

ASSEMBLY INSTRUCTION

COMPACTFLAT S10 PLUS

VERSION: 07

LANGUAGE: ENGLISH

IMPORTANT! READ CAREFULLY BEFORE INSTALLATION!



LEGAL NOTICE

Subject to change due to technical modifications! These assembly instructions correspond to the technical status of the delivered product and not to the current development status at the manufacturer. If pages or parts of the assembly instructions are missing, please contact the manufacturer's address given below. The original language of these assembly instructions is German. Any assembly instructions in another language are a translation of the assembly instructions in German. Therefore, in case of doubt or contradiction, the authentic German version shall prevail. The assembly instructions are protected by copyright. The assembly instructions may not be copied, reproduced, microfilmed, translated or converted for storage and processing in EDP systems, either in part or in full, without the written permission of the company AEROCOMPACT Europe GmbH.

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MANUFACTURER

AEROCOMPACT Europe GmbH
Gewerbestrasse 14
6822 Satteins, Austria

office@aerocompact.com
www.aerocompact.com

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GENERAL

INFORMATION ABOUT THESE ASSEMBLY INSTRUCTIONS

These assembly instructions describe the assembly procedure and must be strictly observed. Read these assembly instructions carefully before starting the assembly. The personnel must have carefully read and understood these instructions before starting any work. The basic prerequisite for safe working is compliance with all the safety notes and handling instructions given in these assembly instructions. Furthermore, the local accident prevention regulations and general safety regulations for the product's area of application apply. Illustrations in this manual are for basic understanding and may differ from the actual design.

APPLICABLE DOCUMENTS

In addition to this manual, you have received the following documents. Always comply with the instructions and notes contained.

- AEROTOOL Project Report
- Planning documents and drawings

LIMITATION OF LIABILITY

All information and notes in these installation instructions have been compiled taking into account the applicable standards and regulations, the state of the art and our many years of knowledge and experience. Liability provisions are stated in our **GTC** and can be found at www.aerocompact.com/downloads.

EXPLANATION OF SYMBOLS

SYMBOLS FOR INSTRUCTIONS



Prerequisites for action instruction



Results of action steps



Step by step action instruction



This note provides useful information for proper assembly

SYMBOLS IN ILLUSTRATIONS - ACTIVITIES



Consult AEROTOOL project report or planning documents



Activity by hand



Optional component, optional mounting variation



Visual inspection



Observe right angle

SYMBOLS IN ILLUSTRATIONS - TOOLS



Measuring tape, measure



Pencil, mark



Chalk line



Scissors, tin snips, cut to size



Cordless screwdriver, screwdriver



Use a torque wrench, Observe torque



Use Allen key

SAFETY

The following list serves as an indication of the most common safety hazards that can occur when installing these products. There is no liability for the completeness of the risks presented. A concrete check of the necessary safety measures is to be carried out by an entrusted specialist company prior to installation.

APPROPRIATE USE

The CompactFLAT flat roof system is designed exclusively for installing PV modules on flat roofs or similar flat surfaces. The system must be properly installed in accordance with these installation instructions. The installation must be carried out by qualified personnel who are familiar with the installation of photovoltaic systems, strictly in accordance with the specifications of the installation instructions, planning documents and project report. PV modules used with the CompactFLAT system should be approved by the module manufacturer. AEROCOMPACT accepts no liability for loss of performance or damage of any kind to the PV modules. Any other use of the CompactFLAT system is considered improper.

The roof protection pad included in the scope of delivery is matched to the roof surface defined in the project. Due to the many available roof surfaces on the market, the responsible designer should ensure the compatibility of and the coefficient of static friction between the protection pad and the roof surface of the building used in the design. The friction value can be determined during the planning process with a coefficient of friction test.

REQUIREMENTS OF PERSONNEL

Installation may only be carried out by a specialist company and must be carried out strictly in accordance with the specifications in the installation instructions, the project report and the planning documents. A specialized company is one that is familiar with the installation and maintenance of photovoltaic systems as part of its normal business operations. National and site-specific building codes, standards and environmental protection must be strictly adhered to. The assembly personnel must never be under the influence of medication, alcohol, drugs or in any other condition that impairs consciousness (e.g. overtiredness). Trainee personnel may only perform work under the instruction and supervision of skilled personnel who are authorized to train personnel.

WORKING SAFELY

The contractual partner shall ensure that the necessary safety measures and the relevant provisions of labor law and occupational health and safety law are observed during the assembly of products from AEROCOMPACT Europe GmbH. References by AEROCOMPACT Europe GmbH to the necessity of compliance with security measures are made without guarantee and without claim to completeness and serve only to support the contractual partner. The contractual partner is obliged to inform himself about all relevant regulations concerning occupational safety and to comply with them. AEROCOMPACT Europe GmbH expressly assumes no responsibility here and consequently no liability.

Areas below the roof on which work is being carried out must be protected from any falling objects. Where this fails, the affected areas shall be closed to the public and to unauthorized personnel. In case of unsuitable weather conditions, work on the roof must not be continued any longer than necessary - or not started at all. Never carry out assembly work in strong winds. Strong wind exerts enormous forces on the large-area PV modules. There is a risk that a module could be torn off the roof and people could be injured. Never work in wet conditions or at temperatures below the freezing point. Depending on the roof pitch there is a risk of slipping.

Only use suitable, intact and tested ladders. Set up and secure ladders according to instructions. Separate rules apply to mechanical climbing aids (elevators, cherry pickers, etc.). Never use the PV mounting system as a climbing aid. Keep sufficient distance from overhead electrical lines. Equipotential bonding between the individual system parts must be carried out in accordance with the respective country-specific regulations. When cutting materials, make sure that there are no burrs, especially at edges and corners, as there is a risk of injury.

BREAKTHROUGH PROTECTION

Skylights, skylights, large vents, etc. usually cannot withstand the weight or impact of a person. Such objects must be secured in a similar way as the edge of the roof. Corrugated fibre cement roofs can be prone to breakthrough over the entire surface. Define walking routes and secure them with load distribution measures. On roofing or roof structures that do not have sufficient load-bearing capacity (e.g. thin sheets, corrugated fibre cement), always work with load distribution aids.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective equipment is used to protect persons from impairment of safety and health at work. Personnel must wear personal protective equipment during assembly. Personal protective equipment is explained below:



Wear protective goggles when drilling.



Wear cut-resistant work gloves during assembly.



Wear safety boots.



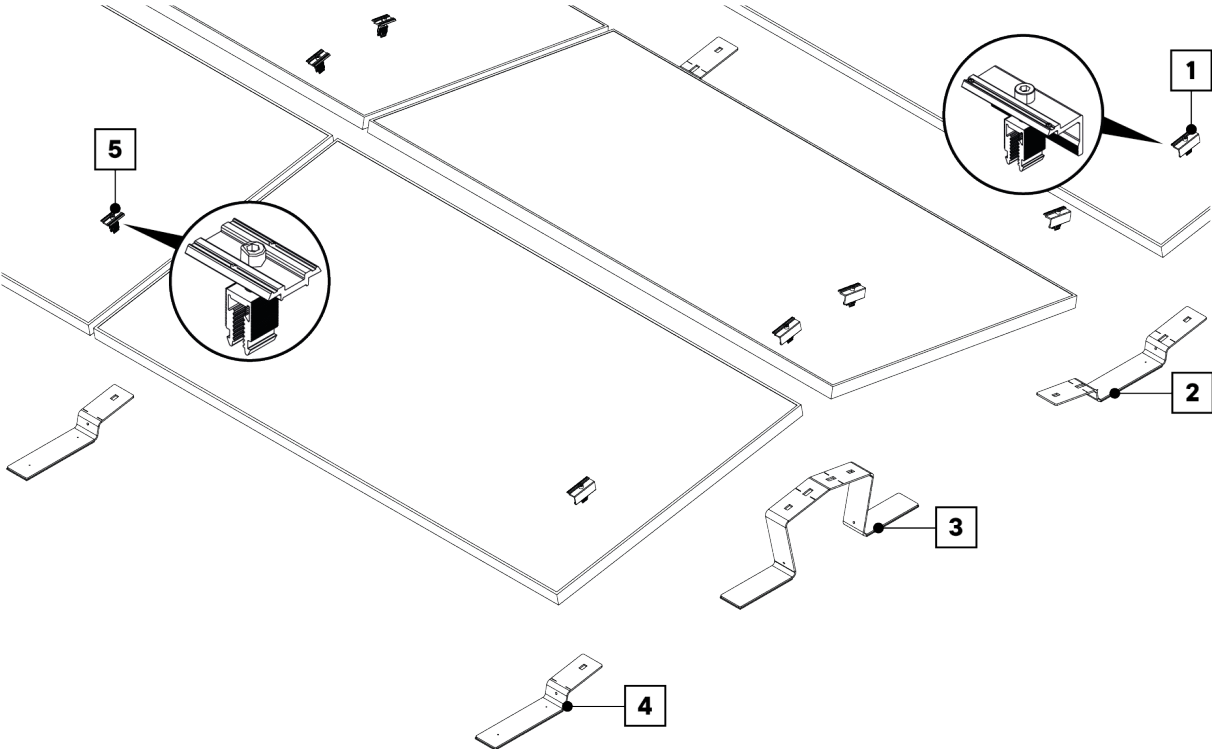
Use fall protection.



Helmets are required for all persons involved on the construction site.

