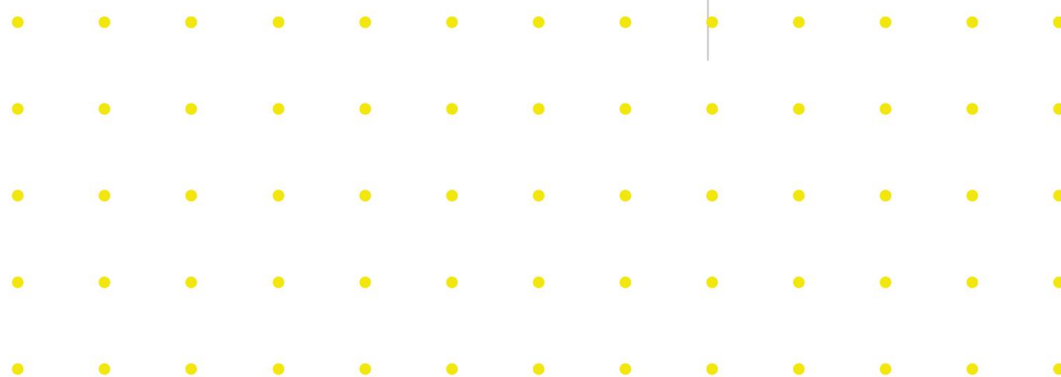
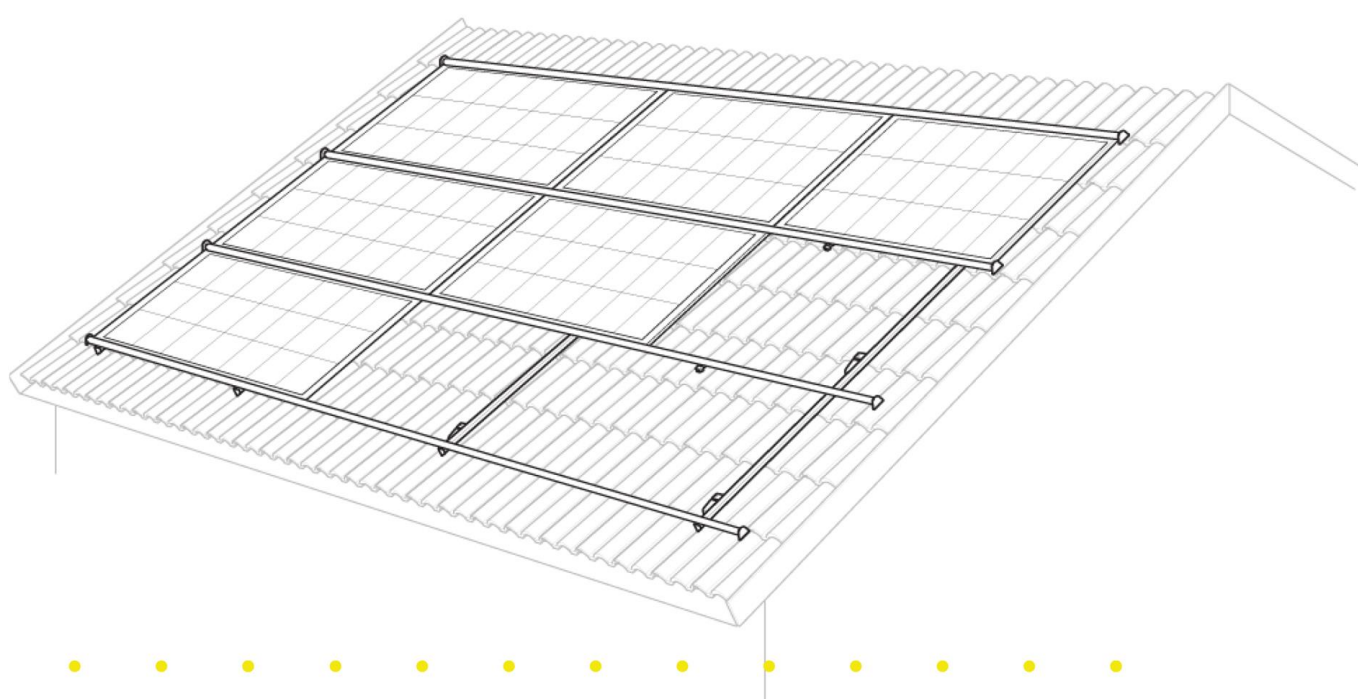


# — Installation manual

## Inlay mounting system for a tiled roof



# Disclaimer

The instructions and safety provisions according to this installation manual must be observed with care during installation of any Aelex system. Failure to comply with the requirements stipulated in this document will void the customer's warranties, as is also indicated in the applicable general sales and delivery terms of Aelex; Aelex cannot be held liable for any damage on any grounds whatsoever in this case.

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# 1 Introduction

This installation manual describes installation of the Aelex inlay mounting system on a pitched tiled roof. This manual is to support the installer in safe installation of the Aelex as intended.

Read the manual carefully before starting the installation. Observe all applicable safety requirements while installing the Aelex.

## 1.1 User description

This document is intended for professional Aelex installers.

The Aelex inlay mounting system should only be installed and serviced by authorised and competent installers who have read and understood the content of this installation manual.

## 1.2 Explanation of safety warnings

### **⚠ DANGER**

**Danger** indicates a danger with a high level of risk that will result in death or serious injury if not avoided.

### **⚠ WARNING**

**Warning** indicates a hazard with a medium level of risk that may result in death or serious injury if not avoided.

### **⚠ CAUTION**

**Caution** indicates a low-risk hazard that may result in minor to moderate injury if not avoided.



#### **NOTICE**

Notice marks information that is considered important but does not imply danger.



#### **INFO**


Info indicates useful information.

## 1.3 Instructions on use of this manual

You must read and understand this manual and the safety notices before installing and using this product. Failure to do so may lead to serious injury or death.

The Aelex inlay mounting system is also referred to as *Aelex*, the *system*, or the *product* in this manual.

Observe all instructions. This prevents the occurrence of fires, explosions, electric shocks, or other hazards that may lead to property damage and/or serious or fatal injuries.



The product must only be installed by persons who have fully read and understood the content of this user manual.

Keep all safety provisions and instructions for future use and pass them on to any subsequent users of the product.

The manufacturer cannot be held responsible for any cases of property damage or injury caused by improper handling or non-compliance with the safety notices. This will render the warranty void. This product is subject to the *General installation terms of Aelex* and the *General terms and conditions of Alius*.

## 1.4 Where to find documentation and information

### 1.4.1 Internet

The latest version of the documentation is available at: [www.Aelex.nl](http://www.Aelex.nl)

### 1.4.2 Other documentation

The following documentation is available to supplement this installation manual:

- + List of certifications
- + General terms and conditions of Alius
- + General installation terms of Aelex

### 1.4.3 Support and service

For information on special tools, materials, service, technical support, ordering user manuals or for other information and/or questions, contact:

#### **Aelex**

Meerheide 101  
5521 DX Eersel  
Netherlands

Phone: [+31 \(0\)850 208 538](tel:+31(0)850208538)  
Email: [info@Aelex.nl](mailto:info@Aelex.nl)  
[www.Aelex.nl](http://www.Aelex.nl)

# 2 Safety notices

## **⚠ DANGER**

**READ AND UNDERSTAND THIS MANUAL AND THE SAFETY NOTICES BEFORE USING THIS PRODUCT. FAILURE TO FOLLOW INSTRUCTIONS MAY LEAD TO SERIOUS INJURY OR DEATH.**

### 2.1 General safety notices

- + Always use the Aelex configurator to design the inlay mounting system. Always use the technical drawing and sawing list output by the Aelex configurator for installation. The Aelex configurator can be found at Aelex.nl. The warranty claim shall lapse if you do not use the Aelex configurator to design your system.

### 2.2 Installation safety

- + Every installer must ensure their own safety and health and that of any other persons involved to the best of their ability in their actions at the workplace, in accordance with their training and the instructions provided by the employer.
- + Work equipment or any other installed protective devices must not be needlessly changed or removed or used improperly.
- + Report any detected hazards to health or safety to the employer for whom you are performing the work.
- + Always use the proper tools for the work at hand.
- + Installation of Aelex systems should be performed by qualified technical personnel. Professional installation is a requirement for a long service life and greater system efficiency.
- + Any electrical work must be performed by competent persons in compliance with locally applicable legislation.
- + Always be attentive and keep your mind on your work. Do not install the product if you are distracted, have impaired consciousness, or are under the influence of drugs, alcohol, or medication. Even a single moment of inattention may bring about serious accidents or injuries during installation.
- + Always observe the local standards, rules, and provisions on safe work and correct and safe installation.
- + **Risk of injury.** Always wear working gloves when handling the product. The product may have sharp edges.
- + **Risk of burns or frostbite.** Always wear working gloves when handling the product. The aluminium parts, such as the profiles, can become very hot or cold, resulting in burns or frostbite.

- 
- + **Risk of injury.** Always wear a hard hat while handling the product. Observe your surroundings when handling and moving the long profiles.
  - + **Risk of injury.** Always wear hearing protection, safety shoes, and safety goggles when working with a grinder.
  - + Always wear adequate protective clothing and personal protective equipment to match the environment and conditions where the product is to be installed during installation, including work gloves, hard hat, hearing protection, and safety goggles.
  - + Always use fall protection and, if necessary, safety nets and edge protection while working on roofs.
  - + Never leave out any system parts. Always install and set up all parts as described in the installation instructions. Do not forget any parts in the process. Missing parts may impair system function.
  - + Never install a system that is subject to any damage or manufacturing defects, such as bent roof hook clips or improperly tapped holes. Contact the supplier in this case.
  - + Strictly observe the installation instructions when connecting two or more inlay profiles to allow for dilatation (thermal expansion and contraction).
  - + Attach the inlay and cover profiles to the proficlicks strictly in accordance with the expansion table.
  - + Secure all individual inlay and cover profiles using the IP bender to prevent shifting due to thermal expansion and contraction.
  - + Never place any inlay mounting system over a gutter or ridge and do not let it to protrude beyond the roof surface.
  - + Always check that the PV panels to be installed correspond to the project plan. The buyer/installer of the system is responsible for ensuring this.
  - + Verify and validate that the system has been delivered completely and properly assembled. The buyer/installer of the system is responsible for verification and validation of the system.

## 2.3 Safety and your environment

- + Always contact the supplier for advice before installing the system in situations where tall buildings or objects (such as wind turbines) that may affect wind pressure are located nearby.
- + Recalculate the project and make any necessary adjustments if any data, information, and/or environmental factors turn out to deviate from your assumptions or the project report before, during, or after installation.
- + Do not install the system in any coastal areas if the distance from open water is less than 500 m. This would accelerate corrosion caused by salt water on the system.

## 2.4 Safety concerns regarding roof stability and condition

- + Check the condition and strength of the roof beforehand. The roof must be strong enough to support the weight of the system, including PV panels, as well as any wind and snow loads. Do not exceed the roof's load reserve in any one location and overall.
- + Verify roof stability beforehand and adjust the roof and/or roof structure where necessary.
- + Have the roof load recalculated by a qualified technician under consideration of applicable regulations beforehand. NEN 6702, NEN 7250, NEN 1991-1-4, and NEN 1991-1-3 are particularly relevant.
- + Acquire the insurer's and structural engineer's prior approvals for:
  - + the load on the building caused by the additional weight of the system with PV panels;
  - + the load on the building caused by the changed geometry of the roof plane;
  - + the load on the building caused by dynamic wind pressure and precipitation;
  - + the interaction between the thermal effects of the building and the system with PV panels;
  - + the consequences of any movement of the roof and the system with PV panels.

## 2.5 Safety during maintenance and repair

- + Maintenance and repair of Aelex systems must be performed by qualified technical personnel.
- + No changes to the system and technical modifications are permitted. They will render the warranty void.
- + Only use genuine accessories and spare parts.





# 3 Description of the Aelex inlay mounting system for roof tiles

## 3.1 Intended use and reasonably foreseeable misuse

### Intended use

- + The Aelex inlay mounting system as described in this installation manual should only be used for the installation of PV modules on sloping tiled roofs.

### Improper use

- + This product must not be installed:
  - + by any private individuals without proper technical qualification;
  - + in coastal areas closer than 500 m to open water;
  - + without using the Aelex configurator;
  - + without calculation of the roof load by a qualified technician;
  - + without the insurer's and structural engineer's consent;
  - + if the data, information, and/or environmental factors do not fully match the assumptions or the project report;
  - + if the PV panels do not match the PV panels in the project plan;
  - + in salty, humid environments;
  - + in acidic environments or environments that contain chlorine.
- + This product should only be installed and used for the application described in this manual. Any other uses are unprofessional and considered dangerous. The manufacturer cannot be held liable for any damage resulting from errors, non-intended, or unprofessional use of the product.

