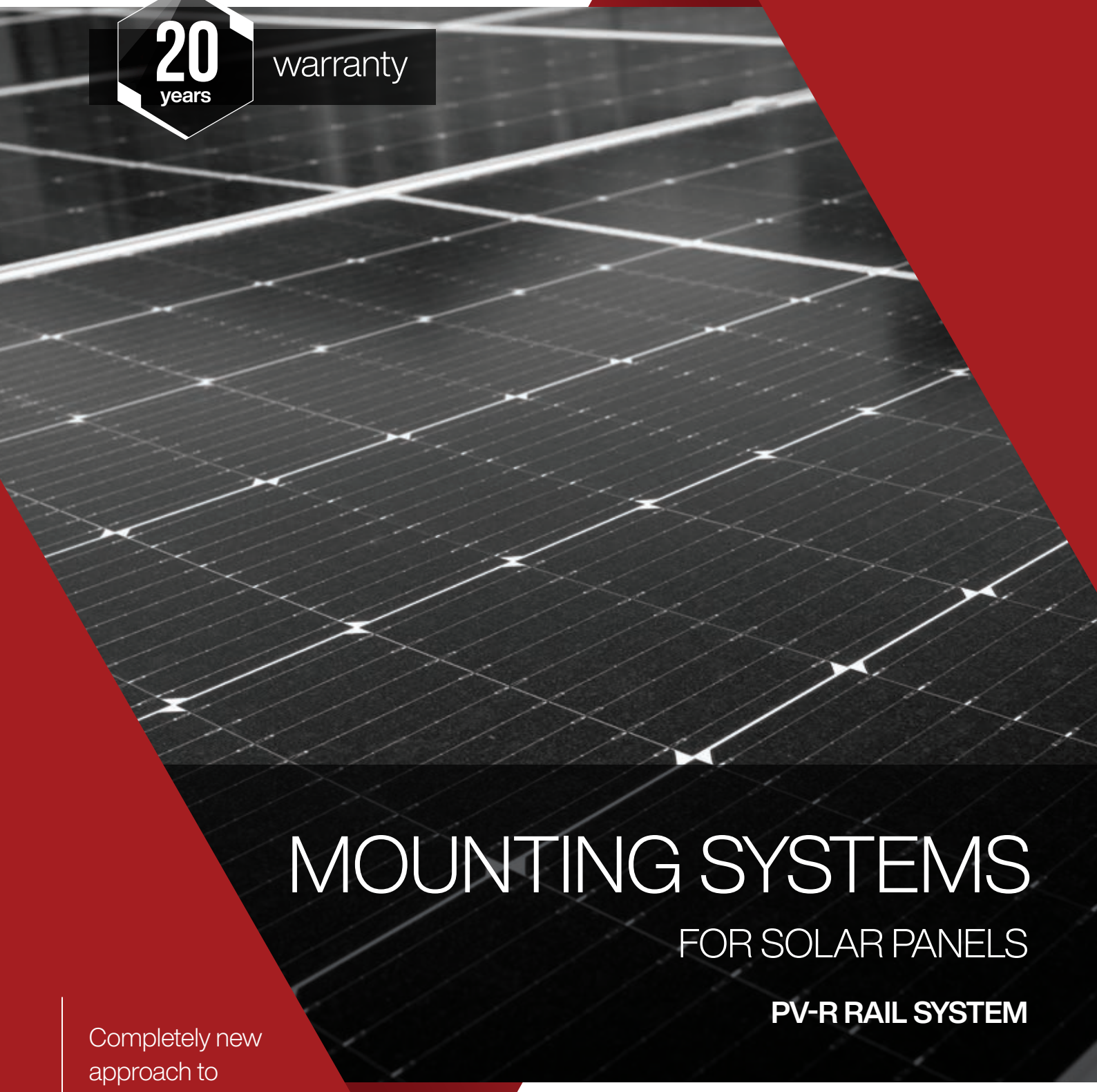
PROFORMANN®

Only professional solutions

20 years warranty



MOUNTING SYSTEMS

FOR SOLAR PANELS

PV-R RAIL SYSTEM

Completely new approach to installation of solar panels

EN1090-2 EN1090-3 ISO 9001 ISO 14001 Laboratory tested

PROFORMANN®

„Proformann“ – solar power plant mounting systems characterised by high quality, modernity, exclusive design, durability and load-bearing capacity.

