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Assembly Instruction

## COMPACTFLAT S05 | S10 | S15

Version : 3.4

Language : English

Important! Read carefully before installation!

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## **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 installation instructions are protected by copyright. The installation instructions may not be copied, reproduced, microfilmed, translated or converted for storage and processing in computer systems, either in part or in full, without the written permission of AEROCOMPACT Europe GmbH

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## **Creation date**

10/2024

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# GENERAL

These assembly instructions describe the assembly procedure and must be strictly adhered to. Read these installation instructions carefully before starting installation. The basic prerequisite for safe working is compliance with all the safety and handling instructions in these installation instructions. In addition, the local accident prevention regulations and general safety regulations for the area of application of the product apply. Illustrations in these instructions are for basic understanding and may differ from the actual design.

## APPLICABLE DOCUMENTS

In addition to this manual, you have received an AEROTOOL project report, planning documents and drawings. Always comply with the instructions and notes contained therein.

## LIMITATION OF LIABILITY

All information and instructions in these assembly 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 **terms** and can be accessed at [www.aerocompact.com/downloads](http://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 smooth installation

### SYMBOLS IN ILLUSTRATIONS - ACTIVITIES



Optional component, optional mounting variation



Activity by hand



Check AEROTOOL project report or planning documents



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 risks that can occur when installing these products. There is no liability for the completeness of the risks presented. A specific check of the necessary safety measures must be carried out by an authorized specialist company before installation.

## APPROPRIATE USE

The CompactFLAT flat roof system is designed exclusively for mounting PV modules on flat roofs or similar flat surfaces. Proper use also includes correct installation in accordance with these installation instructions. Installation must be carried out by qualified personnel who are familiar with the installation of photovoltaic systems and strictly in accordance with the installation instructions, planning documents and project report. The building protection mat included in the scope of delivery is matched to the roof surface defined in the project. Due to the large number of different types of waterproofing used in the past and currently available on the market, the responsible planner must ensure compatibility and the static friction coefficient between the building protection mat and the roof structure of the building on which the system design is based. The friction coefficient is determined during the planning process using the Friction Measurement Kit.

## PERSONNEL REQUIREMENTS

Installation may only be carried out by a specialist company and must be carried out strictly in accordance with the installation instructions, the project report and the planning documents. A specialist company is a company that is familiar with the installation and maintenance of photovoltaic systems as part of its normal business operations. National and local building regulations, standards and environmental protection must be complied with. Under no circumstances may the assembly personnel be under the influence of medication, alcohol, drugs or in any other condition that impairs consciousness (e.g. overtiredness). Trainee personnel may only carry out work under the instruction and supervision of specialist personnel who are authorized to train personnel.

## WORKING SAFELY

The contractual partner must ensure that the necessary safety measures and the relevant labor law and occupational safety regulations are observed when installing products from AEROCOMPACT Europe GmbH. Information from AEROCOMPACT Europe GmbH on the need to comply with security measures is provided without guarantee and without any claim to completeness and serves only to support the contractual partner. The contractual partner is obliged to inform himself about all relevant regulations concerning working safety and to comply with them. AEROCOMPACT Europe GmbH expressly assumes no responsibility and consequently no liability. Areas below the roof on which work is being carried out must be protected from falling objects. Where this is not possible, the affected areas must be closed to the public and unauthorized personnel. If the weather is unsuitable, work on the roof must not be continued for longer than necessary or must not be started at all. Never carry out installation work in strong winds. Strong winds exert particular enormous forces on the large-area PV modules. There is a risk of a module being torn off the roof and people being injured. Never work in wet conditions or at temperatures below freezing. 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 specifications. Separate rules apply to mechanical climbing aids (elevators, cherry pickers, etc.). Never use the PV mounting system as a climbing support. Keep sufficient distance from overhead power lines. Equipotential bonding between the individual system components must be carried out in accordance with the respective country-specific regulations. When cutting materials to size, make sure there are no burrs, especially on edges and corners where there is a risk of injury.

# BREAKTHROUGH PROTECTION

Roof windows, skylights, large ventilation flaps, etc. generally cannot withstand the weight or impact of a person. Such objects must be secured in a similar way to the roof edge. Corrugated fiber-cement roofs can be at risk of breakthrough over the entire surface. Define routes and secure them with load distribution measures. Always use load distribution aids on roof coverings or roof structures (e.g. thin sheet metal, corrugated fiber cement) with insufficient load-bearing capacity.

# PERSONAL PROTECTIVE EQUIPMENT (PPE)

Personal protective equipment is used to protect people from health and safety hazards at work. Personnel must wear personal protective equipment during installation. Personal protective equipment is explained below:



**Wear safety goggles when drilling and sawing**



**Wear cut-resistant work gloves during assembly**



**Wear safety shoes**



**Use fall protection**



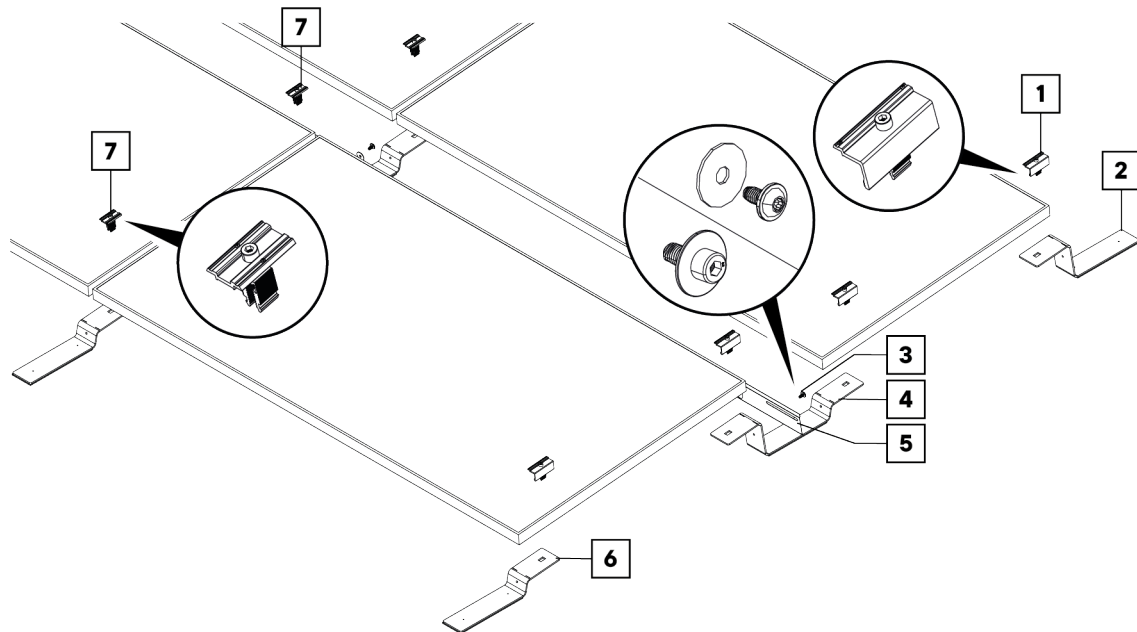
**Helmets must be worn by all persons working on the construction site**



**Wear hearing protection**

# SYSTEM OVERVIEW

## BASIC COMPONENTS S05



**1 CLE10 PLUS**

End clamp Click 30 - 46 mm | length 80 mm

**3 STS8x16**

Self-tapping screw M8x16

**4 S05CN-PP**

Connector S05 with pad

**6 S05FB-PP**

Front bracket S05 with pad

**2 S05EB-PP**

End bracket S05 with pad

**3 SCS8x20**

Tapping combi-screw M8x20

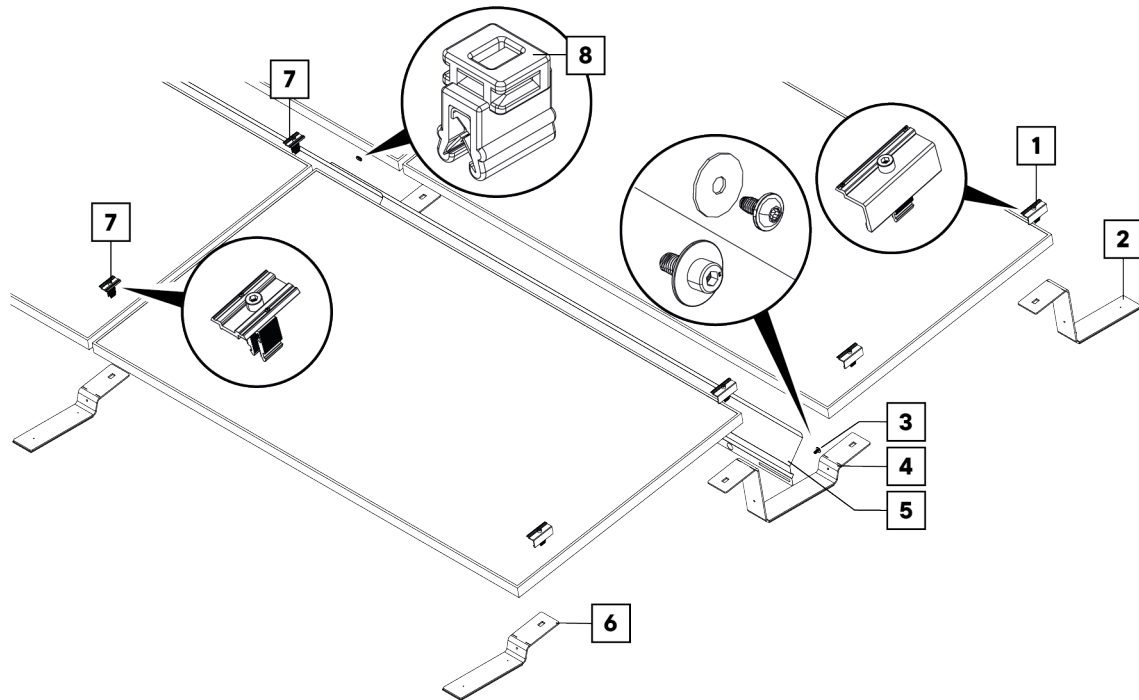
**5 S05WD-XXXX**

Wind deflector 5° | 1800, 2050, 2300, 2500 (mm)