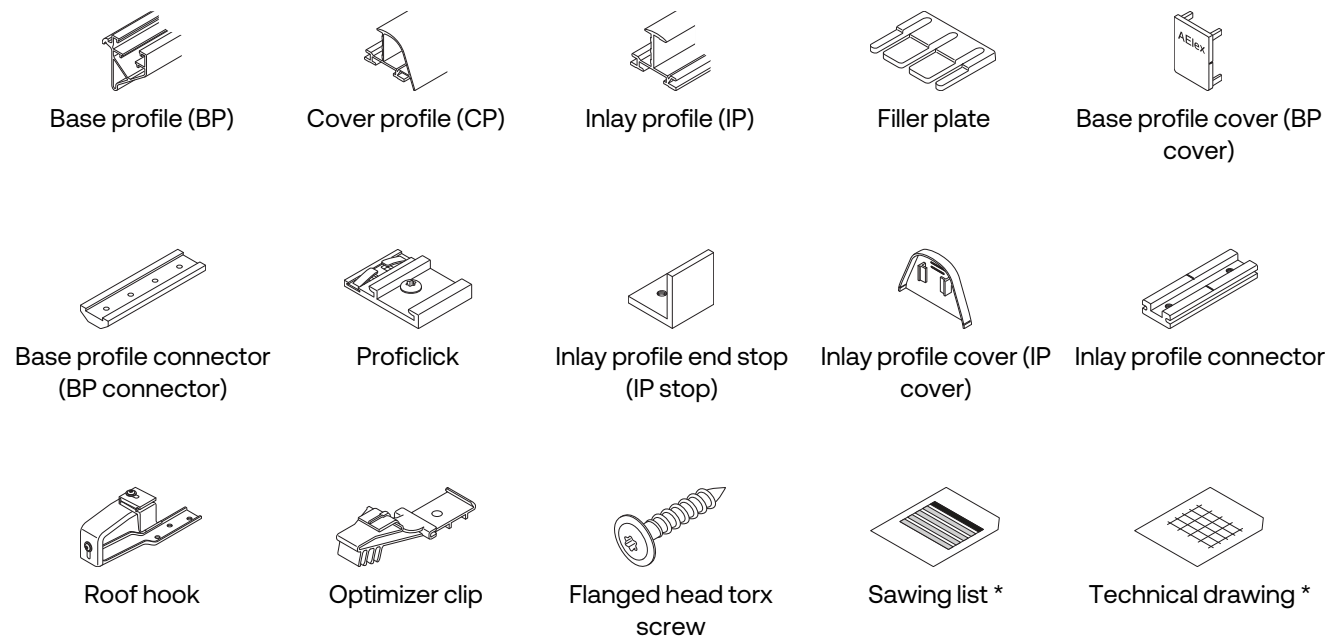
### 3.2 Technical data

Parameter	Value
Product name	Aelex inlay mounting system for tiled roofs
Application	Inlay mounting system for installing PV modules on tiled roofs
Type	Aelex
Technical service life	20 years
Material	Aluminium, stainless steel, and plastic
Weight	+ Depending on project + System parts are packed in packages of up to 25 kg
Profile lengths	Maximum 6.2 m per profile
Temperature range for storage	+10 °C to +60 °C
Relative humidity before storage	0% to 95%

### 3.3 Supplied parts

The Aelex configurator will calculate the supplied quantities of each part depending on system configuration.

The Aelex inlay mounting system for tiled roofs comprises the following parts:



\* The *Aelex configurator* will provide a technical drawing and a sawing list once you have finished planning your project. These are not delivered with the system.

# 4 Preparations

## 4.1 Storage and transport

### **⚠ WARNING**

- + Never place any objects on or against any parts of the system to prevent deformation or damage.
- + Particular care is required when handling black profiles to avoid damage to the coating.
- + Always ensure that the system's parts are properly secured to prevent sliding of the load and damage during transport.
- + Use only approved lifting gear suitable for the material to be lifted and moving to the roof.
- + The profiles must never be submerged in water or come into contact with any moisture during storage. Observe the temperature and humidity requirements during according to the table under *Technical data*.

## 4.2 Unpacking the system

### **⚠ WARNING**

#### **Avoid damage to the profiles and parts:**

- + Do not remove the protective packaging until the system is installed.
- + Do not use any knives or other sharp objects to open or remove the packaging materials.

#### **When unpacking the system:**

1. Remove all transport and packaging materials.
2. Dispose of all transport and packaging materials in accordance with the instructions in *8.2 Waste disposal*.
3. Check the content of the delivery against the project plan. Contact the supplier if any parts are missing.
4. Check the product for damage. Contact the supplier without installing the system if there is visible damage or any manufacturing defects.
5. Check that the dimensions of the supplied parts match the sawing list and the technical drawing.



### 4.3 Installation conditions

#### **⚠ WARNING**

- + Do not install the inlay mounting system in any strong wind, snow, on wet (slippery) roof surfaces, with insufficient light, subject to extreme heat or any other conditions that make safe working impossible.
- + Always use fall protection and, if necessary, safety nets and edge protection while working on roofs.

# 5 Installation of the Aelex inlay mounting system for roof tiles

## **⚠ WARNING**

- + The Aelex inlay mounting system should only be installed and serviced by authorised and competent installers who have read and understood the content of this installation manual.
- + The system must not be installed if any damage or manufacturing defects such as bent roof hook clips or improperly tapped holes are present. Contact the supplier in this case.

## **5.1 Important information on wind zones and wind loads**

### 5.1.1 Additional installation requirements for wind zones and wind loads in the Netherlands

Additional conditions in accordance with NEN-EN 1991-14 apply to PV systems that are installed in coastal areas. Buildings are deemed located in coastal areas if they are less than ten times their height away from water.

#### **Additional requirements when installing the system:**

- + All buildings that are less than or equal to fifty times the building height away from open water must be reviewed by Aelex.
- + Note the maximum building heights for installing a system with PV panels:
  - + in wind zone 1: maximum height 10 m;
  - + in wind zones 2 and 3: maximum height 15 m.
- + Observe the sloping angle of the roof and install Aelex locking rings if necessary to prevent PV panels from being blown away:
  - + in wind zone 1: install locking rings if the sloping angle is steeper than 20°;
  - + in wind zones 2 and 3: install locking rings if the sloping angle is steeper than 15°.



#### **NOTICE**

Contact the supplier of the Aelex inlay mounting system for instructions and materials for installing locking rings.

- + Always contact the supplier for advice before installing the system in situations where tall buildings or wind turbines that may affect wind pressure are located nearby.

## 5.1.2 Additional installation requirements for wind zones and wind loads in the Belgium

Additional conditions in accordance with NEN-EN 1991-14 apply to PV systems that are installed in coastal areas. Buildings are deemed located in coastal areas if they are less than ten times their height away from water.

### Additional requirements when installing the system:

- + All buildings that are less than or equal to fifty times the building height away from open water must be reviewed by Aelex.
- + Note the maximum building heights for installing a system with PV panels:
  - + in wind zone 26 m/s: maximum height 10 m;
  - + in wind zones 23, 24, and 25 m/s: maximum height 15 m.
- + Observe the sloping angle of the roof and install Aelex locking rings if necessary to prevent PV panels from being blown away. Install locking rings if the sloping angle is steeper than 15°.



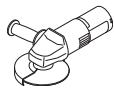
#### NOTICE

Contact the supplier of the Aelex inlay mounting system for instructions and materials for installing locking rings.

- + Always contact the supplier for advice before installing the system in situations where tall buildings or wind turbines that may affect wind pressure are located nearby.

## 5.2 Required tools

Ensure that the following tools are present:



Grinder



Screwdriver



Measuring tape



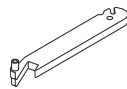
Hex key 3



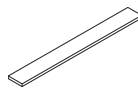
Bit torx 25



Bit Torx 40



Aelex IP bender



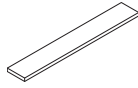
Measuring stick (make your own) with length indication:  
PV panel height minus 58 mm



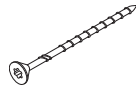
Rope or masonry cord

## 5.3 Required mounting material (optional, to be provided by the installer)

Ensure that the following mounting hardware is present:



Plywood strip  
(plywood 18 mm,  
800 mm x 120 mm)



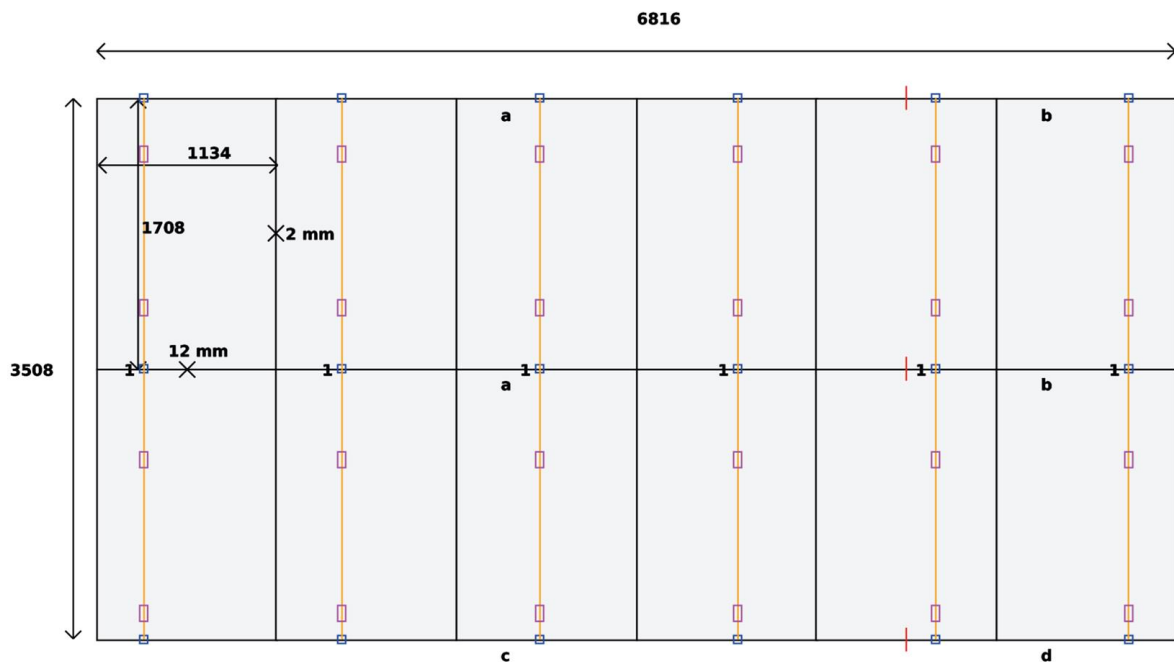
Wood screw Torx 25  
(5.5 x 50)

## 5.4 Taking system measurements

The Aelx configurator will provide a technical drawing and a sawing list once the project is planned out. This is necessary to measure the system and saw any required profiles to the correct lengths.

### 5.4.1 Performing system measurements on the roof

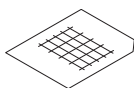
The letters and digits in the technical drawing correspond to the letters and digits in the sawing list. The technical drawing indicates the locations of the respective profiles.



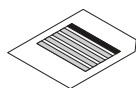
*Example of a technical drawing*



**Required parts:**



Technical drawing



Sawing list





**Required tools:**



Measuring tape

**When taking system measurements on the roof:**

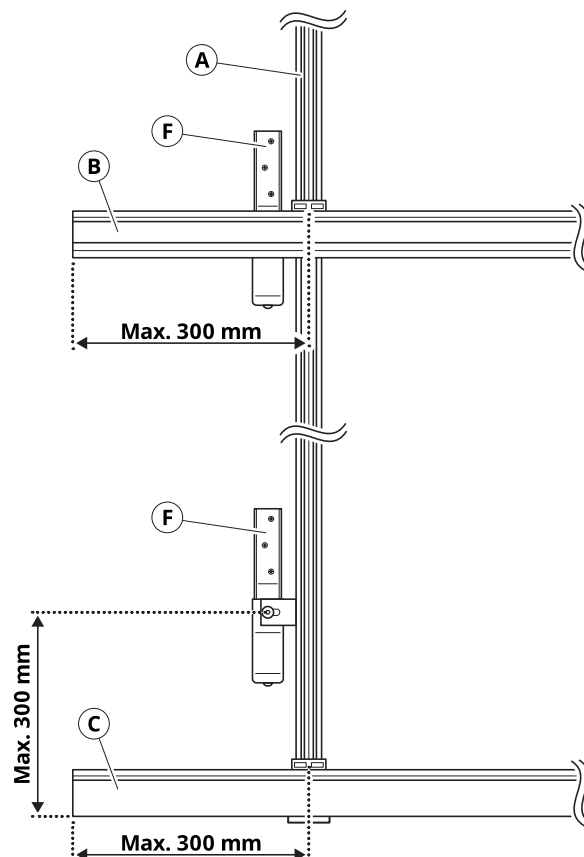
- + Take measurements for the system on the roof and remove roof tiles where the roof hooks are to be placed.



**NOTICE**

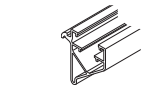
Base profiles should not protrude by any more than 300 mm at the ends, measured from their attachment points on the roof hook.