Due to its unique structure, which was designed, optimised and tested in the laboratory of one of the prestigious Lithuanian universities, „Proformann“ structures surpass ordinary solar power plant structures. Smart methods of connecting single components, the state-of-the-art design solutions and special attention to durability and safety bestows a feeling of steadiness and reliability.

The mounting systems have been designed according to the load calculation standards EN 1990:2002 for structural design, EN 1991-1-3 for wind and EN 1991-1-4 for snow in force in the European Union, which provide an extra safety factor even in extreme climate conditions.

Environmentally friendly technology

„Proformann“ is committed not only to designing solar power plants, but also to promoting sustainability and energy efficiency. We aim to be industry leaders in providing optimised and customised solutions that help reduce the ecological footprint and save energy, thus contributing to a clean energy future.

„Proformann“ structures are manufactured using strict quality (ISO 9001) and environmental protection management (ISO 14001) standards, as well as production control and management (EN 1090-2 and EN 1090-3) standards.

www.proloads.eu

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Uniqueness

Design
- Laboratory tested single components.
- Optimised ratio of bearing capacity and material used.
- Designed according to the EN 1990:2002 structural design standard.

Production process
- Production according to quality (ISO 9001) and environmental protection management (ISO 14001) standards.
- Production process control and management according to standards for steel (EN 1090-2) and aluminium (EN 1090-3) products. Aluminium.

Mounting
- Optimised mounting process using the most modern and efficient fastening methods.
- Dual design mounting screws for more flexible mounting.

Interactive system
- Interactive climate load calculation system for constructions on the pitched roof and ground.
- Graphical representation of climate load distribution.

Climate loads
- Designed according to load calculations of standards EN 1991-1-3 for snow and EN 1991-1-4 for wind.
- Designed to withstand particularly high climatic loads.

Assortment

Improved connections
More durable and stable bearing units with an additionally integrated grounding connection and exclusive gaskets.

Adaptation
Suitable for solar modules of any size and thickness.

Warranty
Additionally anodised structures – organic coating of up to 15 µm, ensures the aesthetic look of the structures over the years and provides a 20-year warranty.

Design
Design of two-colour structures, which aesthetically perfectly matches the solar modules.

Versatility
Compatibility with almost all types of roofing.

Cooperation
Efficient cooperation during the warranty period or in the event of malfunctions.

Implementation

Options
Individual selection of mounting system according to roof covering and insulation layers.

Mounting
Mounting catalogue for a more efficient installation.

Design
Optimal design of mounting system and its layout according to loads and roof properties.

Calculations
Calculation of climate loads by geographical location.

