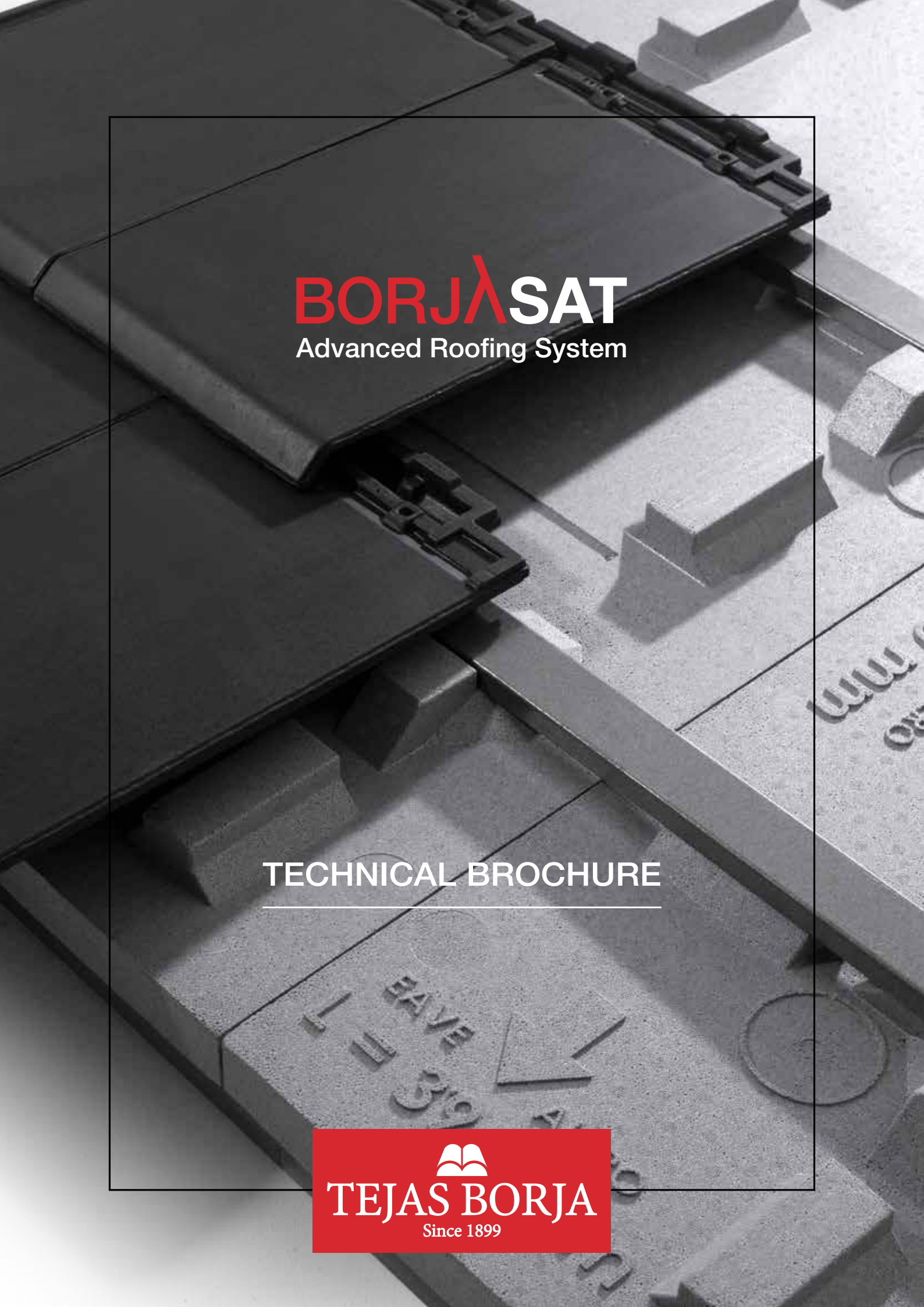




BORJASAT

Advanced Roofing System

TECHNICAL BROCHURE



TEJAS BORJA
Since 1899

BORJA SAT

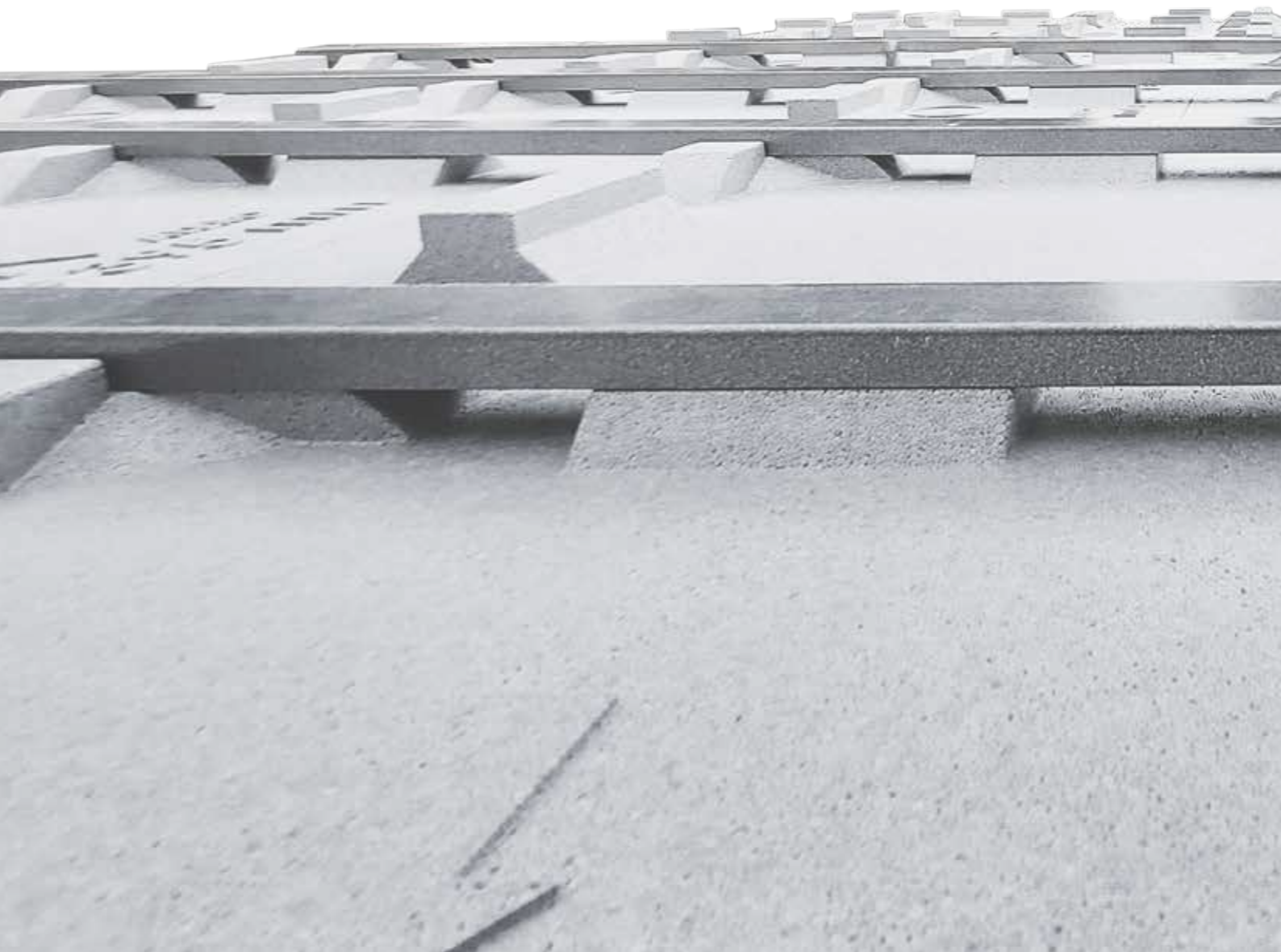
Advanced Roofing System

BorjaSAT was created to respond to the need for new sloping roof solutions which meet the technical and energy efficiency requirements of today's construction industry.

Advanced systems to meet **ventilation, thermal insulation, watertightness and durability** requirements for tiled roofs.

BorjaSAT panels are made entirely from **Neopor®** Expanded Polystyrene (EPS), regarded as one of the best insulation materials which has numerous applications in construction.

Neopor® Expanded Polystyrene (EPS) provides high levels of thermal insulation because it contains small particles of graphite which absorb or reflect infrared radiation, making it **20% more energy efficient than other EPS products.**