**7 CLM10**

Middle clamp Click 30 - 46 mm

## BASIC COMPONENTS S10



**1 CLE10 PLUS**

End clamp Click 30 - 46 mm | length 80 mm

**3 STS8x16**

Self-tapping screw M8x16

**4 S10CNS-PP**

Connector S10/25 with pad

**5 S10WD-XXXX**

10° Wind deflector | 1800, 2050, 2300, 2500 (mm)

**7 CLM10**

Middle clamp Click 30 - 46 mm

**2 S10EB-PP**

End bracket S10 with pad

**3 SCS8x20**

Tapping combi-screw M8x20

**4 S10CNL-PP**

Connector S10/18 with pad

**6 S10FB-PP**

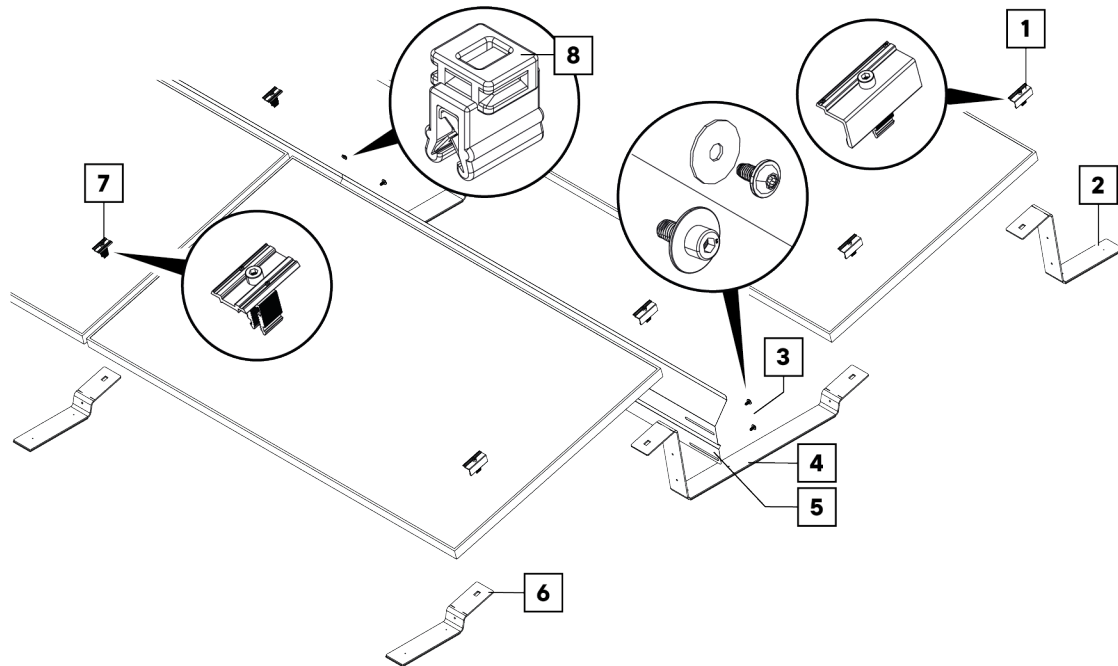
Front bracket S10 with pad

**8 CLP-WD**

Clip for wind deflectors

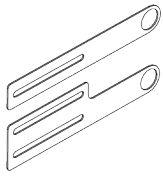


## BASIC COMPONENTS S15

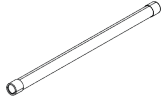


- |   |   |
|---|---|
| <p><b>1 CLE10 PLUS</b><br/>End clamp Click 30 - 46 mm   length 80 mm</p> <p><b>3 STS8x16</b><br/>Self-tapping screw M8x16</p> <p><b>4 S15CNS-PP</b><br/>Connector S15/25 with pad</p> <p><b>5 S15WD-XXXX</b><br/>15° Wind deflector   1800, 2050, 2300, 2500 (mm)</p> <p><b>7 CLM10</b><br/>Middle clamp Click 30 - 46 mm</p> | <p><b>2 S15EB-PP</b><br/>End bracket S15 with pad</p> <p><b>3 SCS8x20</b><br/>Tapping combi-screw M8x20</p> <p><b>4 S15CNL-PP</b><br/>Connector S15/18 with pad</p> <p><b>6 S15FB-PP</b><br/>Front bracket S15 with pad</p> <p><b>8 CLP-WD</b><br/>Clip for wind deflectors</p> |
|---|---|

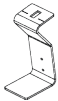
## SYSTEM ACCESSORIES



**BR-CP**  
Brackets for cable pipe



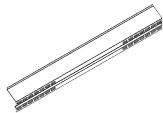
**CP-430 | CP-620 | CP-840**  
Cable pipe



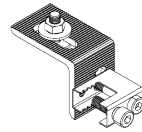
**S05BS | S10BS | S15BS**  
Alpine bracket rear



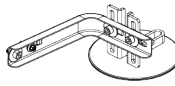
**S05WD-XXXX**  
5° Wind deflector | 1800, 2050, 2300,  
2500 (mm)



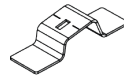
**S15WD-XXXX**  
15° Wind deflector | 1800, 2050, 2300,  
2500 (mm)



**MA-BR**  
Mounting bracket for MLPE



**APA**  
Roof anchor connection

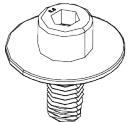


**S05FS | S10FS | S15FS**  
Alpine bracket front

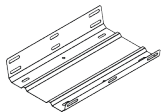


**S10WD-XXXX**  
10° Wind deflector | 1800, 2050, 2300,  
2500 (mm)

## ACCESSORIES BALLASTING



**SCS8x20**  
Thread rolling combination screw M8x20



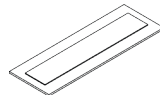
**BT-450**  
Ballast tray short 450 mm



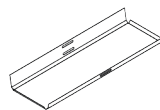
**BT-1800 | BT-2050 | BT-2300**  
Ballast tray long



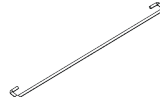
**STS4x8**  
Self-tapping screw M4x8



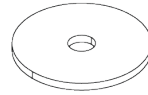
**PP200**  
Building protection pad for ballast stones  
and ballast tray



**BT-880**  
Ballast tray short 880 mm

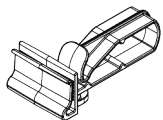


**BSB**  
Ballast securing bracket

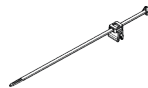


**FW4.3**  
Washer (optional for mounting the ballast  
tray long)

## MODULE ACCESSORIES

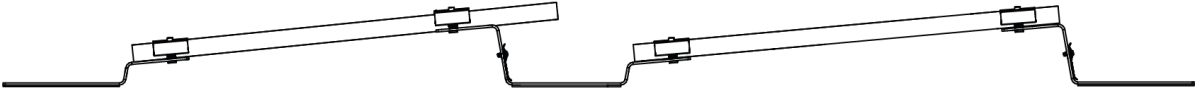


**CLP-U**  
Cable clip universal



**CLP-M**  
Cable tie clip for module frames with a  
thickness of 1 - 3 mm

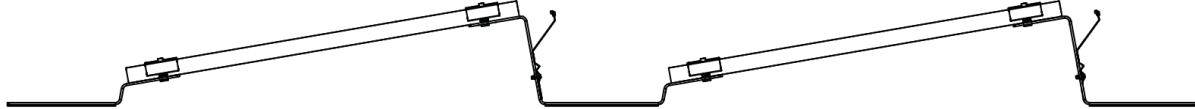
# SYSTEM VARIANTS



**SYSTEM S05 | 178 MM ROW SPACING | 30° SHADING ANGLE**



**SYSTEM S05 | 335 MM ROW SPACING | 15° SHADING ANGLE**



**SYSTEM S10 | 380 MM ROW SPACING | 25° SHADING ANGLE**



**SYSTEM S10 | 527 MM ROW SPACING | 18° SHADING ANGLE**



**SYSTEM S15 | 571 MM ROW SPACING | 25° SHADING ANGLE**



**SYSTEM S15 | 790 MM ROW SPACING | 18° SHADING ANGLE**

# ASSEMBLY

## ASSEMBLY PREPARATION

**i** We recommend using a bitumen sheet as a base before starting installation. This measure serves to effectively protect the roof surfaces from possible damage and thus ensure the longevity of the entire system.

### Required tools for assembly

**i** Before starting the assembly, make sure that the assembly personnel are familiar with the proper use of the listed tools.



**Bit hexagon socket 6 mm**



**Bit TORX T40**



**Measuring tape**



**Chalk line**



**Torque wrench 10 - 30 Nm with hexagon socket bit 6mm**



**Cordless screwdriver**

## INFORMATION FOR INSTALLING ON GRAVEL ROOFS

**i** According to the planning documents, the installation of the system takes place either directly on the seal or the 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** Due to possible damage to the roof waterproofing caused by excessive point loads, it is not recommended to mount the system on a gravel layer of less than **60 mm**.

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

### Mount the system on the gravel

- ✓ The height of the gravel bed is 60 – 100 mm and protective fleece (min. 300 g/m<sup>2</sup>) is available or the
- ✓ gravel bed is 100 mm or more.

▣ Mount the system on the gravel.