- + Inlay and cover profiles may protrude by up to 300 mm at the ends, measured from the proficlick centre.



## 5.4.2 Sawing profiles to size

### Required parts:



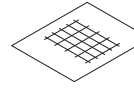
Base profile (BP)



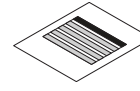
Cover profile (CP)



Inlay profile (IP)

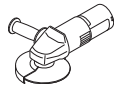


Technical drawing



Sawing list

### Required tools:



Grinder



Measuring tape

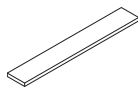
Take the sawing list and saw the profiles to size if this has not been done yet. The letters and digits from the sawing list correspond to the letters and digits on the technical drawing. The sawing list indicates the lengths of the respective profiles.

*Example of a sawing list*

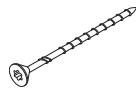
Type	Number	Length (mm)
a	ALX01573 - Aelex inlay profile 40 mm black L = 5.2 m	4 5200
b	ALX01573 - Aelex inlay profile 40 mm black L = 5.2 m	4 3135
c	ALX01572 - Aelex cover profile 40 mm black L = 5.2 m	1 5200
d	ALX01572 - Aelex cover profile 40 mm black L = 5.2 m	1 3135
1	ALX01576 - Aelex base profile 40 mm black full length = 5.2 m	8 4124

## 5.5 Mounting the plywood strips

### Required parts:



Plywood strip  
(plywood 18 mm,  
800 mm x 120 mm)



Wood screw Torx 25  
(5.5 x 50)



**Required tools:**



Screwdriver



Measuring tape



Bit torx 25

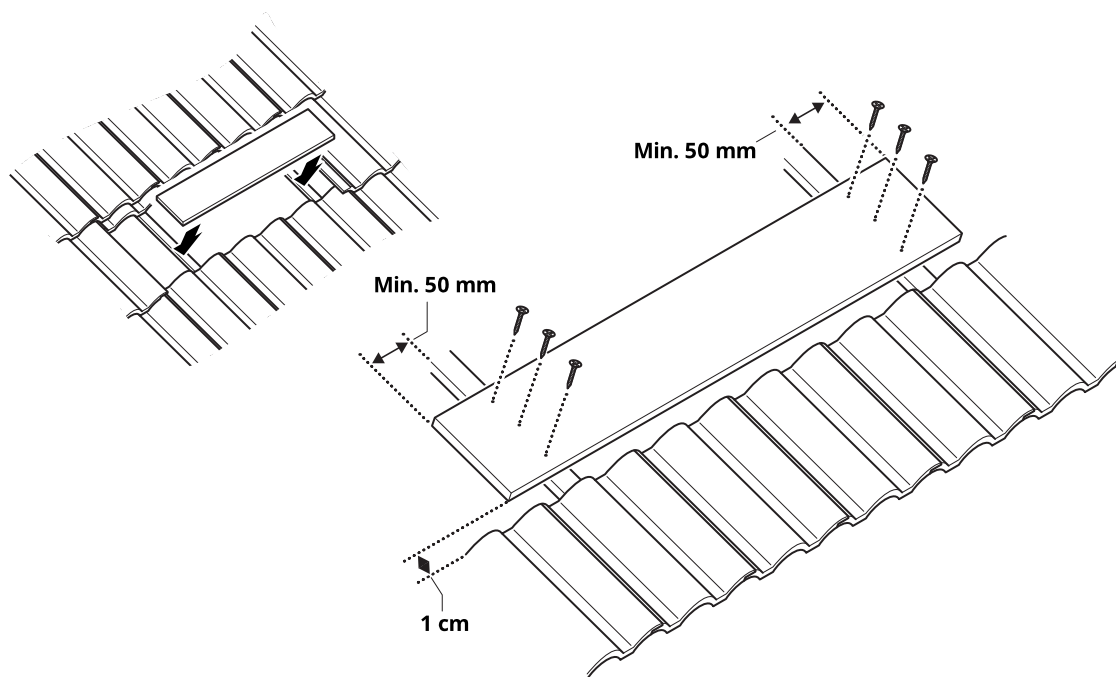
**When mounting the plywood strips:**

1. Mount the first **plywood strip**, on two battens at the bottom left. Use three wood screws per batten.



**NOTICE**

Ensure that the plywood strip extends by no less than 50 mm from the outside of the battens and is fastened about one centimetre from the lowest roof tile.

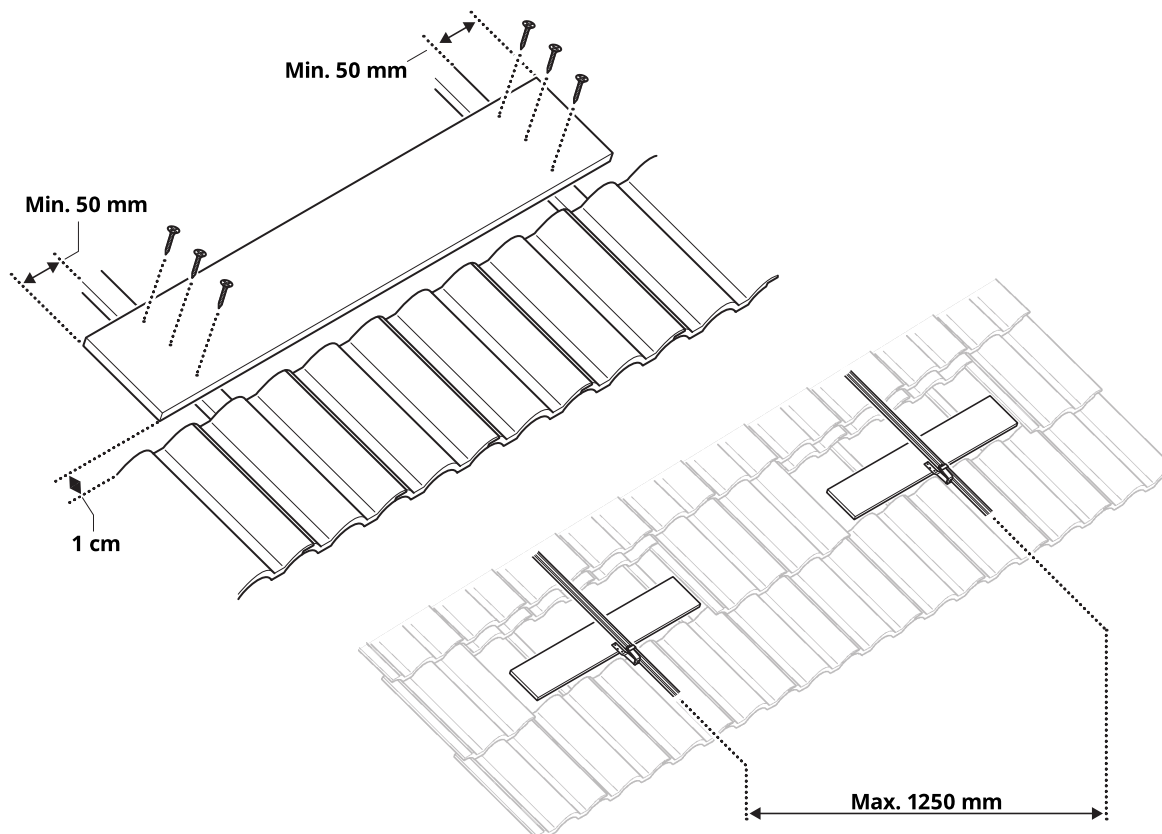


2. Mount the remaining **plywood strips** of the bottom row. Use three wood screws per batten.



**NOTICE**

Ensure that the plywood strip extends by no less than 50 mm from the outside of the battens and is fastened about one centimetre from the lowest roof tile. Consider the maximum horizontal distance of 1250 mm between the base profiles when mounting the plywood strips. Also consider the roof hook position. It should be mounted on the plywood strip between the two battens.

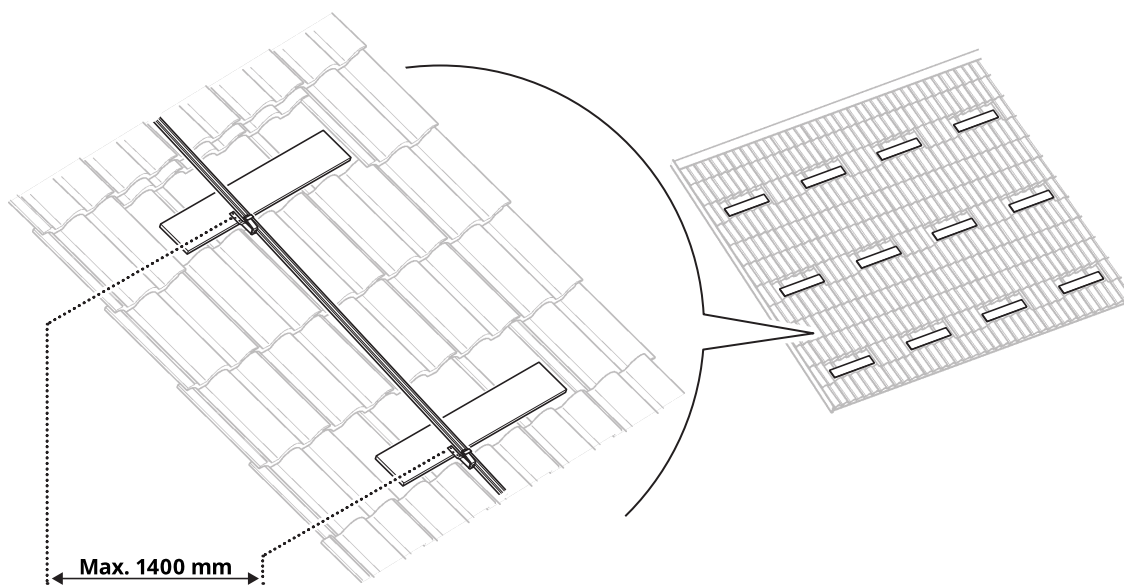


3. Mount the remaining rows of **plywood strips**. Use three wood screws per batten.



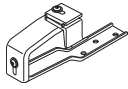
**NOTICE**

Ensure that the plywood strip extends by no less than 50 mm from the outside of the battens and is fastened about one centimetre from the lowest roof tile. Consider the maximum vertical distance of 1400 mm between the roof hooks when mounting the remaining plywood strips.

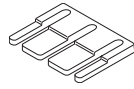


## 5.6 Mounting and adjusting the roof hooks

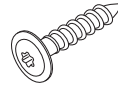
### Required parts:



Roof hook

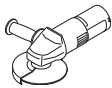


Filler plate



Flanged head torx screw

### Required tools:



Grinder



Screwdriver



Measuring tape



Bit Torx 40



Rope or masonry cord

### 5.6.1 Mounting the roof hooks

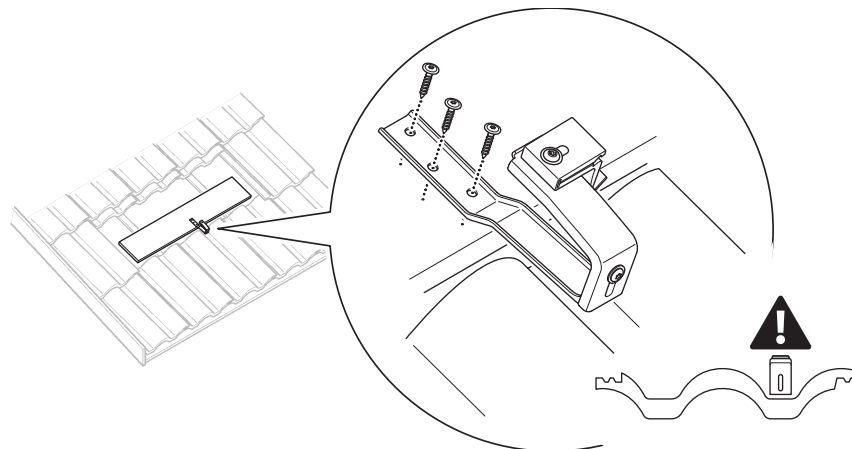


#### NOTICE

- + Ensure that the mounted roof hooks are just above the roof tiles. Use a filler plate (to fill 4 mm or 8 mm) and place the roof tile to check if necessary.
- + Observe the following items when mounting the roof hooks:
  - + maximum horizontal distance of 1250 mm between the base profiles;
  - + maximum vertical distance of 1400 mm between the roof hooks.
- + Consider the roof hook position. It should be mounted on the plywood strip between the two battens.