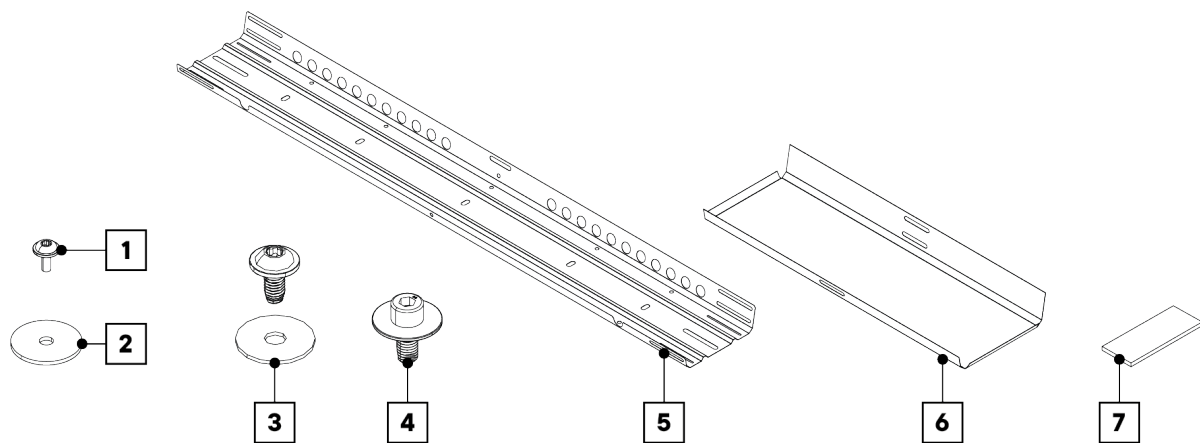
SYSTEM OVERVIEW

BASIC COMPONENTS S10 PLUS



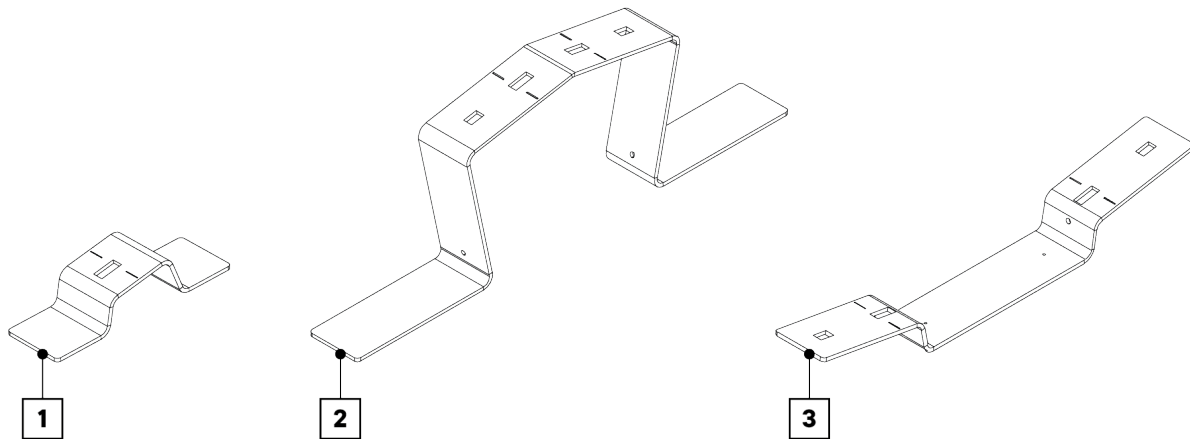
- 1 End clamp | CLE10
- 2 Connector long with protection pad | S10+CNL-PP
Connector short with protection pad | S10+CNS-PP
- 3 Middle bracket with protection pad | S10+MB-PP
- 4 Front bracket with protection pad | S10FB-PP
- 5 Mid clamp | CLM10+

BALLASTING



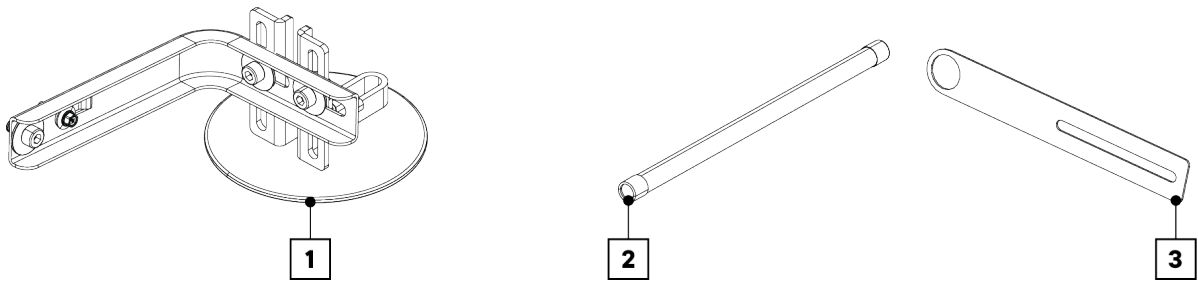
- 1 Thread-forming screw 4x8 | STS4x8 (optional for fastening the long ballast tray)
- 2 Washer 4.3/25 FW4.3/35 (optional for fastening the long ballast tray)
- 3 Thread-forming screw and washer | STS8x16, FW8.4/30 (optional)
- 4 Tapping combi screw M8x20 | SCS8x20 (optional)
- 5 Long ballast tray | BT-1800, BT-2050, BT-2300
- 6 Short ballast tray | BT-880
- 7 Roof protection pad for ballast blocks and ballast trays | PP200/80

ALPINE SUPPORTS



- 1 Front alpine support | S10FS
- 2 Middle bracket with protection pad | S10+MB-PP
- 3 Connector long with structural protection mat | S10+CNL-PP
Connector short with structural protection mat | S10+CNS-PP

ACCESSORIES



- 1 Anchor point attachment | APA
 - 2 Cable conduit | CP-430, CP-620, CP-840
 - 3 Bracket for cable conduit | BR-CP
-

VARIATIONS OF COMPACTFLAT S10PLUS



Compact FLAT S10plus | 464 mm distance | 8° - 18° internal shading angle



Compact FLAT S10plus | 297 mm distance | 10° internal shading angle

ASSEMBLY

INSTALLATION INSTRUCTIONS FOR GRAVEL ROOFS

i The planning documents define whether the system is to be installed directly on the sealing or protective fleece (coefficient of friction 1.5) or freely on the gravel (coefficient of friction 0.3).

Mount the system on the sealing or protective fleece

✓ Height gravel fill: 30 - 60 mm

i Since damage to the roof waterproofing can occur because of excessive point loading, do not install the system on the gravel if the gravel layer is up to 60 mm.

- ▣ Carefully move aside the gravel in the array field.
- ▣ Install the system components on the roof surface or on the protective fleece.

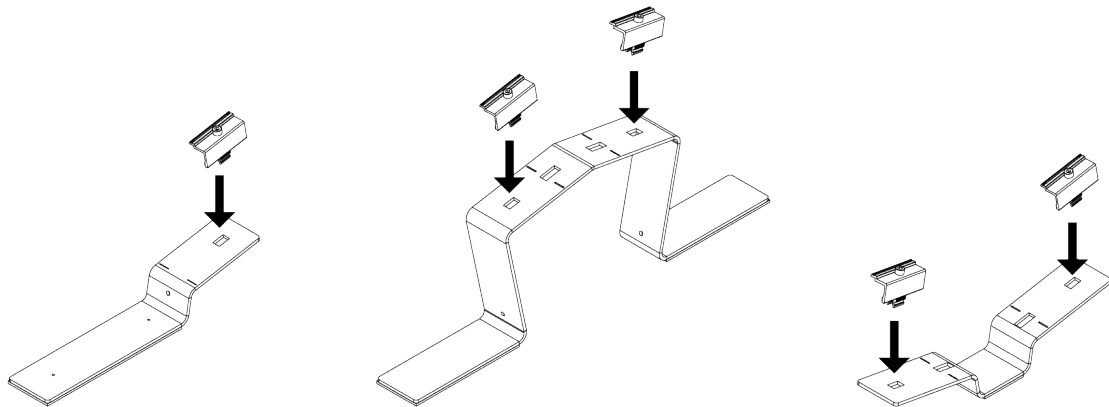
i Use the gravel for ballasting after assembly according to the AeroTOOL report.

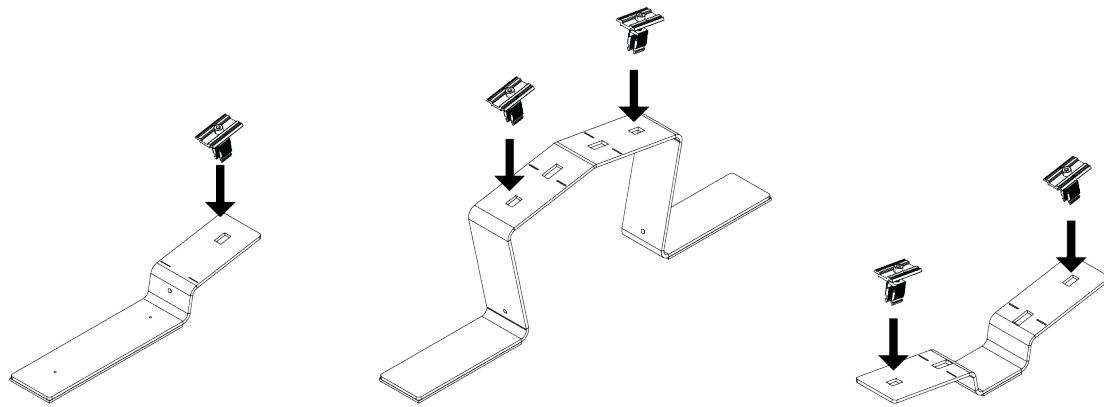
Mount the system on the gravel

- ✓ Gravel fill 60 - 100 mm and protective fleece (min. 300 g/m²) is present or
- ✓ Gravel fill is 100 mm or higher.

▣ Mount the system on the gravel.

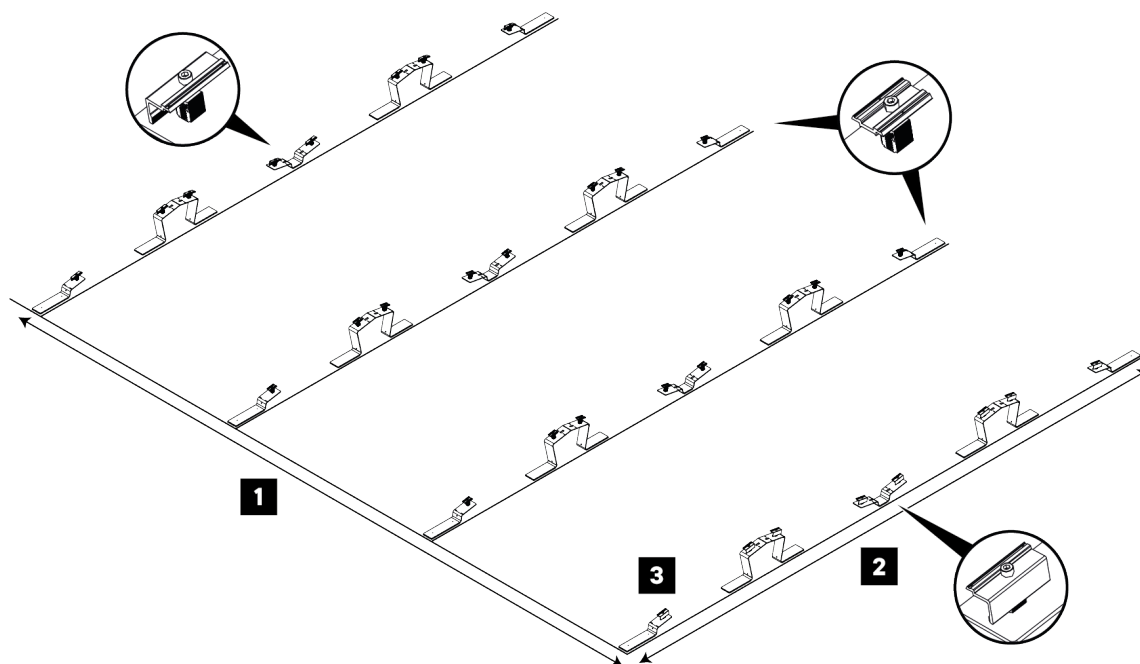
PRE-INSTALL THE CLAMPS





▶ Pre-install the end-clamps or mid-clamps to the front brackets, middle brackets and connector brackets as needed.