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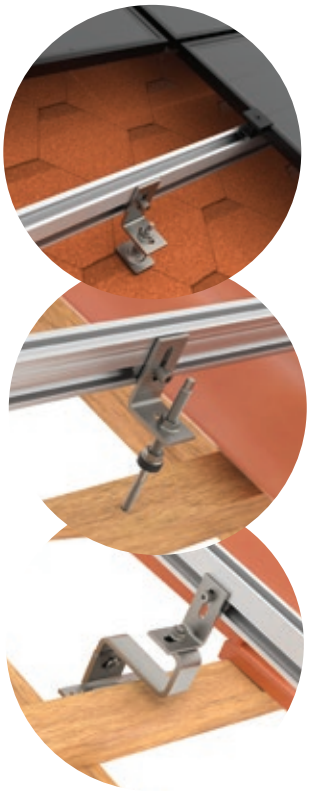
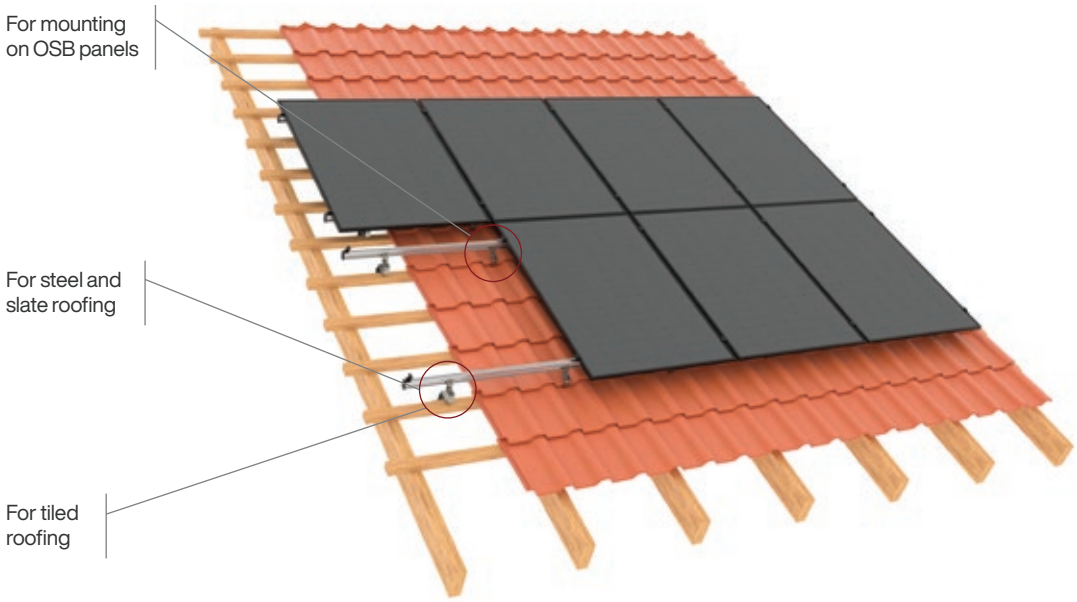
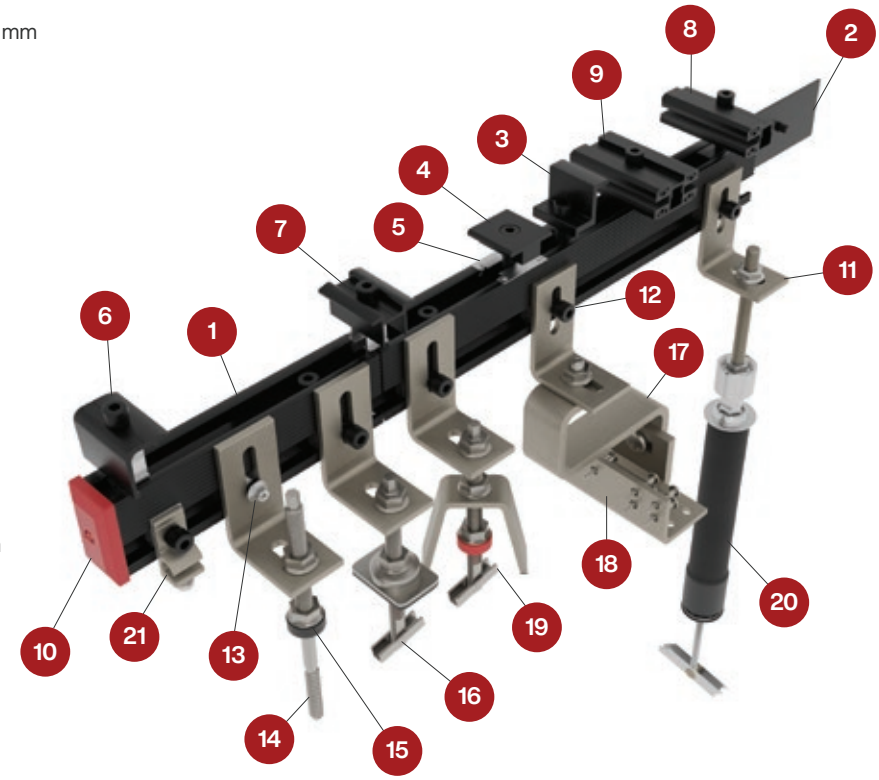




Components

1. Rail PV-R, 31×55 mm, 2 mm, 2400/3550/4700/5900 mm
2. Rail PV-R splice, 200 mm
3. Solar panel end clamp S4, 30-35 mm
4. Solar module middle clamp S4, 30-35 mm
5. Grounding clip G4 for solar module clamp S4
6. Solar module end clamp, insertable, 30 mm
7. Solar module middle clamp, insertable, 30-40 mm
8. Glass/glass PV end clamp S8, 5.5-9 mm
9. Glass/glass PV middle clamp S8, 5.5-9 mm
10. Endcap for rail PV-R, 31×55 mm
11. L-foot accessory connector M10, 60×40×80×5 mm
12. Rail PV-R accessory fixer 40 mm (Al. Nut + M8)
13. Rail PV-R accessory fixer, hex head (Al. Nut + M8)
14. Hanger bolt, M10, 150/180/200/250/300 mm
15. EPDM rubber washer, M8
16. Hanger bolt for OSB/20 mm wood, 120 mm
17-18. Bracket for roof tiles BP, 35×8 mm, 120/140 mm
19. Hanger Bolt for ZET/CET profile, M10N, 120×160 mm
20. Insulated roof hanger bolt for deck or masonry, 150-450 mm
21. Grounding lug for PV-R rail, 40 mm



