



ALL-IN SUPPLIER
FOR SOLAR PANEL INSTALLERS

MANUAL

ALLiN mounting system

Inlay system for PV mounting on tiled roof/steeldeck/corrugated iron sheets

ALLIMEX
Green Power

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UPDATED

When installing mounting systems, use only components from Allimex Green Power. Use of other components may affect the stability of the system and cause damage. Installation of solar installations must be done by trained and competent personnel. No liability is accepted for damage caused by other components or installation performed by non-professionals.

ADVICE: For a portrait installation, use panels with a maximum length of 1.90m. If this length is exceeded, the panels must be mounted landscape. Long panels can otherwise bend spontaneously. If landscape mounting is not an option, you can use a system with profiles and clamps. Please contact your Allimex Green Power representative for this.

TAX

In addition to the net weight of the photovoltaic system, the system components and substructure are mainly affected by wind and snow loads. Each system must therefore be specifically calculated and planned for its external requirements, taking into account the Eurocode.

The load caused by wind depends mainly on:

- the wind zone,
- the height of the building
- the shape of the roof
- the slope of the roof

Weight loading due to snow depends on:

- the snow zone,
- the height of the building
- the shape of the roof
- the slope of the roof

Wind and snow loads can be determined for each site by an outside professional.

ALLiN was subjected to wind tunnel testing, as well as in-depth testing and structural analysis by the University of Hasselt, Belgium. For more details, contact your representative.



wind zone	Vb _o in m/s
1	26
2	25
3	24
4	23



SPACE

The statics of the roof, substructure or facade should always be observed. Basically, the statics of each roof should be checked by authorized specialists. One must see if the building can bear the additional loads due to the solar installation.

Since the load on a roof and the impact of a solar system are determined by many factors, a static calculation must be made for each individual roof.

The current condition of the roof must be such that the roof does not require renovation within 20 years.

Due to the continuous development of our products, deviation from the image is possible. No rights can be derived from any printing or typesetting errors.

SUPPLIES

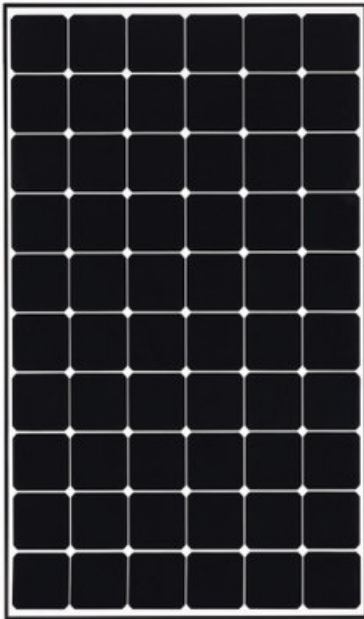
- situation sketch and laying plan
- parts list
- tape measure / measuring tape
- socket wrench
- rubber hammer
- masonry cord
- cutter
- construction hook
- grinder small
- Allen screws
- screwdriver with 3 bits: philips, torx T40, inbus 3
- Allen wrenches
- assembly wrench MC4
- Tong set MC4
- hammerhead bolts
- chipboard screws 4x50 mm
- underlayment strips 150x1220 mm
- counter head screws
- flange nuts

Observe all safety measures according to the applicable guidelines before starting the installation!

1. START - POSITIONING PANELS

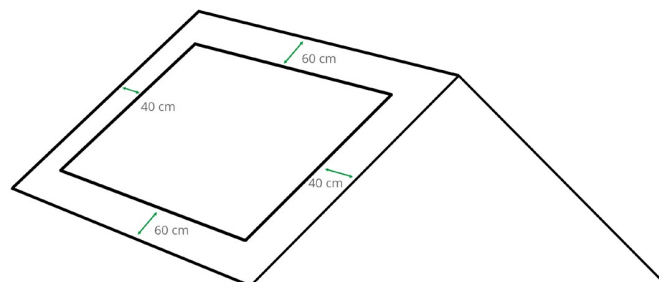
If necessary, review the laying plan you have prepared, the situation sketch and the parts list and verify that all materials are present.

TIP: Our representatives can help you with this parts list if you provide the correct arrangement.



Solar panels should not be mounted too close to the ridge, gutter or roof edge. The panels should always be at least 60 cm from the ridge and gutter, and 40 cm from the edge of the roof. This is to prevent the panels from having to withstand the forces of wind turbulence in heavy winds. For terraced houses, the panels can of course be placed right up to the edge of the building.