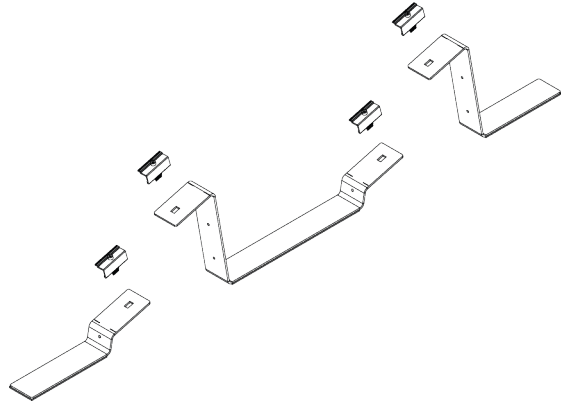
## PRE-ASSEMBLE THE CLAMPS

**i** When **pre-assembling** the end and middle clamps, it is important to ensure that the front brackets, connectors and end brackets are correctly assigned, see "Measuring the module field" on the next page for more information.

### END CLAMPS (EAST AND WEST SIDE)



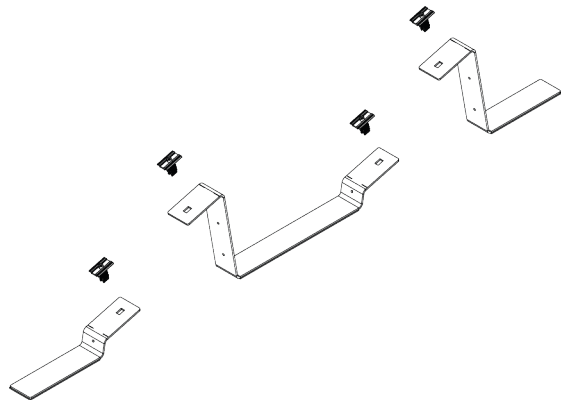
- ▶ Attach the end clamps to the front brackets, connectors and end brackets.



### MIDDLE CLAMP



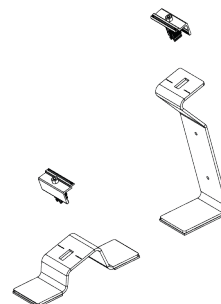
- ▶ Attach the middle clamps to the front brackets, connectors and end brackets.



### MIDDLE CLAMPS (ALPINE SUPPORTS)

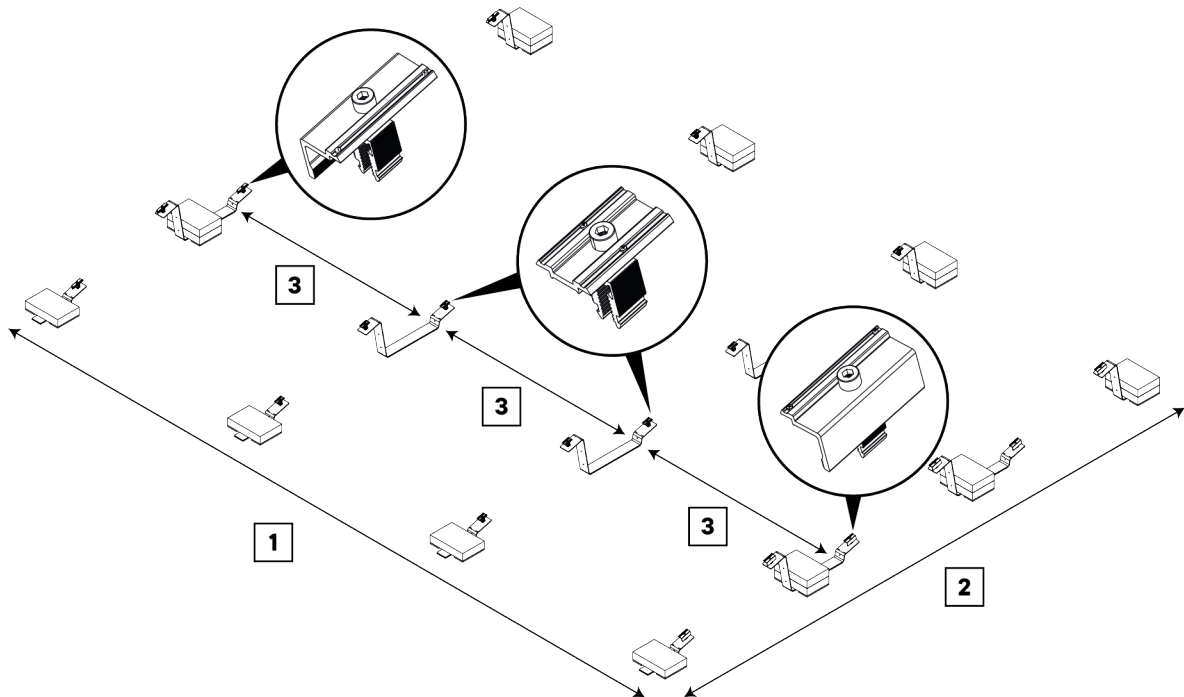


- ▶ Attach the end clamps to the alpine supports.



## MEASURE THE MODULE FIELD

**i** The exact **dimensions** can be found in the attached **planning documents**.



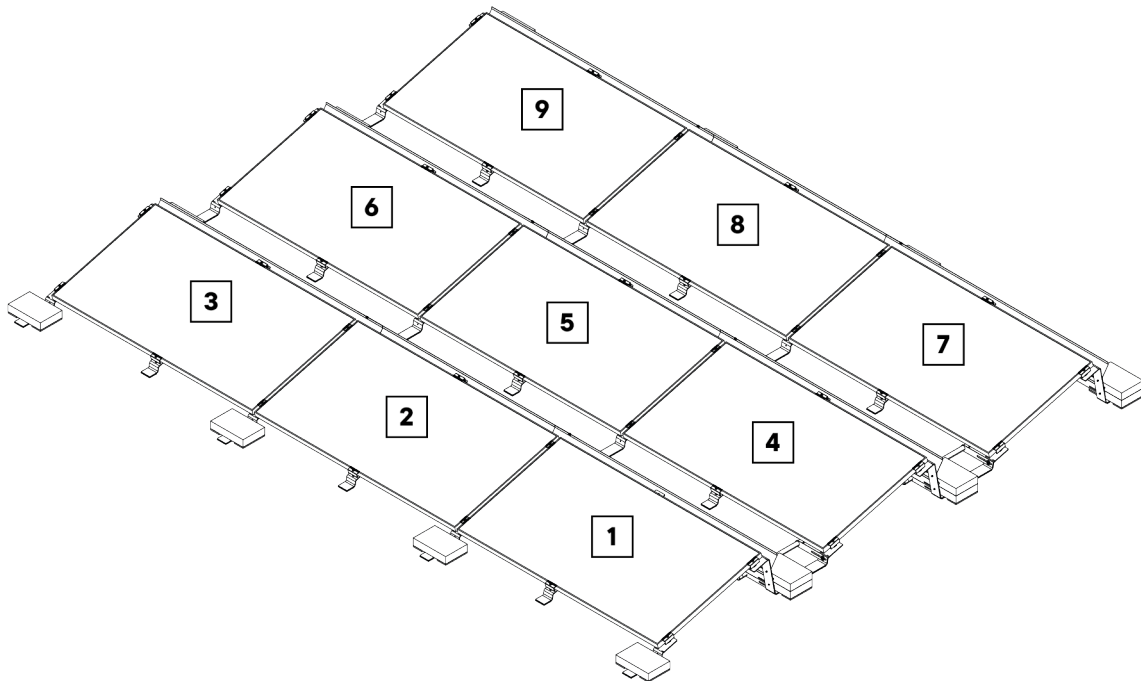
- Measure the length (1) and width (2) of the entire module field and mark the line.
- Measure the single module rows (3) and mark the line.
- Distribute the front brackets, connectors and end brackets in the module field in accordance with the planning documents.

**i** When distributing, ensure that the **middle clamps** and **end clamps** are positioned correctly.

## MOUNT MODULES

### Assembly sequence of the modules

**i** The following illustration is an example and may show a different number of modules and ballast trays depending on the project. The module assembly sequence remains constant. The **assembly sequence** is crucial to avoid deformation of the starting brackets, connectors and end brackets.



**➤** The modules must be installed in ascending order from **1** to **9**.

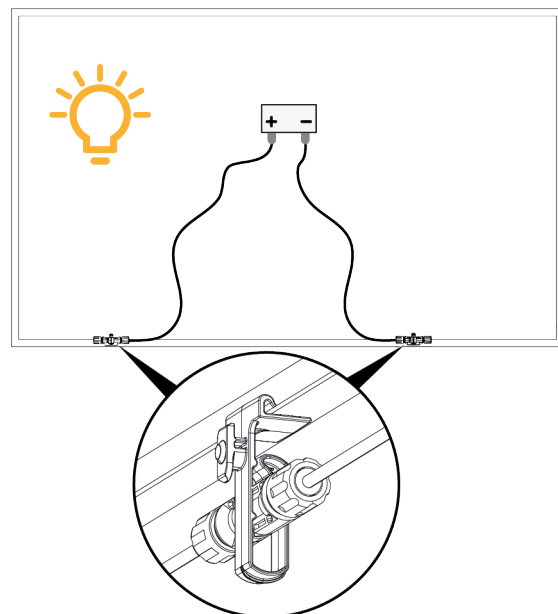
### RECOMMENDATION FOR WIRING THE MODULES



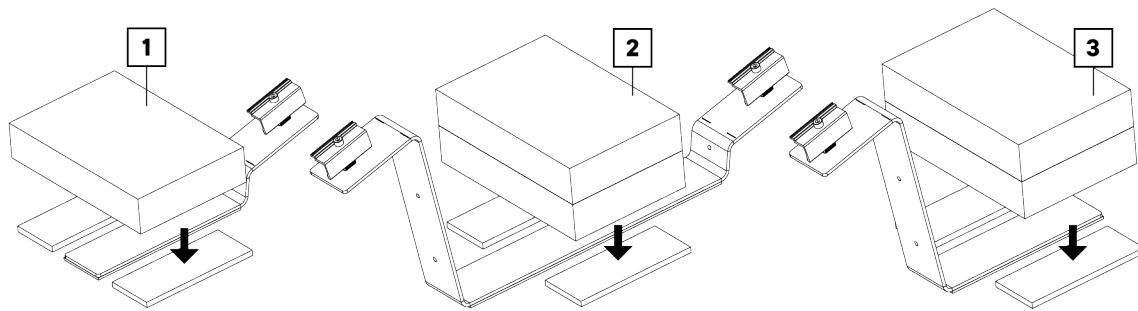
**i** **Installation tip:**

Before starting the module installation, install two CLP-U per module as shown in the illustration to ensure better accessibility for the subsequent cabling.