MEASURE AREA, PLACE COMPONENTS



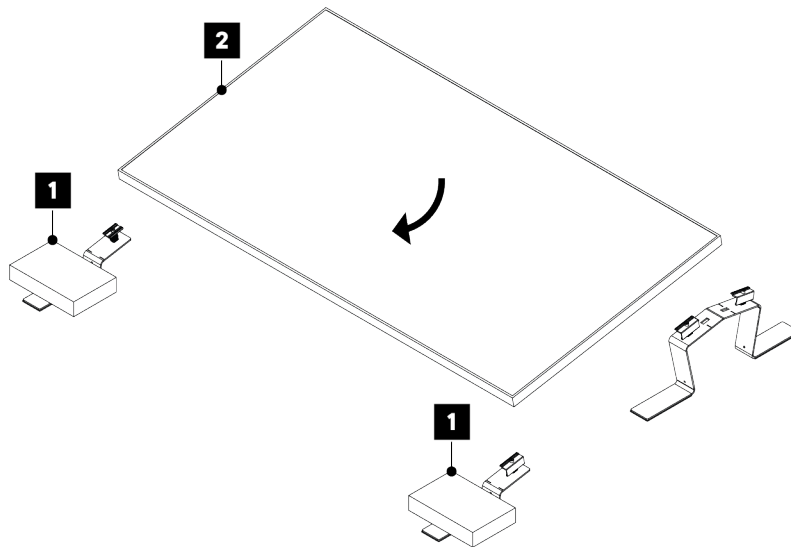
- ▶ Take the dimensions of the array field from the planning documents.
- ▶ Measure the length of the module field and mark the line.
- ▶ Measure the width of the array and mark the line.
- ▶ Place the front brackets, middle brackets and connector brackets in the array field (3):
 - Edge rows: place front brackets, middle brackets and connector brackets with end-clamps.
 - Middle rows: place front brackets, middle brackets and connector brackets with mid-clamps.

INSTALLING MODULES

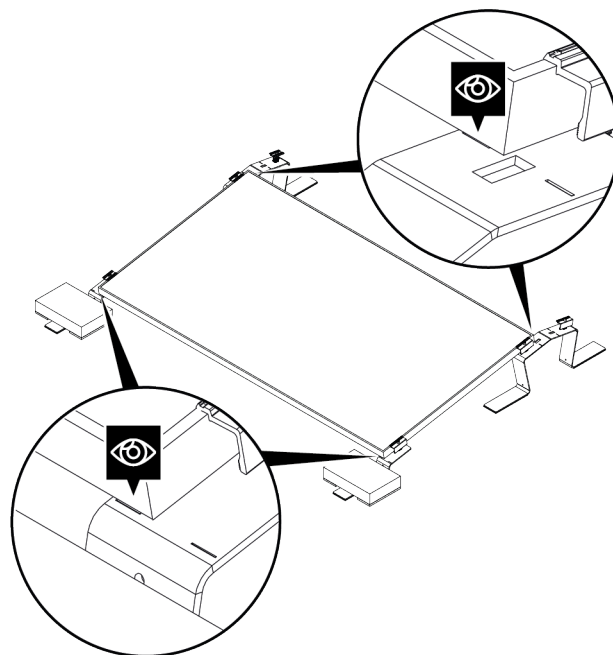
i Tip: When installing, wire the modules at the same time. The cables can be attached to the module with the cable tie clip (CLP-M).

i The distance between the clamps is determined by the brackets and connector brackets or by the module size.

Install the first module row

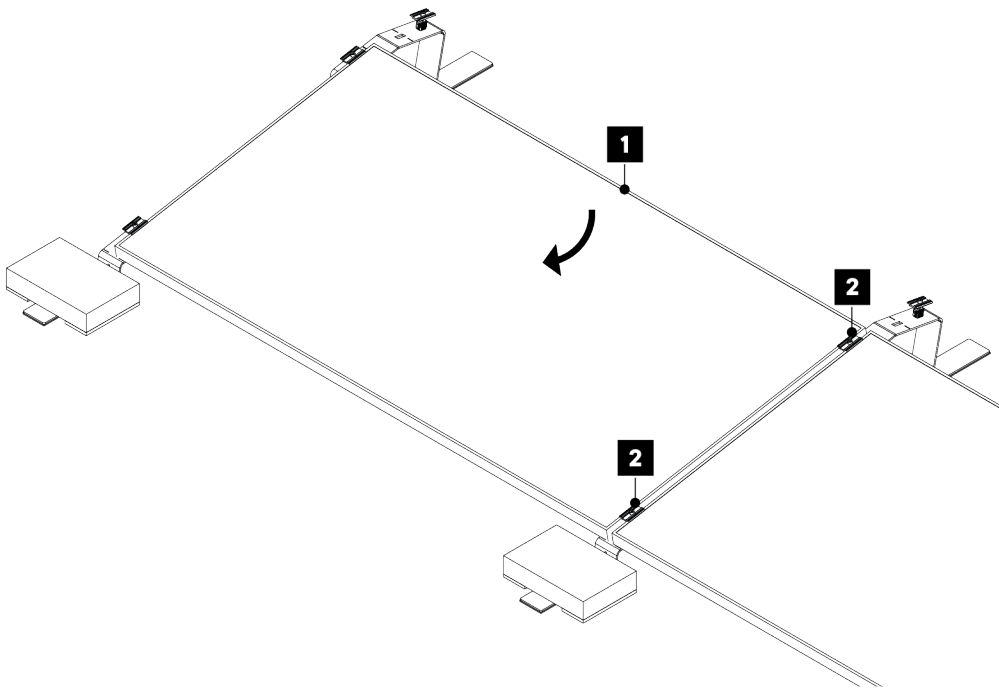


- Weigh down the front brackets with ballast blocks (1)
- Place the module (2) on the front bracket and middle bracket.

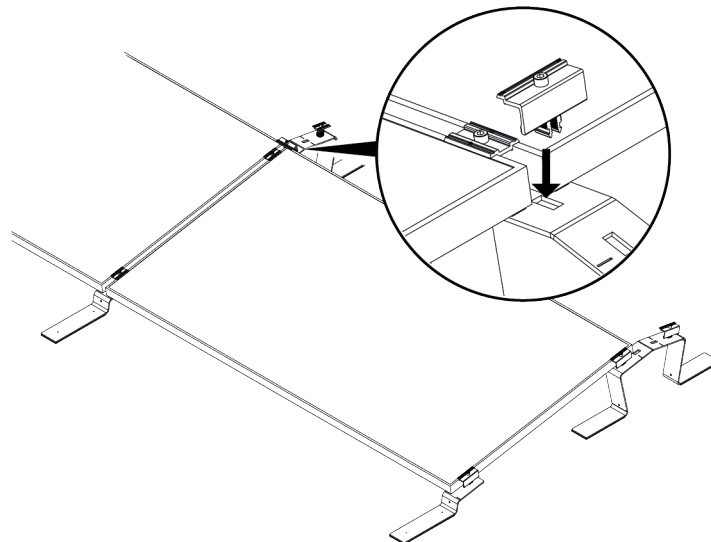


- Align each module with the marks on the brackets/ middle brackets.

- ▶ Tighten the screws of the end-clamps with 15 Nm or 11 ft lbs.
-

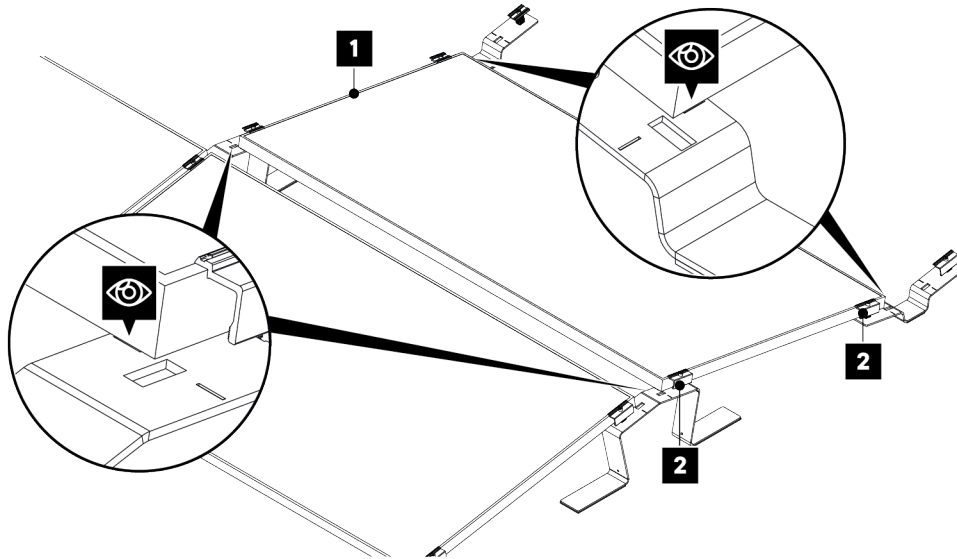


- ▶ Place the next module (1) .
 - ▶ Tighten the screws of the mid clamps (2) of the previous module with 15 Nm or 11 ft lbs.
-

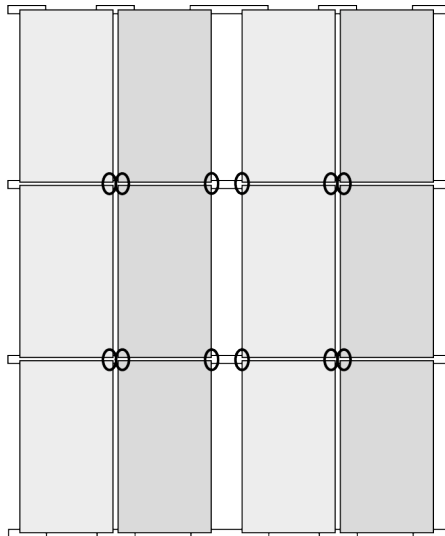


- ▶ Lastly, add end-clamps to each of the middle brackets.
 - ▶ Tighten the screws to 15 Nm or 11 ft lbs.
-
- ▶ Install the remaining modules of this series as described.
-

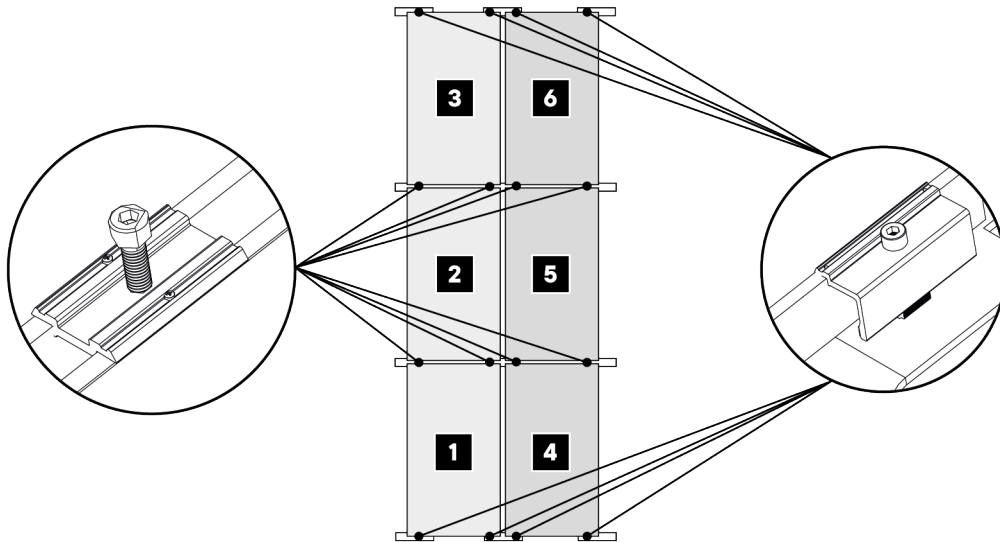
Install the second module row



- Place the module (1) on the middle brackets and connector brackets.
- Align each module with the marks on the middle brackets/ connector brackets.
- Tighten the screws of the end clamps (2) with 15 Nm or 11 ft lbs.



