



THE ROOF  
AS STRONG AS A BULL!

# INSTALLATION INSTRUCTIONS

## PREFA PS.13 MOUNTING SYSTEM



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## LIST OF TOOLS



01

PREFA Vario and Fix solar brackets

Sunny solar bracket

PREFA solar bracket

PREFA Sunny special

PREFA PS.13 solar panel on-roof mounting system

Work gloves + safety equipment

Tape measure + pencil

Mounting string

Cordless drill

Drill bit Torx 40

Drill bit Torx 25

5 mm drill bit

8 mm drill bit

13 mm drill bit

9 mm nut

18 mm open end spanner

Torque wrench

Metal working tools

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For mounting roof anchor hooks

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

PREFA only commissions specialist companies to install PREFA solar products and all other PREFA roof and façade products. Therefore, these installation instructions assume that installers have extensive experience with the materials used (e.g. through training or their professional activities).

The PREFA installation instructions contain general guidelines which must also be adapted to the local, national and location-specific construction regulations, standards and environmental regulations.

Occupational health and safety precautions, applicable standards and trade association guidelines must be observed.

When transporting PREFA materials, handle the packing units carefully.

In strong winds, prevent any open units or sheet metal components from falling.

Cover any cardboard packages stored on the roof with a tarpaulin to protect them from rain.

Buildings physics requirements must be observed.

Impurities such as drilling dust or mortar residue on coated or untreated aluminium parts should be removed immediately.

Where solar systems are installed on PREFA roofs, an agreement

about securing and snow protection measures should be reached with the owner depending on the prevailing snow load.

Follow the cleaning product manufacturer's instructions.

The potential equalization between the individual system sections and the connection to a lighting protection device must be carried out according to the respective national guidelines.

In the event of non-compliance with, or disregard of, the installation instructions or failure to use all system components, PREFA shall assume no liability for any defects or damage arising therefrom, and the guarantee and warranty shall expire.

The load-bearing capacity of the PREFA mounting system must be verified and proven by structural calculations. PREFA uses structural analysis guidelines to perform these calculations. Applications deviating from this must be calculated by a structural engineer.

## PLANNING

In principle, when planning the installation of thermal solar collectors and solar panels, both in the case of new builds and subsequent assemblies, building physics rules (impermeability, heat insulation, ageing behaviour) and the static and structural design (stability) must be observed. We recommend careful planning and organisation of the various trades involved, based on the details available, so that they are technically adapted to each other and can work according to coordinated schedules. In principle, the earlier the energy generation panels are integrated into the building's overall design, the greater the choice of possible solutions.

Unless separate evidence can be provided, energy generation panels and their fastenings must not be used as anchorage devices, anchor points or walkways. For maintenance and servicing, precautions must be taken to avoid damaging the roof covering (e.g. PREFA safety tread).

**When planning the installation of solar panel systems, careful observation of the supporting structure is recommended.**

Where structural suitability permits, we recommend designing the spacing between rafters to correspond with a multiple of the roof covering (e.g. with PREFA roof tile 600/900/1200 mm). In this way, if the edge cleat strips are correctly mounted, this avoids having to install additional roof anchor hooks.

Above-rafter insulation systems are enjoying growing popularity in mountainous regions. It is important to clarify whether, on non-ventilated constructions, the top layer of the insulation system can withstand concentrated loads. In the case of very thick insulation with ventilation, screw lengths can be problematic, i.e. too short. In this case, we recommend increasing the dimensions of the counter battens and calculating the dimensions of their fastenings with the structural engineer or carpenter so that the additional horizontal loads can be accommodated. This will facilitate screwing fasteners into the counter battens.

## SNOW GUARD SYSTEM

In principle, the building owner is liable for damage caused by snow falling from the roof.

Where there are pathways, entrances, public thoroughfares or constructions such as projecting roofs, conservatories or balconies under the eaves, precautions must be taken to prevent snow or ice from slipping down onto these areas. Warning panels are not an appropriate safety measure over extended periods of time.

In principle, the installer is liable with respect to his customers (building owner) for any damage caused by snow guards that are not the right size or which are installed incorrectly. Whenever a structural solution, such as a solar panel, is integrated into a functioning pipe-style snow guard system on the roof, the existing equipment must be adapted and brought up to date with current technology. This factor must be pointed out separately on the order.

## ROOF SAFETY

Carrying out work on roofs is one of the most dangerous construction activities that exist. It is often the case that work is performed on roofs in adverse weather conditions which adds to the danger. Make sure that all security measures are observed and checked before starting work, whereby

collective measures take priority over individual measures (e.g. roof protection before roof anchor hooks and personal protective equipment).

Many laws also lay down protective measures. National standards and guidelines must be observed.

## CLEANING INSTRUCTIONS

Solar panels are generally designed for a long service life. For systems which incline by more than 10°, special cleaning of the panel is not absolutely necessary due to

the panel's self-cleaning process as rainwater drains off it. However, regular cleaning can help to increase yield. Regular cleaning is recommended in particular situ-

ations such as an extremely high pollen count or incidence of dust.

- Cleaning should generally be carried out with purified water and a soft cloth or sponge.
- Never scrape off dry dirt or use strong detergents.

When cleaning, always read the manufacturer's instructions.

In addition, cleaning should only be carried out by professionals.

## STRUCTURAL PRINCIPLES

In principle, all PREFA fastening systems are attached to the solid wood supporting structure (rafters and purlins). Constructional necessities such as edge distances or minimum screwing-in depths must be observed.

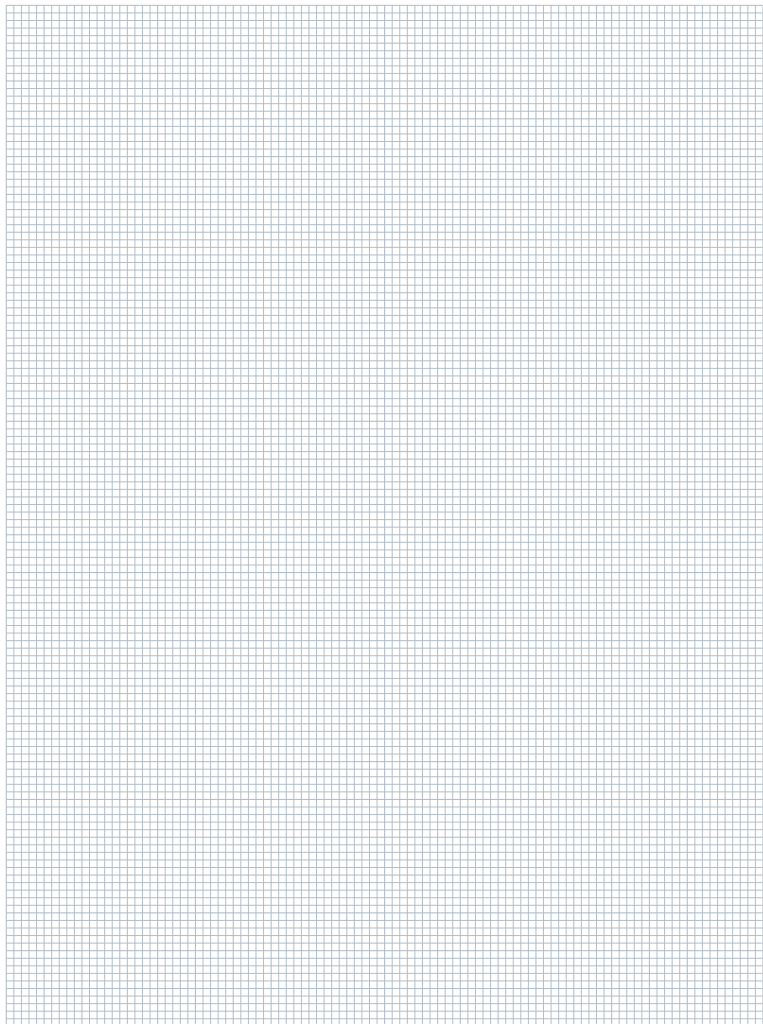
PREFA Vario and Fix solar brackets can also be attached to the sheathing in the following circumstances.