**➤** If necessary, slide the CLP-U cable clips out of the clamping area.



## Ballasting brackets and connectors

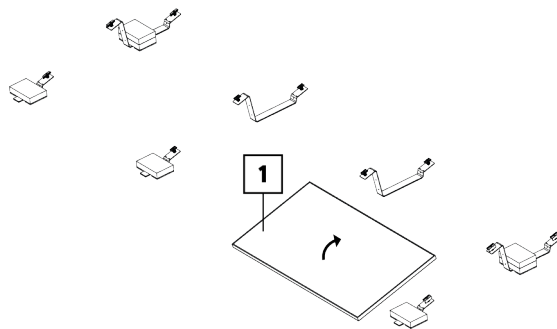


**i** For module assembly, place the ballast stones (1-3) at the front bracket, connectors and end bracket. The exact number of the ballast stones can be found in the planning documents. For more information, see "Ballasting" on page 22.

## Assembly modules



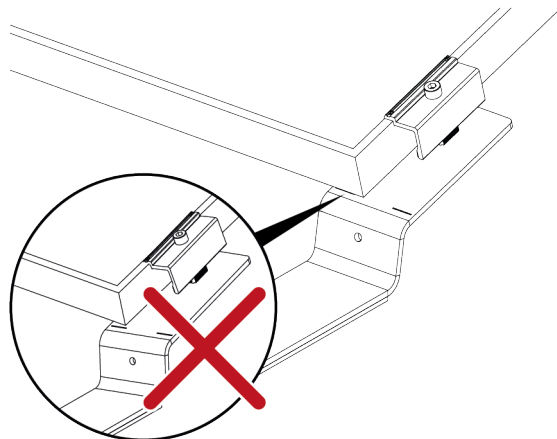
- Position the first module (1) on the front bracket and connectors.



### ALIGNMENT OF THE BRACKETS



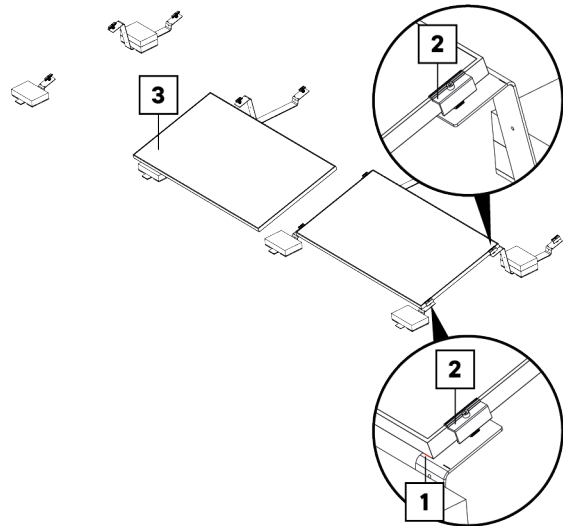
- Position the brackets and connectors so that the clamps are flush with the module.
- The brackets must be mounted in a straight position.



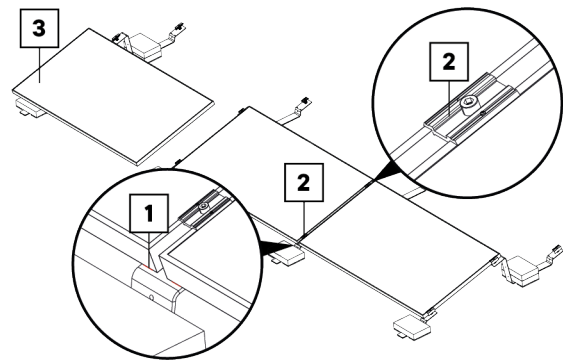




- Align the module with the notches (1) on the front brackets and connectors.
- Position the end clamps (2) flush with the module and then tighten to a torque of 15 Nm or 11 lb-ft.
- Position the following module (3) on the front brackets and connectors.

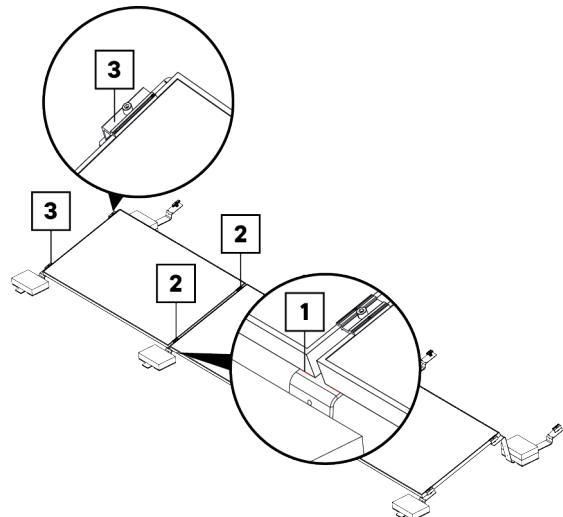


- Align the module with the notches (1) on the front brackets and connectors.
- Position the middle clamps (2) flush with the module and then tighten to a torque of 15 Nm or 11 lb-ft.
- Position the following module (3) on the front brackets and connectors.



- Align the module with the notches (1) on the front brackets and connectors.
- Position the middle clamps (2) flush with the module and then tighten to a torque of 15 Nm or 11 lb-ft.
- Then position the end clamps (3) flush with the module and tighten to a torque of 15 Nm or 11 lb-ft.

**i** Install the other module rows in the **same sequence**.

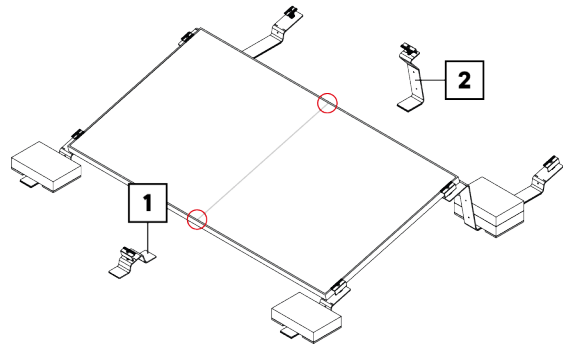


## Mont alpine support brackets (if required)



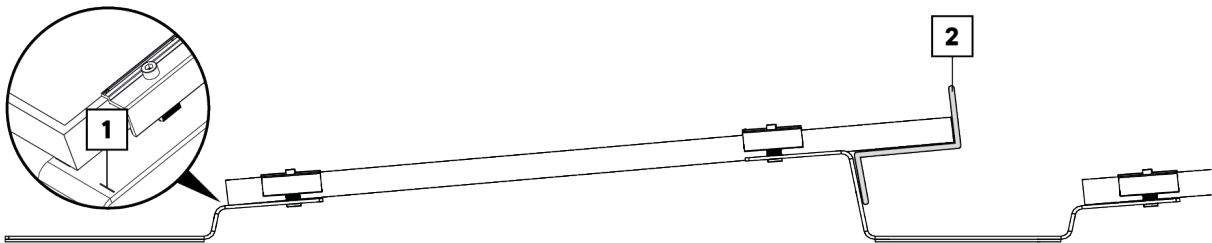
**i** Mid-panel support brackets are used to withstand the wind and/or snow loads on site.

- Position the alpine supports (1) and (2) in the middle of the module.
- Tighten the screws of the end clamps with a torque of 15 Nm or 11 ft lbs.



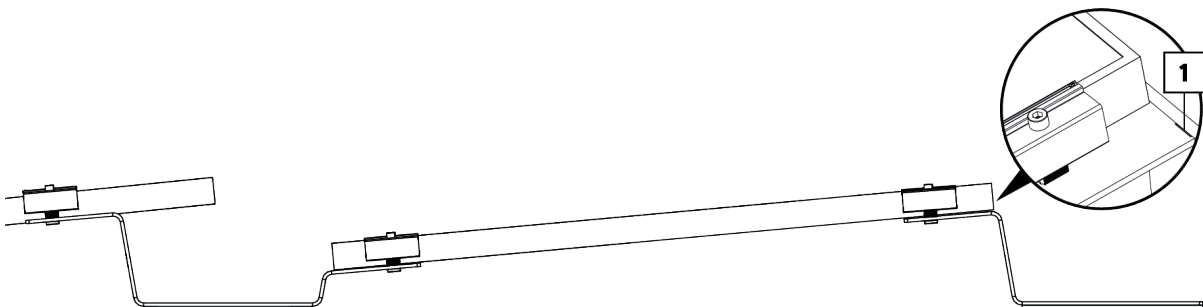
## Variant 5° system with 30° shading angle

**i** The row spacing in this configuration is **178 mm**, whereby the module must protrude from the connector. The use of a gauge is required to fulfill this dimensional specification.



- Position the module on the front brackets at the notches (1).
- Allow the module to protrude from the connector using the gauge (2).

**i** The modules must **not protrude** at the end brackets.



- Position the module on the end brackets at the notches (1).
- The remaining steps are identical to those described in the chapter "Assembly modules" on page 16.

## ASSEMBLY WIND DEFLECTOR

### **i Attention:**

Do not leave the construction site until the wind deflectors have been fully installed to prevent potential personal injury and damage to property. All the cabling work must be completed before the wind deflectors are fitted.

### SYSTEM S05

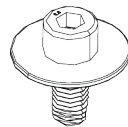
**i Important:** In the **S05** system, the long ballast trays replace the wind deflectors.