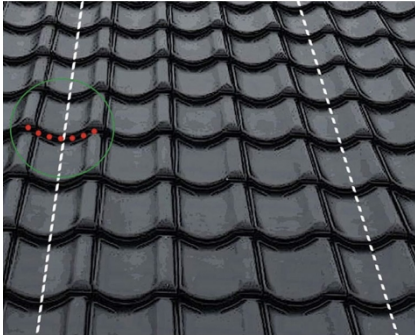
Before installation, determine exactly where the panels should go on the roof. We recommend marking the outline of the panel area on the tiles. Then the positions of the profiles are drawn. On the lines for the support profiles, the position for the roof hooks can be marked afterwards.



2. MEASURING SYSTEM

The exact location of the solar system is measured on the roof to determine the position of the roof hooks. First determine the position of the bottom row of roof hooks. Remove the tiles on this row to clear the battens over the width of the PV system. The roof hooks always run across the middle of the valley of the tiles.

- " **Profiles H2 may extend a maximum of 300 mm beyond a roof hook.**
- " **Insertion profiles may extend beyond a profile H2 by a maximum of 300 mm.**



3. FIXING UNDERLAYMENT STRIPS

Create a good running surface for further installation of the PV system by screwing underlayment strips (150x1220 mm) across the total width of the cleared battens. Then determine the positions of the remaining roof hooks. Also remove the roof tiles around the positions and install half an underlayment strip (150x610 mm).

- " **3 chipboard screws are installed per batten.**



4. FIXING ROOF HOOKS

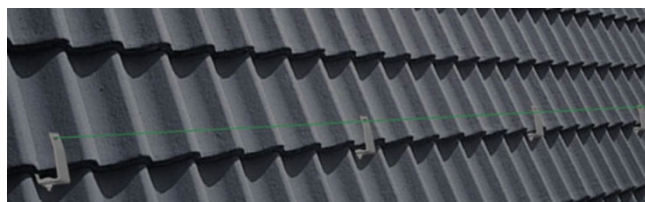
Line up the roof hooks in the vertical direction. Screw the roof hooks to the underlayment strips with 3 counter head screws.

- " **A roof hook should not rest on the underlying roof tiles.**
- " **Always select the nearest pan valley to the measured position.**

The mounting system must be installed level to avoid friction on the panels. The roof hooks are therefore adjustable in height.

First, fix the 4 outer roof hooks of the solar system at the same height and use them as a reference for the remaining roof hooks.

" **Pull a masonry cord between the 4 adjusted roof hooks and adjust the rest of the roof hooks to the same height.**

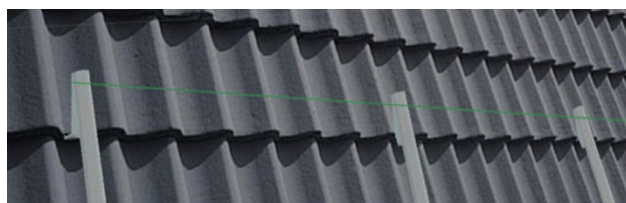


It is possible that the roof tiles no longer fit neatly together due to the installation of the roof hooks. Therefore, grind out a piece from the bottom of the tile the size of the roof hook and put it back in its original place. Be sure that the tile retains its strength and water tightness.

5. INSTALLATION VERTICAL PROFILES H2

Installation of the H2 vertical profiles on the roof hooks is done with hammer head bolts and flange nuts. The hammer head bolt is screwed with a quarter turn into the slot at the bottom of the profile through the slotted hole of the roof hook.

First, determine the correct height for the 2 outer profiles and install these profiles first. Install the intermediate profiles H2 using a masonry string between the top and bottom of the 2 first profiles.



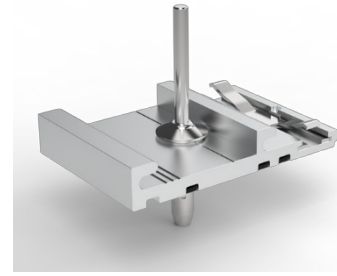
The maximum length of a profile H2 is 6.50 m. Using a profile connector, the profiles can be extended before being mounted on the roof hooks.

The profile connector is installed on the underside of the profile H2 by means of 2 hammer head bolts and flange nuts. Extended profiles H2 are installed alternately so that the profile connectors offset on the roof.