- Mount maximum 1 Vario/Fix solar bracket in the rafter area on the sheathing (sheathing thickness: min. 30 mm; timber grade C24). The sheathing board must extend across at least three rafters.
- Installation must be performed using 6 screws (5 × 40 mm) each.
- Dimension the substructure according to EN 1991-1-3 and B 1991-1-3 — fasten the sheathing using ring shank nails or screws.

- Construction height ( $h > 30$  cm): specific structural verification is required.
- Follow the Vario/Fix solar bracket installation instructions.

Depending on the project, a higher number of Vario/Fix solar brackets may be required. The horizontal and vertical forces acting on each Vario/Fix solar bracket are lower when they are mounted on sheathing rather than attached to rafters.





# OVERVIEW — PREFA MOUNTING SYSTEM

## PREFA VARIO SOLAR BRACKET (attached to rafters)

- Adjustment range:** 29 mm
- Fasteners:** 2 fasteners (8 × 220 mm; TX40)  
on a double-skin roof structure  
2 fasteners (8 × 120 mm; TX40)  
on a single-skin roof structure
- Colour:** uncoated (cross connector)  
anthracite (protective cap)
- Other components:** Vario/Fix unmachined part (EN AW 6060 T66)  
A2 screw M8 × 20  
threaded rod A2 M12 × 90  
3 flange nuts A2 M12  
protective cap  
mount (EN AW 2007) with seal

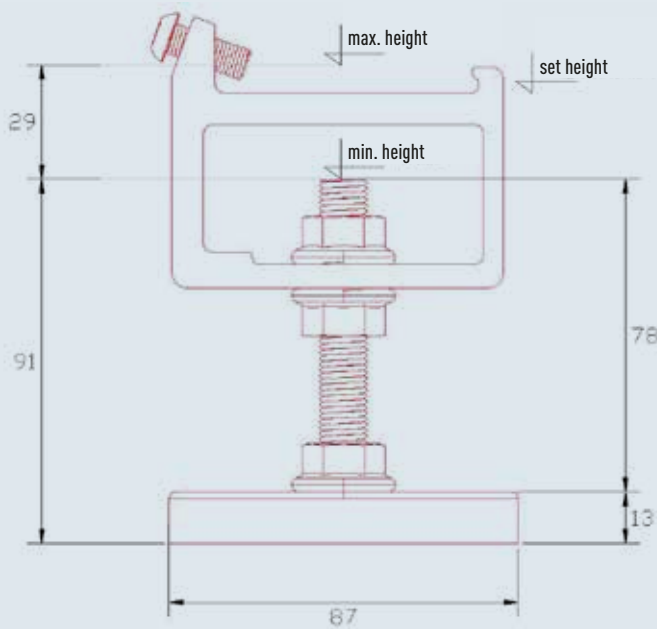
## PREFA VARIO SOLAR BRACKET (mounted on sheathing)

- Adjustment range:** 29 mm
- Fasteners:** 6 fasteners A2 5 × 40 (TX25) countersunk screws
- Colour:** uncoated (cross connector)  
anthracite (protective cap)
- Other components:** Vario/Fix unmachined part (EN AW 6060 T66)  
A2 screw M8 × 20  
threaded rod A2 M12 × 90  
3 flange nuts A2 M12  
protective cap  
mount (EN AW 2007) with seal



02

03



Dimensions in mm

## **PREFA FIX SOLAR BRACKET** (attached to rafters)

- Fasteners:** 2 fasteners (8 × 220 mm; TX40)  
on a double-skin roof structure  
2 fasteners (8 × 120 mm; TX40)  
on a single-skin roof structure
- Colour:** uncoated (cross connector)  
anthracite (protective cap)
- Other components:** Vario/Fix unmachined part  
(EN AW 6060 T66)  
A2 screw M8 × 20  
1 flange screw A2 M12 × 16  
protective cap  
mount (EN AW 2007) with seal

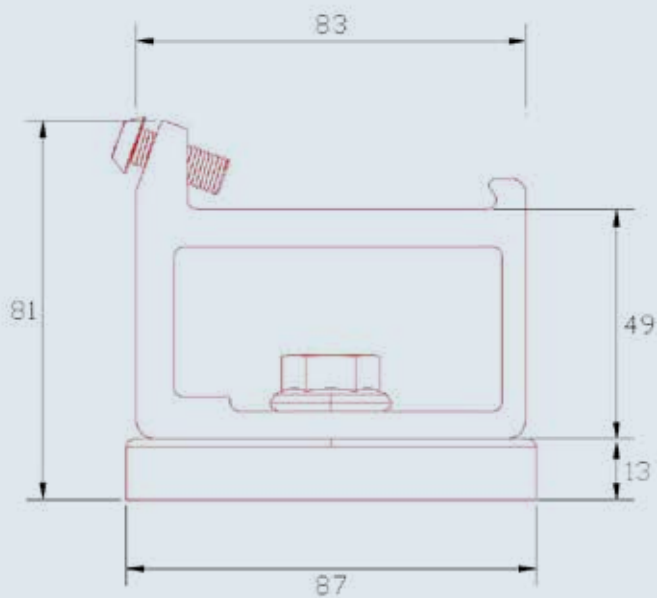
## **PREFA FIX SOLAR BRACKET** (mounted on sheathing)

- Fasteners:** 6 fasteners A2 5 × 40 (TX25) countersunk screws
- Colour:** uncoated (cross connector)  
anthracite (protective cap)
- Other components:** Vario/Fix unmachined part (EN AW 6060 T66)  
A2 screw M8 × 20  
1 flange screw A2 M12 × 16  
protective cap  
mount (EN AW 2007) with seal



04

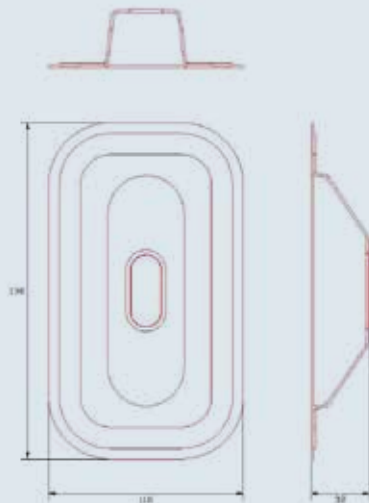
05



Dimensions in mm

## PREFA SUNNY SOLAR BRACKET (attached to rafters)

- Fasteners:** 1 hanger bolt  
A2 M12 × 350 mm with hexagon head  
(wooden thread: 100 mm; threadless  
part: 40 mm; metric thread: 195 mm)
- Colour:** coated, zinc grey (storm washer  
and Sunny solar bracket)
- Other components:** 3 flange nuts A2 M12  
EPDM seal for storm washer  
aluminium storm washer  
(2 mm; EN AW 1050A)  
sealing washer (EPDM 60 Shore)  
aluminium protective cap (2 mm; EN AW 1050A)
- Accessories required:** PREFA special adhesive



Dimensions in mm

## PREFA SOLAR BRACKET (attached to rafters) in all PREFA standard colours

### Fasteners:

2 fasteners  $8 \times 220$  mm (TX40)  
on a double-skin roof structure  
2 fasteners  $8 \times 120$  mm (TX40)  
on a single-skin roof structure