#### When mounting the roof hooks:

1. Mount the first **roof hook** in the valley of the roof pan wave *at the bottom left*.

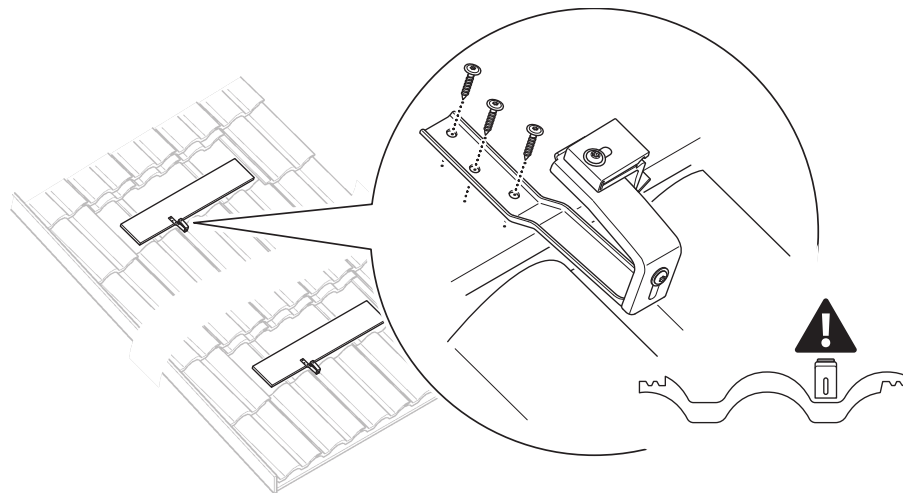


2. Mount the second **roof hook** in the valley of the roof pan wave *at the top left*.



**NOTICE**

Ensure that the roof hook is mounted precisely vertically above the first one. Use a fixed measuring point, such as the side of a roof tile, as a reference.



3. Mount the intermediate **roof hooks**.



**NOTICE**

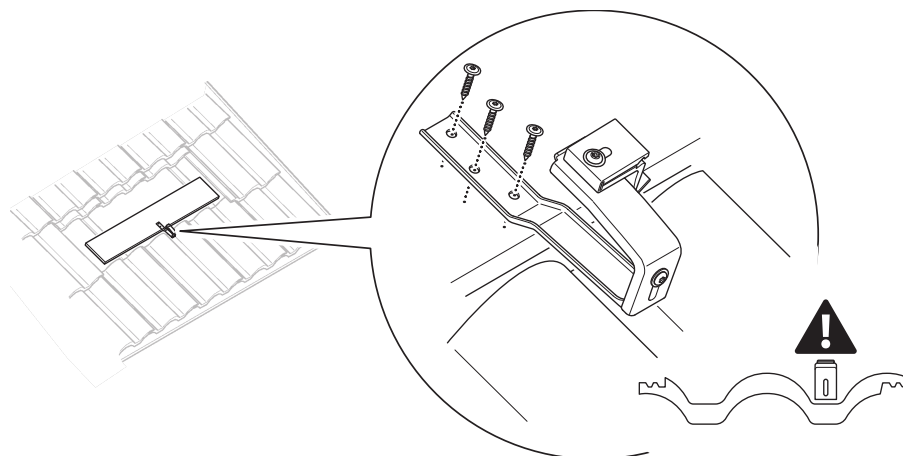
Align them with the help of a rope/masonry cord.

4. Mount a **roof hook** in the valley of the roof pan wave *at the bottom right*.



**NOTICE**

Ensure that the roof hook is mounted at the same height as the roof hook at the bottom left horizontally. Use a fixed measuring point, such as the bottom of a roof tile, as a reference.

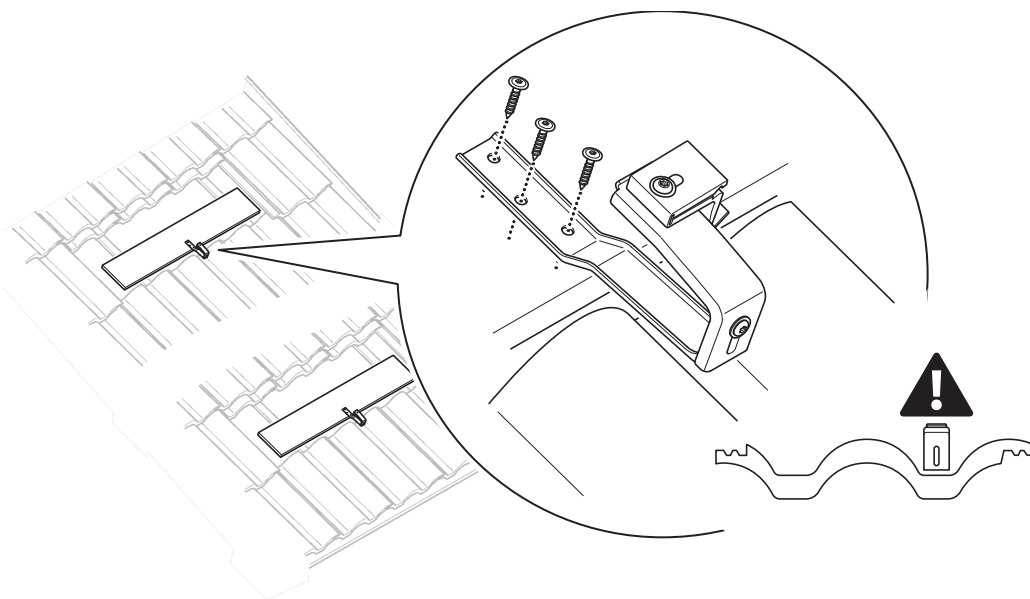


5. Mount a **roof hook** in the valley of the roof pan wave *at the top right*.



**NOTICE**

Ensure that the roof hook is mounted precisely above the roof hook on the bottom right vertically and at the same height as the roof hook on the top left horizontally. Use a fixed measuring point, such as the side of a roof tile, as a reference.

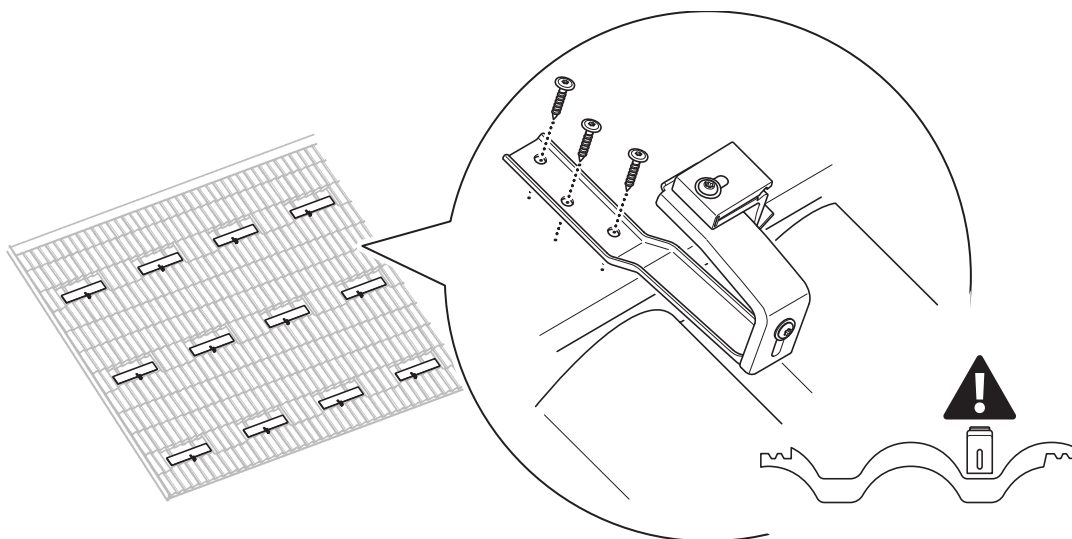


6. Mount the remaining **roof hooks**.



**NOTICE**

Properly align the roof hooks both horizontally and vertically using a rope/masonry cord.

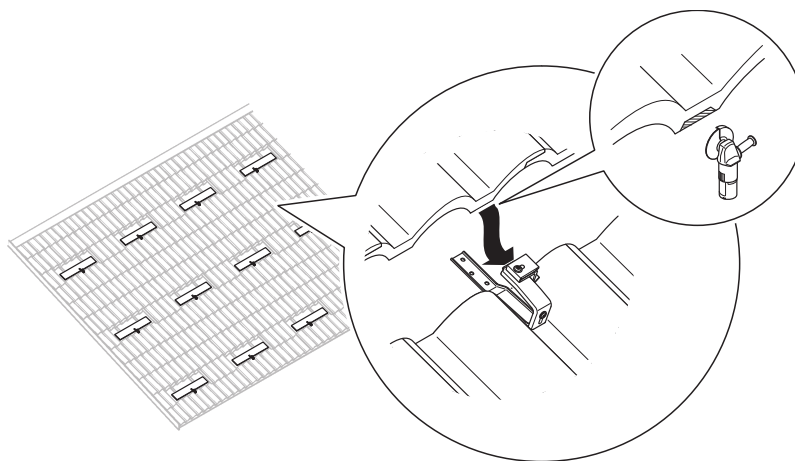


7. Place the roof tiles.



**NOTICE**

Grind away some material at the bottom of the roof tile if the roof tile is open too far.



### 5.6.2 Adjusting the roof hook heights

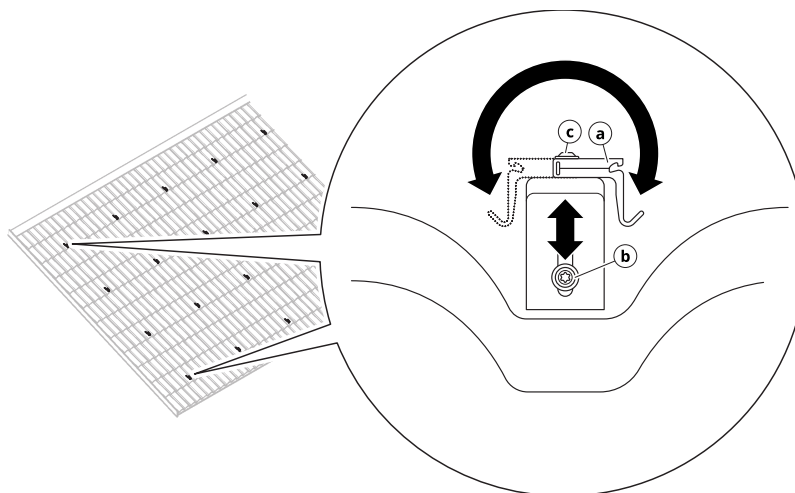
1. Adjust the **roof hooks** to the same height at the four corners.
  - a. Loosen the **screw** ⑥ slightly, adjust the **roof hook** to the correct height, and tighten again the **screw** securely.



**NOTICE**

Use a fixed measurement point, such as the distance to the roof tile, as a reference. Use a fixed measuring point, such as the bottom of a roof tile, as a reference.

- b. If necessary, loosen the **screw** ⑦ slightly and turn the **roof hook clip** ⑧ to the other side.





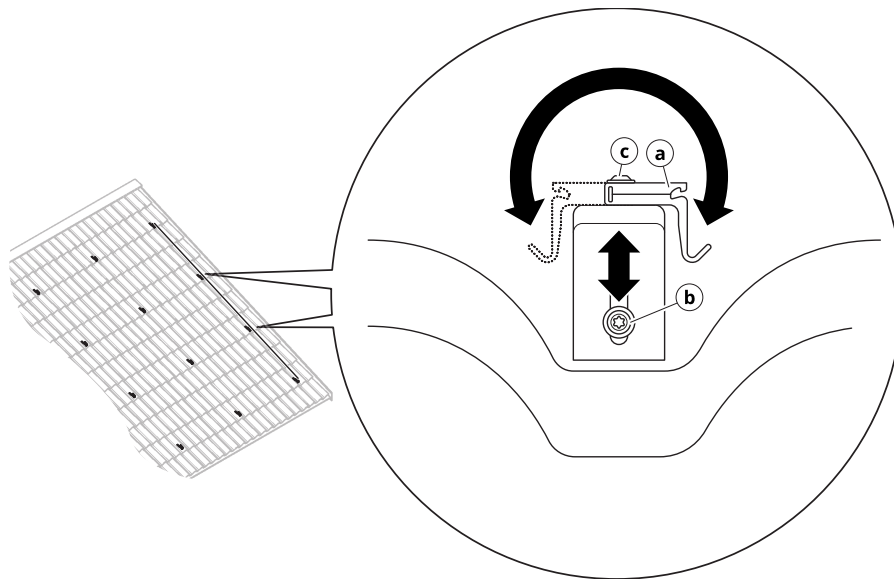
2. Adjust the **roof hooks** in the outer vertical rows to the correct height.
- Loosen the **screw** ⑥ slightly, adjust the **roof hook** to the correct height, and tighten the **screw** again securely.



**NOTICE**

Align the roof hook heights using a rope/masonry cord.

- If necessary, loosen the **screw** ⑦ slightly and turn the **roof hook clip** ⑧ to the other side.