6. INSTALLATION BRACKETS FOR INLAY

Inlay brackets are used to install the inlay profiles on profiles H2. At the back of the bracket, there is a sliding nut that uses a torx bolt to secure the bracket to the profile H2. The front of the bracket contains 2 stops and a clamping spring installed to the top.



Install first the lower brackets for insertion on the outer profiles H2 and stretch a masonry cord between these profiles at the level of the brackets. Attach a bracket on each profile H2.

To determine the distance between the bottom of the upper bracket and the top of the lower bracket, the following formula is used:

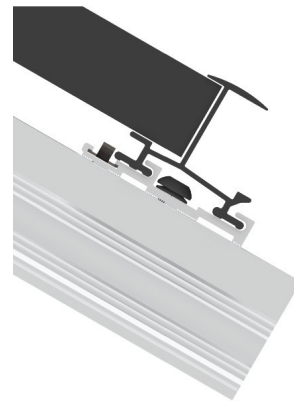
panel size - 57 mm.

TIP: Use an H2 profile cut to size as a measuring stick.

7. INSTALLATION INSERT PROFILES

The installation of the solar panels is done with asymmetrical insert profiles. The insert profile is attached with the shortest flange facing up.

The panels are then first inserted into the upper insert profile and then set into the underlying profile.



Determine the correct width position of the lower inlay profile and place it against the stops of the inlay brackets. Press the clamping springs of the brackets with the inlay profile so that it clicks into the correct position. Install the remaining inlay profiles afterwards.

Profile insert connector

The maximum length of an inlay profile is 6.50 m and can be extended by means of a profile inlay connector that is inserted into the bottom of the inlay profile and fastened with 2 Allen screws. If the system length exceeds 12 m, only 1 Allen screw should be tightened to allow the profiles to expand and contract due to possible temperature differences.

" **Insert profiles are first coupled and only then attached to the brackets.**



Close profile

There are 2 methods for closing the profile at the end of the row.

End corners

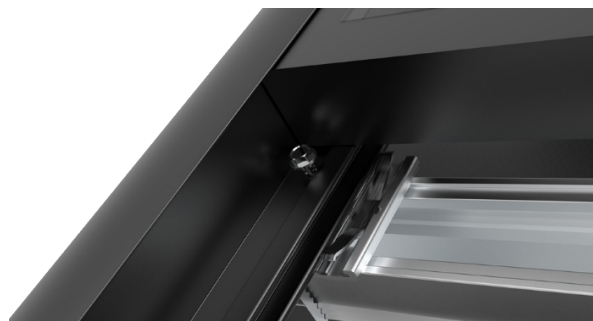
End corners provide an aesthetic finish at the end of the profile. These are only usable on the lowered profile!

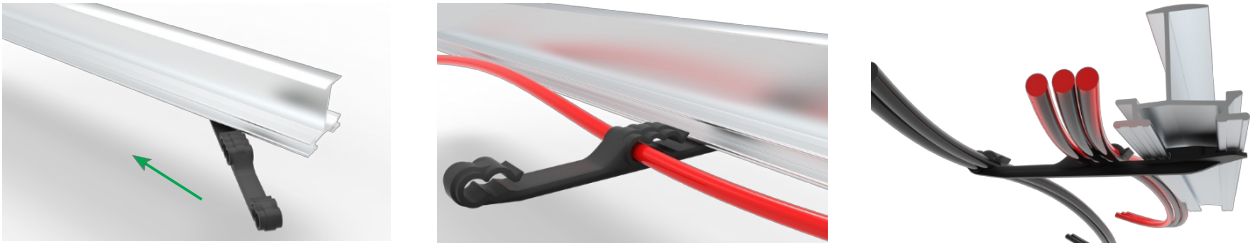
Place an end corner on either side of the insert profile to prevent the solar panels from sliding out of the insert profile. Slide the end corner into the slot at the bottom of the insert profile and secure it with an Allen screw.

" **Use a construction hook or solar panel when aligning the profiles.**

Self-tappers

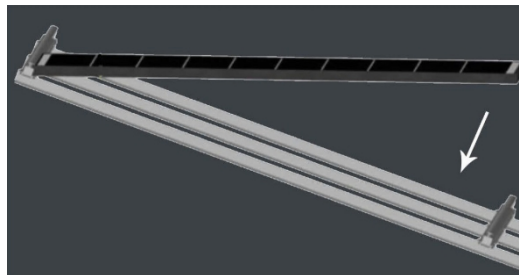
These are inserted into the base of the insert profile. A distance of 5 mm should be provided between the panels and the first self-tapping. The self-tappers should be installed according to the example in the picture below. This both at the top and bottom of the panel.