### Colour:

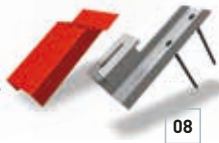
coated in PREFA standard colours

### Material:

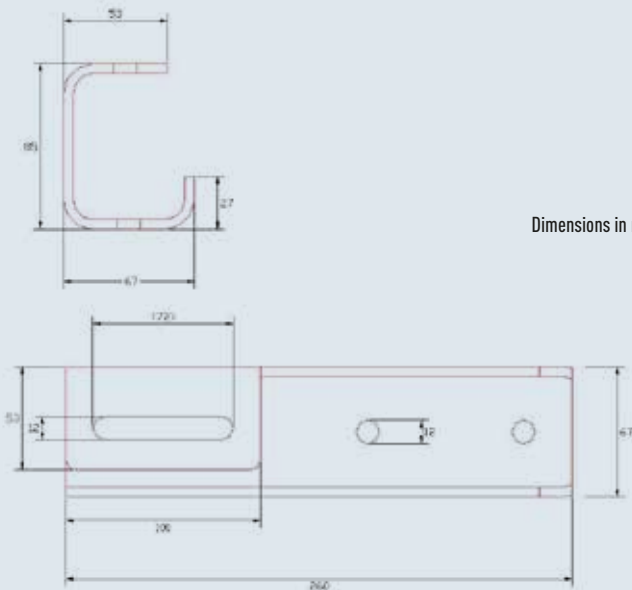
aluminium (5 mm; EN AW 5083 H111)

### Accessories required:

PREFA protective cap for solar bracket  
made of powder-coated aluminium (0.7 mm)  
blanking plates made of powder-coated  
aluminium ( $0.7 \times 22 \times 250$  mm)  
PREFA special adhesive or silicone



08



09

Dimensions in mm

## PREFA SUNNY SPECIAL (attached to rafters)

- Fasteners:** 1 hanger bolt A2 M12 × 350 mm  
(hexagon head)  
(wooden thread: 100 mm;  
threadless part: 40 mm;  
metric thread: 195 mm)
- Colour:** coated in PREFA standard colours
- Other components:** 3 flange nuts A2 M12  
EPDM seal
- Accessories required:** PREFA special adhesive



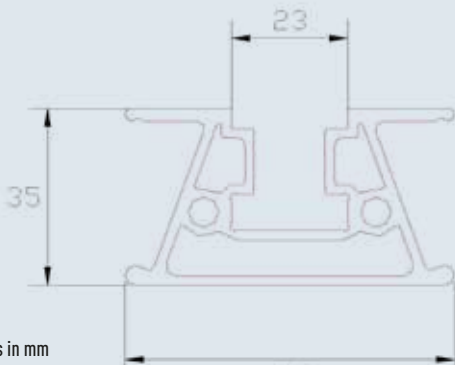
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## PREFA PROFILE RAIL

- Colour:** uncoated
- Material:** aluminium (2 mm; EN AW 6060 T66)
- Length:** 3,200 mm
- Dimensions (W/H):** 65 mm / 35 mm
- Connection:** PREFA profile rail connector
- Solar panels:** for framed solar panels  
(frame height: 35–50 mm)
- Panel orientation:** according to the manufacturer's guidelines



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12

Dimensions in mm



## PREFA PROFILE RAIL COVER

|                  |                                |
|------------------|--------------------------------|
| <b>Colour:</b>   | silver                         |
| <b>Material:</b> | plastic<br>(2 mm; Luran S757R) |



## PREFA PROFILE RAIL CONNECTOR

|                              |                                |
|------------------------------|--------------------------------|
| <b>Material:</b>             | aluminium<br>(EN AW 6063 T66)  |
| <b>Length:</b>               | 120 mm<br>(incl. central stop) |
| <b>Type of installation:</b> | in the profile rail            |



## PREFA CABLE CLIP

|                  |  |
|------------------|--|
| <b>Material:</b> | stainless steel spring wire<br>(Ø 2 mm; X6CrNiMoTi17-12-2) |
|------------------|--|



## PREFA SOLAR PANEL CONNECTION — MIDDLE CLAMP



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**Colour:** uncoated

**Components:** middle clamp (EN AW 6060 /T5; A2-70)  
earth plates

A2 screw M8 × 45 mm (TX40) — 30 mm middle clamp

A2 screw M8 × 45 mm (TX40) — 35 mm middle clamp

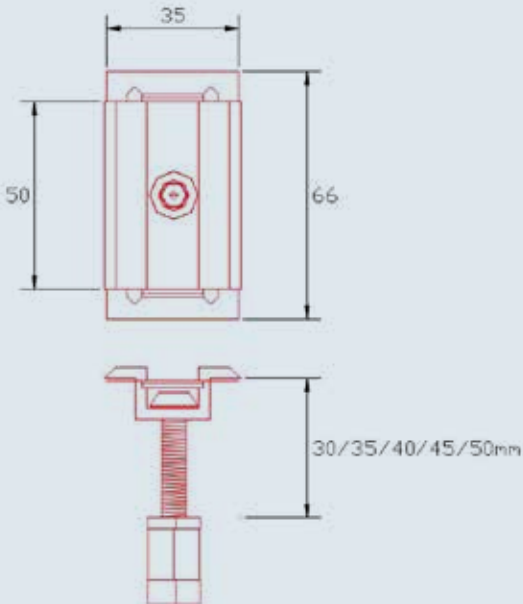
A2 screw M8 × 50 mm (TX40) — 40 mm middle clamp

A2 screw M8 × 55 mm (TX40) — 45 mm middle clamp

A2 screw M8 × 60 mm (TX40) — 50 mm middle clamp

screw locking device

PREFA profile rail connector (EN AW 6060 T66)



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Dimensions in mm

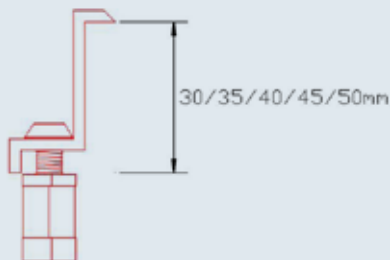
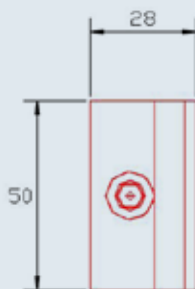
## PREFA SOLAR PANEL CONNECTION — END CLAMP

**Colour:** uncoated

**Components:** 30 mm end clamp  
 35 mm end clamp  
 40 mm end clamp  
 45 mm end clamp  
 50 mm end clamp  
 material clamp (EN AW 6060 / T5; A2-70)  
 A2 screw M8 × 25 (TX40)  
 screw locking device  
 PREFA profile rail connector (EN AW 6060 T66)



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Dimensions in mm

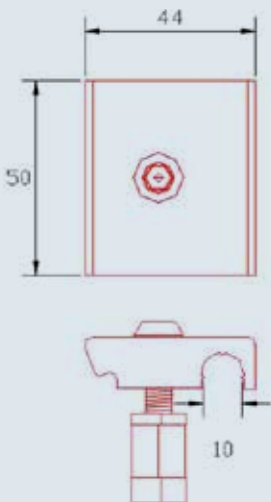
## PREFA EARTH/CROSS CONNECTOR

**Components:** cross connector top section  
 (Ø 10 mm und 8 mm)  
 A2 screw M8 × 25 (TX40)  
 PREFA profile rail connector  
 (EN AW 6060 T66)



20

21



Dimensions in mm

## PREFA PROFILE RAIL CONNECTOR

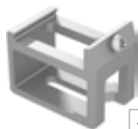
**Material:** aluminium (EN AW 6060 T66)  
 with M8 thread