- For stronger bonding, add an additional end-clamp on each marked position.
- Tighten the screws to 15 Nm or 11 ft lbs.



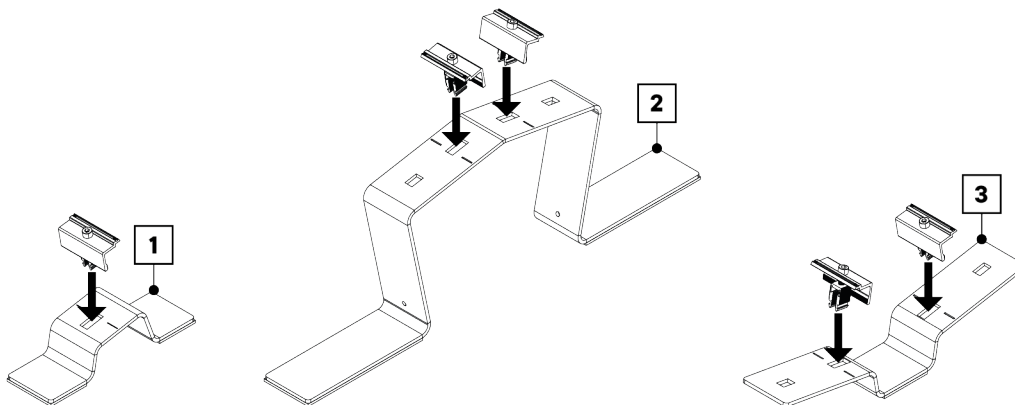
- Install remaining modules row by row as described.
- Tighten all end-clamps and mid-clamps to 15 Nm or 11 ft lbs.

REPOSITION / REPLACE CLAMPS

- Demount clamp: Unscrew the screw at the clamp completely.
- Depending on the mounting situation, squeeze the clamp laterally and pull it out or pull it laterally out of the rail.

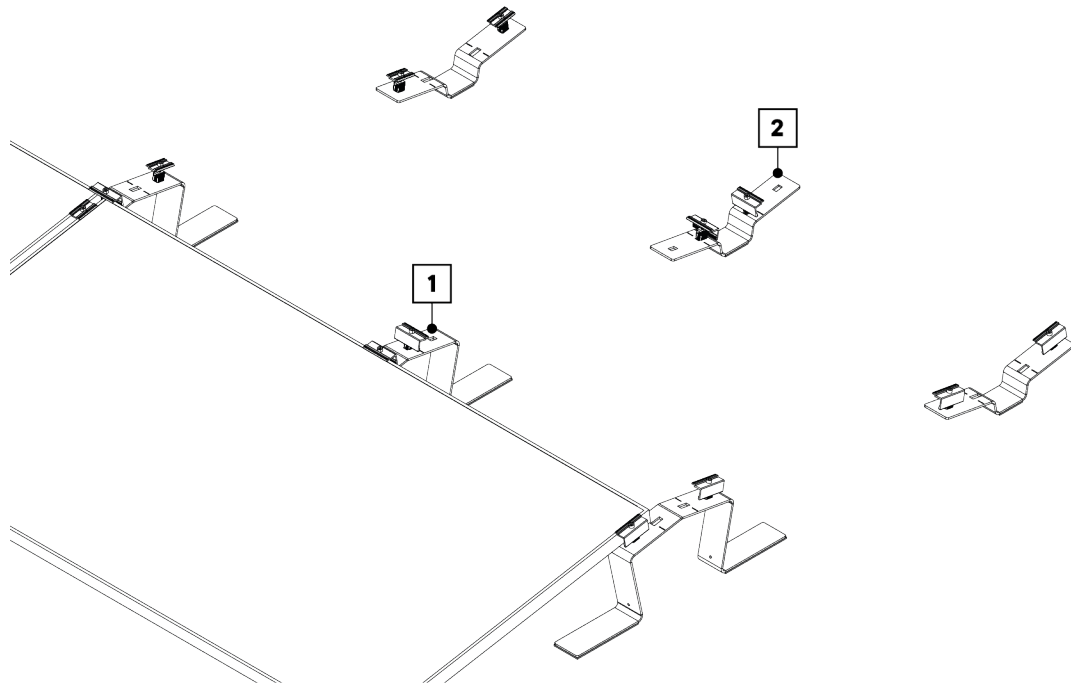
INSTALLING MODULES WITH ALPINE SUPPORTS (OPTIONAL)

i Above a certain snow load, additional support brackets (alpine brackets) are required at the middle of the module frame. The planning documents will state whether alpine supports are required. Before installing the alpine supports, make sure that the modules are suitable for the increased snow load and that clamping at the additional locations is approved.

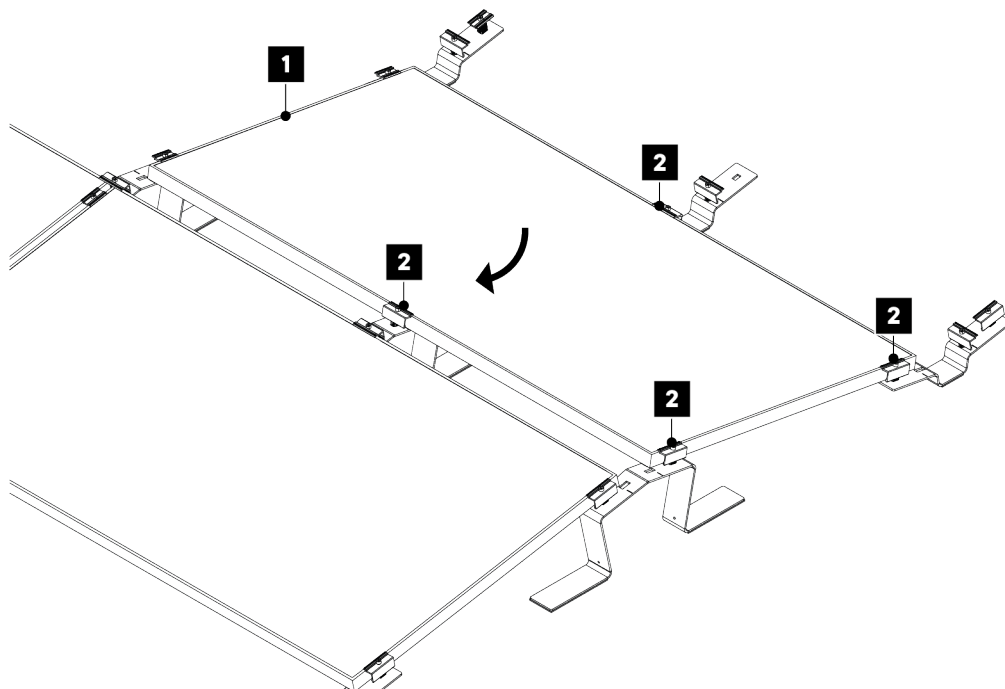


- Attach end clamps to the front alpine brackets (1), the additional middle brackets (2) and connectors (3).
- Mount the first module row, see chapter "Installing modules" on page 13

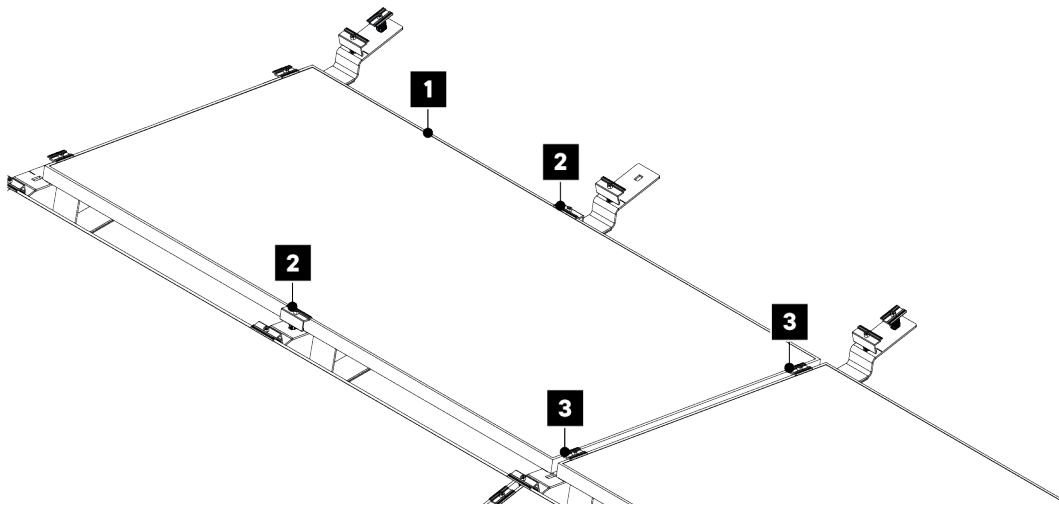
i The alpine supports (optional) are mounted in parallel with the modules.



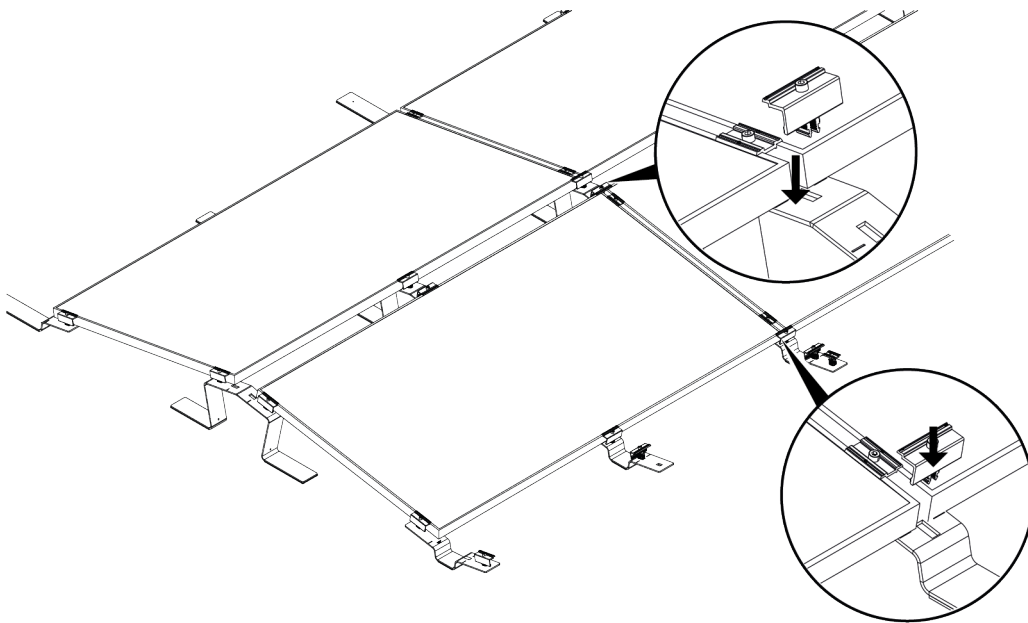
➤ Place an additional middle bracket (1) and a connector bracket (2) at the center of each module frame.