Install the top row of modules first. Insert the panel into the upper insert profile and lower it into the lower profile. The modules are positioned by gravity and no longer need to be secured with screws.

Leave a space of at least 2 mm between panels for possible expansion due to temperature differences.



SUPPLIES

- situation sketch and laying plan
- parts list
- tape measure / measuring tape
- pencil
- pop rivet pliers 4mm
- masonry cord
- cutter
- construction hook
- screwdriver with bits: torx T40, socket 3
- assembly wrench MC4
- tang set MC4
- rubber hammer

Observe all safety measures according to the applicable guidelines before starting the installation!

1. START - POSITIONING PANELS

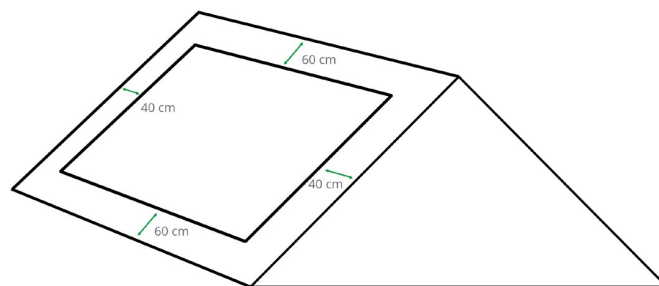
If necessary, review the laying plan you have prepared, the situation sketch and the parts list and verify that all materials are present.

TIP: Our representatives can help you with this parts list if you provide the correct arrangement.



Solar panels should not be mounted too close to the ridge, gutter or roof edge. The panels should always be at least 60 cm from the ridge and gutter, and 40 cm from the side of the roof. This is to prevent the panels from having to withstand the forces of wind turbulence in heavy winds. For intermediate houses, the panels can of course be placed right up to the edge of the building.

Before placement, determine exactly where the panels should go on the roof. We recommend marking the contours of the panel area. Then the positions of the profiles are drawn. On the lines for the support profiles, the position for the brackets can be marked afterwards.



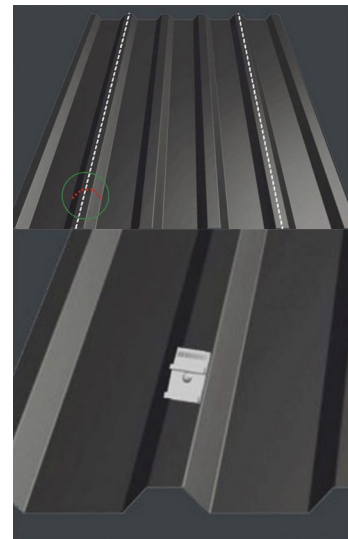
2. MEASURING SYSTEM

The exact location of the solar system is measured on the roof to determine the position of the brackets for insertion. A flat bracket is attached to the top of the trapezoidal profile.

Always check that the roof runs flat. Any undulations in the roof will transfer to the mounting system. This can be detrimental to correct installation of the system.

If this is a problem, stick screws and bottom profiles can be used. Contact your representative for an appropriate solution.

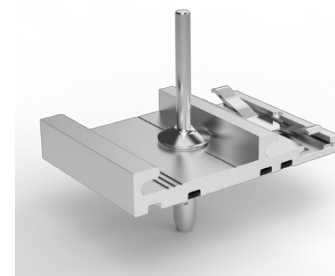
" **Inlay profiles may extend a maximum of 300 mm beyond a flat bracket for inlay.**



3. INSTALLATION BRACKETS FOR INLAY

The installation of the insert profiles on the steel deck uses the brackets for the insert profile with rivet. There is an epdm plate on the back of the bracket that protects the sandwich panel from leaks. The bracket contains 2 stops and a clamping spring. This spring should always be at the top during assembly.

First determine the height of the bottom row of flat brackets for inlay and install the brackets at the corners. Drill a 6 mm hole and pull the flat brackets into it with a rivet. Stretch a masonry cord between these brackets and similarly attach the remaining flat brackets with a rivet.