22

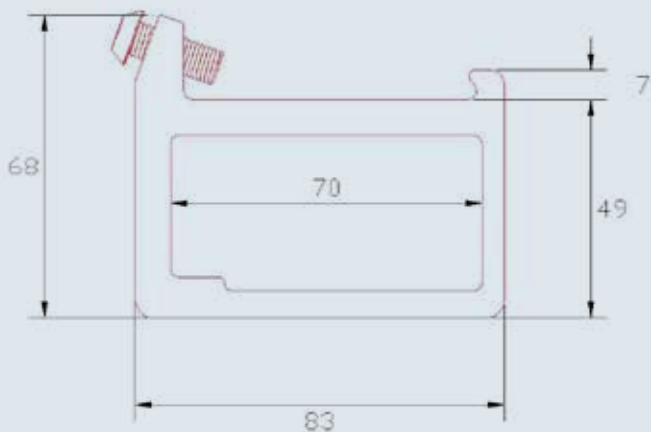
## PREFA CROSS CONNECTOR FOR SUNNY

**Components:** Vario/Fix unmachined part  
(EN AW 6060 T66)  
A2 screw M8 × 20



23

24



Dimensions in mm

## PREFA CROSS CONNECTOR FOR PREFA SOLAR BRACKET

**Components:** Vario/Fix unmachined part  
(EN AW 6060 T66)  
A2 screw M8 × 20 (TX40)  
flange screw A2 M12 × 30  
flange nut A2 M12



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## PREFA FALL PROTECTION DEVICE

**Components:** A2 screw M8 × 30 (TX40)



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# ACCESSORIES PREFA MOUNTING SYSTEM

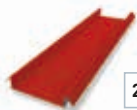
## PREFA ROOF CONDUIT

**Colour:** coated or uncoated  
in PREFA standard colours

**Components:** solar roof conduit, aluminium  
(2 mm; EN AW 1050A)  
1 feed-through sleeve (Ø 32 mm)  
2 feed-through sleeves (Ø 10 mm)  
pipe collar (roof underlay connection)  
talcum powder



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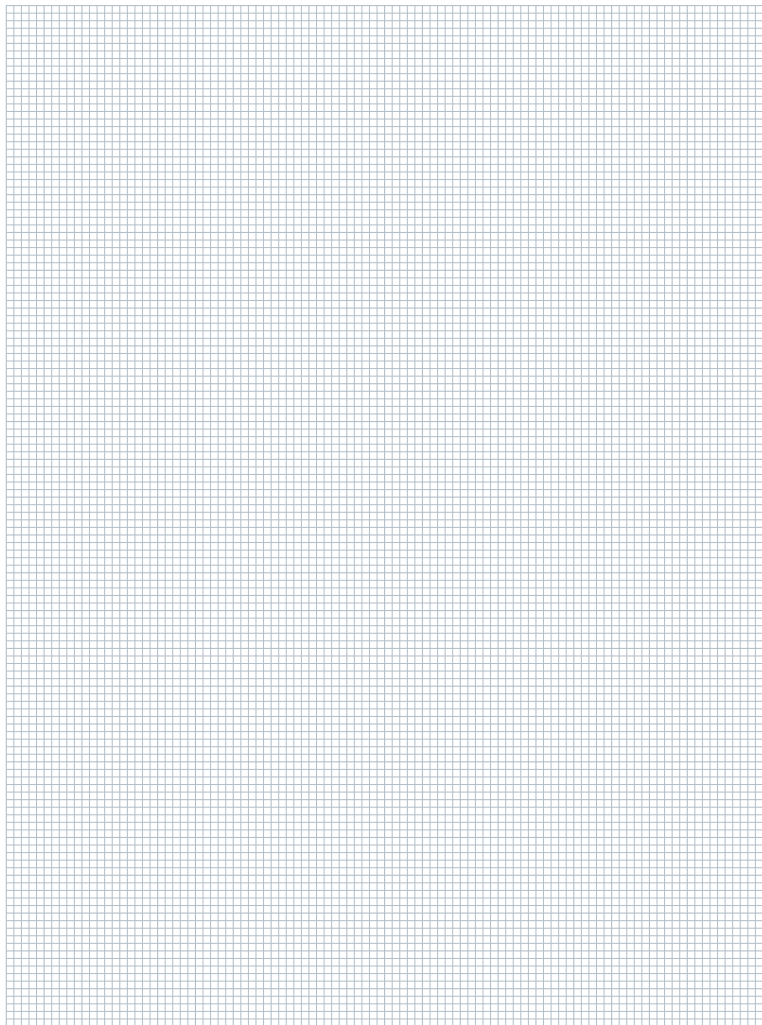


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## PREFA BASE PLATE

**Colour:** PREFA standard colours

**Material:** powder-coated aluminium  
(0.7 mm; EN AW 3005)



# APPLICATION EXAMPLES

## PREFA MOUNTING SYSTEM



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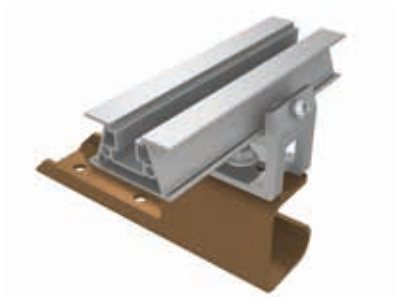


32

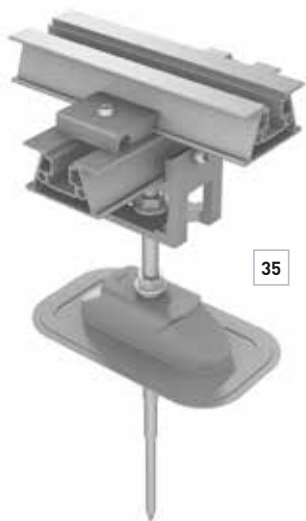




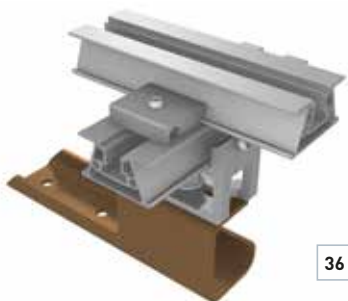
33



34



35



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# PREFA VARIO AND FIX SOLAR BRACKETS

For problem-free installation and a secure hold on PREFA roof tile, shingle, rhomboid roof tile 29 × 29, rhomboid roof tile 44 × 44, FX.12 roof panel and R.16

roof tile. Solid sheathing must be mounted in the area in which you intend to mount the PREFA Vario/Fix solar bracket.

## PREFA VARIO SOLAR BRACKET

- 1 M8 screw
- 2 solar bracket
- 3 M12 nut (top and bottom)
- 4 threaded rod
- 5 M12 nut
- 6 mount with protective cap



## PREFA FIX SOLAR BRACKET

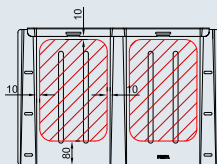
- 1 M8 screw
- 2 solar bracket
- 3 M12 screw
- 4 mount with protective cap



Tools required: see page 4.

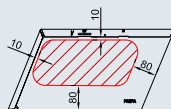
**Note:** during installation, observe PREFA's installation instructions and the current professional standards and safety regulations.

## INSTALLATION AREA FOR THE PREFA VARIO AND FIX SOLAR BRACKET MOUNT FOR SMALL-FORMAT PREFA PRODUCTS



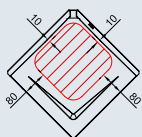
PREFA roof tile

39



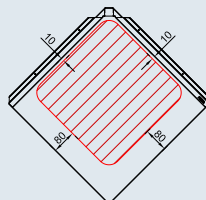
PREFA shingle

40



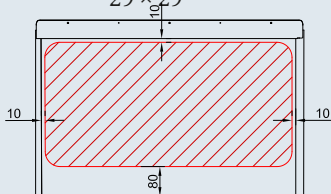
PREFA rhomboid roof tile  
29 × 29

41



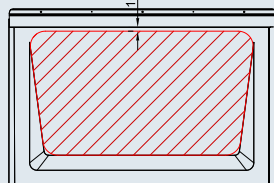
PREFA rhomboid roof tile  
44 × 44

42



PREFA FX.12 roof panel

43



PREFA R.16 roof tile

44

## INSTALLING THE PREFA VARIO AND FIX SOLAR BRACKET

Mark the centre of the rafter. The mount must be positioned at a distance of at least 10 mm from the seam above it or at least 80 mm from the seam below it (see sketch of installation area).