✓ **MULTIPURPOSE PANEL WHICH CAN BE USED WITH ANY ROOF TILE WITH A BATTEN SPACING OF 37 CM OR 39.5 CM.**

✓ **LIGHT AND EASY TO INSTALL WITHOUT PRIOR ADJUSTMENT.**

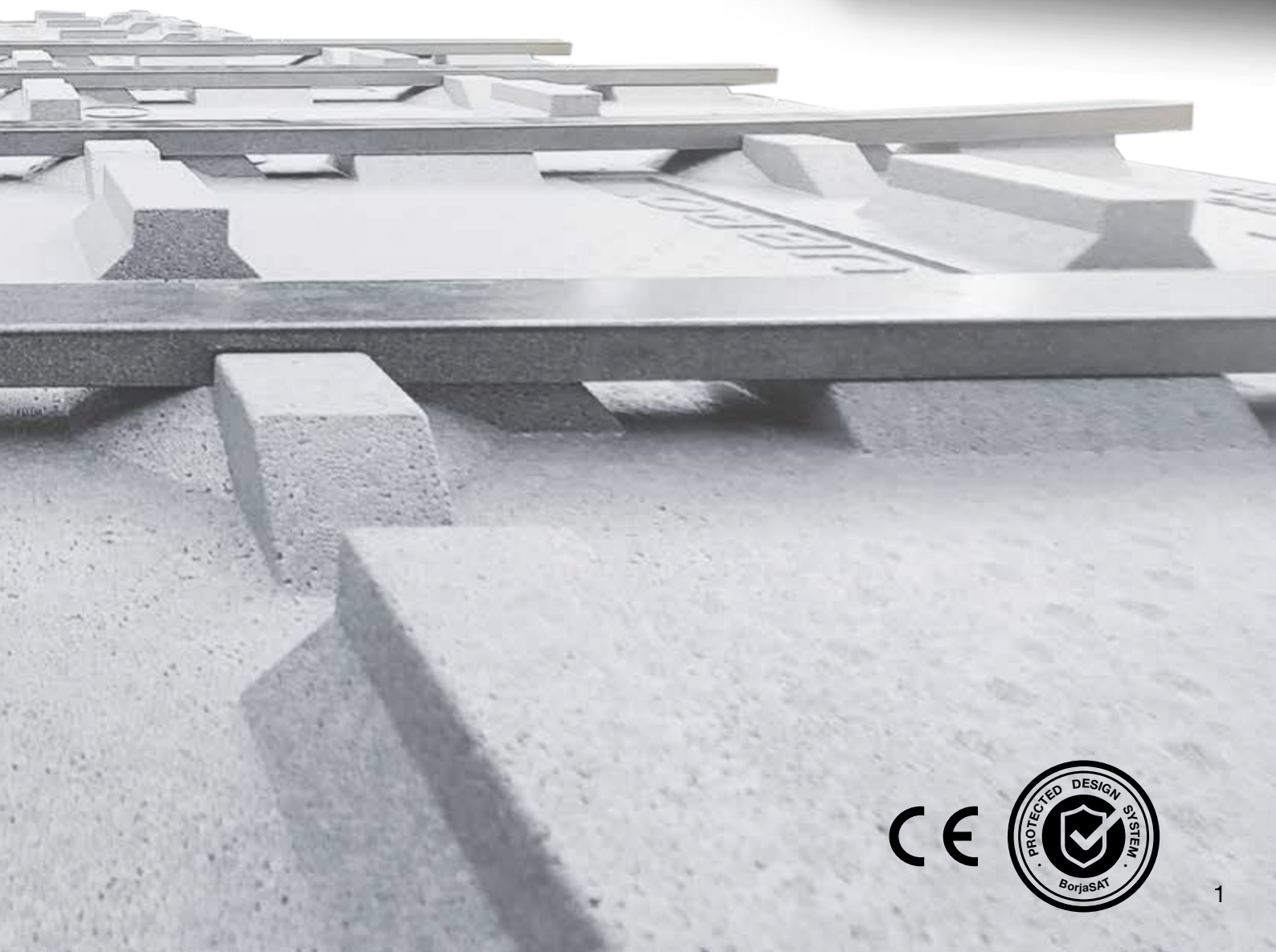
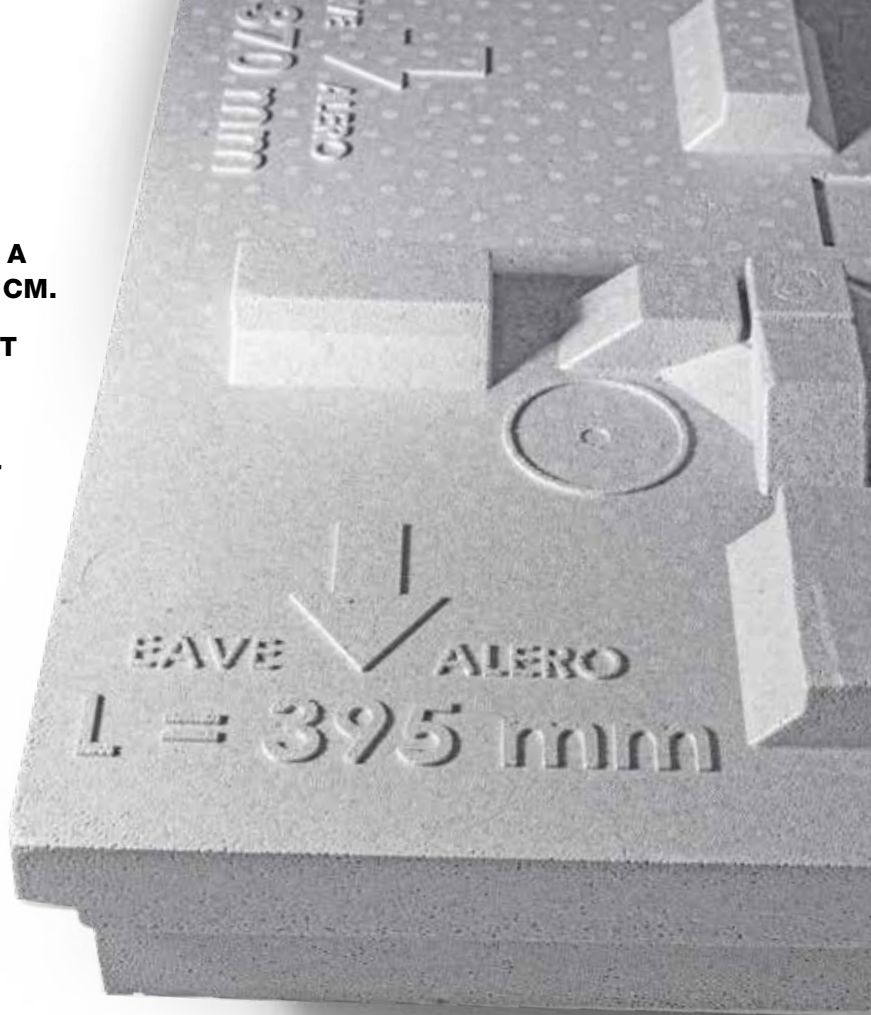
✓ **VENTILATED ROOF WHICH PREVENTS CONDENSATION AND IMPROVES HEAT INSULATION.**