### REQUIRED COMPONENTS



**S05WD-XXXX**

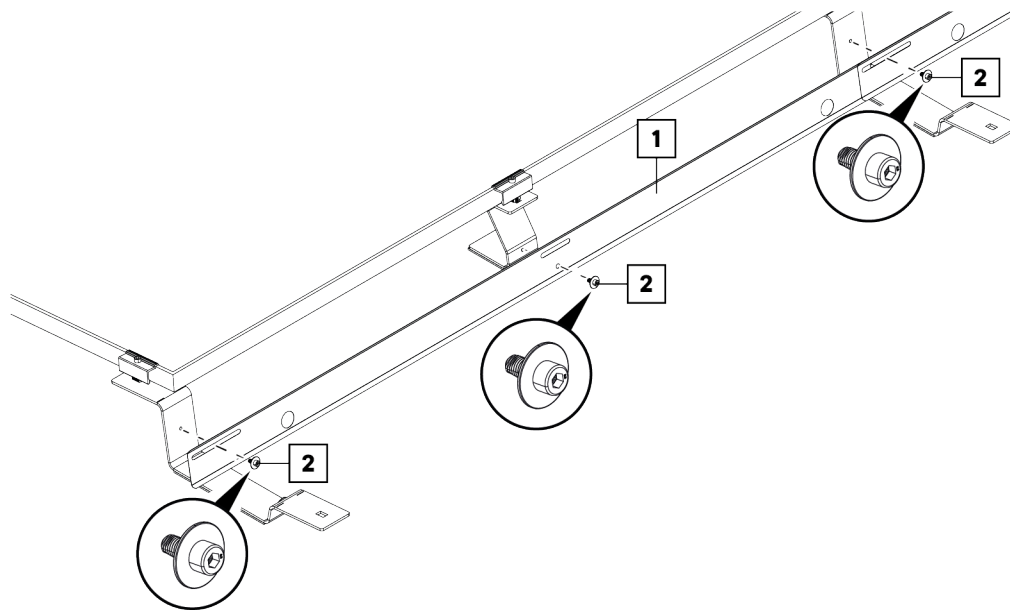
5° Wind deflector | 1800, 2050, 2300,  
2500 (mm)



**SCS8x20**

Thread rolling combination screw M8x20

### ASSEMBLY



- Lay the wind deflector (1) overlapping on the back of the connectors or end bracket.
- For the alpine supports, screw the wind deflectors (1) to the lower hole of the wind deflector.
- Screw the wind deflectors to the slotted holes with the connectors or end brackets.
- Tighten the screws (2) to a torque of 15 Nm or 11 ft-lb each.

## SYSTEM S10

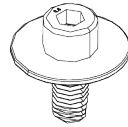
**i** In the **S10** system, the ballast tray is mounted together with the wind deflectors.

### REQUIRED COMPONENTS



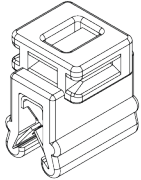
#### **S10WD-XXXX**

10° Wind deflector | 1800, 2050, 2300,  
2500 (mm)



#### **SCS8x20**

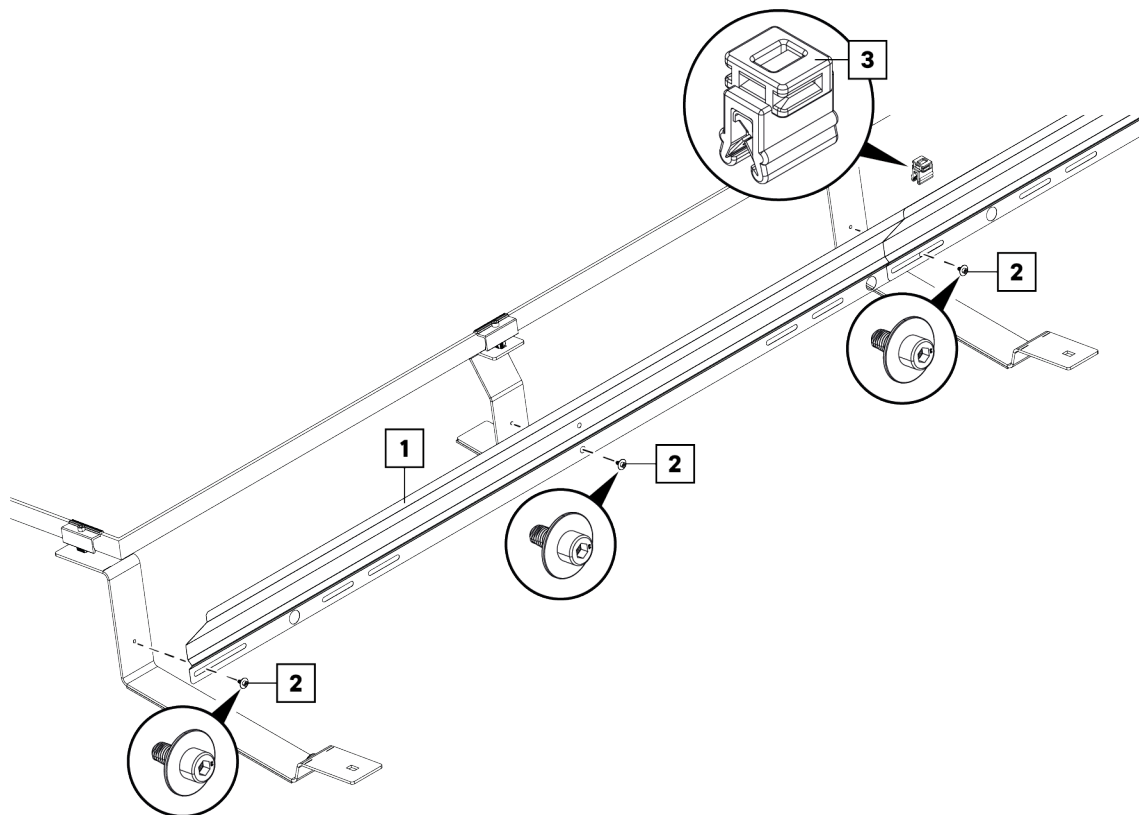
Thread rolling combination screw M8x20



#### **CLP-WD**

Clip for wind deflectors

### ASSEMBLY

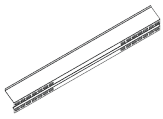


- Lay the wind deflector (1) overlapping on the back of the connectors or end bracket.
- For the alpine supports, screw the wind deflectors (1) to the lower hole of the wind deflector.
- Tighten the screws (2) to a torque of 15 Nm or 11 ft-lb each.
- Then attach the clip (3) to the overlap points.

## SYSTEM S15

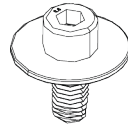
**i** In the **S15** system, the ballast tray is mounted together with the wind deflector.

### REQUIRED COMPONENTS



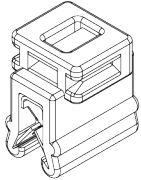
#### **S15WD-XXXX**

15° Wind deflector | 1800, 2050, 2300,  
2500 (mm)



#### **SCS8x20**

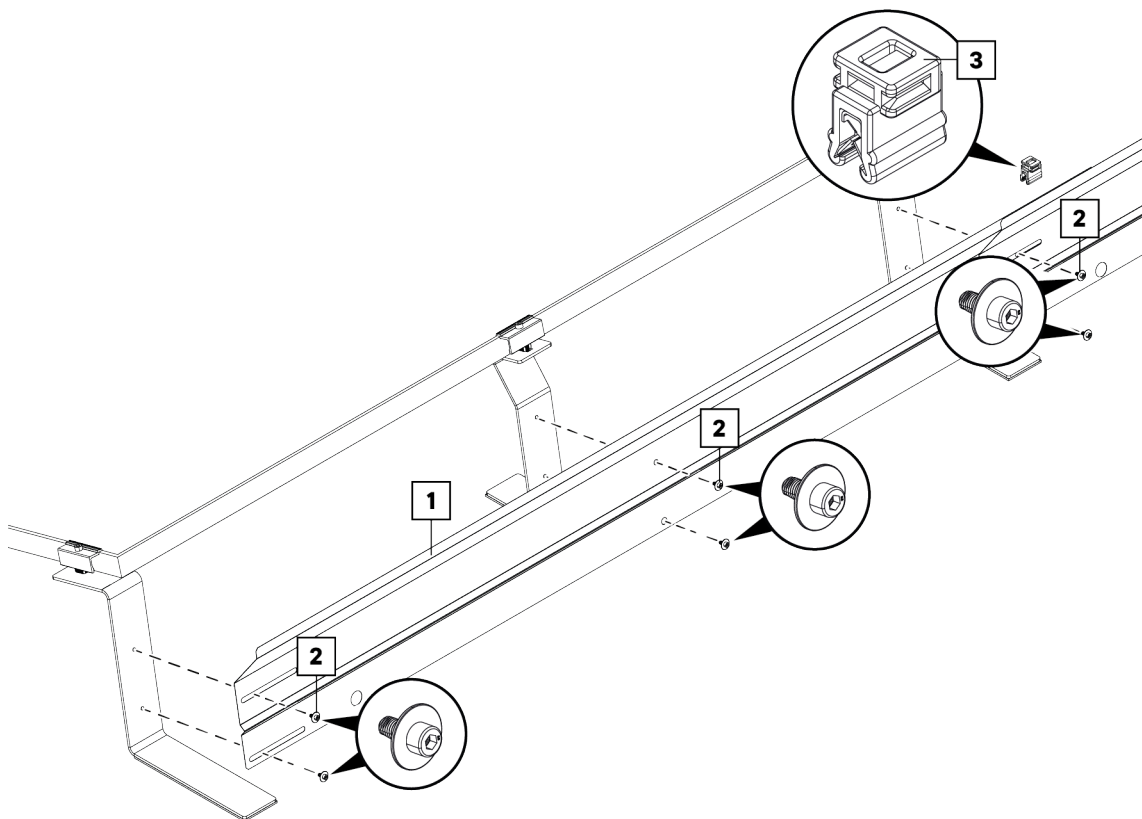
Thread rolling combination screw M8x20



#### **CLP-WD**

Clip for wind deflectors

### ASSEMBLY



- Lay the wind deflector (1) overlapping on the back of the connectors or end bracket.
- For the alpine supports, screw the wind deflectors (1) on both holes.
- Tighten the screws (2) to a torque of 15 Nm or 11 ft-lb each.
- Then attach the clip (3) to the overlap points.