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To install the bracket on the rafter, the drill holes ( $\varnothing$  8.5 mm) must be positioned along the rafter (fixing screws in the axis with the rafter). Remove the protective film from the mount, position and glue in place. Note: the mount must not be attached on a seam or crest of the PREFA roof covering.



Pre-drill the screw hole in the sub-structure with a  $\varnothing$  5.0 mm-drill bit. Drilled depth: approx. 50 mm.



Attach each mount to the rafter using two  $8 \times 220$  mm fixing screws (on a double-skin roof structure) or two  $8 \times 120$  mm fixing screws (on a single-skin roof structure). When mounted correctly, the surface seal bulges slightly outwards (drill bit: Torx TX40).



Fit the protective cap, tighten the threaded rod with the nuts and fasten with the lowest nut.



Attach the PREFA Vario or Fix solar bracket to the mount, depending on the requirements.  
(Fig. 50 and 51)



With small-format PREFA shingles, it may be necessary to install a base plate in order to mount the PREFA Vario or Fix solar bracket — e.g. if a seam is lying above a rafter in the installation area.  
(Fig. 52 and 53; example: PREFA shingle)



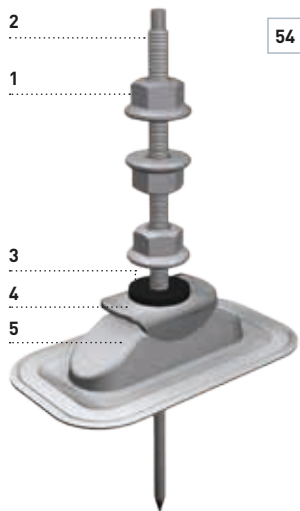
# PREFA SUNNY SOLAR BRACKET

PREFA Sunny solar bracket made of powder-coated aluminium alloy, suitable for Prefalz double-lock standing seams and all PREFA small-format coverings.

List of tools: see page 4.

Accessories required:  
PREFA special adhesive.

The expansion range of the Sunny solar bracket is suitable for Prefalz sliding clips. Tightening the PREFA Sunny does not affect the expansion range of Prefalz strips with a strip length of up to 12 m. If using the PREFA preformed long sliding clip (strip length of up to 15 m), contact PREFA Application Technology.



- 1 hexagon nut with flange
- 2 M12 × 350 hanger bolt
- 3 EPDM seal
- 4 storm washer
- 5 Sunny solar bracket

## INFORMATION ABOUT THE M12 × 350 HEXAGON HANGER BOLT FOR THE PREFA SUNNY SOLAR BRACKET

### Name:

A2 M12 × 350 mm hexagon hanger bolt

### Tensile strength:

595 N/mm<sup>2</sup>

### Material:

1.4301 — X5CrNi 18-10

### Length / diameter:

350 mm / 12 mm

### Comment:

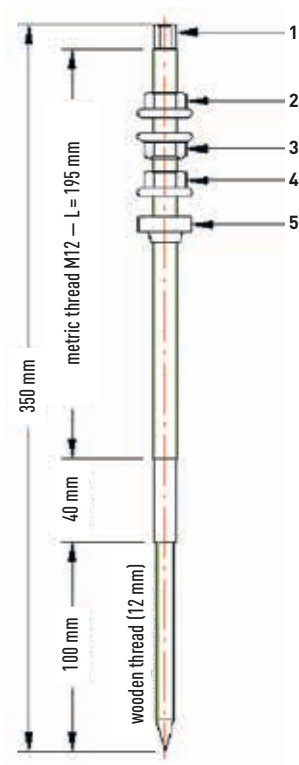
The permanent loads — dead weight and variable loads according to EN 1991-1-3 (snow) and EN 1991-1-4 (wind) — must be taken into account appropriately. Proof must be provided by the project's structural engineer.

### Calculation standards:

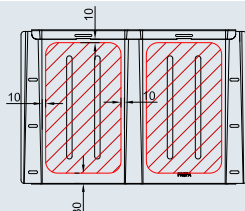
Timber construction — EN 1995-1-1

Steel construction — EN 1993-1-1

55

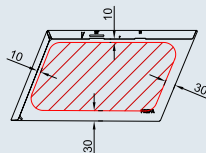


- 1 hexagon head (spanner width 9 mm)
- 2 hexagon nut EN 1661-M12 8.8
- 3 hexagon nut EN 1661-M12 8.8
- 4 hexagon nut EN 1661-M12 8.8
- 5 EPDM seal



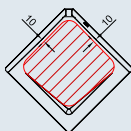
PREFA roof tile

56

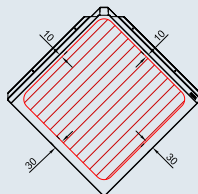


PREFA shingle

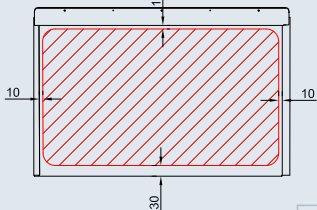
57

PREFA rhomboid roof tile  
29 × 29

58

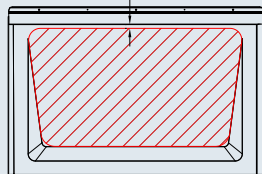
PREFA rhomboid roof tile  
44 × 44

59



PREFA FX.12 roof panel

60



PREFA R.16 roof tile

61

As can be seen in Fig. 56–61, the installation area of the PREFA Sunny solar bracket is limited with small-format PREFA products.

The PREFA Sunny solar bracket is generally mounted on level surfaces. As the PREFA Sunny solar bracket has a slight sealing effect, it can be moved closer to the seams.

Installation is possible on solid sheathing or battens. With small-format PREFA shingles, it may be necessary to install a base plate in order to mount the PREFA Sunny solar bracket (e.g. if a seam is lying above a rafter in the installation area).



## INSTALLING THE SUNNY SOLAR BRACKET



62 Mark the outline and oblong hole.



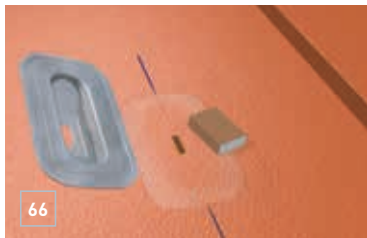
63 Pre-drill the oblong hole in the Prefalz strip (one hole is sufficient on small-format products).



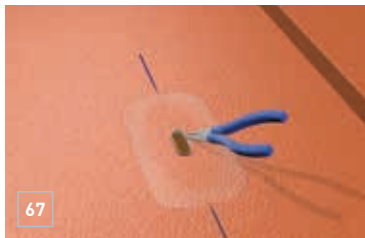
64 Cut out the oblong hole in the Prefalz strip (not necessary on small-format products).



65 Pre-drill a hole ( $\varnothing$  8 mm) in the centre of the oblong hole.



66 Roughen the bonding surface on the roof covering and Sunny solar bracket.



67 Flare the oblong hole or single hole.



68 Clean the roughened bonding area with adhesive cleaner.

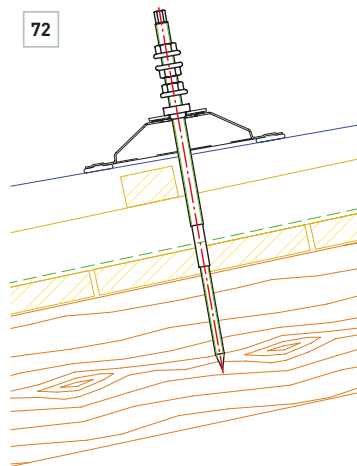
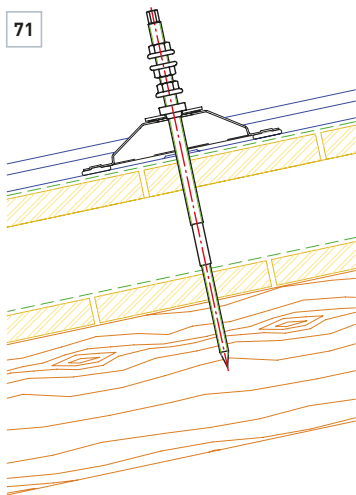


69 Apply beading ( $\varnothing$  10 mm) to the roughened and cleaned Sunny bracket.



70 Press down the Sunny bracket in the centre.

Place the screw with the protective cap in the pre-drilled hole and tighten with a 9-mm ring spanner until the neoprene seal is clamped across the entire surface between the Sunny bracket and the protective cap. When installed correctly, the glue seeps out around the Sunny bracket, and the seal on the sealing washer bulges outwards. Penetration depth in the supporting substructure (rafter): min. 50 mm.