✓ **LATERAL AND LONGITUDINAL INTERLOCKING TO MAXIMIZE WATERTIGHTNESS.**

✓ **HIGH LEVELS OF INSULATION USING A THINNER PRODUCT. NO THERMAL BRIDGES.**

$$\lambda = 0,031 \text{ W/mk}$$

100% Neopor®

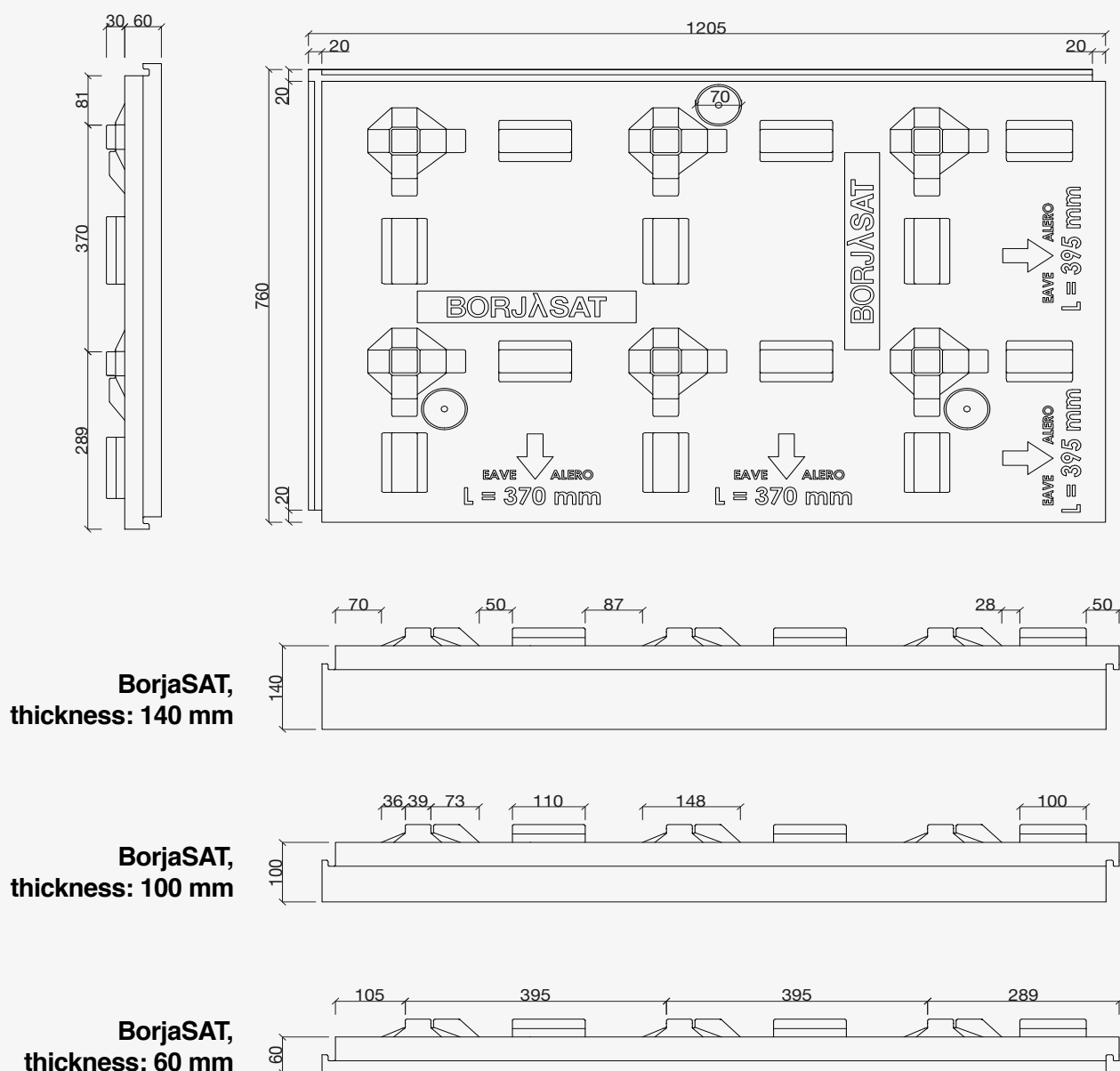


SYSTEM CHARACTERISTICS

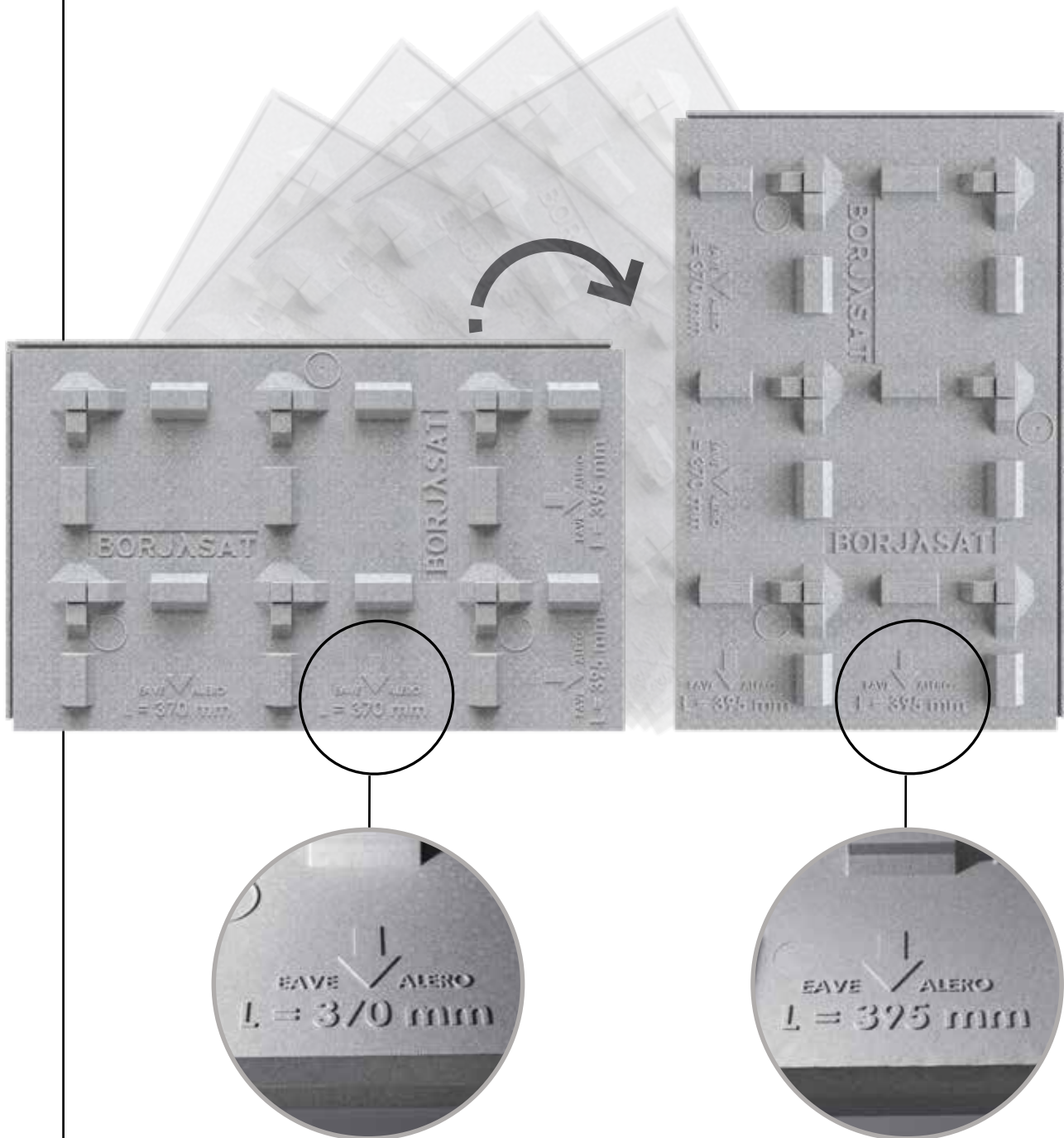
The **BorjaSAT** insulation panel is manufactured in three thicknesses: 60, 100 and 140 mm. It has a thermal conductivity coefficient of $\lambda=0,031 \text{ W/m}\cdot\text{K}$ to meet the thermal insulation requirements of all projects. When they are installed on the exterior of the roof structure they form a **continuous layer of insulation without thermal bridges**.