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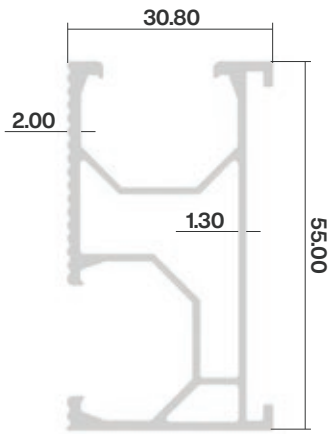
Mounting system

1 Solar panel rail PV-R



The patented solar panel structure rail is designed in such a way that all its elements are arranged evenly and do not interfere with each other. A particularly simple connection system allows the rail to be quickly and efficiently mounted to the fixer that holds it. The rail is perfect for many wind and snow load regions of the European Union and is available in **four** lengths and **two** colours and is anodized with a 10 µm thick organic coating that ensures a long-term rail's aesthetic appearance.

Due to the unique design allowing even distribution of loads and the high (up to 55 mm) and thick rail wall, the structures can withstand extremely heavy loads.

2 PV-R rail splice

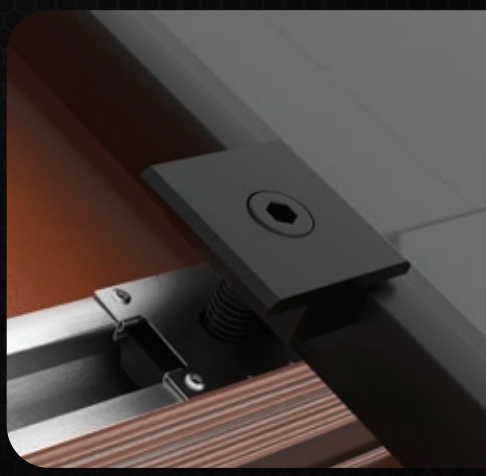
The smart design of the rail splice allows for an extremely simple and efficient connection of two rail parts, while the large fixing area ensures a stable and extremely durable connection, the aesthetics of which are guaranteed for years to come by an additional 10 µm anodising layer.

3 4 Extra strong solar panel end and middle clamp S4

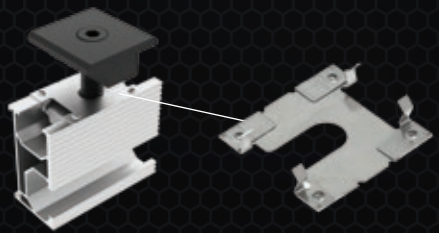
The structure of this middle and end clamp S4 of solar panel is particularly strong, so the panel remains stable even under extreme loads. These clamps are available in two colours and sizes, allowing both the installation of solar panels of various thicknesses (30 and 35 mm), as well as the aesthetic adaptation of structures to the panel design. The brackets are also anodised with an organic **15 µm** thick coating.

40 mm wide aluminium nut for fixation of clamps to the PV-R rail significantly increases resistance to wind-induced pull-off force, as it extends under the clamped frame of the solar panel due to its width.

The clamp also comes with a stainless steel spring which makes it easy to fit into the rail and does not require holding the clamp during installation to slide the solar module into it.



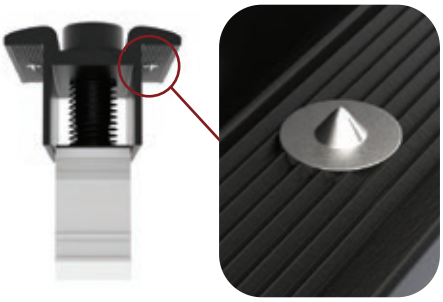
5 G4 grounding clip for solar panel clamps



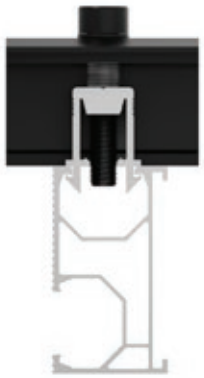
This stainless steel clip is attached to the upper edge of the rail, inserting it into the middle solar panel clamp S4. This grounds both the rail and the two solar panels on different sides.