- Place module (1) on the middle and connectors brackets.
- Tighten the screws on the end-clamps (2) to 15 Nm or 11 ft lbs each.

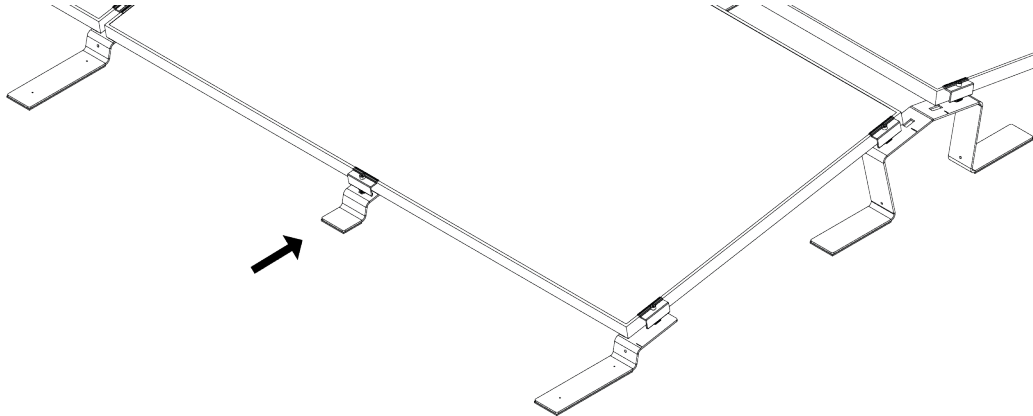
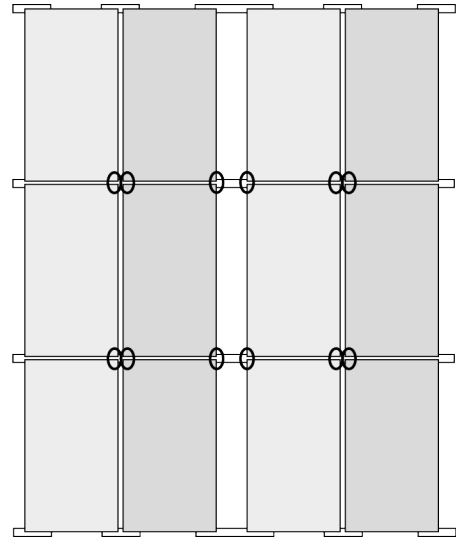


- ▶ Place and align next module (1).
 - ▶ Tighten the screws of the alpin-clamps with 15 Nm or 11 ft lbs.
 - ▶ Tighten the screws (3) of the mid-clamps to 15 Nm or 11 ft lbs.
-





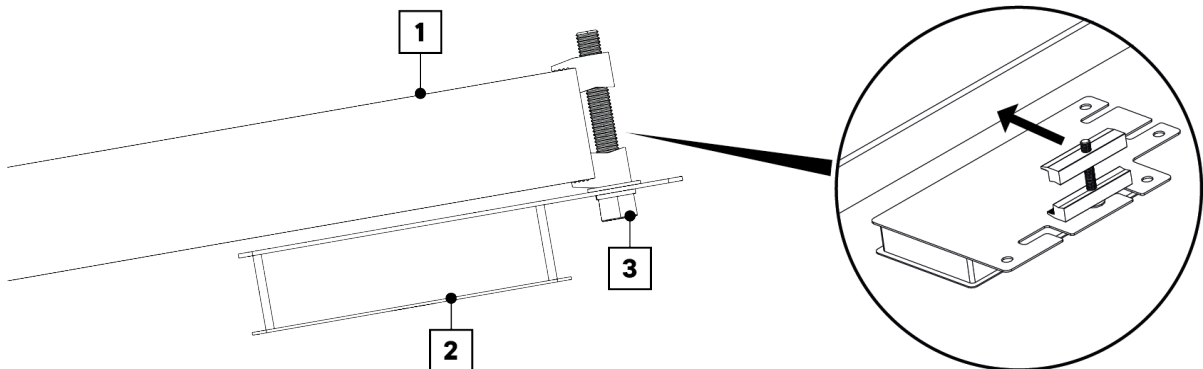
- ▶ For stronger bonding, add an additional end-clamp on each marked position.
- ▶ Tighten the screws to 15 Nm or 11 ft. lbs.
- ▶ Install remaining modules row by row as described.



- ▶ Position a front alpine support in the middle of the module frame of both the front and back rows.
- ▶ Make sure that the end-clamps are flush with the module.
- ▶ Tighten the screws with a torque of 15 Nm or 11 ft. lbs.

INSTALLING MICROINVERTERS (OPTIONAL)

- ℹ The microinverter can be mounted directly onto the module frame.

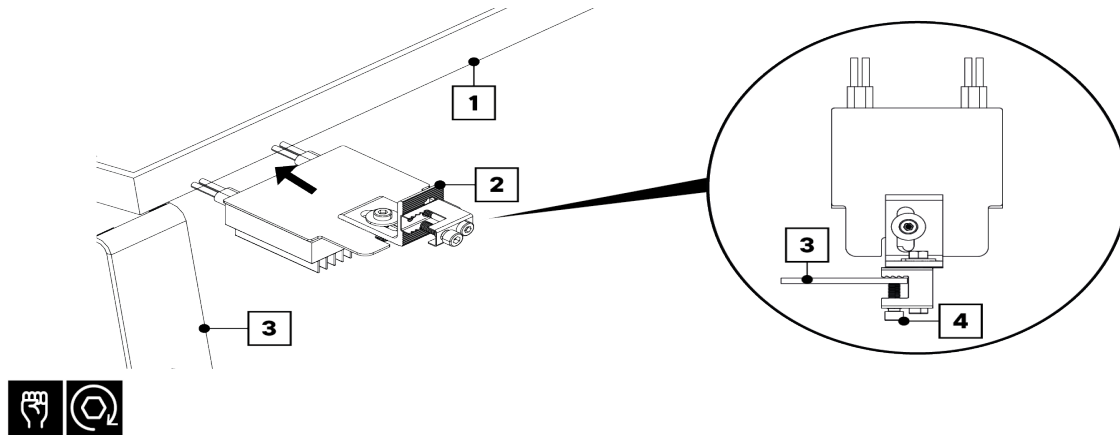




- ▶ Observe the manufacturer's installation instructions (PV module, microinverter).
- ▶ Attach the microinverter with the bracket (2) under the module (1).
- ▶ Carefully tighten screw (3) until the clamp is tight against the module.

INSTALLING MICROINVERTERS - EU (OPTIONAL)

i The microinverter can be mounted below the module on a bracket, connector bracket or support.



- ▶ Install the microinverter on the microinverter-bracket according to the manufacturer's specifications.
- ▶ Place mounted Microinverter (2) on the bracket (3) below the module (1).
- ▶ Attach to the bracket (1), and hand-tighten the Allen screw (4).

PLACE BALLAST

i Depending on the project circumstances, ballast requirements will vary.

Ballasting for gravel roofs

MOUNT THE SYSTEM ON THE SEALING OR PROTECTIVE FLEECE

- ▶ Install ballast trays according to plan.
- ▶ Use existing gravel for ballasting according to AeroTOOL report.
- ▶ Spread remaining gravel evenly over the roof.
- ▶ Make sure that there is enough gravel on the entire roof. Add gravel if necessary.

Option 1: Ballasting directly on the front brackets, middle brackets or connector brackets

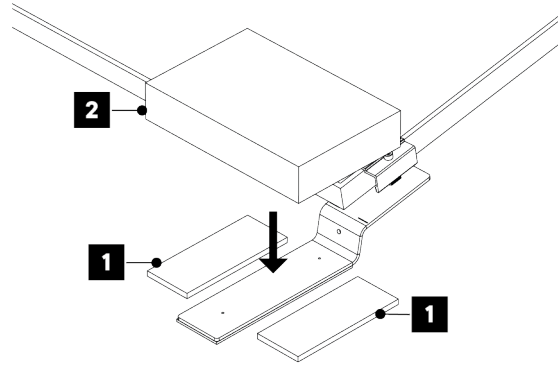
With this ballasting option, the ballast blocks are placed directly on the front brackets, middle brackets or connector brackets.

i Installers must follow the AEROTOOL planning documents for the exact number and placement of the ballast blocks.

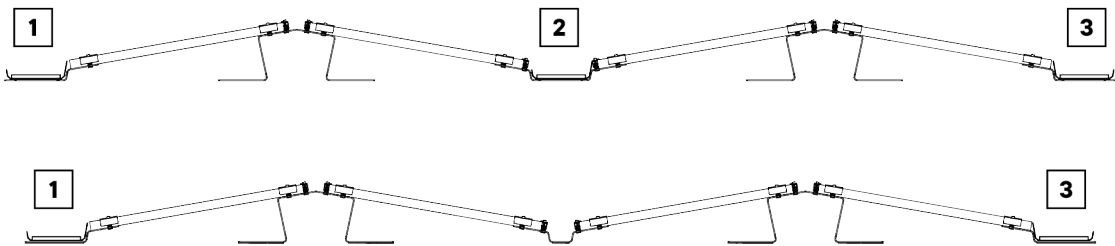


i Recommendation: Gluing the protection pads to the ballast blocks will prevent movement of the pads. Use weather-resistant construction adhesive.

- For height compensation, position the protection pad (1) to the right and left of the front bracket, connector or middle brackets.
- Place the ballast stone (2).