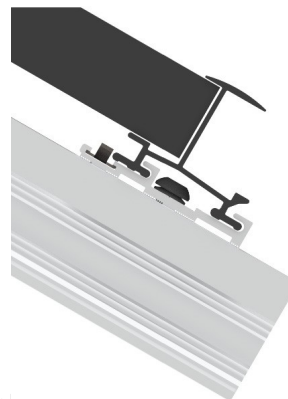


As a general rule, the distance between brackets is assumed to be 0.75m. Per row, 1 additional bracket is needed to close the row. The number of brackets required per row is calculated as follows:

$$\frac{\text{size panel x number}}{0,75 \text{ m}} + 1$$

4. INSTALLATION INSERT PROFILES

Panels are installed with asymmetrical insert profiles. The insert profile is attached with the shortest flange facing up. The panels are then first inserted into the upper insert profile and then set into the underlying profile.



Determine the correct width position of the lower inlay profile and place it against the stops of the inlay brackets. Press the clamping springs of the brackets with the inlay profile so that it clicks into the correct position. Install the remaining inlay profiles afterwards.

Profile insert connector

The maximum length of an inlay profile is 6.50 m and can be extended by means of a profile inlay connector that is inserted into the bottom of the inlay profile and fastened with 2 Allen screws. If the system length exceeds 12 m, only 1 Allen screw should be tightened to allow the profiles to expand and contract due to possible temperature differences.

" **Insert profiles are first coupled and only then attached to the brackets.**



Close profile

There are 2 methods for closing the profile at the end of the row.

End corners

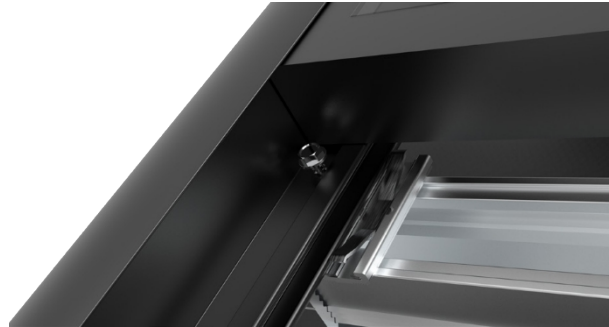
End corners provide an aesthetic finish at the end of the profile. These are only usable on the lowered profile!

Place an end corner on either side of the insert profile to prevent the solar panels from sliding out of the insert profile. Slide the end corner into the slot at the bottom of the insert profile and secure it with an Allen screw.

" **Use a construction hook or solar panel when aligning profiles.**

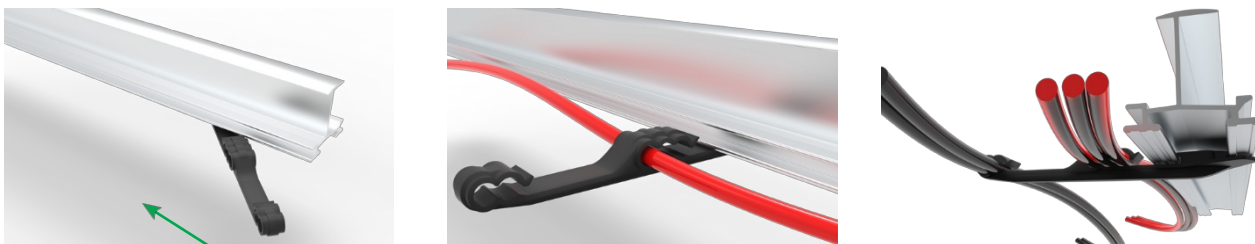
Selftappers

These are inserted into the base of the insert profile. A distance of 5 mm should be provided between the panels and the first self-tapping device. Install the self-tappers as shown in the example below. This both at the top and bottom of the panel.



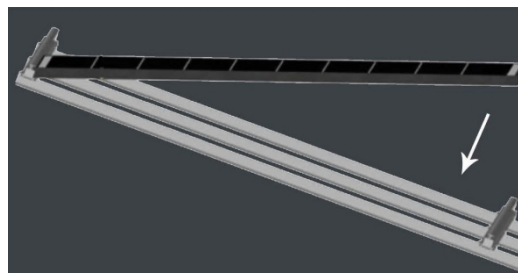
5. SOLAR PANEL INSTALLATION

All cables are laid parallel to the mounted profiles and fastened by means of cable brackets. These are inserted into the profile and secured with a quarter turn. One cable bracket is provided per running meter.



Install the top row of modules first. Insert the panel into the upper insert profile and lower it into the lower profile. The modules are positioned by gravity and no longer need to be secured with screws.

Leave a space of at least 2 mm between panels for possible expansion due to temperature differences.