Screw on the flange nuts to tighten the solar panel.

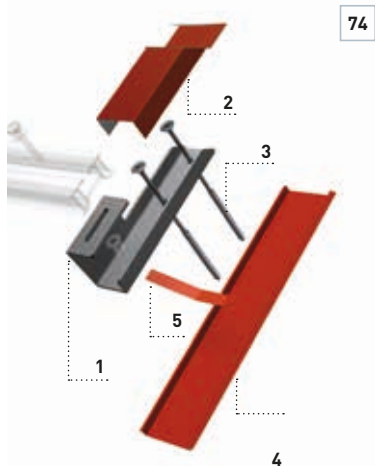
**Note:** if the rubber seal is not lying on the smooth shaft of the hanger bolt, take additional measures to seal the joint between the screw and the rubber seal.

# PREFA SOLAR BRACKET

PREFA solar bracket made of powder-coated aluminium alloy, suitable for PREFA roof tiles, shingles, rhomboid roof tiles  $29 \times 29$ , FX.12 roof panels, rhomboid roof tiles  $44 \times 44$  and R.16 roof tiles.

The PREFA Solar bracket is fastened with the screws supplied (two  $8 \times 220$  mm fasteners on a double-skin roof structure or two  $8 \times 120$  mm on a single-skin roof structure respectively, TX40, round head) to the supporting structure of the counter battens or to the rafters. Solid sheathing must be mounted in the area in which you intend to install the solar bracket.

If installed on battens, additional sheathing with an equal thickness must be fixed onto the battens in the mounting area (this should cover the width of at least three rafter areas).

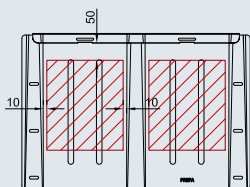


- 1 solar bracket
- 2 protective cap for solar bracket
- 3 universal timber construction screw ( $8 \times 220$  mm or  $8 \times 120$  mm)
- 4 base plate if applicable\* (always required for PREFA rhomboid roof tiles and shingles)
- 5 fixing strip

List of tools: see page 4.

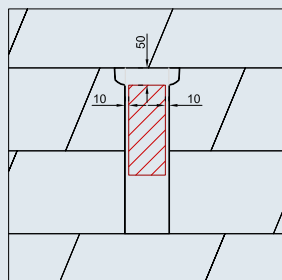
Accessories required: PREFA special adhesive or silicone, PREFA protective cap for solar bracket.

**Note:** in the case of PREFA roof tiles, FX.12 roof panels and R.16 roof tiles, it may be necessary to install a base plate (e.g. if a seam or crest is lying above a rafter). The solar brackets must not be installed or fixed on a seam or crest of the PREFA roof covering.



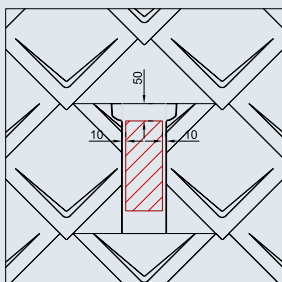
PREFA roof tile

75

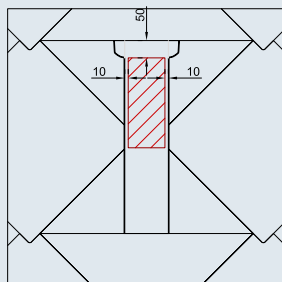


PREFA shingle

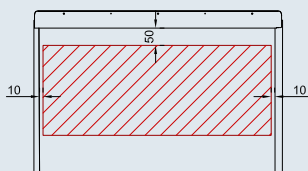
76

PREFA rhomboid roof tile  
29 × 29

77

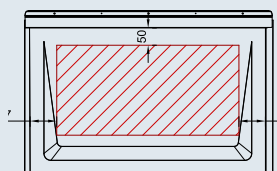
PREFA rhomboid roof tile  
44 × 44

78



PREFA FX.12 roof panel

79



PREFA R.16 roof tile

80

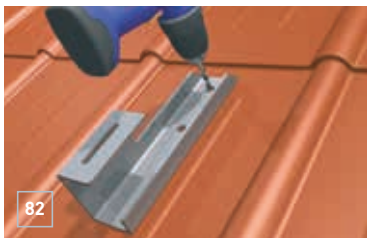
With PREFA shingle, rhomboid roof tile 29 × 29 and rhomboid roof tile 44 × 44, a base plate for mounting the PREFA solar bracket is always required.

## INSTALLING THE PREFA SOLAR BRACKET

Mark the rafter and top edge of the solar bracket (50 mm from the roof covering).



Pre-drill the screw holes (Ø 5 mm).



Seal the penetration holes with PREFA special adhesive or silicone.



Place the blanking plates (0.7 × 22 × 250 mm) under the support.



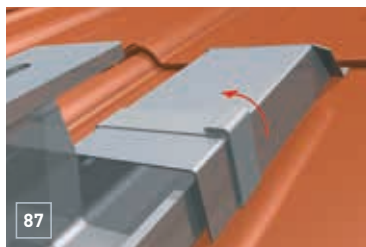
Fasten the solar bracket using the screws supplied.



Push the protective cap under the transverse seam of the roof tile.

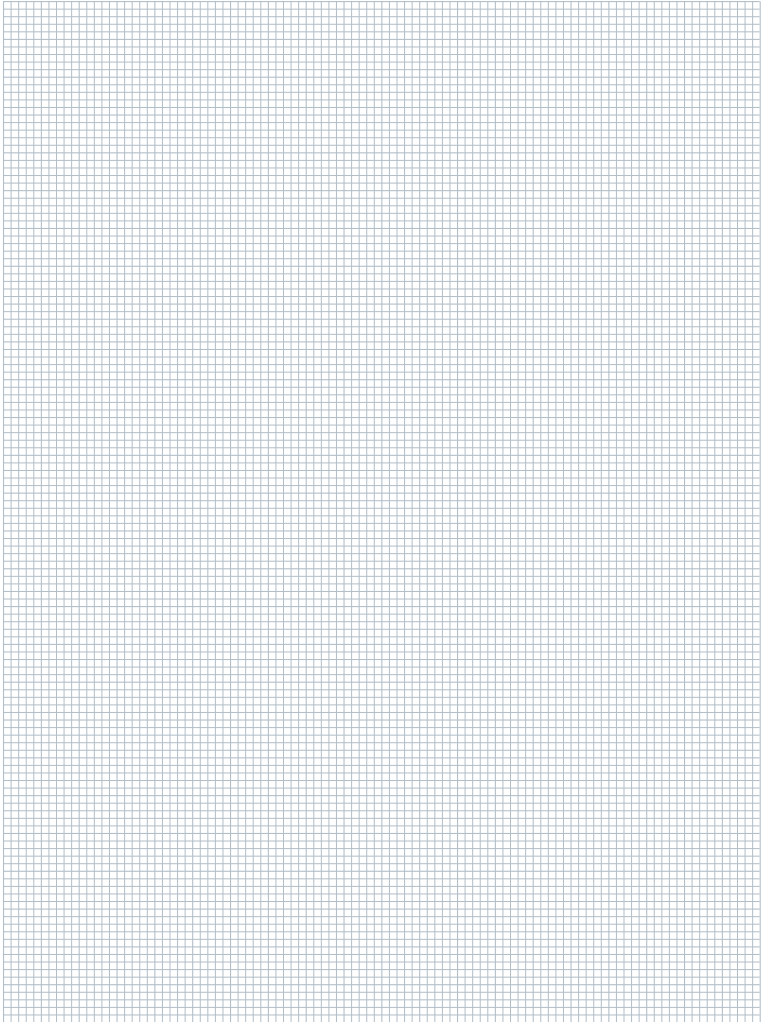


Close the blanking plates.