Version 2: Short ballast trays



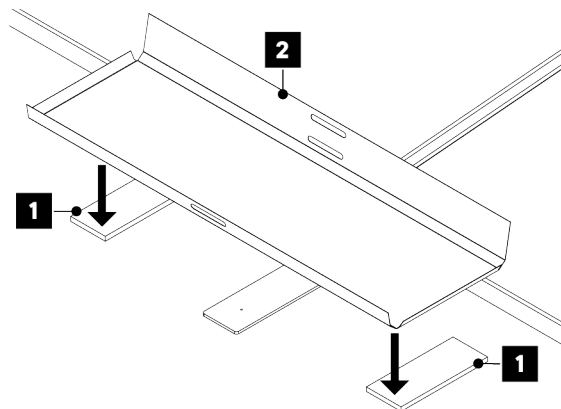
The short ballast tray can be installed in the following positions:

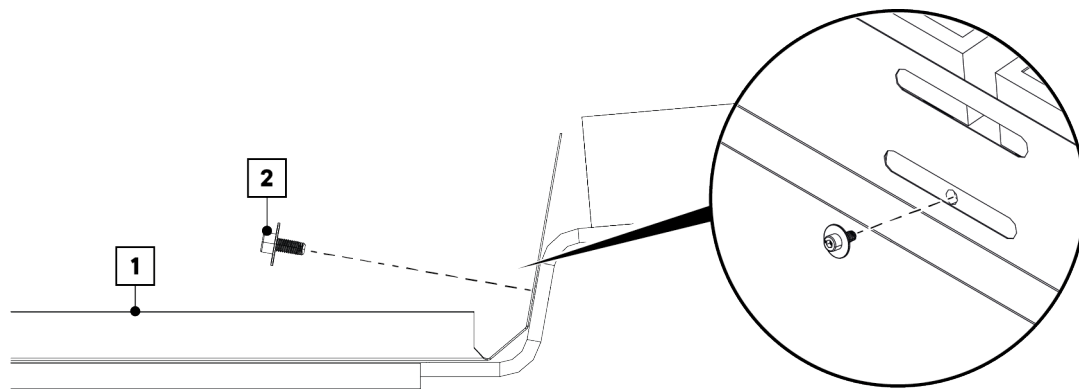
- (1) at front bracket.
- (2) at connector bracket.
- (3) at the end bracket - last row - mirror of front bracket.

i Refer to the Aerotool planning documents for the exact number and position of the short ballast trays.

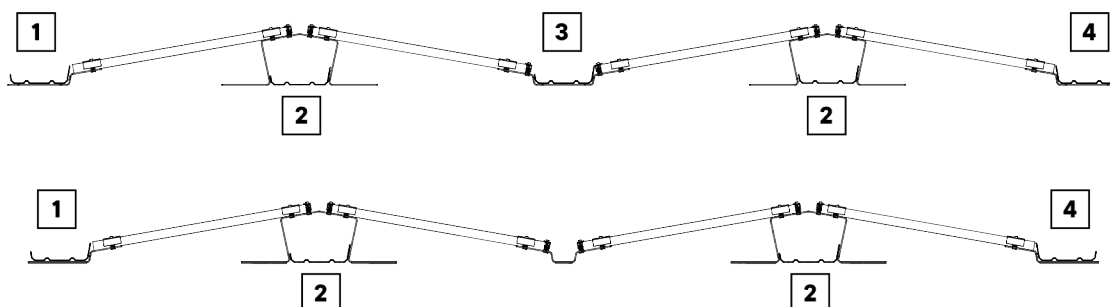
INSTALLING THE SHORT BALLAST TRAY

- Protection pads (1) are position to the right and left of the edge of the ballast tray.
- Place the ballast tray (2) centered on the bracket or connector bracket.





- Tighten the ballast tray (1) to the bracket or connector with a self-tapping screw (2).
- Tighten the screws with 15 Nm or 11 ft lb.



Version 3: Long ballast tray

The long ballast tray can be installed in the following positions:

- (1) at front bracket
- (2) at mid bracket.
- (2) at connector.
- (4) across the end bracket (last row, mirror of front bracket).

i Refer to the Aerotool planning documents for the exact number and location of long ballast trays.

PLACING THE ROOF PROTECTION PADS

Depending on the length of the ballast tray, a different number of protection pads are required per ballast tray:

Length 1800 mm: 3 roof protection pads per ballast tray

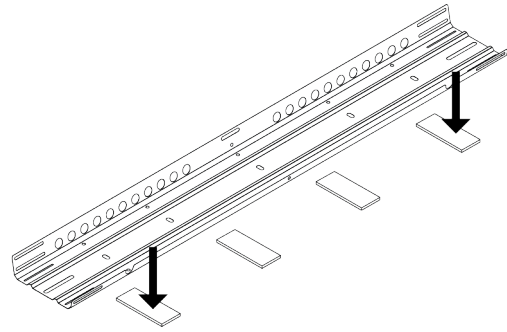
Length 2050 mm: 4 roof protection pads per ballast tray

Length 2300 mm: 5 roof protection pads per ballast tray

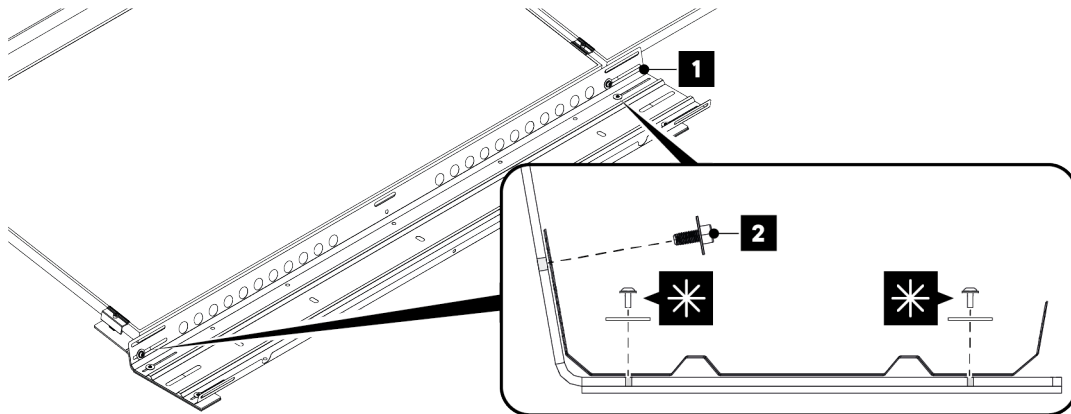


1 When positioning the protection pads, make sure that the drain holes at the bottom of the ballast tray are not covered.

2 Distribute roof protection pads evenly under the ballast trays.



INSTALL THE LONG BALLAST TRAY ON THE INITIAL BRACKET OR CONNECTOR BRACKET.



2 If several ballast trays are adjacent to each other: Lay out the ballast trays so that they overlap at the connector brackets or end brackets (1).

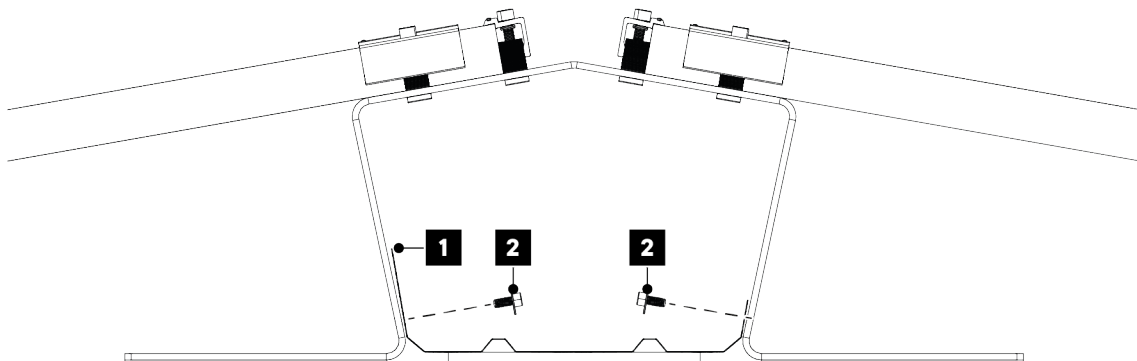
2 Screw the ballast tray to the brackets with tapping screws (2).

2 Tighten the screws with 15 Nm or 11 ft lb.

2 If specified in the planning documents (optional): Screw the bottom of the ballast trays to the connectors or end brackets.

2 Tighten the screws with 15 Nm or 11 ft lb.

INSTALL LONG BALLAST TRAY ON CENTER SUPPORT



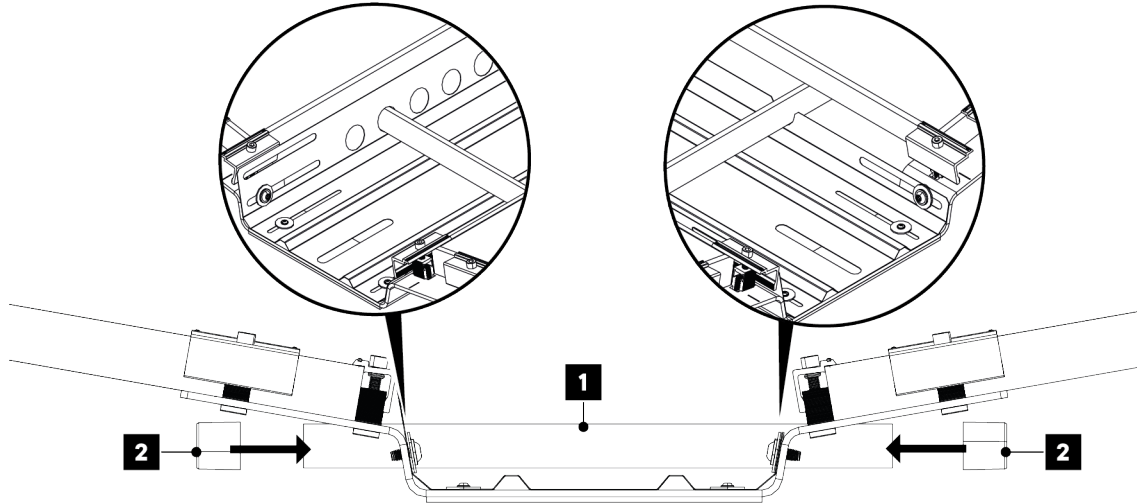
2 Place the ballast tray (1) under the middle bracket.

2 Screw the ballast tray to the middle brackets with tapping screws (2).

INSTALLING CABLE PIPE ASSEMBLY (OPTIONAL)

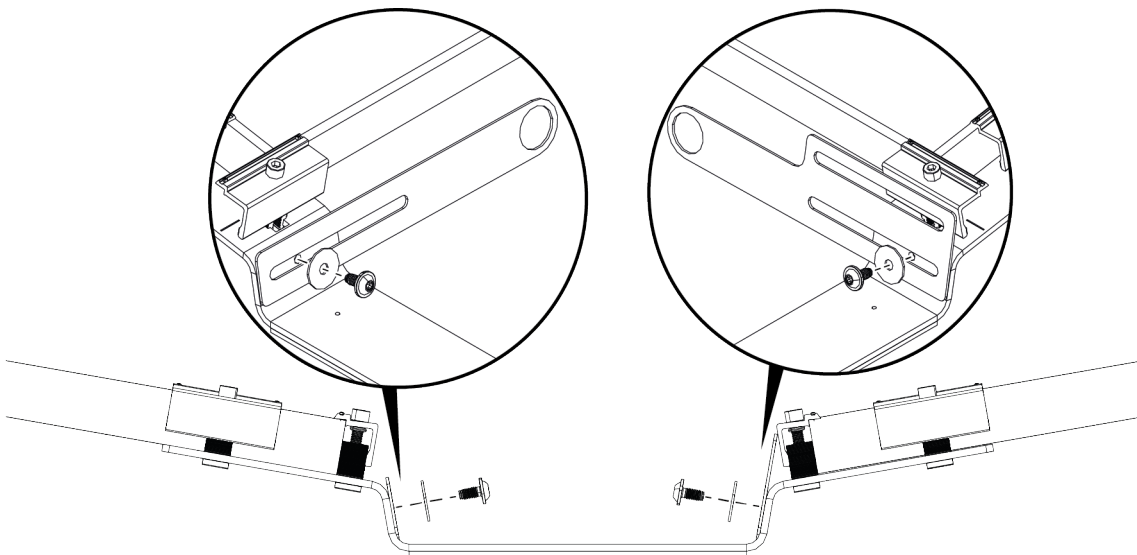
i The cable pipes can be installed at the edges or interior of the module field. Depending on the situation, the cable pipe is installed through the long ballast tray or with the brackets provided.