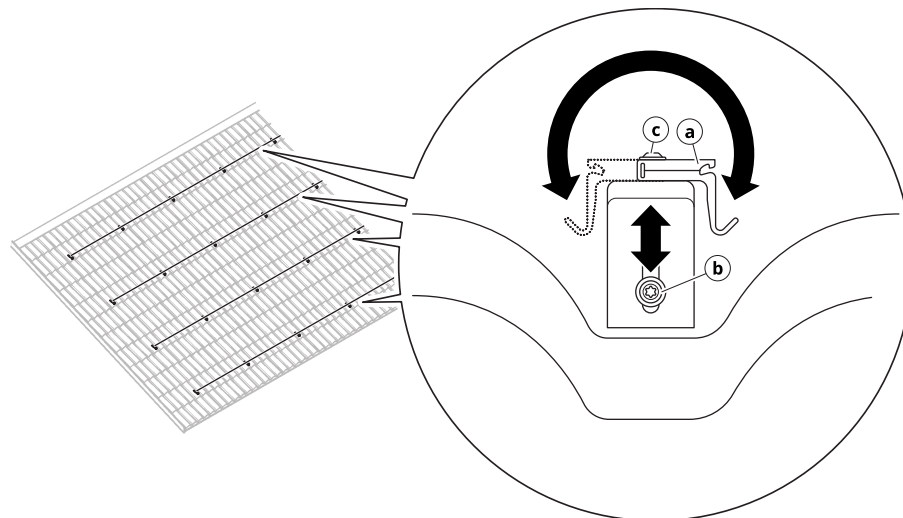
3. Adjust the **roof hooks** in the horizontal rows to the correct height.
- Loosen the **screw** ⑥ slightly, adjust the **roof hook** to the correct height, and tighten the **screw** again securely.



**NOTICE**

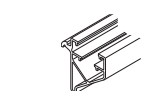
Align the roof hook heights using a rope/masonry cord.

- If necessary, loosen the **screw** ⑦ slightly and turn the **roof hook clip** ⑧ to the other side.

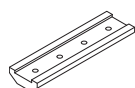


## 5.7 Connecting and mounting the base profiles

### Required parts:



Base profile (BP)



Base profile connector (BP connector)



Base profile cover (BP cover)

### Required tools:



Screwdriver



Bit Torx 40



Hex key 3



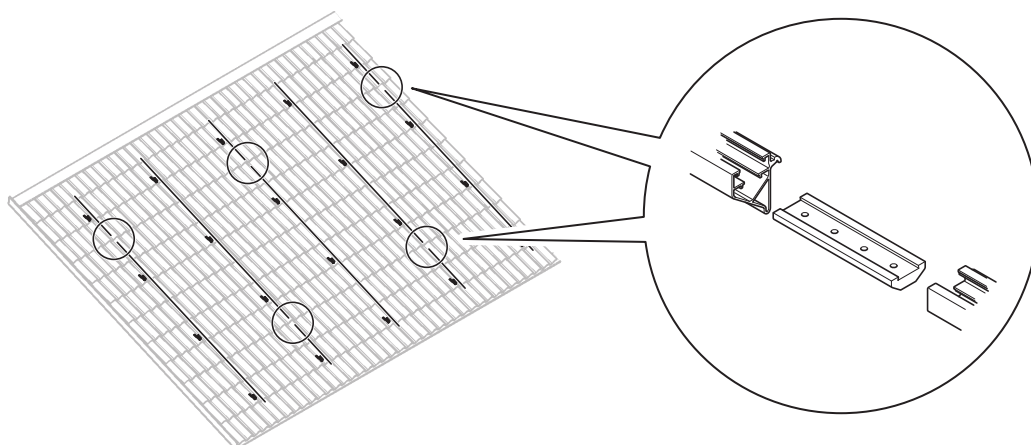
Measuring tape

### 5.7.1 Connecting the base profiles (if necessary)

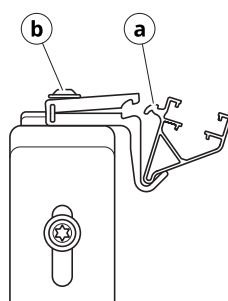


#### NOTICE

- + The connector positions should alternate between top and bottom when the base profiles are mounted to the roof hooks to preserve the strength of the structure.
- + The base profile has a tab on one side that will click into the roof hook. Ensure that the alignment of the base profiles matches the position of the clips on the roof hooks when connecting the base profiles.
- + Ensure that the BP connector is evenly spread across the two profiles.
- + Mount the base profiles to the roof hook clips only after they have been connected. They cannot be connected anymore once the base profiles are attached to the roof hook clip.



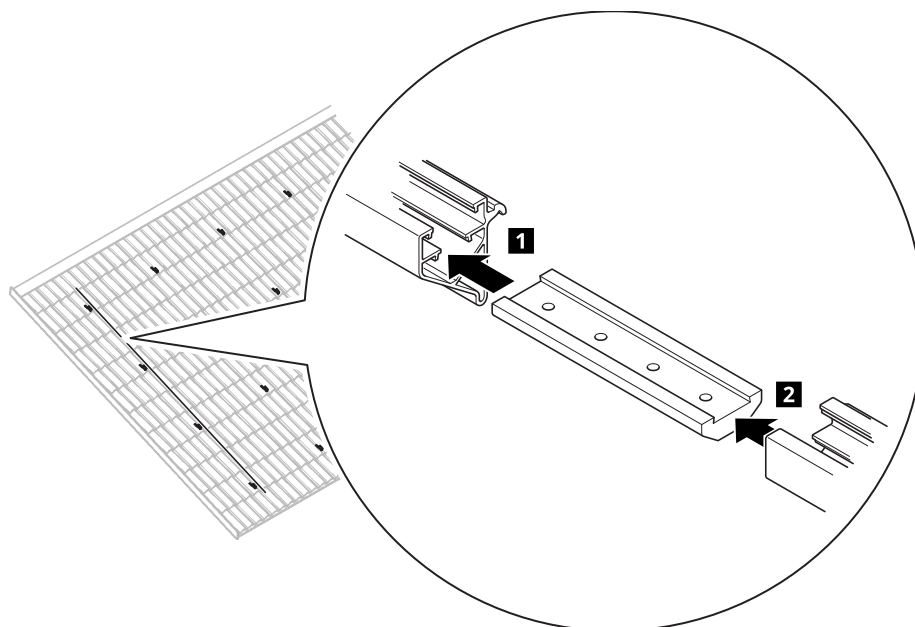
Example of staggered positions of the base profile connectors.



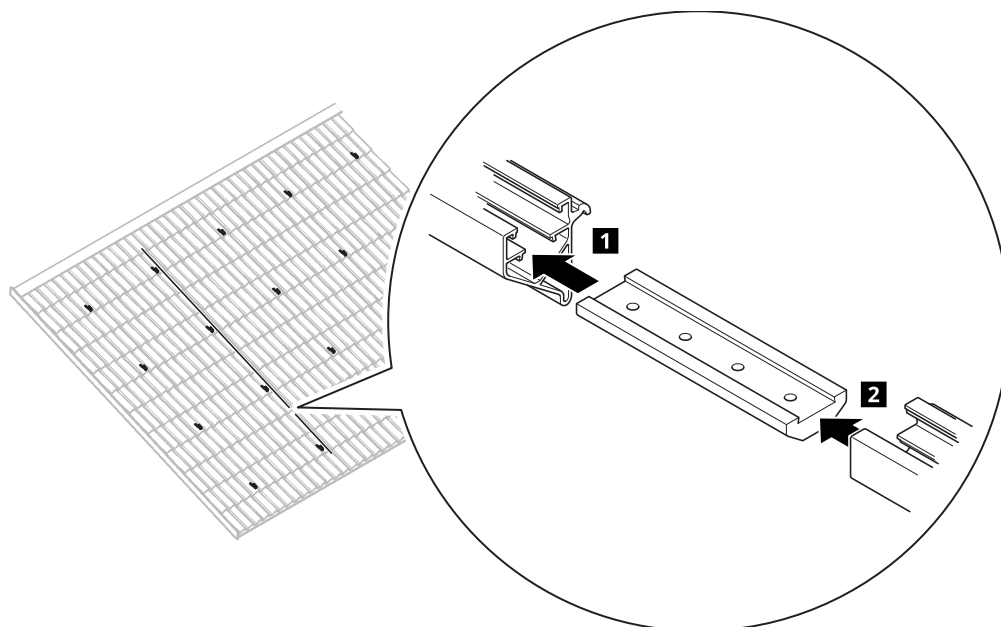
Example of the alignment of the tab @ on the base profile in relation to the roof hook clip @

**Connecting the base profiles (if needed):**

1. Connect the **base profiles** in the *far-left* position with a **BP connector**. Ensure that the connector is placed at the *top*. Tighten all screws on the **BP connector**.



2. Connect the **base profiles** in the subsequent position with a **BP connector**. Ensure that the connector is placed at the *bottom*. Tighten all screws on the **BP connector**.



3. Connect the **base profiles** for the remaining positions, alternating **BP connectors** at the top and bottom.

### 5.7.2 Mounting the base profiles



#### NOTICE

- + Base profiles should not protrude by any more than 300 mm at the ends, measured from their attachment points on the roof hook.
- + Mount the base profiles so that the connectors between the base profiles are alternately placed at the top and bottom of the system.

#### When mounting the base profile:

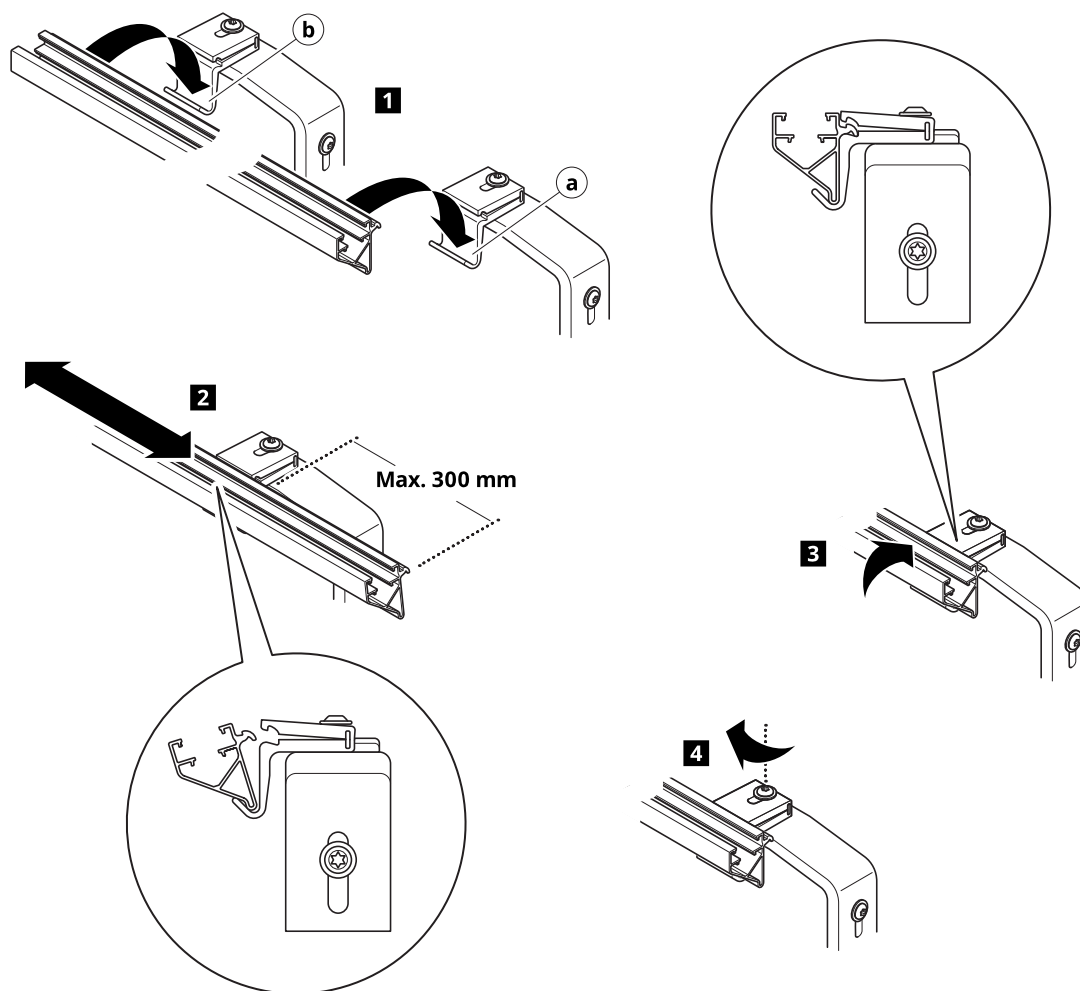
1. Measure the *outer base profiles* from a fixed line (e.g., the bottom of the roof tiles or the gutter) and mount them on the **roof hook clips**:
  - a. Insert the **base profile** into the **bottom hooks** ① of the **roof hook clips** ②.
  - b. Push the base profile to the correct height.



#### NOTICE

- The base profile must not protrude by any more than 300 mm at the ends, measured from the attachment point on the roof hook.
- c. Tilt the **base profile** towards the **roof hook clips** ② and ensure that the base profile engages in all **roof hook clips**.

d. Tighten the screws of the **roof hook clips** ③ to secure the **base profile**.