The solar panel's base profile can be screwed onto the installed solar bracket.







# PREFA SUNNY SPECIAL

## PREFA SUNNY SPECIAL APPLICATION AREA

If an overlap rib or centre rib of the PREFA roof tile is lying directly above the rafter (= hanger bolt installation area), the PREFA Sunny special can be used instead of installing a base plate.

List of tools: see page 4.

Accessories required:  
PREFA special adhesive kit.



## INFORMATION ABOUT THE M12 × 350 HEXAGON HANGER BOLT FOR THE PREFA SUNNY SPECIAL

### Name:

A2 M12 × 350 mm hexagon hanger bolt

### Tensile strength:

595 N/mm<sup>2</sup>

### Material:

1.4301 — X5CrNi 18-10

### Length/diameter:

350 mm / 12 mm

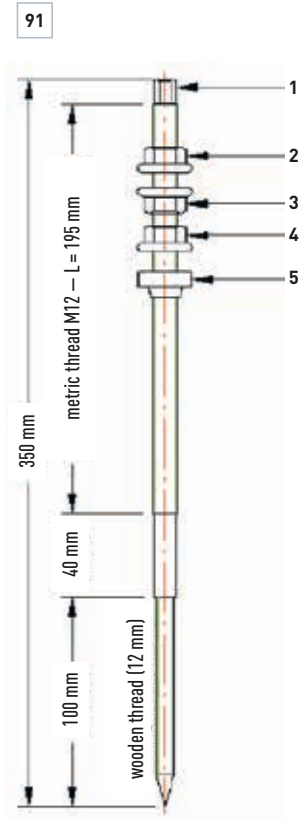
### Comment:

The permanent loads — dead weight and variable loads according to EN 1991-1-3 (snow) and EN 1991-1-4 (wind) — must be taken into account appropriately. Proof must be provided by the project's structural engineer.

### Calculation standards:

Timber construction — EN 1995-1-1

Steel construction — EN 1993-1-1



- 1 hexagon head (spanner width 9 mm)
- 2 hexagon nut EN 1661-M12 8.8
- 3 hexagon nut EN 1661-M12 8.8
- 4 hexagon nut EN 1661-M12 8.8
- 5 EPDM seal

## INSTALLING THE PREFA SUNNY SPECIAL

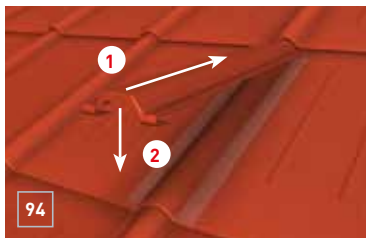
Roughen and clean the bonding surface on the PREFA Sunny special and the PREFA roof tile.



Apply PREFA special adhesive to the roughened and cleaned Sunny special.



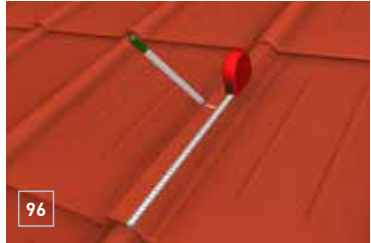
Push the Sunny special into the top seam of the roof tile in the area of the overlap rib or centre rib, and fold downwards.



Push the Sunny special as far as possible up into the seam.



Mark the position of the hanger bolt.



Pre-drill the wooden structure (Ø 8 mm).



Drill a hole (Ø 13 mm) in the PREFA Sunny special and PREFA roof tiles.



Screw in the hanger bolt with the drill and a 9-mm nut. Penetration depth in the supporting substructure (rafter): min. 50 mm.



Tighten the nut until the rubber seal bulges outwards.



Screw the nuts right down, measure the height of the remaining rail connector and cut the hanger bolt accordingly with an angle grinder.



**Note:** if the rubber seal is not lying on the smooth shaft of the hanger bolt but on the M12 thread, take additional measures to seal the joint between the screw and the rubber seal.

## INSTALLING THE PREFA CROSS CONNECTOR

On the PREFA cross connector, cut the hanger bolt max. 5 cm above the marked position (top edge of nut), otherwise it will not be possible to insert the profile rails.



Position the PREFA cross connector (measure according to the remaining rail connectors).



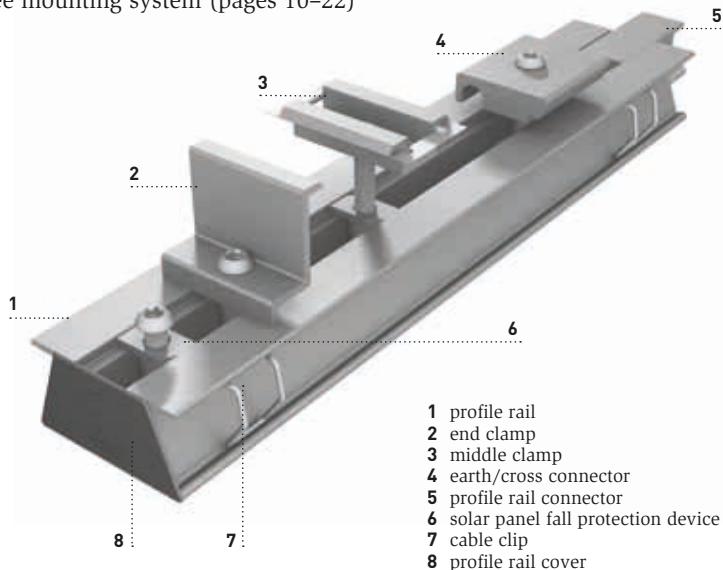
Fully installed system with the PREFA cross connector.



# PREFA PS.13 SOLAR MOUNTING SYSTEM

Overview:  
see mounting system (pages 10–22)

106



- 1 profile rail
- 2 end clamp
- 3 middle clamp
- 4 earth/cross connector
- 5 profile rail connector
- 6 solar panel fall protection device
- 7 cable clip
- 8 profile rail cover

## LIST OF TOOLS

see page 4

**Note:** structural calculations must always be carried out when installing PREFA on-roof mounting systems to ensure the load-bearing capacity of the specific building. The potential equalization between the individual system sections and the connection to a lightning protection device must be carried out according to the respective national guidelines.

PREFA only commissions specialist companies to install PREFA solar products and all other PREFA roof and façade products. Therefore, these installation instructions assume that installers have extensive experience with the materials used (e.g. through training or their professional activities). The PREFA installation instructions contain general guidelines which must also be adapted to the local, national and location-specific construction regulations, standards and environmental regulations.

## FASTENING THE PREFA PS.13 SOLAR MOUNTING SYSTEM

Place the top section of the loosely tightened PREFA Vario solar bracket centrally over the threaded rod.



Measure the height at the end of a row or gap and tension the mounting string to establish the height of the remaining solar bracket top sections.

**Caution:** do not fully tighten the top sections as this will make it difficult to insert the PREFA profile rails.





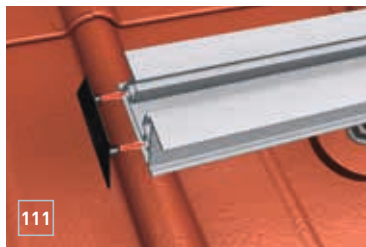
Position the PREFA profile rail and tighten the screw (Torx 40).  
Maximum projection of rail:  
20 cm. Torque: 20 Nm.



Push in half of the length of the PREFA rail connector and connect other PREFA rail connectors. The rail joint should not lie in the area of a solar panel clamp (12 cm). Deburr the cut edges on the processed profile rails.