BorjaSAT thickness	Thermal transmittance U	Thermal resistance R
60 mm	0,51 W/m ² k	1,94 m ² k/W
100 mm	0,31 W/m ² k	3,23 m ² k/W
140 mm	0,22 W/m ² k	4,52 m ² k/W

The panels must **always be installed onto a continuous supporting structure and over a waterproof membrane** to ensure the roof is completely watertight in the event of condensation or the accidental breakage of roof tiles.



JUST ONE PANEL FOR ALL TILE MODELS



Install **horizontally**
for a batten
spacing of
370 mm.

Install **vertically**
for a batten
spacing of
395 mm.

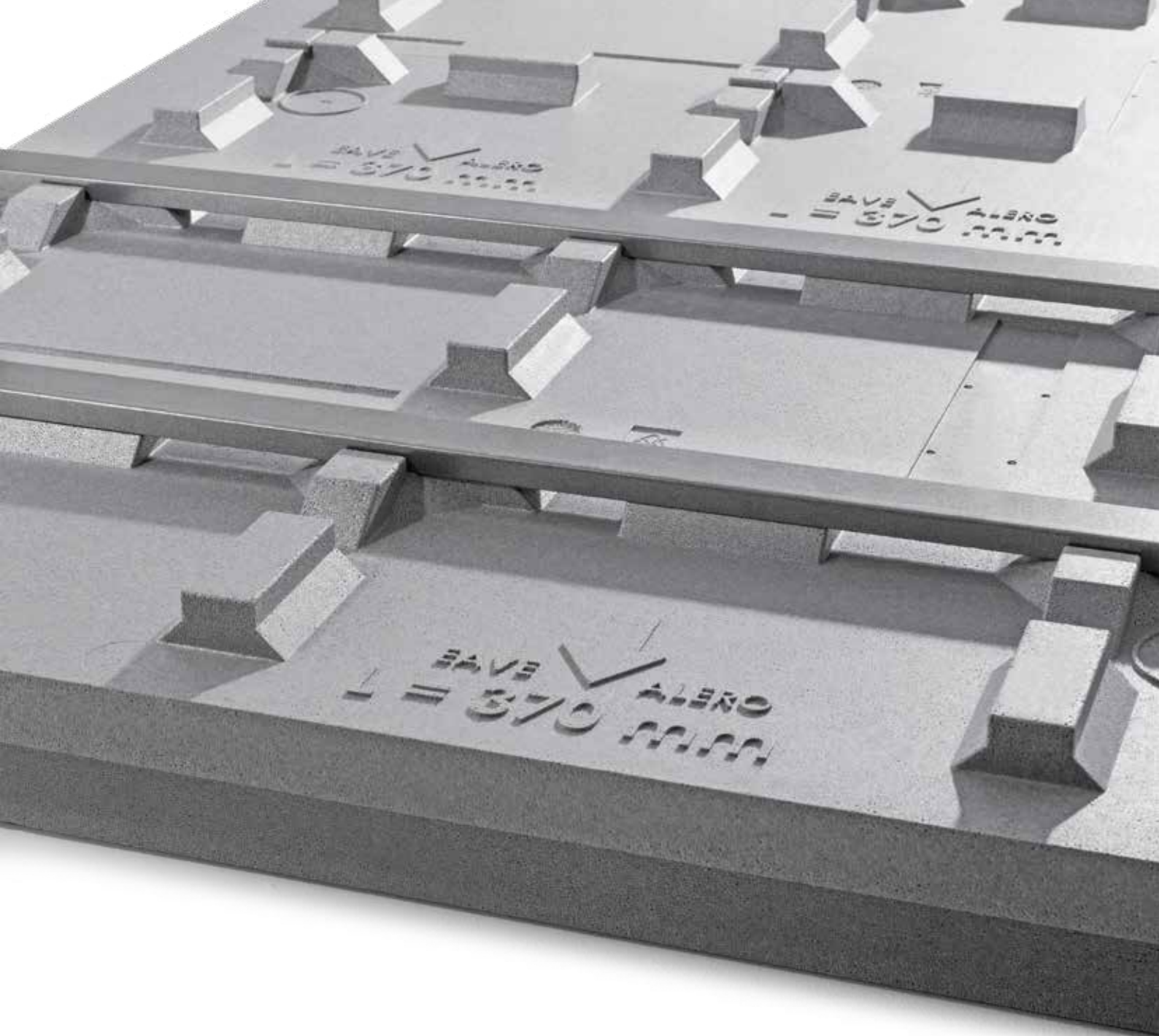
INSTALLATION

POSITIONING THE PANELS

A waterproof breathable membrane is installed onto a **continuous and level supporting structure**, made either of concrete or wood, and the joins are sealed using roofing adhesive tape. If the structure has already been waterproofed using another method (asphalt sheeting, EPDM, PVC, etc.) this first step is unnecessary.