Slide the cable pipe through the appropriate hole on the ballast tray

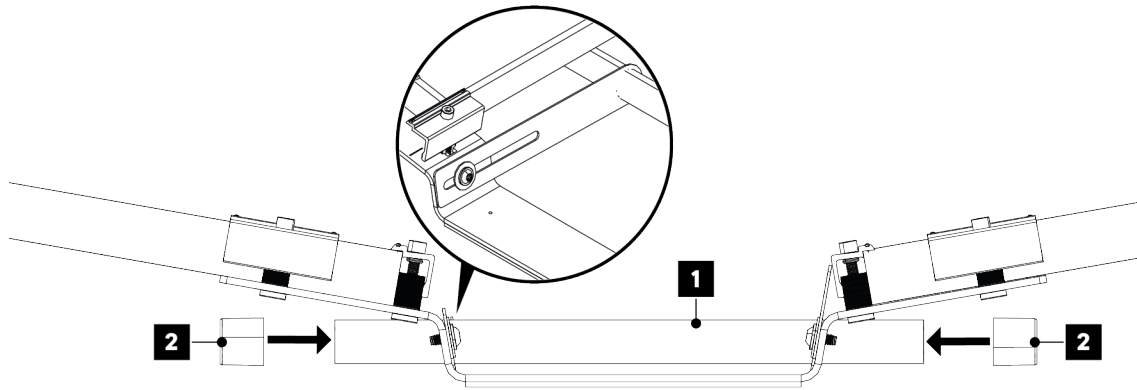


- Attach the cable pipe (1) to the ballast tray.
- Attach the plastic caps to the cable pipe (2).

Attach cable pipe with brackets



- At the connector bracket, tighten each bracket with an ALtracs screw and washer.
- Tighten the screws to 15 Nm or 11 ft lbs.



- Attach the cable pipe (1) to the brackets.
- Attach the plastic caps (2) to the end of the cable pipe.

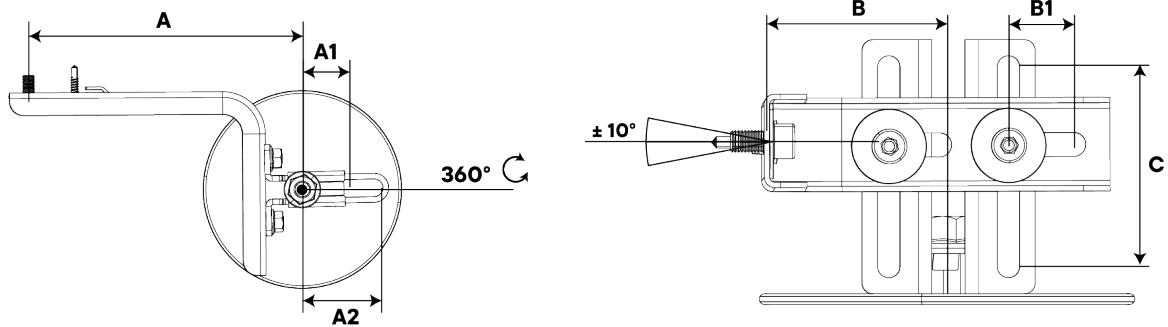
MOUNT ANCHOR POINT ATTACHMENT

i The mechanical attachments must be provided by the customer and are not included in the scope of delivery of AEROCOMPACT.

For the installation of the roof anchor connection, the roof anchors must be equipped by the customer with a threaded rod with a maximum size of M12 (7/16 inch).

i Refer to the AEROTOOL planning documents for the number and position of the mechanical attachments.

Position the Mechanical Attachments



i AEROTOOL marks only the components on which the mechanical attachments are mounted.

➤ Determine the exact position of the mechanical attachment according to the following dimensions/tolerances:

- A: 218 mm / 8.58 inch
- A1: 0 - 30 mm / 0 - 1.18 inch
- A2: 64 mm / 2.52 inch
- B: 66 - 89 mm / 2.60 - 3.50 inch
- B1: 28 mm / 1.10 inch
- C: 74 mm / 2.91 inch

Connect system with mechanical attachments

i The connection to the mechanical attachments can be mounted together with the wind deflectors and/or ballast trays.

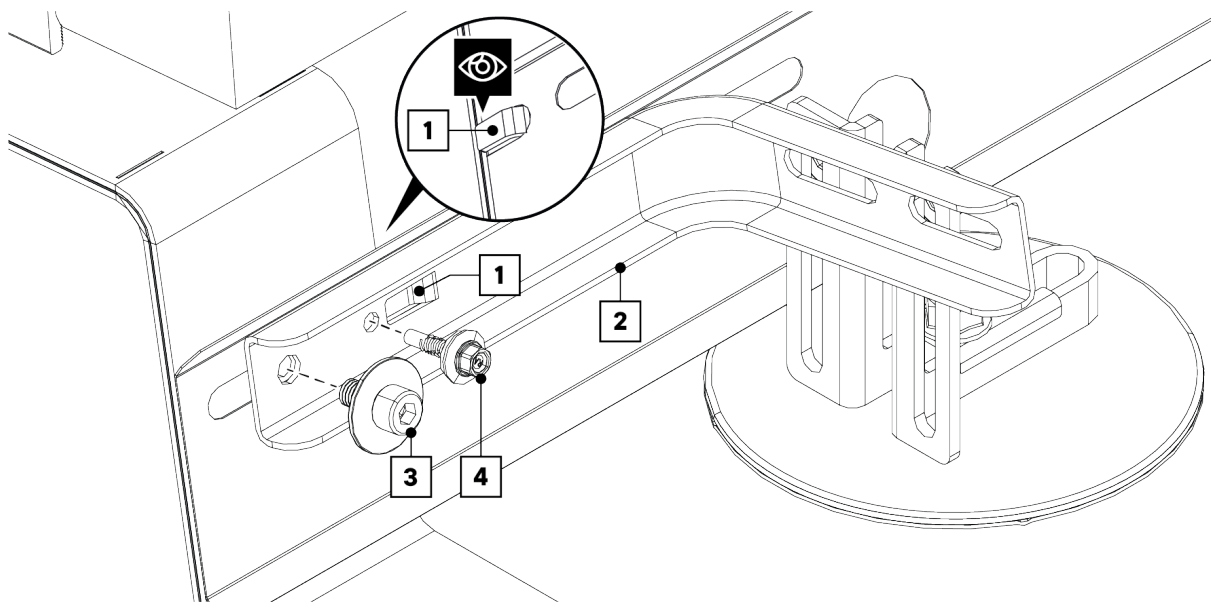
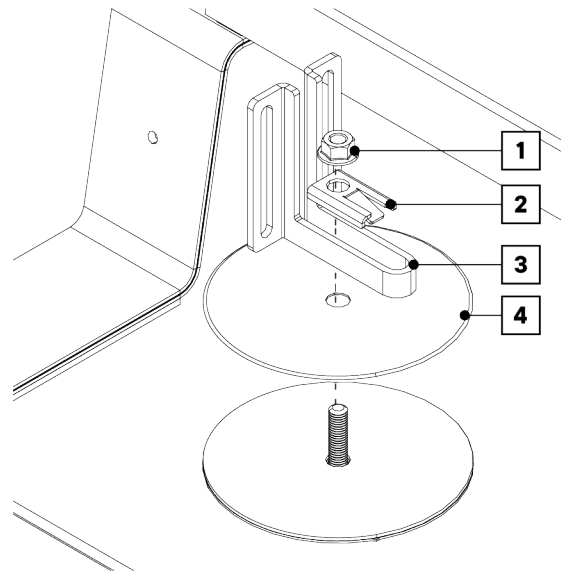


i The nut (1) is not included in the scope of delivery and must be provided by the customer.

➤ Place washer (4), bracket (3) and spacer (2) on the on-site screw of the anchor.

i Make sure that the tab of the spacer (2) is facing outwards.

➤ Hand-tighten the components with the nut (1).



i For chip-free mounting of the anchor point attachment, use the bracket / connector bracket (S...-TF...) with additional holes and a thin sheet metal screw.

➤ Attach the angle connection (2) to the bracket/connector bracket.

➤ Make sure that the tab (1) is positioned on the side of the feet/connector bracket.

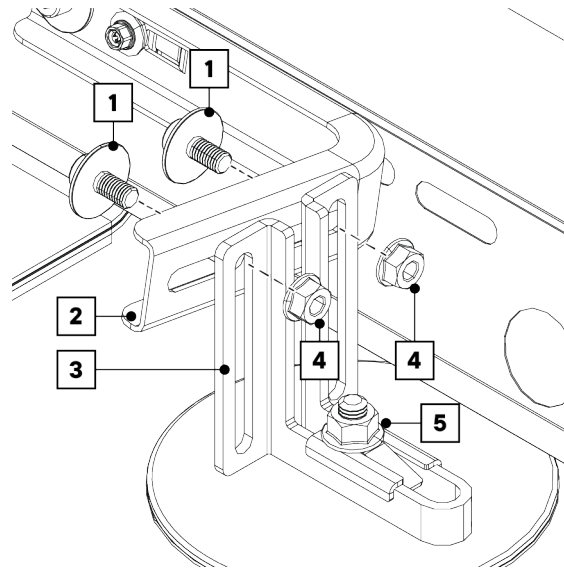
➤ If necessary, move the wind deflector so that the tab (1) protrudes through the slotted hole of the wind deflector. The wind deflector and the angle connection (2) must be placed flush on the bracket/ connector bracket.

➤ Fasten the angle connection (2) to the connector/feet using the furrow screw (3) and the self-tapping screw or thin-head screw (4).

➤ Remove any possible metal shavings from the roof membrane.

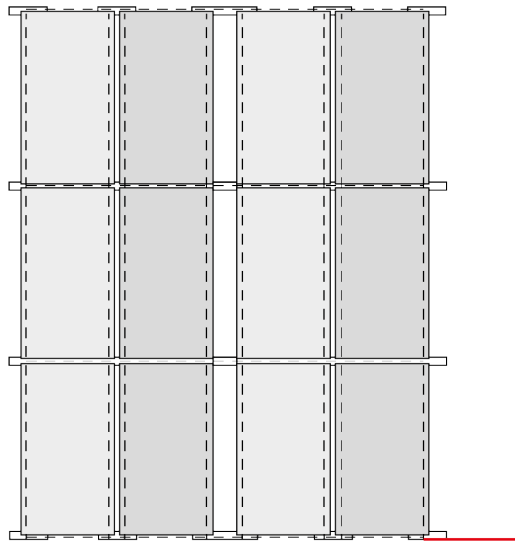


- ▶ Position the angle connection (2) and the bracket (3) flush against each other.
- ▶ Connect the angle connection (2) and the bracket (3) to each other at the slotted holes using the furrow screws (1) and nuts (4).
- ▶ Tighten the nuts (4) and (5) to 15 Nm each.