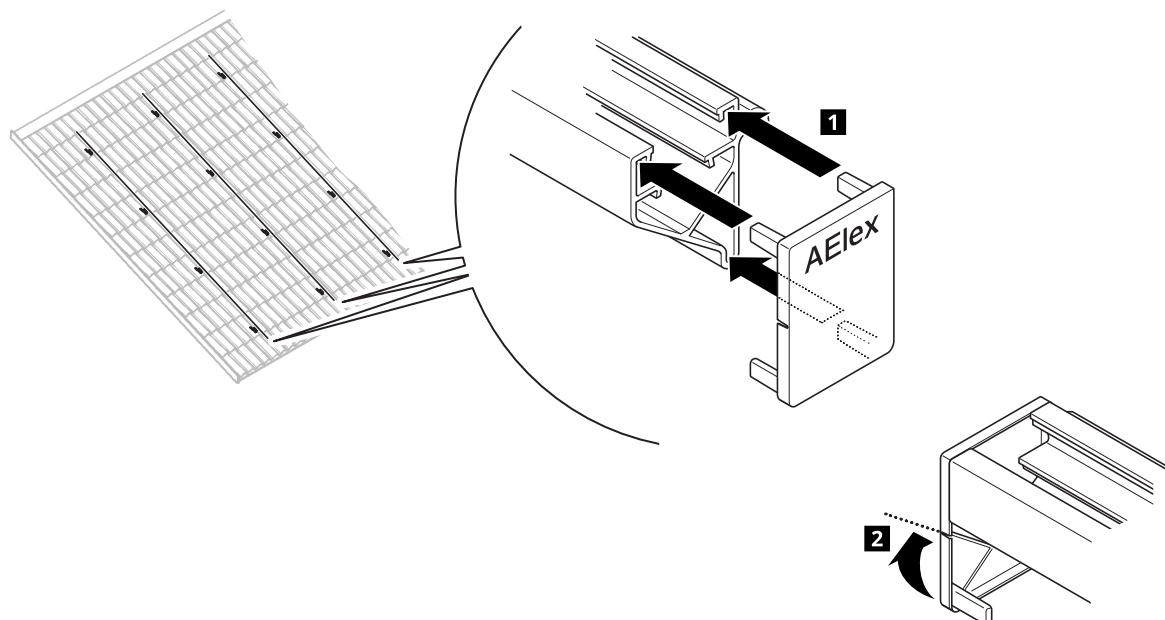
2. Mount the remaining **base profiles** in accordance with steps 1a to 1d.



**NOTICE**

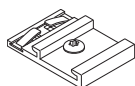
Align the base profile bottoms using a rope/masonry cord.

3. Mount the **BP covers** to the lower end of the **base profiles**. If desired, break the **BP cover** at an angle along the pre-cut line to make the **BP cover** follow the shape of the **base profile**.



## 5.8 Mounting the proficlicks

### Required parts:



Proficlick

### Required tools:



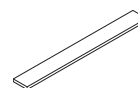
Screwdriver



Bit Torx 40



Measuring tape



Measuring stick  
(make your own)  
with length  
indication:  
PV panel height  
minus 58 mm

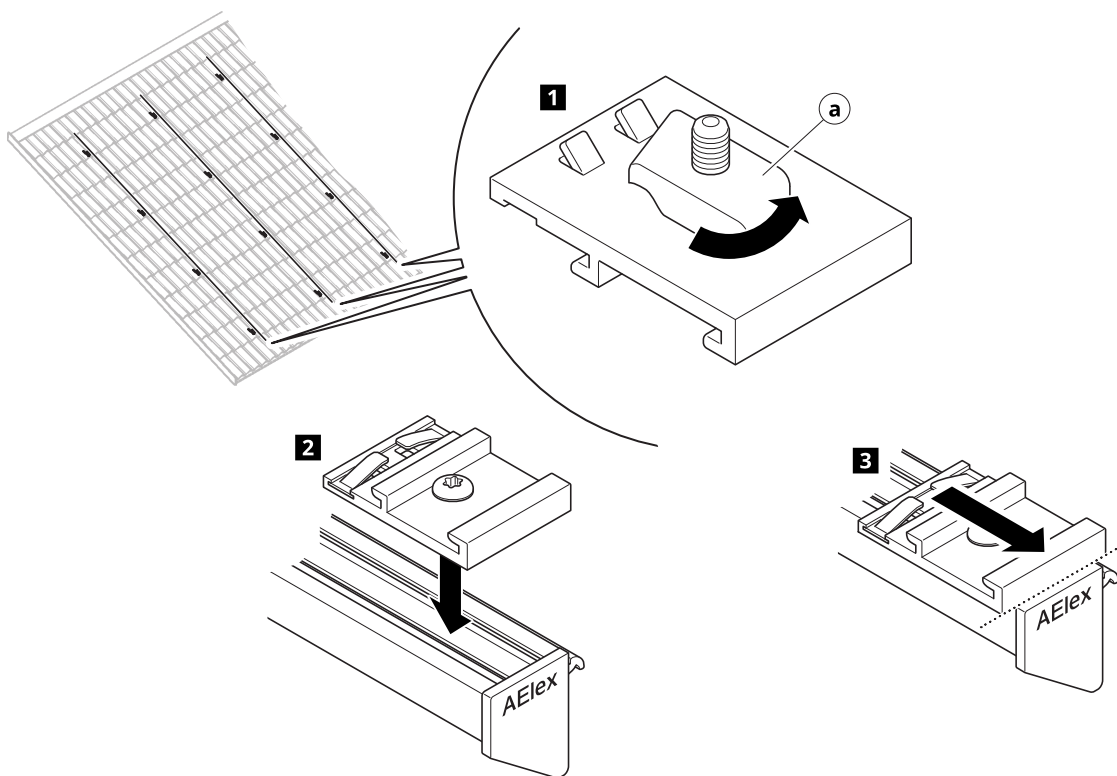
### When mounting the proficlicks:

1. Mount the bottom row of **proficlicks**:
  - a. Turn the **toggle nut** <sup>ⓐ</sup> until it is positioned vertically. Place the **proficlick** on the **base profile**. Ensure that the bottom of the **proficlick** is flush with the **base profile** bottom.



#### NOTICE

Align the proficlick heights using a rope/masonry cord.

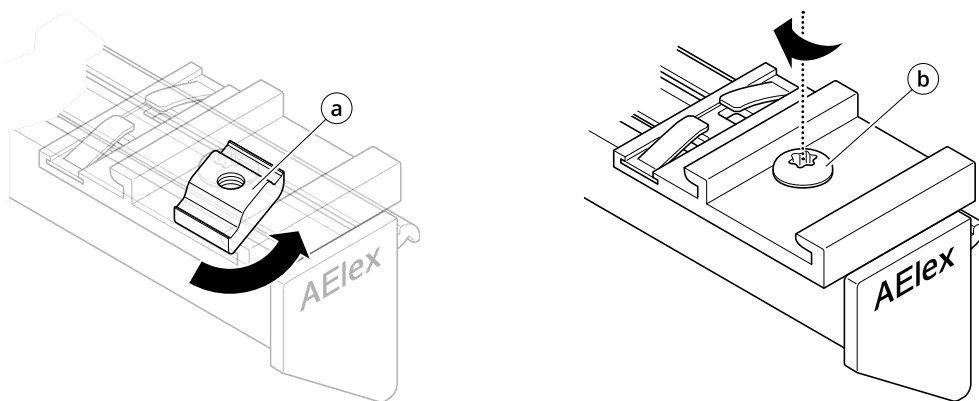


- b. Turn the **toggle nut** ⑩ at the back of the **proficlick** by 90° and tighten the **screw** ⑪ to a torque of 25 Nm to fasten the **proficlick** to the **base profile**.



**NOTICE**

Ensure that the toggle nut clamps the profile.

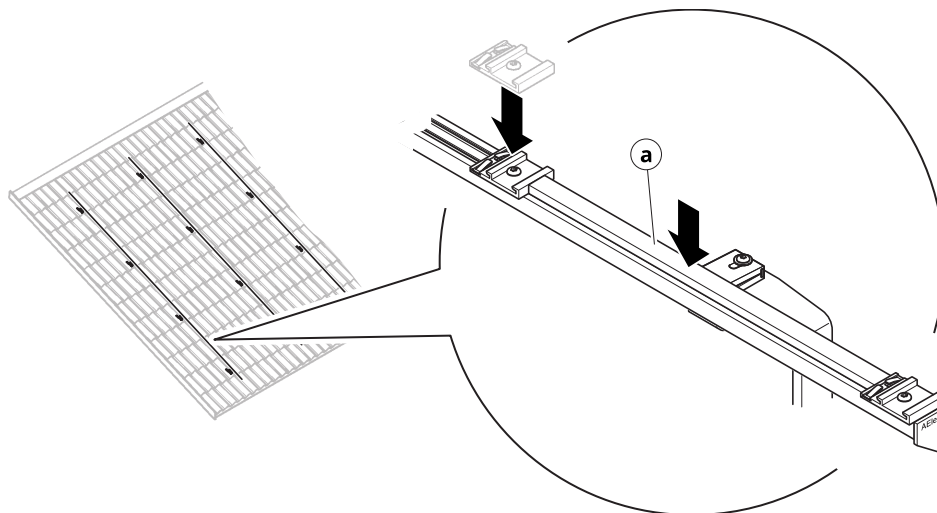


2. Mount the remaining rows of **proficlicks**. The vertical distance between the proficlicks equals PV panel height minus 58 mm.



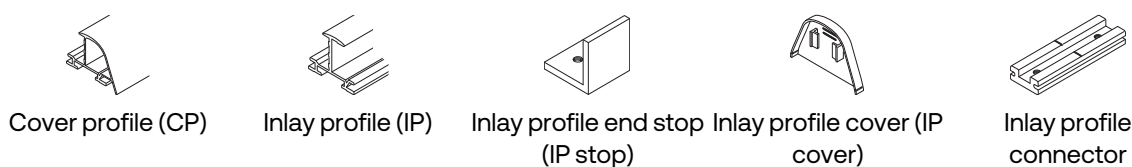
**INFO**

Prepare a measuring stick ⑩ to quickly measure the distance between the proficlicks. The length of the measuring stick equals the PV panel height minus 58 mm.



## 5.9 Connecting and mounting the cover and inlay profiles

### Required parts:



### Required tools:



### 5.9.1 Connecting the cover and inlay profiles (if required)

#### **NOTICE**

- + Remember thermal expansion of the cover and inlay profiles connecting more than two cover profiles or more than two inlay profiles.
- + Ensure that the inlay profile connector is evenly spread across the two profiles.
- + Connect the cover and inlay profiles before mounting them. They cannot be connected once the profiles are in the proficlicks.

A certain distance must be maintained between the connected profiles to permit thermal expansion and contraction (dilatation) depending on the temperature of the cover/inlay profiles during installation.

The expansion table indicates the spacing required at different profile temperatures.



### Expansion table

Distances between profiles, in case of a connected length of more than 12 metres (for cover profiles and inlay profiles)	
Profile processing temperature	Distance between two profiles (mm)
-10 °C	8
0°C	7
10°C	6
20°C	4
30°C	3
40°C	2
50°C	0

### When connecting the cover/inlay profiles:

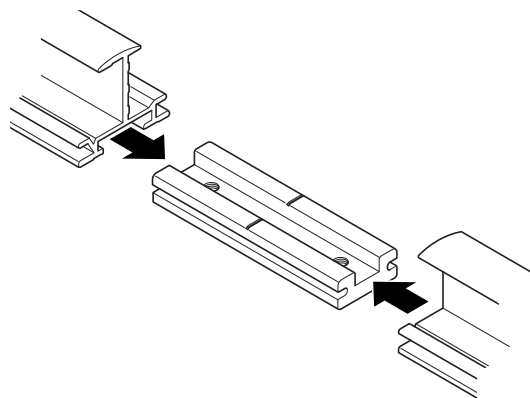
A. For lengths where two profiles must be connected:

1. Connect the profiles with an **inlay profile connector** and push the profiles against each other.

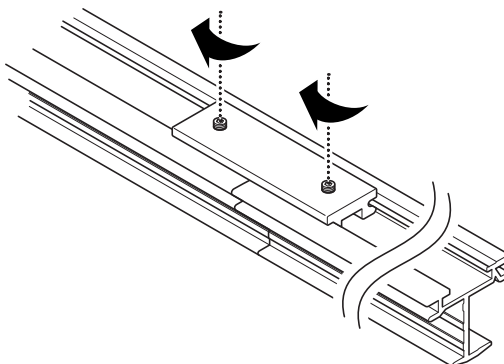


#### NOTICE

Ensure that the mark on the inlay profile connectors is always on the joint between the two profiles.