6 7 Multi-functional solar panel end and middle clamp

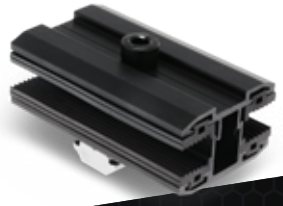
The new design solar panel's middle and end clamp structure is particularly strong, so the panel remains stable even under extreme loads. These brackets have integrated internal springs that simplify their installation on the PV-R rail. The clamp is connected to the rail through an insertable fixer, which is clamped against the rail's fixing walls with a screw. Both clamps are available in two colours. Thanks to its flexible design, the middle clamp is suitable for solar panels of various thicknesses (30-40 mm)

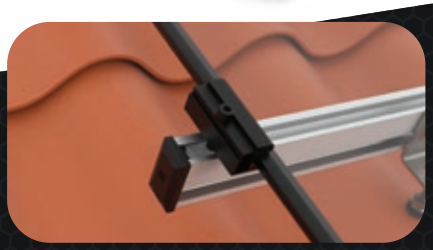


The clamp of this model is a novelty on the market, because the mounting planes of the clamp connecting with the solar panel feature a grounding pin that presses into the frame of the solar panel, thus creating not only a more stable mechanical connection, but also an additional grounding connection between the connected solar panels. Both types of clamps are anodized with a **15 µm** thick organic coating.



8 9 Glass/glass PV end and middle clamps S8





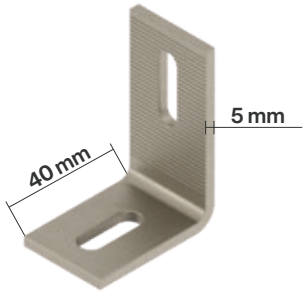
These clamps are designed for mounting frameless (glass/glass) solar panels. The clamps come with a stainless steel spring that keeps the mounting hole open, thus facilitating the insertion and fixation of the solar panel. The clamps are also anodised with a **15 µm** thick organic coating.

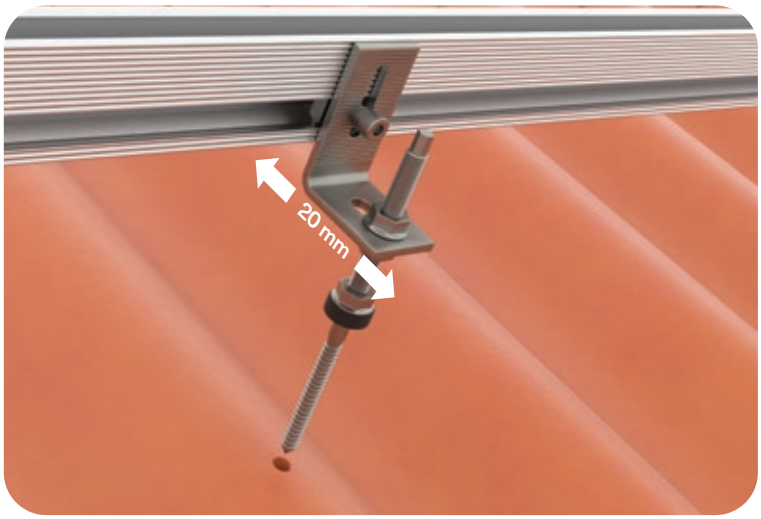
10 Rail PV-R endcap

This universal (suitable for both sides) cover is designed for the PV-R rail. The cap fits perfectly to the rail and grants it an aesthetic design, while the UV-resistant component provides durability. The cover also has a special opening, which prevents water from accumulating in the rail and allows it to drain completely.

11 L-foot connector

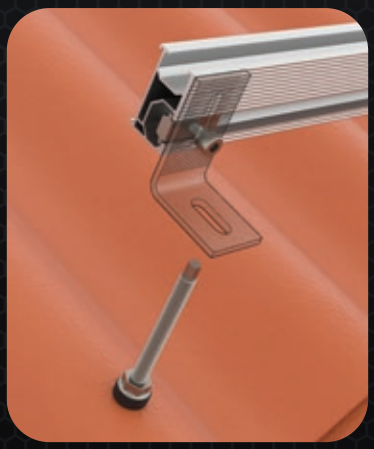
This L-shaped connector (M10) is made of 5 mm thick stainless steel with a yield strength of as much as 300 MPa. As a result, the connector can withstand up to 30% more loads than aluminium of the same thickness and is up to 3 times more resistant to displacement due to climatic loads. The connector features an elongated mounting hole on both sides, which makes it easy to adapt it to other accessories – thus ensuring a relatively simple installation. The connector is intended for connecting the rail PV-R with the screw holder M10 and the tile bracket BP.