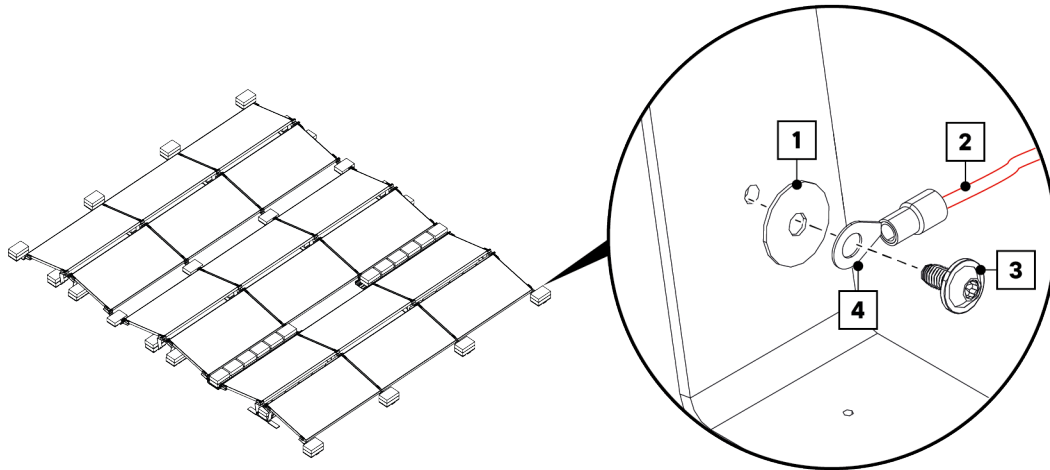


BONDING AND GROUNDING

- ▶ The modules of an array field are bonded to each other by the module clamps and brackets/ connector brackets.



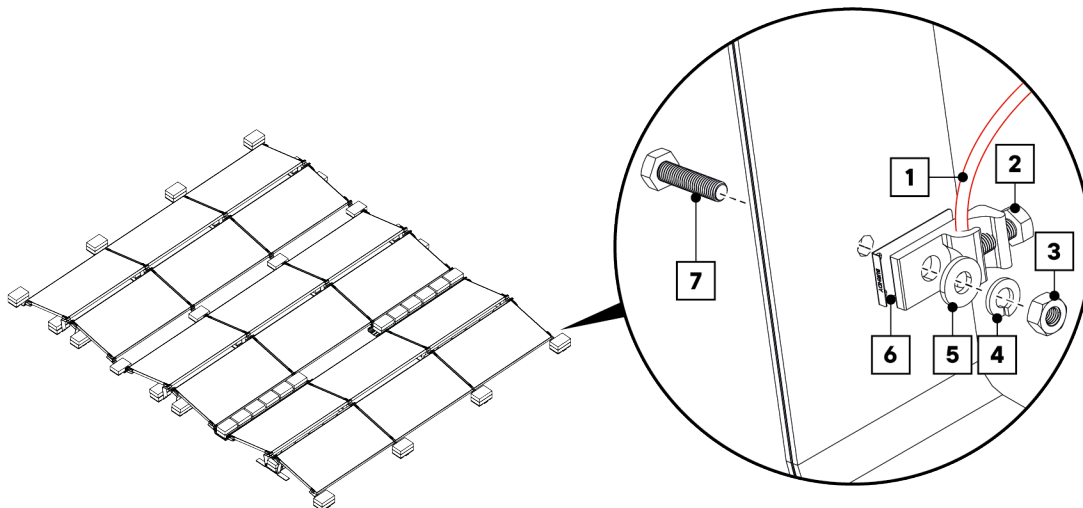
Install grounding/ bonding equipment (not USA-compliant)



i The grounding / potential equalization is mounted at the edge of a module field on a bracket.

- Loosen and remove screw (3).
- Connect ground wire (2) firmly to cable lug (4).
- Attach washer (1) and cable lug (4) in the order shown with the screw (3).
- Tighten the screws (3) with a torque of 15 Nm or 11 ft-lbs.

Mount grounding / bonding equipment (USA-compliant)



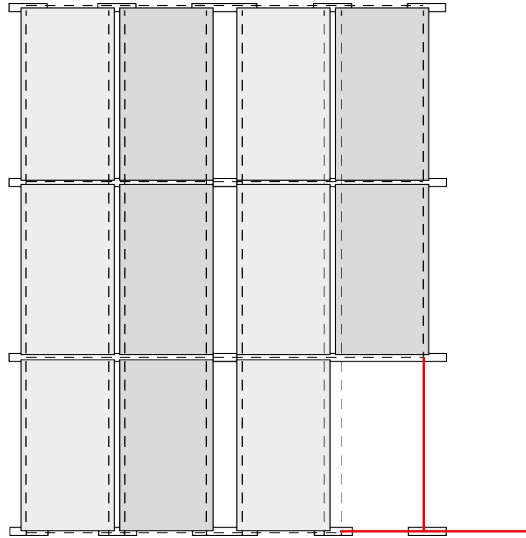
i The grounding / potential equalization is mounted at the edge of a module field on a bracket. The grounding / potential equalization can be mounted together with the ballast trays.

- Tighten the grounding lug (6) with screw (7), washer (5), split ring (4) and nut (3) on the base with a torque of 15 Nm or 11 ft-lbs.
- Attach the grounding wire (provided by customer) (1) to the grounding lug and tighten the screw (2) with a torque of 15 Nm or 11 ft-lbs.

POTENTIAL EQUALIZATION DURING MAINTENANCE

i Attention!

In case of a module removal, a temporary grounding lug and wire will be required to attach the remaining modules with each other and maintain an appropriate bonding path.



MAINTENANCE, DEMOUNTING AND DISPOSAL

MAINTENANCE

To prevent personal injury and property damage, the system must be inspected regularly by qualified personnel; an annual visual inspection is recommended for this purpose.

- Check all components of the system for damage. In case of damage, replace the affected component as soon as possible.
- Check all screw connections. Tighten loose screw connections, observing the tightening torque according to the assembly instructions.
- Inspect all components for damage from weather, animals, dirt, debris, buildup, vegetation, roof penetrations, waterproofing, stability, corrosion. In case of damage, clean, repair or replace the affected component.

DISASSEMBLY

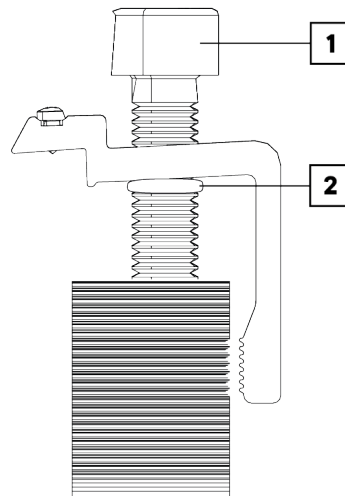
DISMOUNTING CLAMPS (EXAMPLE)



i For demounting the system, carry out the assembly steps in reverse order.

- Unscrew screw (1) on the clamp completely.
- When reusing the clamps, make sure that the O-ring (2) is not lost.

i When reusing the components, it must be noted that these are wearing parts. In case of excessive wear, reuse is not given, beyond that there is no warranty claim.



DISPOSAL

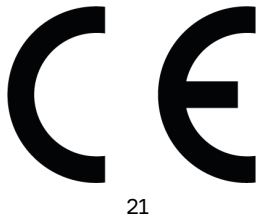
Unless a take-back or disposal agreement has been made, disassembled components should be recycled:

- Scrap metals.
- Give plastic elements for recycling.
- Dispose of remaining components sorted according to material composition.

i Incorrect disposal may result in hazards to the environment. In case of doubt, obtain information on environmentally sound disposal from the local municipal authority or from specialized disposal companies.

APPENDIX

DECLARATION OF CONFORMITY S10 PLUS



Manufacturer: **AEROCOMPACT Europe GmbH**
Designation: **CompactFLAT S10plus East/West system for flat roofs**
Identification code: **S10plus**
Applied standard: **EN 1090**
Certification body: **2397**



[For the declaration of performance](#)

UL CERTIFICATION NOTES

The CompactFLAT S systems are certified by SolarPTL for grounding/bonding, fire classification, and mechanical loading. SolarPTL, LLC is a Nationally Recognized Testing Laboratory (NRTL).

The CompactFLAT S grounding method conforms to ANSI/UL 2703, and is approved for use with photovoltaic modules listed under ANSI/UL 1703 and/or ANSI/UL 61730, whichever applies, and complies with the National Electrical Code, ANSI/NFPA 70. The individual parts within the solar array need to be electrically bonded to existing DC ground paths via the use of a UL 467 approved grounding lug. The conductor size, type and temperature rating should be selected in accordance with NEC 690.45 and NEC 250.122.1. The primary evaluation for grounding and/or mounting was performed with the PV module type(s) listed below.

- VSUN330-72P

Specific evaluations of other modules can be provided upon request and at cost (a minimum of two modules are required).

For compliance with a Fire Class A rating, the CompactFLAT S systems have to be installed with type 1 or type 2 PV modules over a fire-resistant roof covering rated for the application (UL 2703, 26.3B).

Load Ratings

The CompactFLAT S05, S10, and S15 system design load ratings for a 72 cell PV module are:

- Upward: 29.2 psf / 1.4 kPa
- Downward: 45.9 psf / 2.2 kPa
- Down-slope 8.0 psf / 0.4 kPa

Tested loads:

- Upward: 43.9 psf / 2.1 kPa
- Downward: 68.9 psf / 3.3 kPa
- Down-slope: 12.0 psf / 0.6 kPa

The CompactFLAT S10+ system design load ratings for a 72 cell PV module are:

- Upward: 29.2 psf / 1.4 kPa
- Downward: 45.9 psf / 2.2 kPa
- Down-slope 8.0 psf / 0.4 kPa

Tested loads:

- Upward: 43.9 psf / 2.1 kPa
- Downward: 68.9 psf / 3.3 kPa
- Down-slope: 12.0 psf / 0.6 kPa

The CompactFLAT S05 Alpine, S10 Alpine, and S15 Alpine system design load ratings for a 72 cell PV module are:

- Upward: 29.2 psf / 1.4 kPa
- Downward: 91.9 psf / 4.4 kPa
- Down-slope 8.0 psf / 0.4 kPa

Tested loads:

- Upward: 43.9 psf / 2.1 kPa
- Downward: 137.8 psf / 6.6 kPa
- Down-slope: 12.0 psf / 0.6 kPa

The CompactFLAT S10+ Alpine system design load ratings for a 72 cell PV module are:

- Upward: 29.2 psf / 1.4 kPa
- Downward: 91.9 psf / 4.4 kPa
- Down-slope 8.0 psf / 0.4 kPa

Tested loads:

- Upward: 43.9 psf / 2.1 kPa
- Downward: 137.8 psf / 6.6 kPa
- Down-slope: 12.0 psf / 0.6 kPa