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SUPPLIES

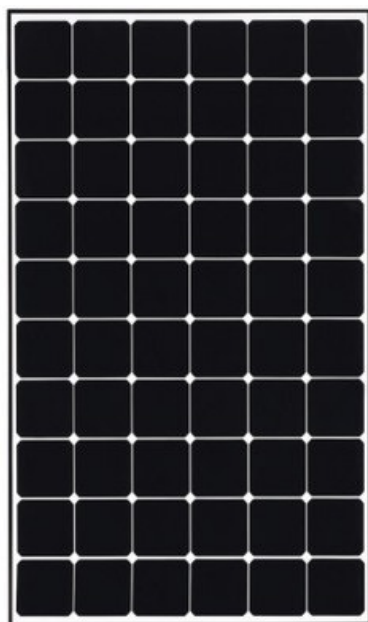
- situation sketch and laying plan
- parts list
- tape measure /measuring tape
- pencil
- impact nut wrench
- masonry cord
- cutter
- construction hook
- socket wrench set
- screwdriver with bits: torx T40, socket 3
- drill 10 or 12
- assembly wrench MC4
- tang set MC4
- rubber hammer
- allen wrenches & allen screws
- hanger bolts screws
- possibly PVC bushes 25 mm diameter

Observe all safety measures according to the applicable guidelines before starting the installation!

1. START - POSITIONING PANELS

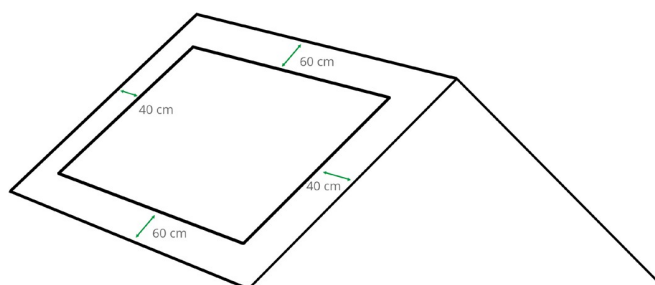
If necessary, review the laying plan you have prepared, the situation sketch and the parts list and verify that all materials are present.

TIP: Our representatives can help you with this parts list if you provide the correct arrangement.



Solar panels should not be mounted too close to the ridge, gutter or roof edge. The panels should always be at least 60 cm from the ridge and gutter, and 40 cm from the side of the roof. This is to prevent the panels from having to withstand the forces of wind turbulence in heavy winds. For intermediate houses, the panels can of course be placed right up to the edge of the building.

Before placement, determine exactly where the panels should go on the roof. We recommend marking the contours of the panel area. Then draw the positions of the profiles. On the lines for the support profiles, the position for the corrugated hooks/hanger bolts can be marked afterwards.



There are **2 options** for installation. Both methods use bottom profiles.

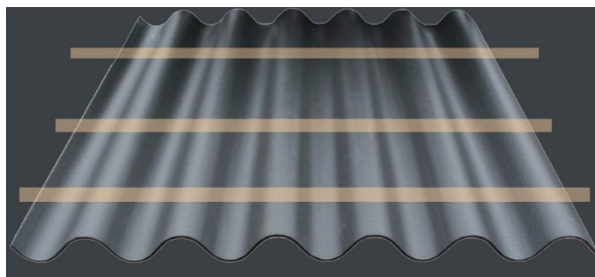
- Installation with hanger bolts (see point 3)
- Installation with corrugated hook (see item 4)

2. MEASURING SYSTEM

The location of the solar system is determined by the number of purlins and the purlin spacing. The profiles H2 can therefore protrude under the panels at the top of the system.

- " **Profiles H2 may extend a maximum of 300 mm beyond a hanger bolts.**
- " **Insertion profiles may extend beyond a profile H2 by a maximum of 300 mm.**

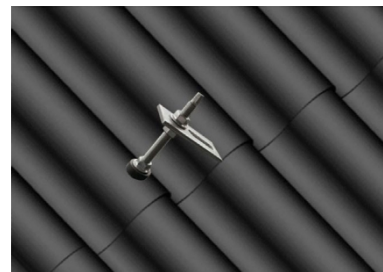
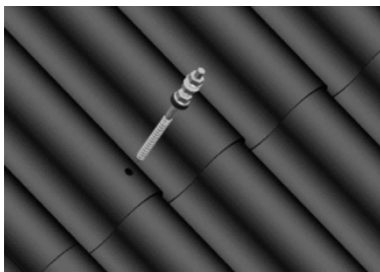
Extend the profiles H2 to the next purlin if the maximum of 300 mm is exceeded.