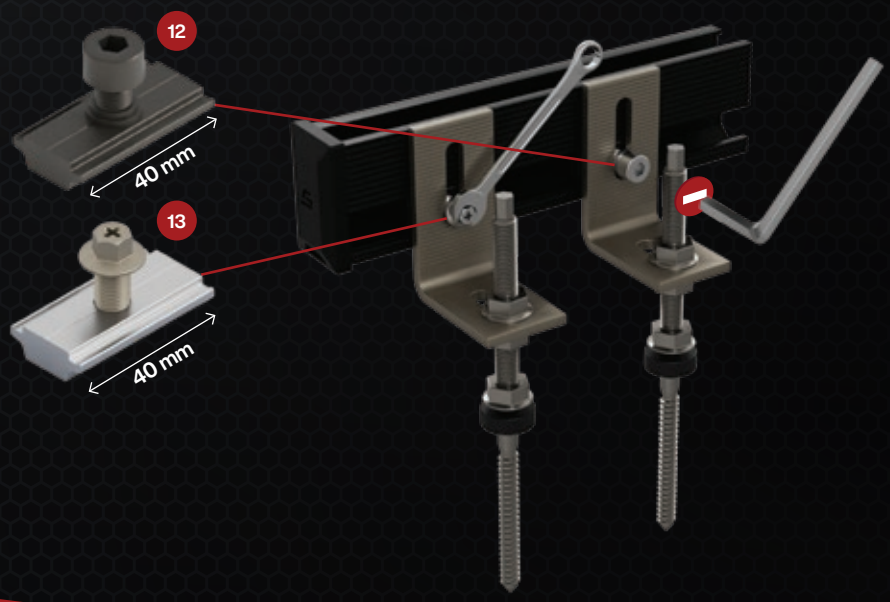




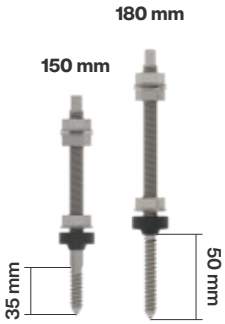
12 13 Rail PV-R accessory fixer

These fasteners can be used to connect the PV-R to the L-foot accessory connector. The width of the aluminium nut is **40 mm**, which allows the rail to withstand up to 10% greater loads. The hex-head socket bolt with an additional cross-socket is a novelty on the market, as the overhang retaining hanger bolt no longer blocks access to the socket bolt. The latter can be fastened with a screwdriver from the front or with a wrench from the side.





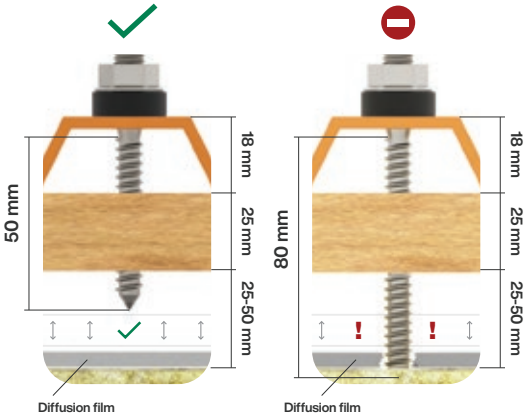
14a Hanger bolts



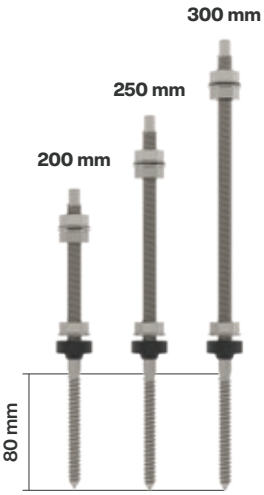
These hanger bolts (M10, 150 mm, 180 mm) are intended for fastening the mounting system to wooden batten through the top of the roof (metal and slate roofing) corrugations. The bolts are unique in that their thread length is selected to suit different heights of roofing corrugations.

