations.



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ISOTEC
INSTALLATION
VIDEO



Quality Management System
UNI EN ISO 9001:2008
CERT. N. 106



ISO 9001:2008
CERTIFIED QUALITY
MANAGEMENT SYSTEM