3. INSTALLATION OF HANGER BOLTS

Determine the positions of the hanger bolts in the top of the corrugations on the lower purlin. If necessary, remove the corrugated plate bolt if it is to be replaced by a strut screw. At each hanger screw position, drill a hole perpendicular to 10 mm or 12 mm in the purlins and install the hanger bolts with an impact driver. Install the remaining hanger bolts on the purlins perpendicular to the attached hanger bolts.

TIP: To create a solid walking surface for measuring and installing the rest of the system, scaffolding boards can be installed against the bottom row of strut screws. Protect the strut screws by sliding PVC bushings over them first.

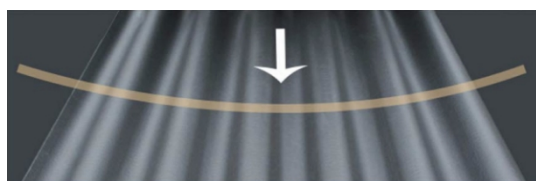


3.1 INSTALLATION VERTICAL BOTTOM PROFILES

Installation of the H2 vertical profiles is done with hammer head bolts and flange nuts. The hammer head bolt is screwed with a quarter turn into the slot at the bottom of the profile through the slotted hole of the plate.



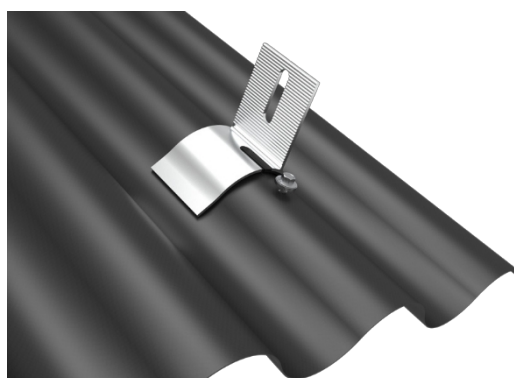
The maximum length of a profile H2 is 6.50 m. Using a profile connector, the profiles can be extended before being mounted on the roof. The profile connector is installed on the underside of the profile H2 by means of 2 hammer head bolts and flange nuts. Extended profiles H2 are installed alternately so that the profile connectors offset on the roof.



Over the years, purlins may sag. Take this into account when installing profiles H2. Make sure that all hanger bolts are on the outside of the masonry string. If necessary, lower the outer 2 profiles sufficiently to also accommodate the sagging of the purlins.

4. INSTALLATION WAVE HOOK

The corrugated hook is placed where the roof plate is already screwed down with corrugated iron bolts. The corrugated plate bolt should be unscrewed, after which the corrugated hook is slid under this bolt. The recess of the corrugated hook should always be mounted downwards.



To determine the distance between the corrugated hooks, we refer to the test results of this system. The distance between the corrugated hooks depends on the wind load on the whole system.

When the corrugated hook cannot be placed because of an obstacle, such as the lining of the ridge, use hanger bolts.

4.1. INSTALLATION OF VERTICAL BOTTOM PROFILES

Installation of the vertical bottom profiles is done with hammer head bolts and flange nuts. The hammer head bolt is screwed with a quarter turn into the slot on the side of the profile through the slotted hole of the plate.

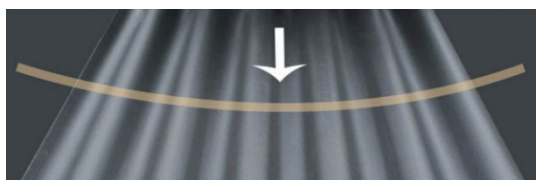
The bottom profile should make full contact with the serration of the wave hook.



Determine the correct height for the 2 outer profiles and install these profiles first. Then install the intermediate lower profiles using a masonry string between the top and bottom of the 2 first profiles.



The maximum length of a profile H2 is 6.50 m. Using a profile connector, the profiles can be extended before being mounted on the roof. The profile connector is installed on the underside of the profile H2 by means of 2 hammer head bolts and flange nuts. Extended profiles H2 are installed alternately so that the profile connectors offset on the roof.



Over the years, purlins may sag. Keep this in mind when installing profiles H2. Make sure that all hanger bolts are on the outside of the masonry string. If necessary, lower the outer 2 profiles sufficiently to also accommodate the sagging of the purlins.

5. INSTALLATION BRACKETS FOR INLAY

Inlay brackets are used to install the inlay profiles on profiles H2. At the back of the bracket, there is a sliding nut that uses a torx bolt to secure the bracket to the profile H2. The front of the bracket contains 2 stops and a clamping spring that is installed to the top.