The bolts are made of stainless steel and have an extremely high (up to 600 Mpa) yield strength, which allows them to withstand particularly high loads.

When screwed into the 25 mm batten, the bolt does not excessively protrude and the insulated roof diffusion film remains protected from punctures.



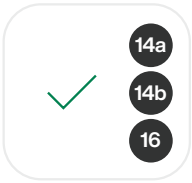
14b Hanger bolts for high roofing corrugations



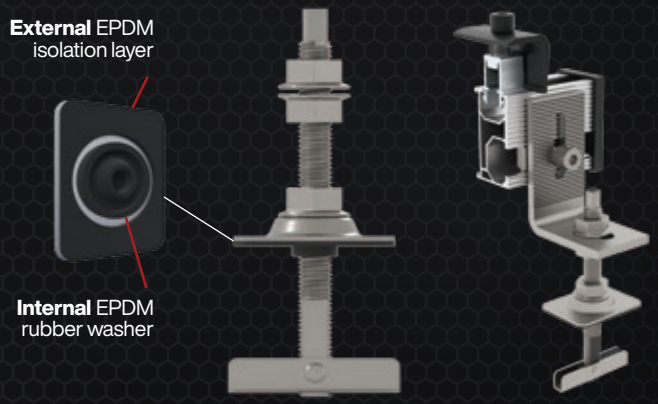
These hanger bolts (M10, 200 mm, 250 mm, 300 mm) are intended for fastening the PV mounting system to rafters or wooden battens over the top of the roof covering (tin, slate) corrugations when it is higher than 40 mm.

15 EPDM rubber washer

Supplied with:



The hanger bolts of all lengths are supplied with EPDM rubber washer, which are vulcanized, UV resistant and highly resistant to environmental factors. The rubber washers are also characterised by high elasticity, which perfectly ensures tightness throughout the warranty period of the mounting system.

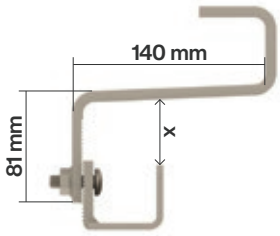


16 Hanger bolt for OSB panel

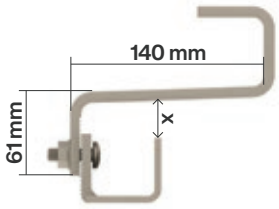
This hanger bolt (M10, 120 mm) is designed to fasten the solar module structure to OSB panel (e.g., bituminous roof) or wooden inch batten (e.g., standing seam metal roof).

The bolt is unique in that it comes with two vulcanized, highly UV-resistant EPDM isolation layers that create double leakage protection. Both layers are clamped by a strong outer cover, which gives the bracket not only stability, but also protects against excessive deformation and external factors: UV radiation or aggressive chemicals present in precipitation.

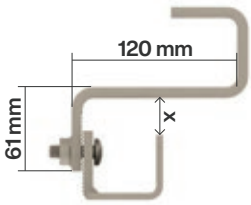
17 Tile roof bracket BP



BP140A x = (23 ... 47) mm



BP140B x = (11 ... 27) mm



BP120 x = (11 ... 27) mm

It is a patented bracket that, thanks to its unique design and height adjustment function, can not only be effectively adapted to almost all standard concrete and clay tile options available on the market, but can also be attached to both the rafter and the batten under the tile, which not only protects the diffusion film of the insulated roof, but also significantly simplifies the installation of the bracket.

Due to the efficiently designed 35 mm wide and 8 mm thick stainless steel bracket, extremely high climatic loads can be withstood without the bracket resting on the roof covering. This bracket is at least 4 times stronger than the 30 mm wide and 5 mm thick equivalent available on the market.

The tile bracket is also unique in that its lower part is connected to the upper part through toothed walls, which allows to effectively maintain the position of the connection in one place even during temperature fluctuations or under high static or dynamic loads.