Mount the PREFA profile rail cover.



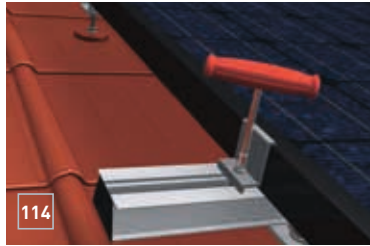
Fully mounted PREFA mounting system (single layer).



Fully mounted PREFA mounting system (cross connected) for heavier loads.



Insert the PREFA end clamps and middle clamps, the earth/cross connector and the solar panel fall protection device into the profile rail; rotate 90° clockwise and tighten (Torx 40). Do not mount the PREFA end clamp directly to the end of the rail (distance: min. 20 mm).



PREFA middle clamps should not lie directly above a profile rail joint. PREFA middle clamps connect the panels together, forming a potential equalization. Consequently, the PREFA row of solar panels must now be connected together with earth wire and earth/cross connector.



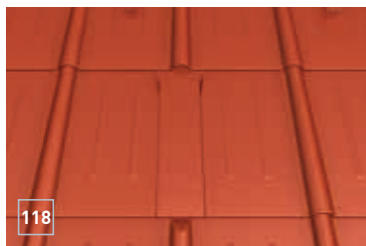
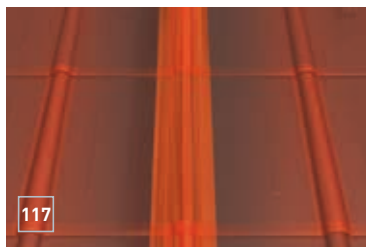
Simply insert the PREFA cable clip with the laterally protruding clip ends up into the PREFA profile rail to attach the cable and prevent it from being damaged by kinks or sharp edges. Mount the panels

according to the manufacturer's instructions (pay attention to the clamping range).

## BASE PLATE

With all PREFA small-format coverings, it may be necessary to install base plates. Where attachment points for solar panels are concerned, this is particularly relevant as large systems are generally involved ( $5 \text{ kW}_p$  for approx.  $32 \text{ m}^2$ ).

If a rafter lies directly below the crest of a PREFA roof tile or the hook seam of another small-format PREFA product, a base plate must be installed to form a level base for the attachment points. Another solution is to alter the substructure, if possible (e.g. double the rafters, move the cross-beam).



## SPECIAL MEASURES (SEAM ABOVE RAFTER)

With Prefalz double-lock standing seams, it may be the case that the PREFA Sunny protective cap cannot be mounted due to a lack of space. Take the PREFA Sunny installation instructions into account.

Fig. 120: on single-skin roof structures, the substructure for the hanger bolts could be moved (e.g.: double the rafters, move the cross-beam).

120

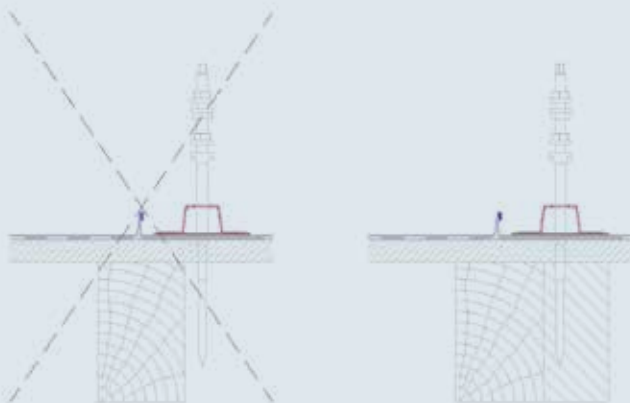
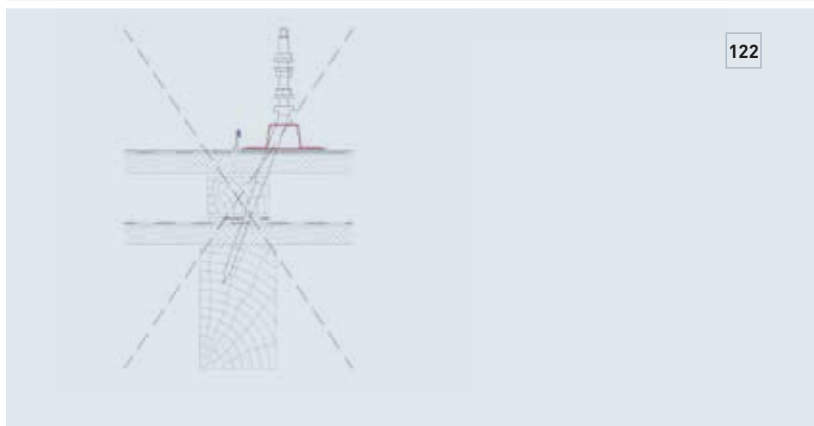
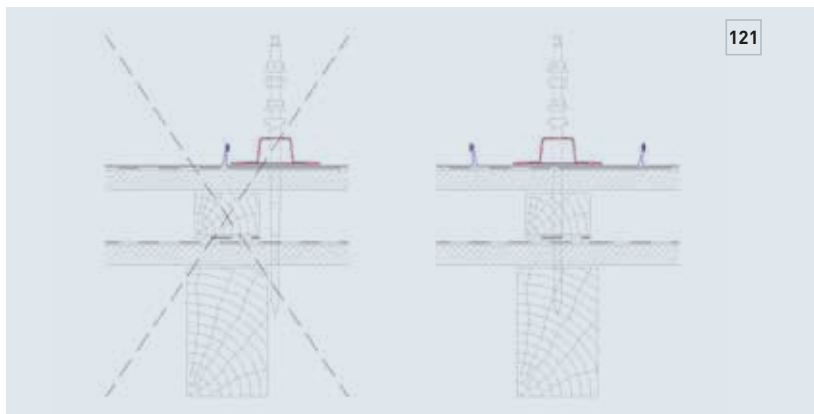


Fig. 121: on double-skin roof structures, a possibility could be to cut the seam or create a new seam with a small metal tray.

Fig. 122: tightening an inclined screw or bending the screw is not permitted.



## SOLAR ROOF CONDUIT

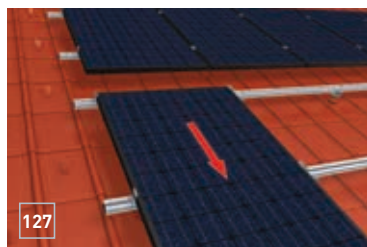
The PREFA solar roof conduit is used in combination with the cable conduit to enable solar panel cables and pipes to be professionally fed through to the inside of the roof. Refer to the corresponding installation instructions for mounting the solar roof conduit.



## SOLAR PANEL FALL PROTECTION DEVICE

To prevent solar panels from falling, a fall protection device is integrated directly into the panel rail. Two protection devices per module are screwed onto the lowest rail in the PREFA panel rail. This ensures that if a panel falls, the upper edge of its frame remains attached to the protection device. A protection device which has been activated is only a short-term safety solution and should be replaced immediately.





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**THE ROOF  
AS STRONG AS A BULL!**

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Austria, Germany, Switzerland, Italy, France, Belgium, the Netherlands, Luxembourg, Denmark, Sweden, Norway, the Czech Republic, Slovakia, Hungary, Poland, Slovenia, Croatia, Estonia, Latvia, Lithuania, Russia, Great Britain

## 10 GOOD REASONS FOR CHOOSING PREFA

- ! **STORM-PROOF**
- ! **RUST-PROOF**
- ! **BREAK-PROOF**
- ! **LIGHT**
- ! **BEAUTIFUL**
- ! **COLOUR-FAST SURFACE**
- ! **GREAT FOR RENOVATIONS**
- ! **COMPLETE SYSTEM**
- ! **ENVIRONMENTALLY FRIENDLY**
- ! **40-YEAR GUARANTEE**