The **BorjaSAT** insulation panels are positioned over the waterproofing. The alignment of the panels depends on the batten spacing required for the tiles which are going to be installed over them. As indicated on the panels, if they are positioned with the wide side of **the panel parallel to the eaves line they can be used for tiles with a 37-cm batten spacing**; if the panels are positioned with **the narrow side parallel to the eaves line they can be used for tiles with a 39.5-cm batten spacing**.





BATTENS

The metal battens are 40 mm-wide U profiles which **fit over the protrusions** on the insulation panels and which are fixed mechanically to the supporting structure using screws.

The metal battens **must be installed row by row** at the same time as the panels are put in place to allow the installer to step over the metal profiles safely as they cross the roof.

A space of approximately 1.5 cm must be left between consecutive profiles to allow for slight expansion of the battens.

Once the panels and their corresponding battens are installed, the outer layer of the roof can be positioned and fixed in place easily. This outer layer **must comply with the minimum slope requirements for the model of tile** to be installed. The roof is made waterproof once both roof layers have been installed – the panels and tiles – and always following the instructions in the installation manual.

FIXING

The panels must **be fixed to the support structure mechanically**. Once the metal profiles have been placed over the protrusions in the BorjaSAT panels, screws are driven through the metal profiles at points over said protrusions.

To fix the system to a concrete slab, compressed panels or ceramic boards, use screws and anchors. To fix to wood use self-tapping screws.

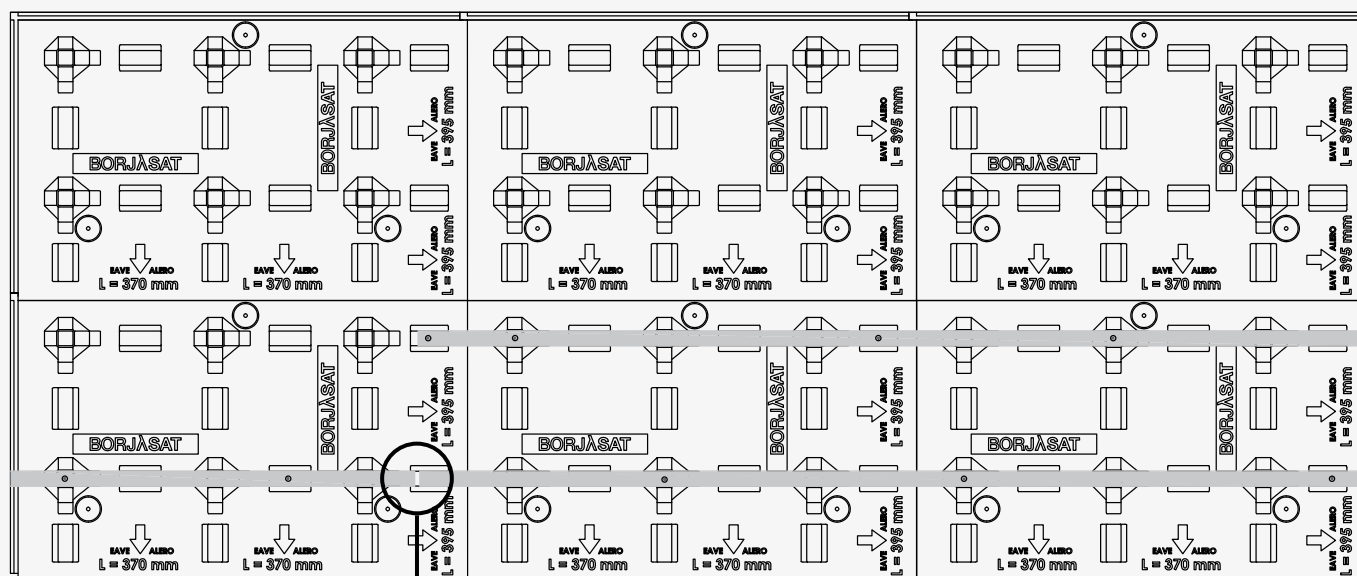
The minimum number of fixings is 3 per panel. With very steep roof slopes the fixings can be supplemented by using battens with rosette fixings, using the fixings where indicated by the circular marks on the panel.

- For 60 mm **BorjaSAT** – 120 mm screw or longer.
- For 100 mm **BorjaSAT** – 160 mm screw or longer.
- For 140 mm **BorjaSAT** – 200 mm screw or longer.



To fix the panels to concrete slabs, pre-drilling will be required. These holes must be waterproofed by applying some drops of polyurethane putty to the perforations before inserting the screws and anchors. The panels can be positioned on the roof either **in staggered or continuous rows**, starting from the eaves line and going up row after row until reaching the ridge.

Tiles are fixed to the metal batten using self-tapping screws. Chemical fixing methods can also be used, such as tile foam or polyurethane putty. **The minimum number of tiles to be fixed in place will be depend on the slope of the roof**, as detailed in standard UNE136020. All the tiles at the edges of each roof slope must always be fixed in place.