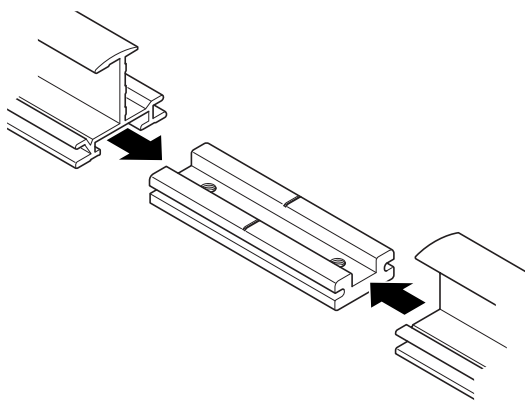


2. Tighten both screws of the **inlay profile connector**.



- B. For lengths where three or more profiles must be connected:

1. Check the profile temperature and check the expansion table for the distances to be maintained between the profiles.
2. Connect the profiles with an **inlay profile connector**.

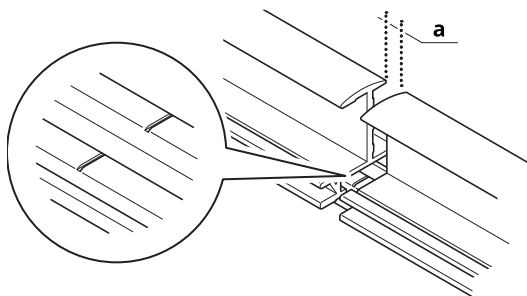


3. Adjust the **distance**  $\textcircled{a}$  between the profiles as shown in the expansion table.



**NOTICE**

Ensure that the mark on the inlay profile is half-ways between the two profiles.

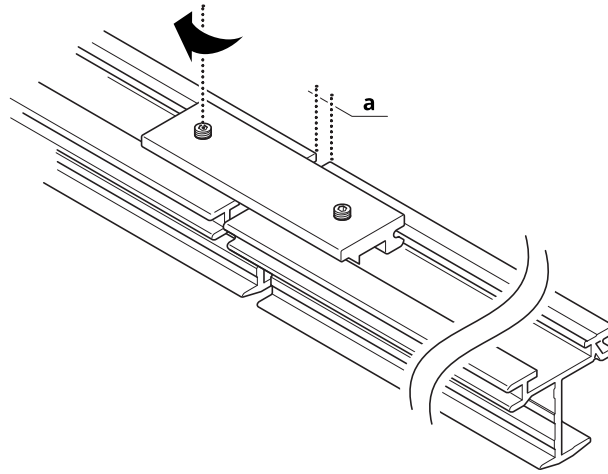


4. Tighten one screw of the **inlay profile connector**. Do not tighten the other screw.



#### NOTICE

Ensure that the inlay profile connector does not move while tightening the screw.



### 5.9.2 Mounting the cover and inlay profiles



#### NOTICE

- + Mount the cover and inlay profiles in accordance with the technical drawing:
  - + Mount the cover profiles on the bottom row of proficlicks.
  - + Mount the inlay profiles on the remaining rows of proficlicks.
- + Cover and inlay profiles may protrude by up to 300 mm at the ends, measured from the proficlick centre.
- + Mount the connected cover profiles and the connected inlay profiles so that the connection between the profiles is placed alternately on the left and right sides of the system.
- + Ensure that the profiles are properly snapped into all proficlicks.

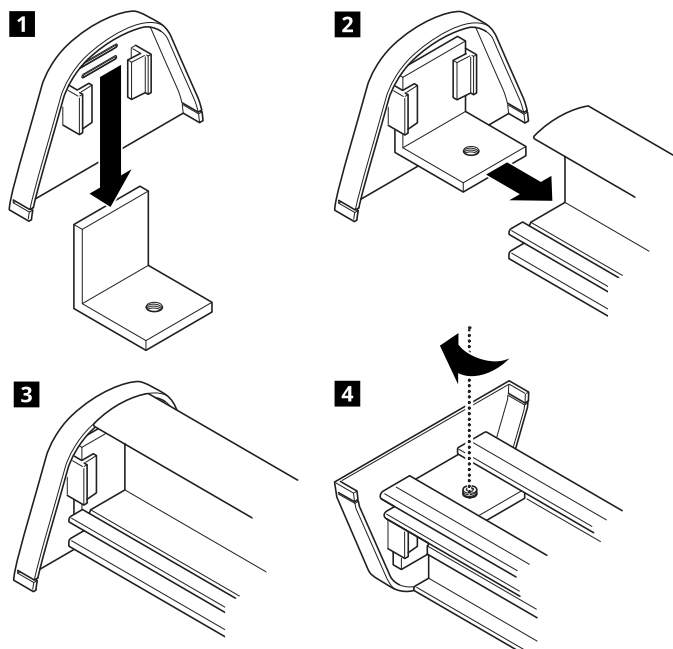
#### When mounting the cover/inlay profiles:

1. Push the **inlay profile cover** onto the **inlay profile end stop**.
2. Push the **inlay profile end stop** into the cover/inlay profile.
3. Ensure that the **insert cover** abuts against the end of the cover/inlay profile but does not overlap.
4. Securely tighten the **screw** © of the **inlay profile end stops**.



#### NOTICE

Ensure that the screw of the inlay profile end corner is tight. The inlay profile end stop prevents the PV panels from sliding out of the profiles due to expansion.

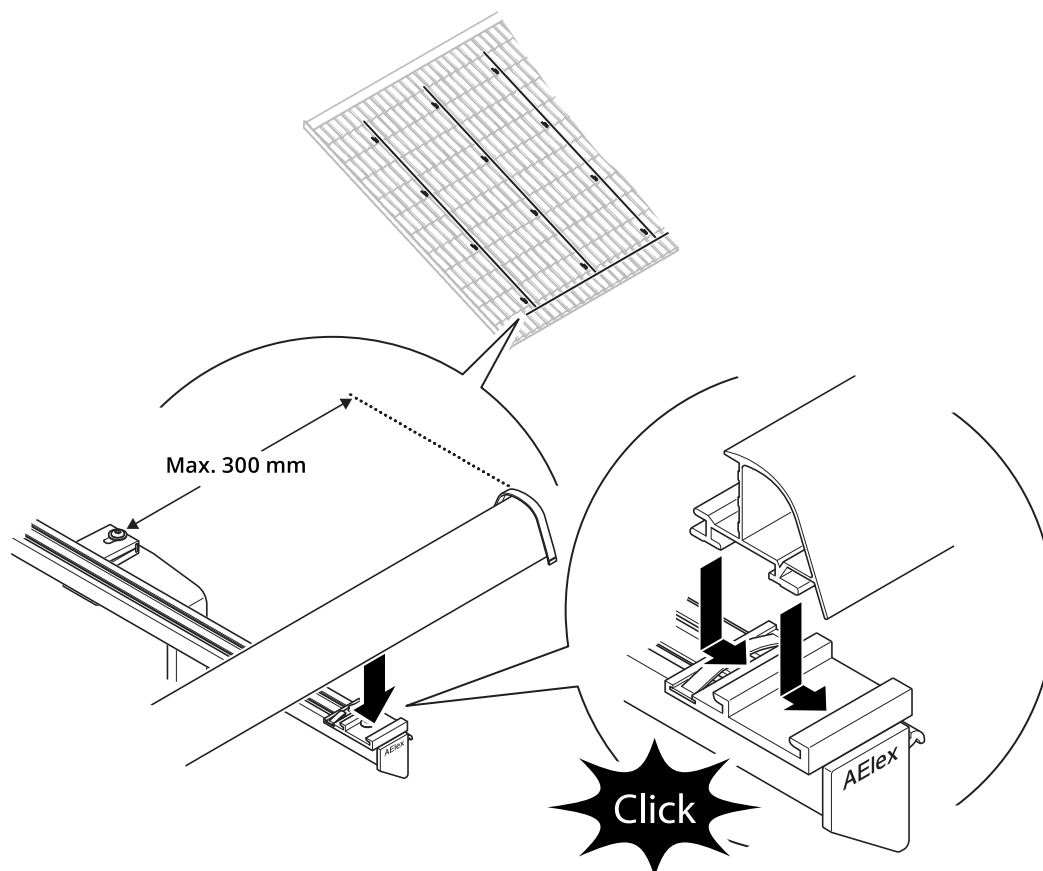


5. Push the (connected) **cover profile** into the bottom row of **proficlicks** from above.



**NOTICE**

The closed side of the cover profile must be on the side of the gutter.

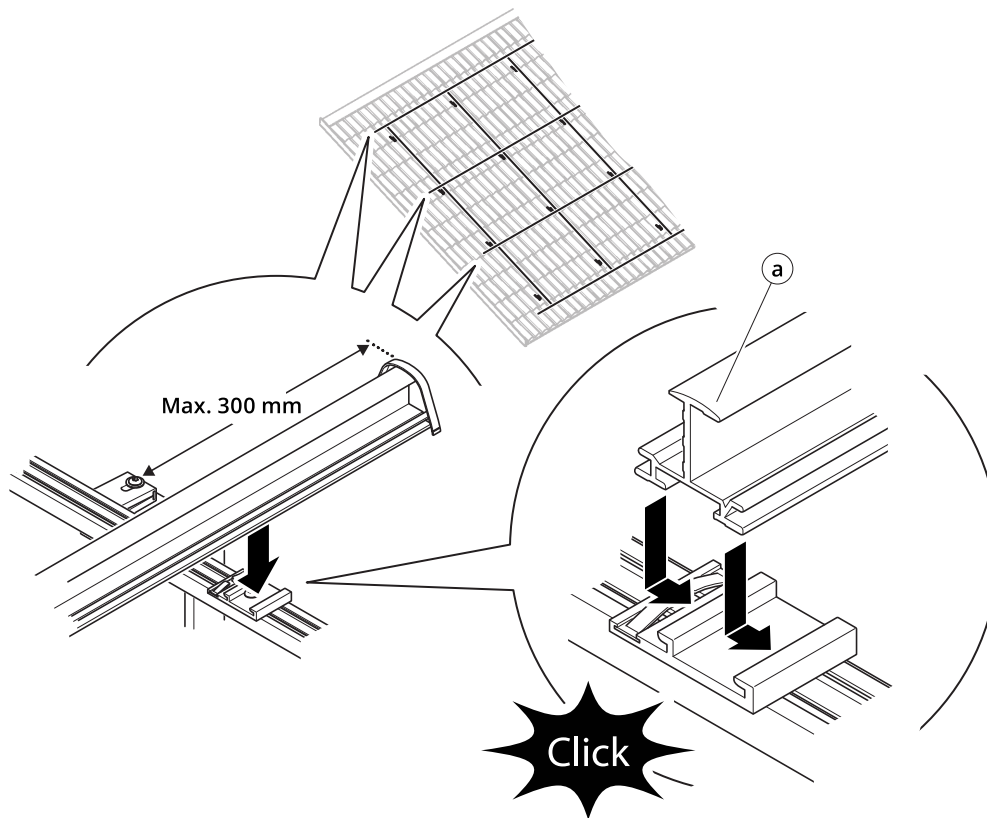


6. Push the (connected) inlay profiles into the remaining rows of **proficlicks** from above, with the **long tab** <sup>a</sup> on the gutter side.



**NOTICE**

The inlay profiles are asymmetrical. Closely observe the position of the long tab <sup>a</sup> ; it will be impossible to place the PV panels otherwise. Align the sides of the inlay profiles using a rope/masonry cord, a construction hook, or a PV panel.



### 5.9.3 Securing the cover and inlay profiles with the IP bender



**NOTICE**

Each cover and inlay profile must be secured with the IP bender to prevent the profiles from shifting due to thermal expansion and contraction.

**When securing the cover/inlay profiles with the IP bender:**

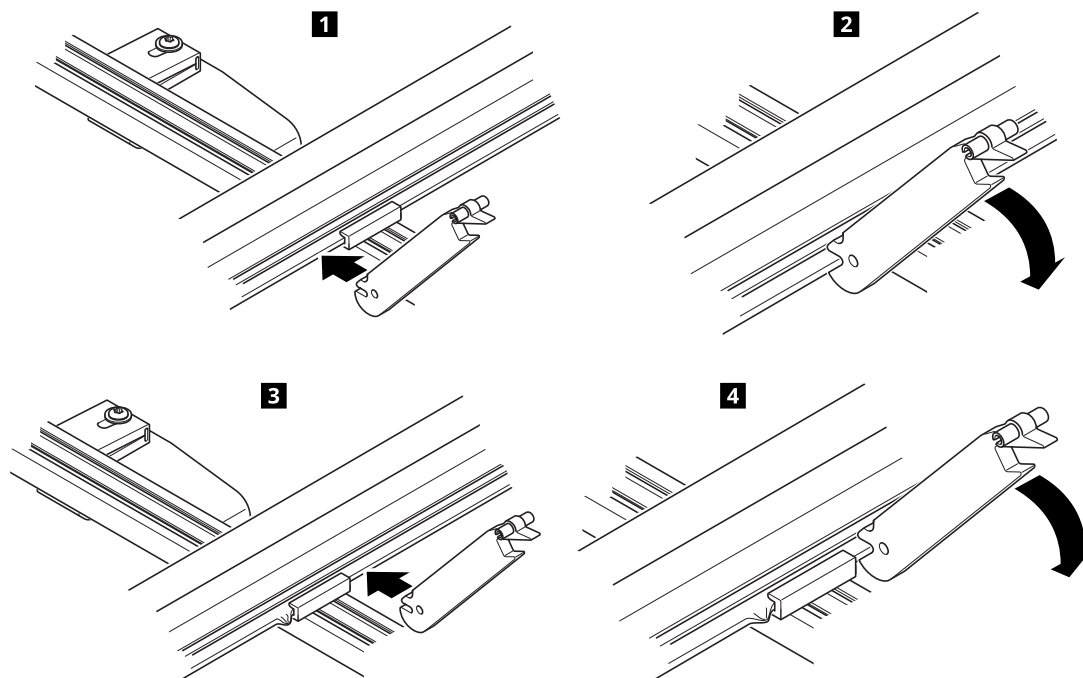
1. Determine the **proficlick** at the centre of each **cover/inlay profile**.