## BALLASTING

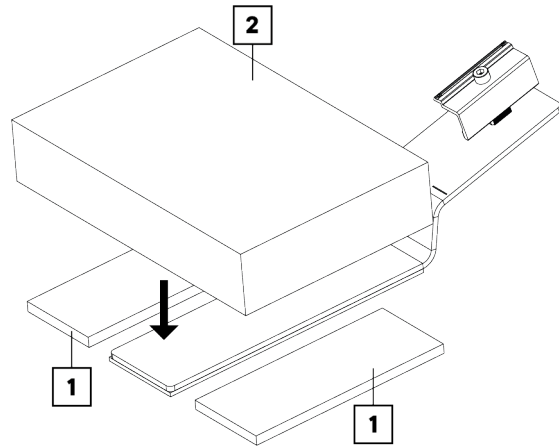
**i** The exact number and position of the ballast stones and ballast trays are specified in the **AEROTOOL planning documents**. If more than three stones have to be stacked, additional securing of the ballasting is required on site. In such cases, the use of a strap is recommended.

### Direct ballasting



- Position the building protection pads (1) to the right and left of the bracket or connector.
- Place the ballast stone (2).

**i Recommendation building protection pads:**  
Attach the building protection pads (1) to the ballast stones using highly weather-resistant construction adhesive to minimize maintenance.



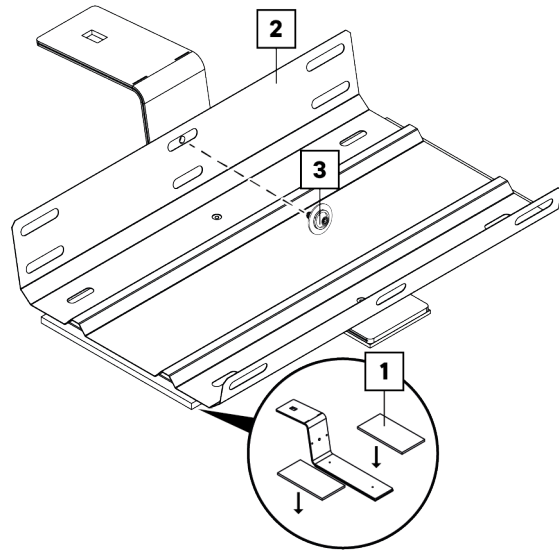
## Ballast tray 450



### **i** Recommendation building protection pads:

Attach the building protection pads (1) to the ballast trays using highly weather-resistant construction adhesive to minimize maintenance work.

- Position the building protection pads (1) to the right and left of the bracket or connector.
- Place the ballast tray (2) on top.
- Then tighten the screw (3) with a torque of 15 Nm or 11 lb-ft.

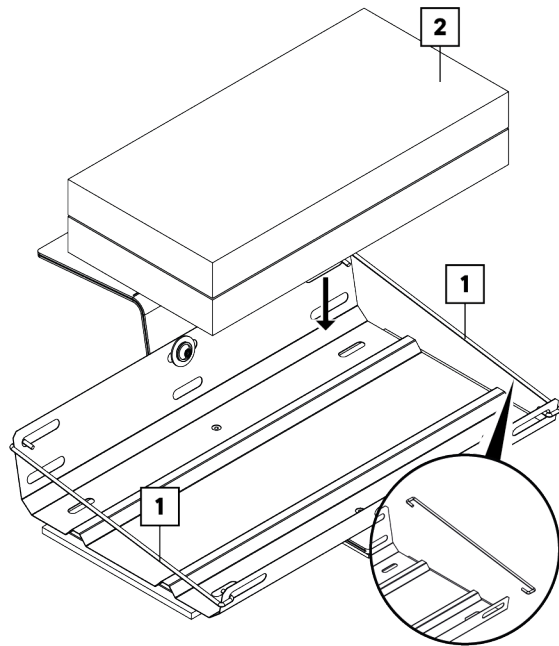


### **MOUNT THE BALLAST SECURING BRACKET (OPTIONAL)**



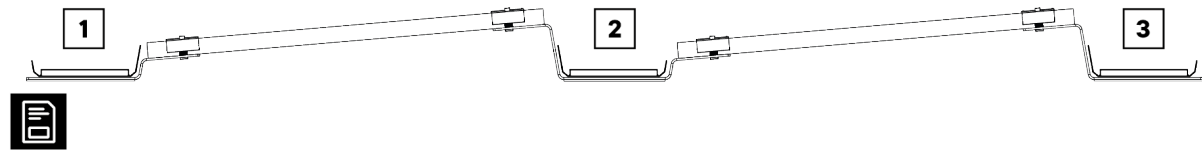
**i** The ballast securing brackets (1) can **optionally** be attached to the edge of the ballast tray.

- Attach the ballast securing brackets (1) at the side as shown in the illustration.
- Place the ballast stones (2).



# Ballast tray 880

## POSITION



The following positions are possible for positioning the ballast tray:

- (1) front bracket
- (2) Connector
- (3) End bracket

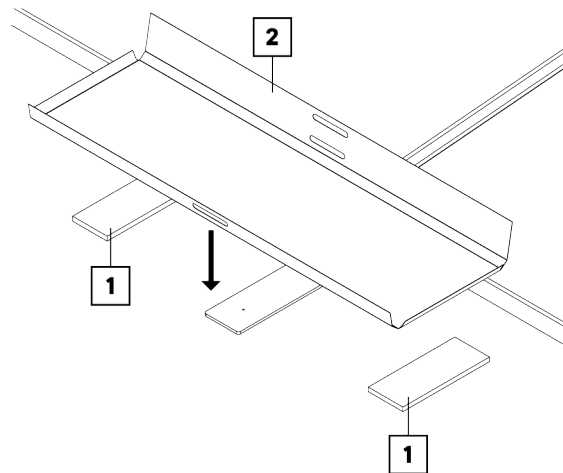
## MOUNT BALLAST TRAY



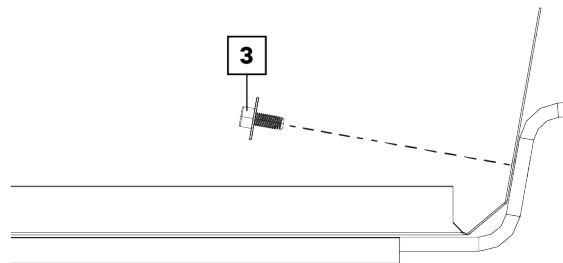
### **1** Recommendation building protection pads:

Attach the building protection pads (1) to the ballast trays using highly weather-resistant construction adhesive to minimize maintenance work.

- Position the building protection pads (1) to the right and left of the bracket or connector.
- Place the ballast tray (2) on top.



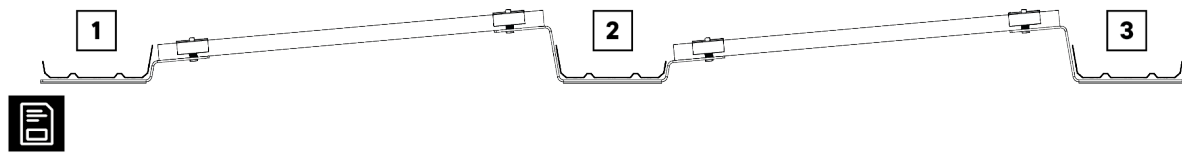
- Screw the ballast tray (1) to the bracket or connector with a thread rolling screw (2).
- Tighten the screw with a torque of 15 Nm or 11 lb-ft.





# Ballast tray 1800 | 2050 | 2300

## POSITION



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

- (1) front bracket
- (2) Connector
- (3) End bracket

## PLACE ROOF PROTECTION PADS

### **i** Recommendation building protection pads:

Attach the building protection pads to the ballast trays using highly weather-resistant construction adhesive to minimize maintenance work.

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

Length 1800 mm: **3** structural protection pads per ballast tray

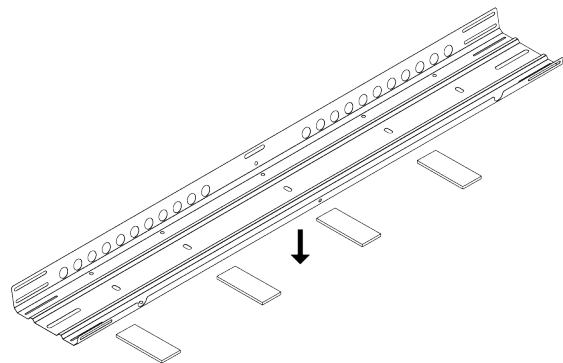
Length 2050 mm: **4** structural protection pads per ballast tray

Length 2300 mm: **5** structural protection pads per ballast tray



**i** When positioning the building protection pads, make sure that any drainage holes are not covered.

- ☒ Position the building protection pads (1) to the right and left of the bracket or connector.