Install first the lower brackets on the outer profiles H2 and stretch a masonry cord between these profiles at the level of the brackets. Attach a bracket on each profile H2.



To determine the distance between the bottom of the upper bracket and the top of the lower bracket, the following formula is used:

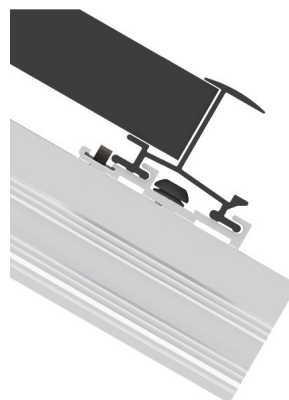
panel size - 57 mm.

TIP: Use an H2 profile cut to size as a measuring stick.

6. INSTALLATION INSERT PROFILES

The installation of the solar panels is done with asymmetrical insert profiles. The insert profile is attached with the shortest flange facing up.

The panels are then first inserted into the upper insert profile and then set into the underlying profile.



Determine the correct width position of the lower inlay profile and place it against the stops of the inlay brackets. Press the clamping springs of the brackets with the inlay profile so that it clicks into the correct position. Install the remaining inlay profiles afterwards.

Profile insert connector

The maximum length of an inlay profile is 6.50 m and can be extended by means of a profile inlay connector that is inserted into the bottom of the inlay profile and fastened with 2 Allen screws. If the system length exceeds 12 m, only 1 Allen screw should be tightened to allow the profiles to expand and contract due to possible temperature differences.

" **Insert profiles are first coupled and only then attached to the brackets.**



Close profile

There are 2 methods for closing the profile at the end of the row.

End corners

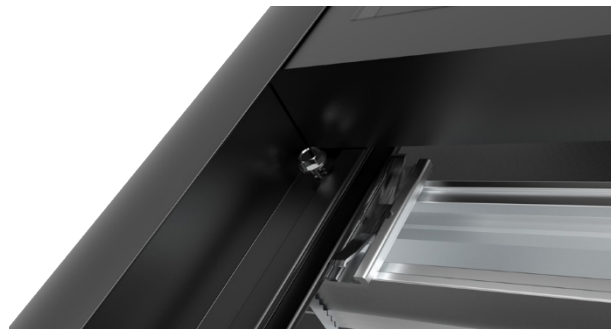
End corners provide an aesthetic finish at the end of the profile. These are only usable on the lowered profile!

Place an end corner on either side of the insert profile to prevent the solar panels from sliding out of the insert profile. Slide the end corner into the slot at the bottom of the insert profile and secure it with an Allen screw.

" **Use a construction hook or solar panel when aligning profiles.**

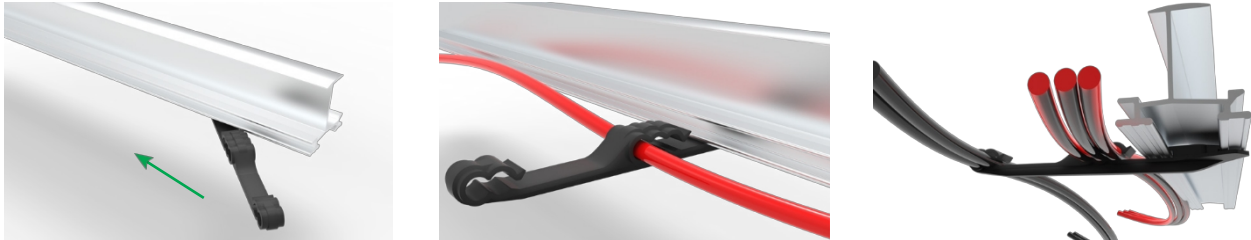
Self tappers

These are set into the base of the insert profile. Between the panels and the first self-tapping should be a distance of 5 mm provided. The self-tappers should be installed according to the example in the picture below. This both at the top and bottom of the panel.



7. SOLAR PANEL INSTALLATION

All cables are laid parallel to the mounted profiles and fastened by means of cable brackets. These are inserted into the profile and secured with a quarter turn. One cable bracket is provided per running meter.



Install the top row of modules first. Insert the panel into the upper insert profile and lower it into the lower profile. The modules are positioned by gravity and no longer need to be secured with screws.

Leave a space of at least 2 mm between panels for possible expansion due to temperature differences.