**NOTICE**

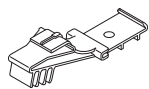
Connected cover profiles and connected inlay profiles comprise two or more individual profiles. In this case, secure each individual profile with the IP bender.

2. Deform each **cover/inlay profile** with the **IP bender** at the bottom at the left and right of the middle **proficlick**.



## 5.10 Mounting the optimizer clips

Required parts:



Optimizer clip

The optimizer clips are fitted to the bottom of the inlay profiles.

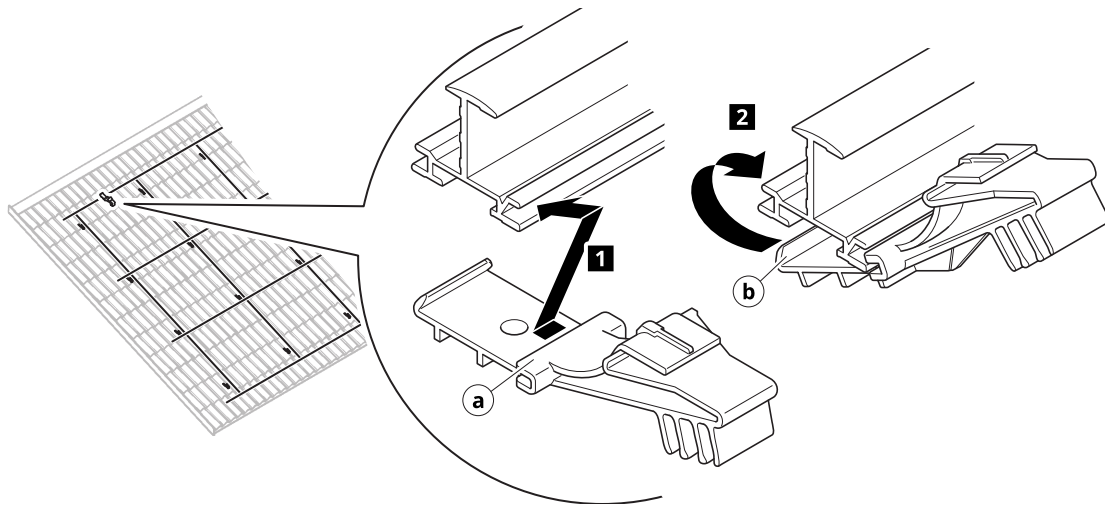
### When mounting the optimizer clips:

1. Place the optimizer clip along the bottom of the **inlay profile** and place the **recess** ① on the lower edge of the **inlay profile**.
2. Snap the **top** ② of the **optimizer clip** onto the top edge of the **inlay profile**.
3. Mount the optimizer on the **optimizer clip**.



### INFO

Use the cable clips at the bottom of the optimizer clip for proper cable management.

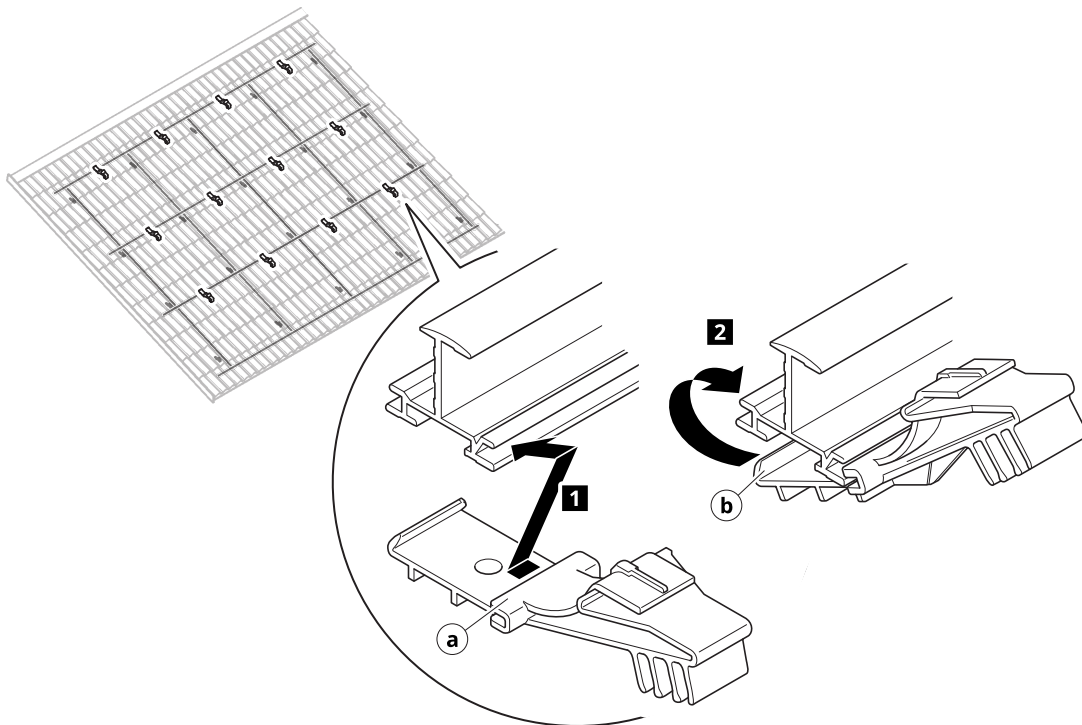


4. Mount the remaining **optimizer clips** and optimizers in accordance with steps 1 to 3.



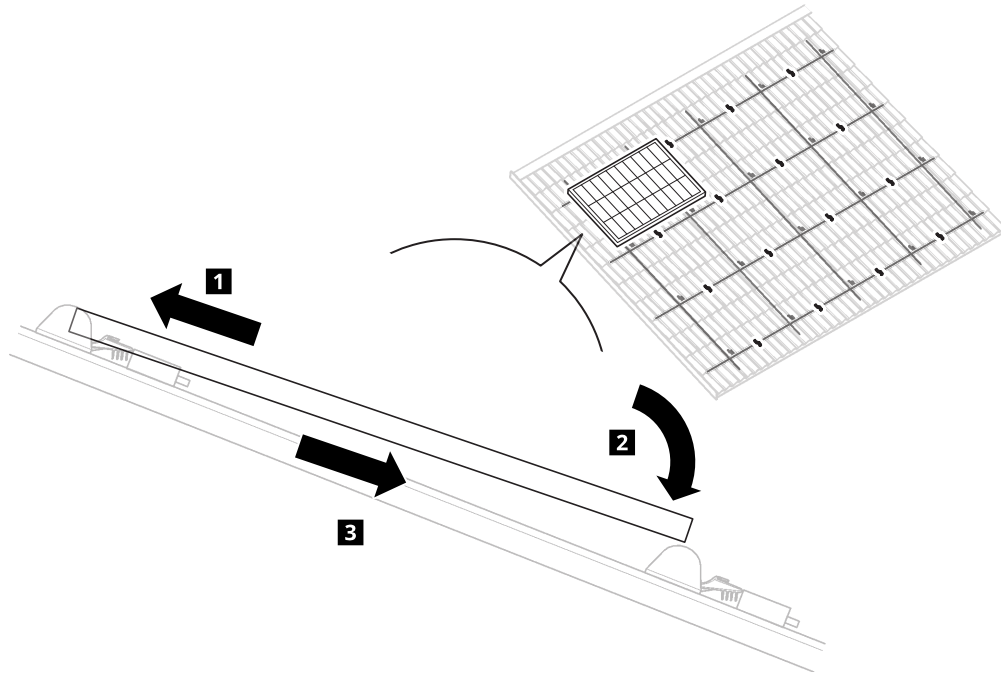
**INFO**

Place the string along with the optimizer string to avoid induction loops. The distances between optimizer clips are determined by the PV panels.



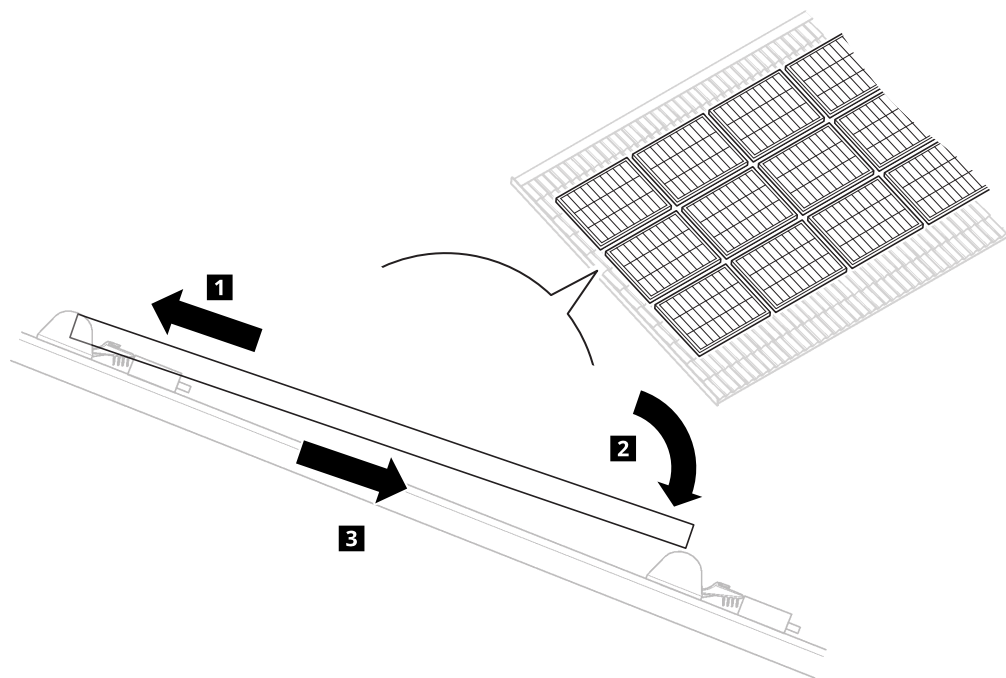
## 5.11 Placing the PV panels

1. Place the first PV panel at the top left:
  - a. Insert the first PV panel into the recess in the top **inlay profile**.
  - b. Push the PV panel all the way up and carefully lower it onto the lower insert or cover profile.
  - c. Slide the PV panel down until it is fully inserted into the recess of the **inlay or cover profile** at the bottom of the PV panel.



2. Place the remaining PV panels in accordance with step 1 and keep a clearance of 2 mm between them to allow for free expansion.





# 6 Maintenance and repair

## **⚠ WARNING**

**Repair or maintenance of the Aelex inlay mounting system should only be performed by an authorised and competent installer who has read and understood the contents of this installation manual.**

When servicing the Aelex inlay mounting system:

- + The Aelex inlay mounting system is maintenance-free. Contact the supplier if there are any issues.
- + During regular maintenance of the PV panels, ensure that:
  - + any leaves and other wind-borne materials are removed;
  - + any green deposits that may have formed are removed;
  - + any empty bird nests are removed.

# 7 Troubleshooting

Problem	Cause	Remedy
Connecting the cover/inlay profiles is impossible/difficult.	Trying to connect from a cover or inlay profile already attached in a roof hook clip or proficlick.	Connect the cover/inlay profiles before installing them in the roof hook clips or proficlicks.
Inlay and cover profiles shift over time.	The spacing of the connected profiles does not match the spacing specified in 5.9.1 <i>Connecting the cover and inlay profiles (if required)</i> .	Check that the connected profiles are correctly installed (see 5.9 <i>Connecting and mounting cover and inlay profiles</i> ).
	Connected profiles are not secured with the IP bender as shown in 5.9.3 <i>Securing the cover and inlay profiles with the IP bender</i> .	Check that the connected profiles are correctly installed (see 5.9 <i>Connecting and mounting cover and inlay profiles</i> ).

# 8 Removal

## 8.1 Removal of the product

### **⚠ WARNING**

The Aelex inlay mounting system should only be removed by authorised and competent installers who have read and understood the content of this installation manual.

#### **When removing the product:**

Dismount the product in the reverse order of installation. Check whether any reusable parts, such as metals and plastics, can be reused or recycled and dispose of them at a local collection point.

## 8.2 Waste disposal

Deliver the packaging material to a local recycling company. Properly disposing of packaging and packaging waste helps in preventing potential danger to the environment and public health.