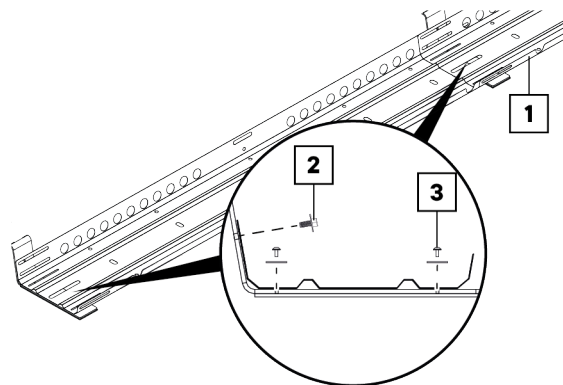


## S05 SYSTEM

**i** **Important:** In the S05 system, the long ballast pans replace the wind deflectors.



- ☒ When overlapping (1) the ballast trays, make sure that the overlap is at the brackets or connectors.
- ☒ Screw the ballast tray to the bracket or connectors with self-tapping screws (2).
- ☒ Tighten the screw with a torque of 15 Nm or 11 lb-ft.
- ☒ **Optional:** Screw the bottom of the ballast trays to the connectors or brackets (3)  
(Use Self-tapping screw STS 4x8).

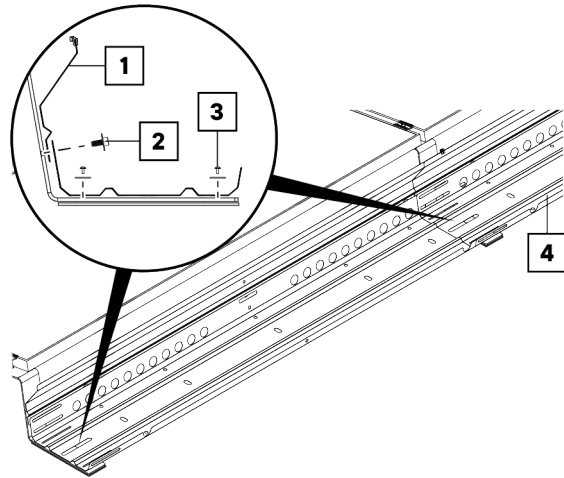


## S10 AND S15 SYSTEM

**i** With the **S10** and **S15** systems, the ballast tray is installed together with the **wind deflector (1)**.



- Position the ballast trays so that the overlap (4) is at the points of the brackets or connectors.
- Screw the ballast tray to the brackets or connectors with self-tapping screws (2).
- Tighten the screw with a torque of 15 Nm or 11 lb-ft.
- **Optional:** Screw the bottom of the ballast trays to the connectors or brackets (3) (Use Self-tapping screw STS 4x8).

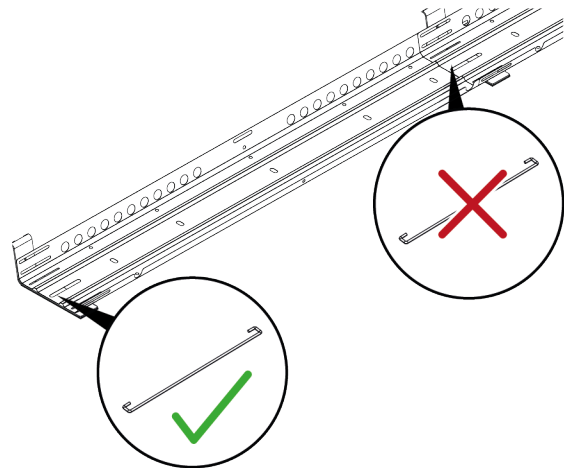


## BALLAST SECURING BRACKET BSB (OPTIONAL)



### **i Important!**

The ballast securing bracket **BSB** should only be attached to the edge of the ballast tray. It is not necessary to attach the ballast securing brackets at the overlapping points.



## Ballasting with gravel

**i** In addition to ballasting with ballast stones, it is also possible to ballast **the roofs with gravel**. The prerequisite for this is the use of **short** or **long** ballast troughs.



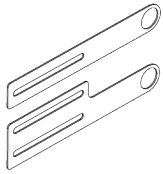
- The ballast walls according to assemble the AEROTOOL planning documents
- Backfill the ballast pans with gravel.
- Spread the remaining gravel evenly over the roof, adding additional gravel if necessary.

**i** For "Information for installing on gravel roofs" on page 12 see.

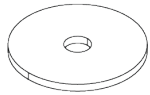
## ASSEMBLY CABLE PIPE (OPTIONAL)

**i** The cable pipes are mounted on the side edge of the module field. Depending on the circumstances, the cable pipe together with the wind deflector and/or the ballast trough must be mounted on a bracket or connector.

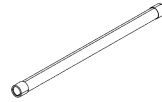
### REQUIRED COMPONENTS



**BR-CP**  
Brackets for cable pipe



**FW4.3**  
Washer (optional for mounting the ballast tray long)



**CP-430 | CP-620 | CP-840**  
Cable pipe

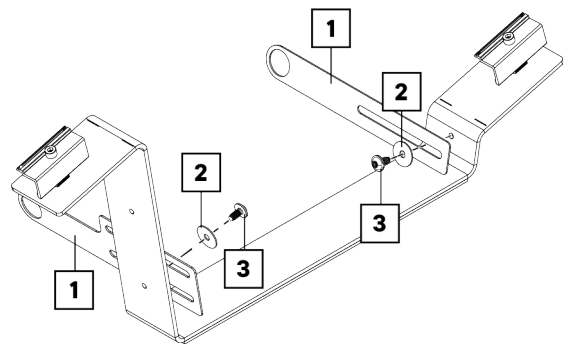


**STS4x8**  
Self-tapping screw M4x8

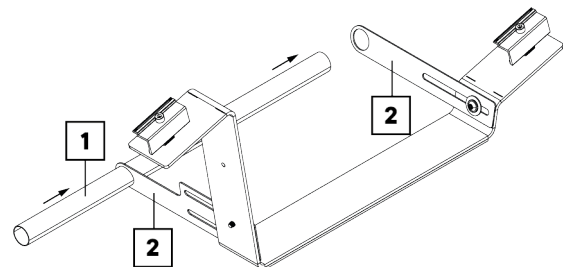
### ASSEMBLY (EXAMPLE CONNECTOR)



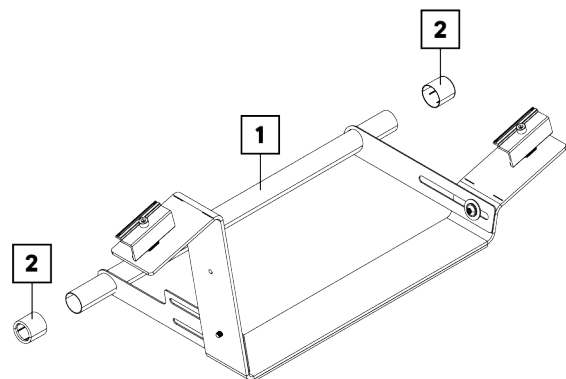
- Position the two brackets (1) on both sides as shown in the illustration.
- The brackets (1) must each be fastened with the washer and screws (3).
- Then tighten the screws (3) with a torque of 10 Nm or 11 lb-ft.



- Insert the cable pipe (1) into the side of the brackets (2).



- Then insert the two plastic caps (2) into the sides of the cable pipe (1) as far as they will go.
- ☑ The cable pipe is now mounted.



## CABLE MANAGEMENT

### CABLE CLIP CLP-M FOR MODULES

**i** The **CLP-M cable clip** is suitable for module frames with a sheet thickness of **1 - 3 mm**.



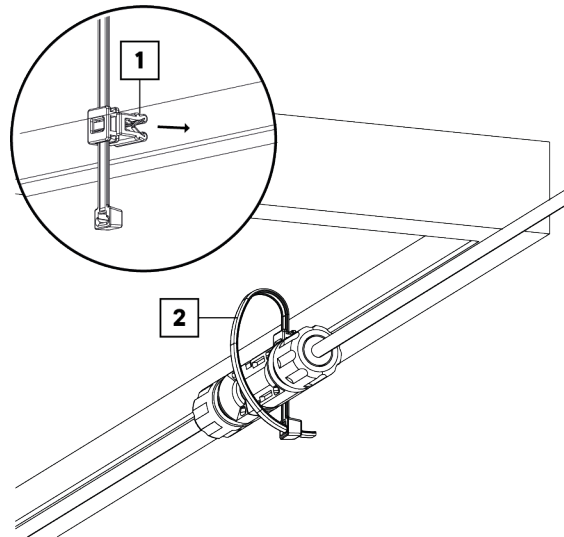
#### CLP-M

Cable tie clip for module frames with a thickness of 1 - 3 mm

#### ASSEMBLY

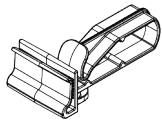


- ▶ Insert the CLP-M (1) into the module frame.
- ▶ The CLP-U is suitable for:
  - Solar plug (e.g. MC4)
  - Solar cable
- ▶ Then tighten the cable tie (2).



### CABLE CLIP CLP-U FOR MODULES

**i** The **CLP-U cable clip** is suitable for module frames with a sheet thickness of **1.5 - 3 mm**.



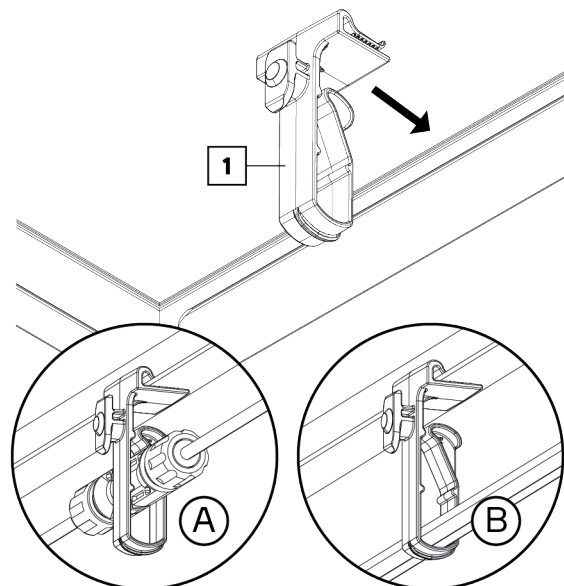
#### CLP-U

Cable clip universal

#### ASSEMBLY



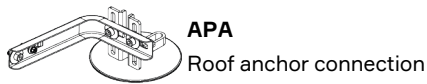
- ▶ Insert the CLP-U (1) into the module frame.
- ▶ The CLP-U is suitable for:
  - A** - Solar connectors (e.g. MC4)
  - B** - Solar wire



## ASSEMBLY THE ROOF ANCHOR CONNECTION

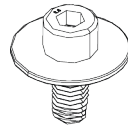
**i** The roof anchors must be provided by the customer and are not included in the scope of delivery of AEROCOMPACT Europe GmbH. For the installation of the roof anchor connection, the roof anchors must be equipped on site with a threaded rod with a maximum size of **M12 (7/16 inch)**. The number and positions of the roof anchors can be found in the planning documents.