Suitable for practically all types of tiles

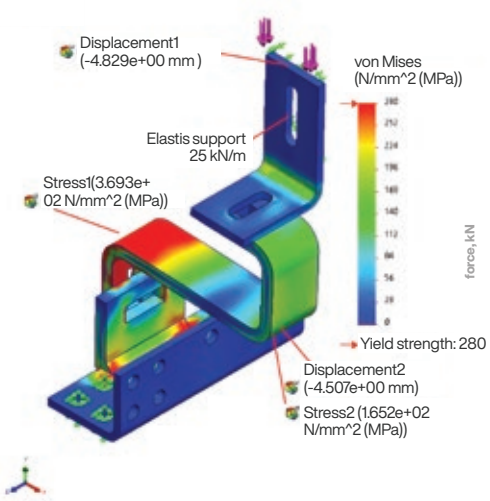
BP140A

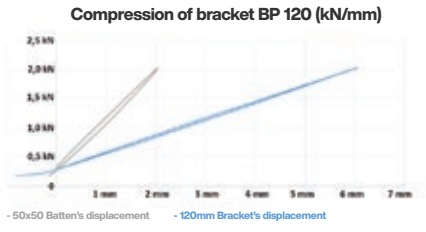
BP140A and BP140B

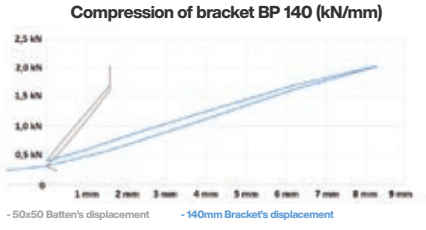
BP140A and BP140B

BP120 and BP140B

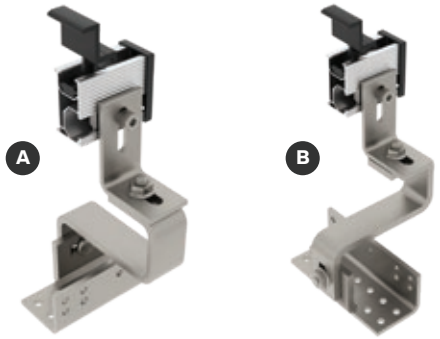
Extensive testing has been carried out







Bracket is suitable for both horizontal (A) and vertical (B) installation

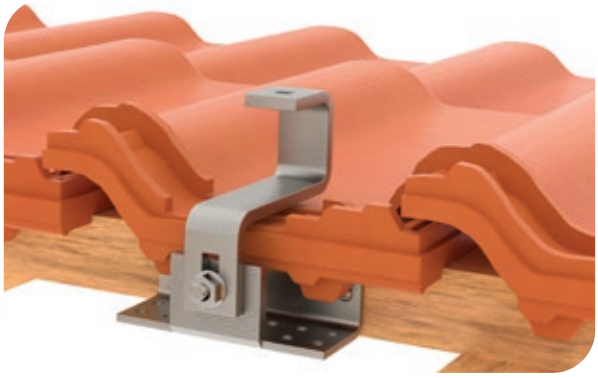


Reliable connection

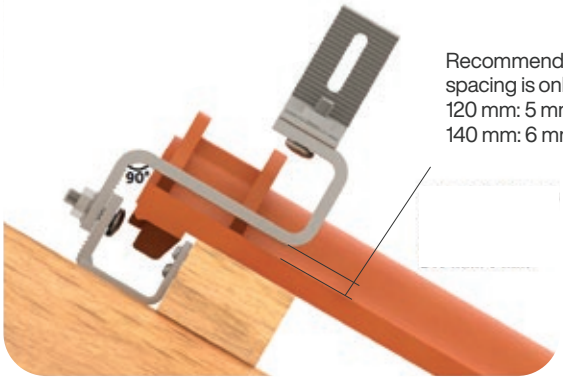
Toothed walls for increases robustness

Simple installation

You can install the bracket directly on the batten

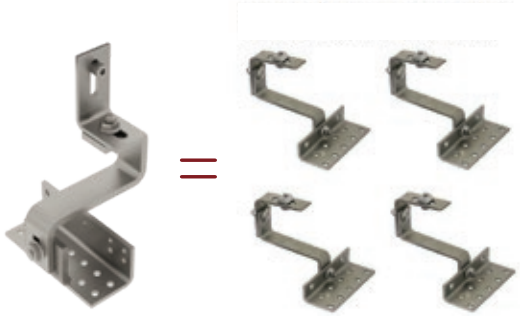


A particularly strong structure that does not deflects the slope of your roof



Recommended spacing is only:
120 mm: 5 mm
140 mm: 6 mm

×4 Able to withstand at least the same weight as 4 standard (30mm x 5mm) brackets



Tile bracket BP supplied with a special EPDM isolation layer

The layer ensures water and snow tightness at the damaged edge of the tile.

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