Gap between
profiles of 15 mm.



EAVES

Before the first row of panels can be positioned, **a starter profile must be installed at the eaves line.** This profile can be folded sheet metal, treated wood, or with brickwork. It must be between 2 and 3 cm taller than the thickness of the insulation panel, depending on the slope of the roof.

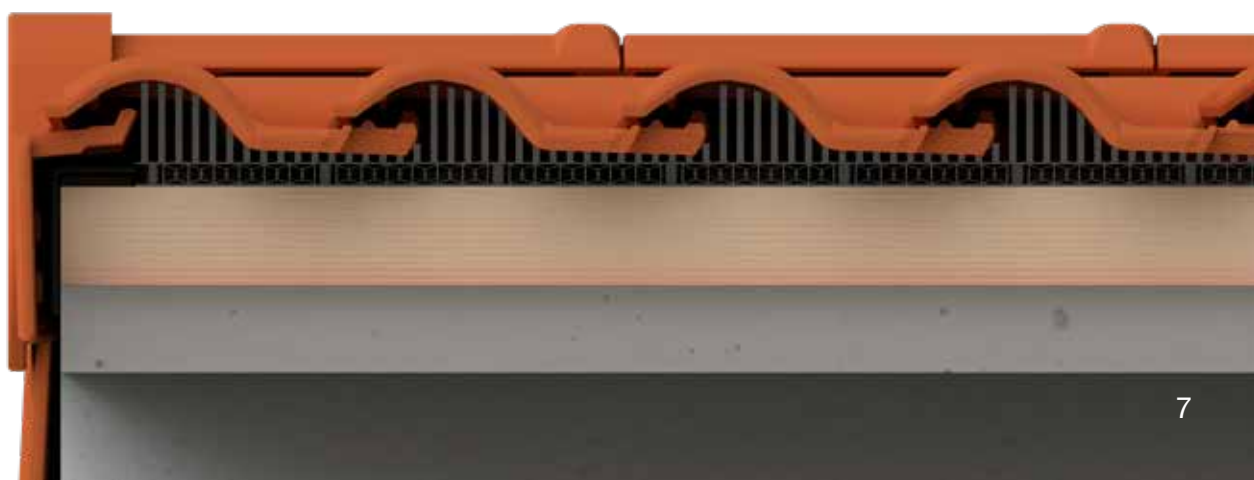
To enable any accumulated moisture to escape from the under-tile cavity, a gap of at least 1 cm must be left between consecutive pieces of starter profile. If the starter profile is made of brickwork, drainage channels should be made every 30-40 cm (using a PVC tube or similar to create spaces in the fresh mortar).



When the starter profile is made from treated wood, it can be raised using small blocks of wood at the fixing points.



The appropriate eaves comb profile is installed on the starter profile to prevent birds from entering the roof cavity and to facilitate its ventilation.



RIDGES AND HIPS

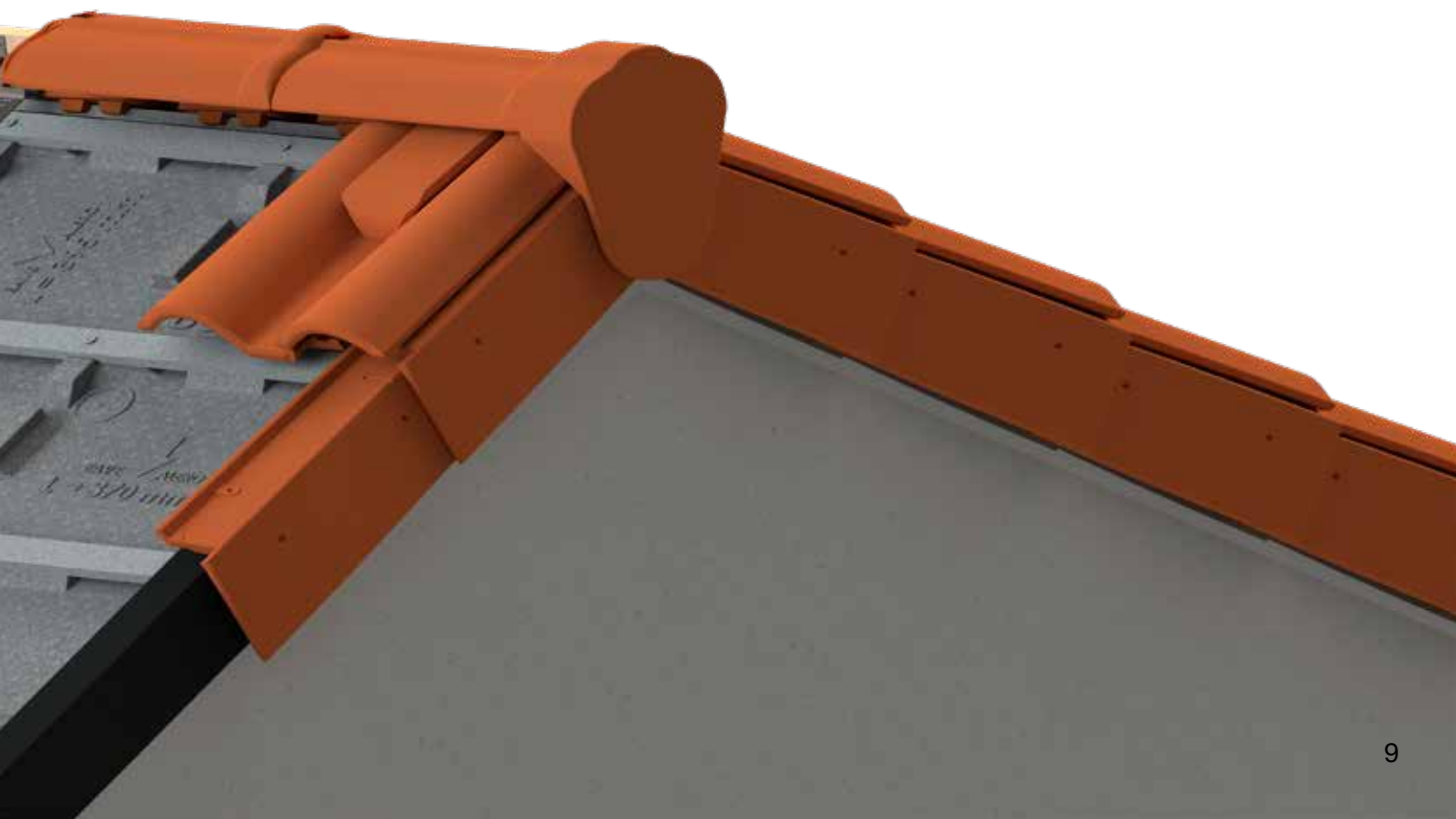
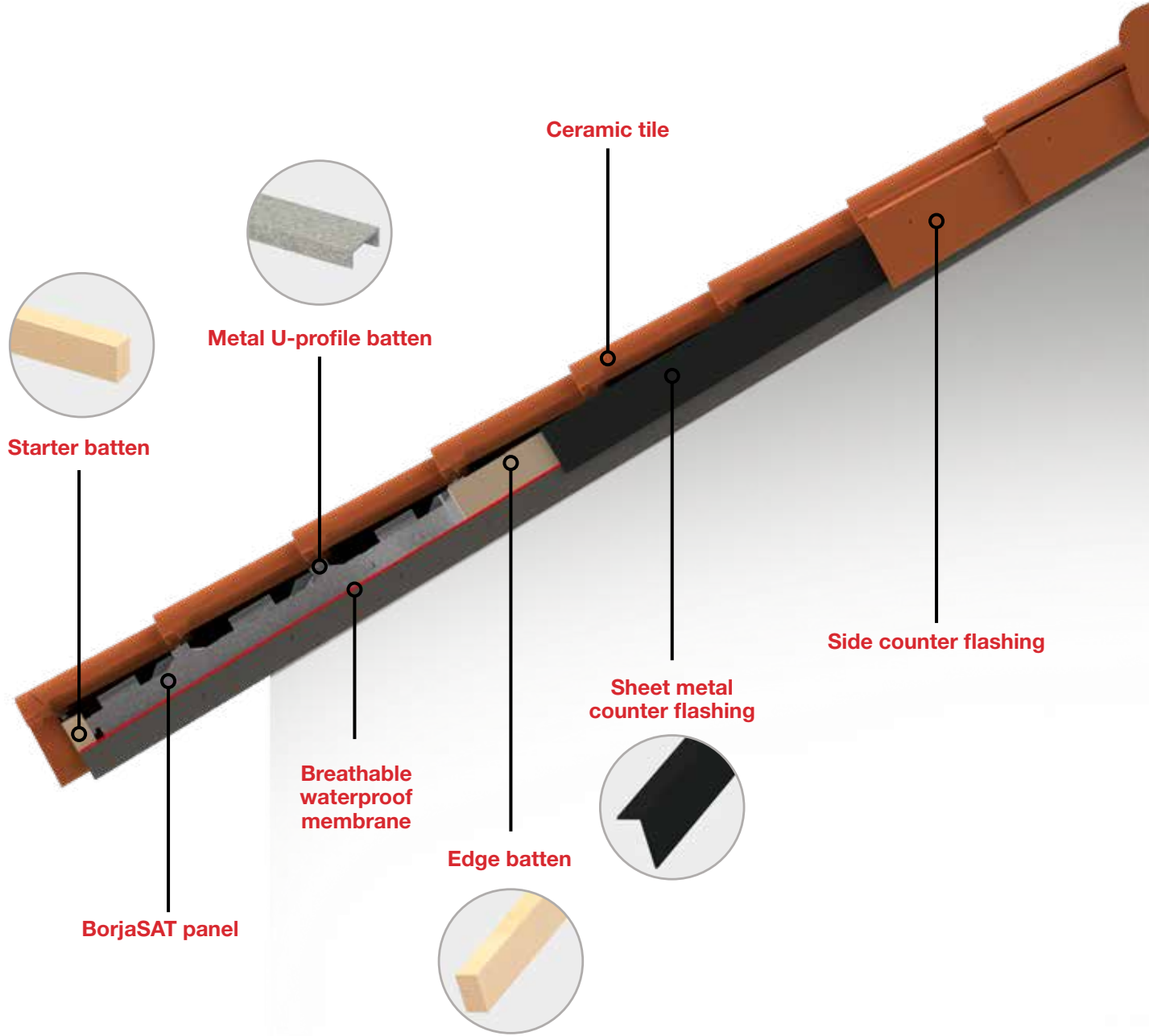
The ridges and hips **are made using a ventilated ridge system** using the batten supports which are fixed onto the **BorjaSAT** battens with self-tapping screws.

The ceramic ridge pieces are mounted and fixed onto the ridge profile which in turn is installed and fixed onto the metal ridge batten supports. Ventilated ridge tape is positioned between the ridge and the ridge batten.

EDGES

As the insulation panels are thick, installers must use an edge closure (cement, metal or wood) to cover the **BorjaSAT** panel at the edge of the roof. An optional edge batten and a starter batten can be installed to facilitate the installation of the ceramic edge pieces.





Email our technical department so they can work out
all the materials you need for your BorjaSAT project.

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or using the contact form at

www.tejasborja.com



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