### REQUIRED COMPONENTS



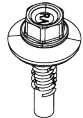
**APA**

Roof anchor connection



**SCS8x20**

Thread rolling combination screw M8x20



**MSDS 5.5x25**

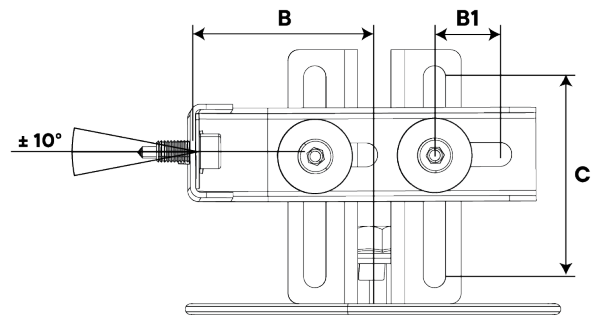
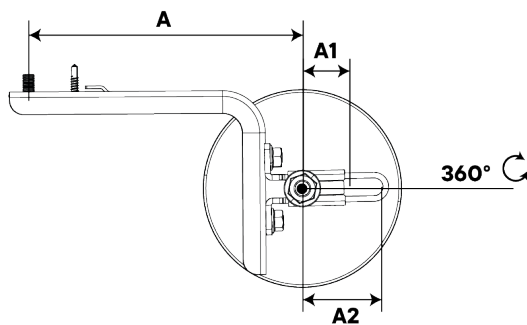
Self-drilling screw 5.5 x 25 mm



**MSS6x25**

Thin sheet metal screw 6x25

### 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

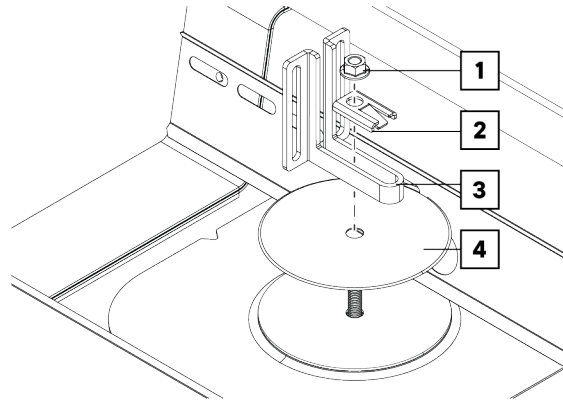
**i** It is possible to install the roof anchor in combination with the wind deflectors and/or ballast trays.



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

- Fit the washer (4), bracket (3) and spacer (2) as shown in the illustration.
- Then tighten the hexagon nut (1) hand-tight.

**i** Make sure that the tab of the spacer (2) faces outwards.



### INSTALL ANGLE CONNECTION WITH SELF-DRILLING SCREW

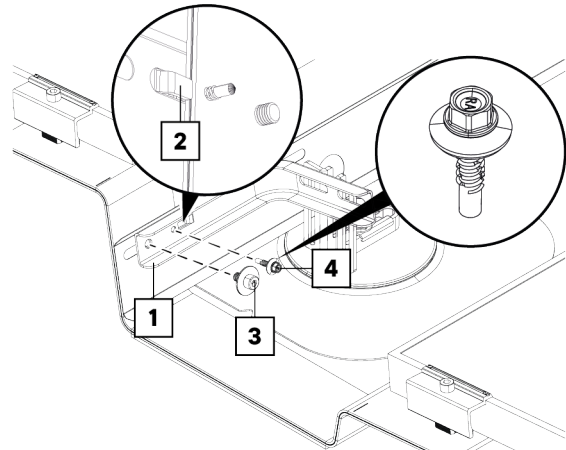
**i** The self-drilling screw is used when pre-drilling is not possible. It is recommended to always pre-drill if possible.



- When attaching the angle connection (1) to the connector, ensure that the tab (2) is in contact.
- Tighten the angle connection (2) with the SCS8x20 screw (3).
- Then screw in the MSDS 5.5x25 screw (4).

**i Attention:**

Remove the metal shavings from the MSDS 5.5x25 screw (4) from the roof covering.





## INSTALL ANGLE CONNECTION WITH THIN SHEET METAL SCREW

### Warning







Risk of injury from chips and sharp edges

Cut injury due to contact

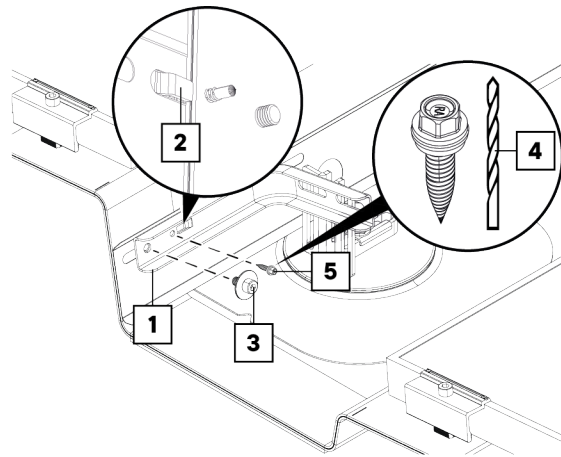
-  Wear safety goggles
-  Tie your hair up



-  When attaching the angle connection (1) to the connector, ensure that the tab (2) is in contact.
-  Tighten the angle connection (2) with the SCS8x20 screw (3).
-  Pre-drill the second hole of the angle connection with a drill  $\varnothing$  4 mm.
-  Then screw in the MSS6x25 screw (4).




#### Attention:

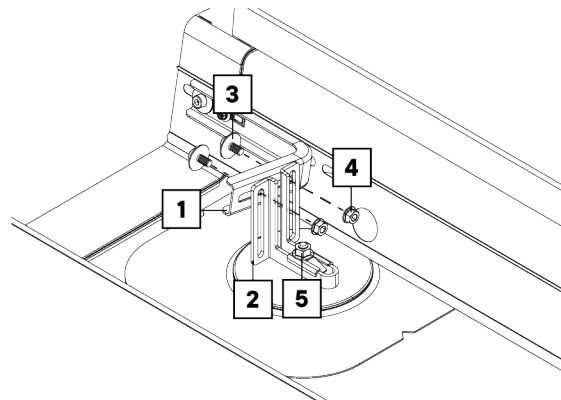
Remove the metal shavings from the MSS6x25 screw (4) from the roof covering.



## Connect angle connection with bracket



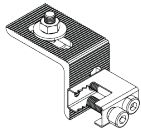
-  Position the angle connection (2) and the bracket (3) flush against each other.
-  Connect the angle connector (2) and the bracket (3) to each other at the slotted holes using the thread-forming screws (1) and hexagon nuts (4).
-  Tighten the hexagon nuts (4) and (5) each to a torque of 15 Nm or 11 ft-lb.



## ASSEMBLE MLPE

**i** The **MLPE (Module Level Power Electronics)** is mounted on the front brackets, middle brackets, connectors or rear brackets.

### REQUIRED COMPONENTS

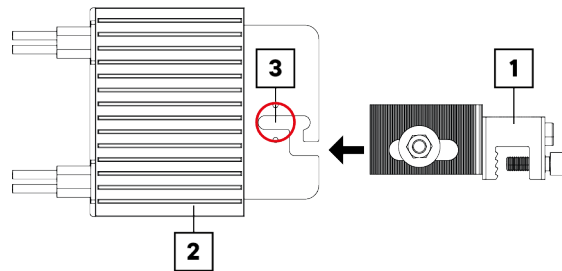


**MA-BR**  
Mounting bracket for MLPE

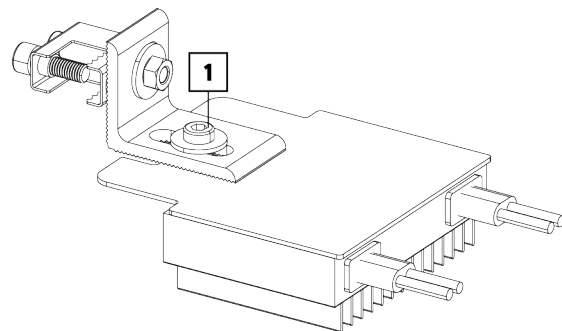
### ASSEMBLY (EXAMPLE CONNECTOR)



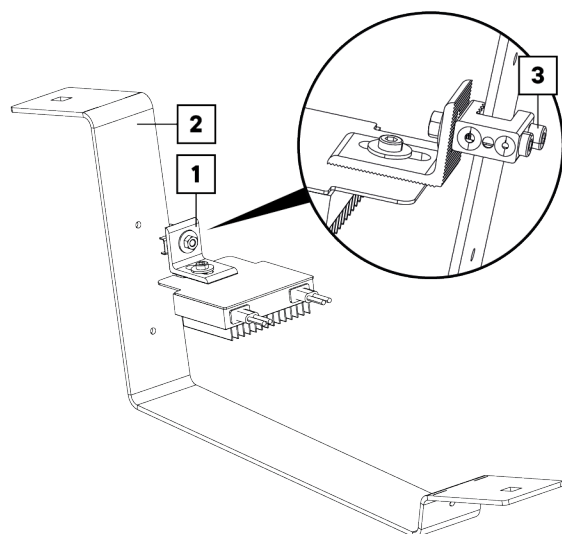
- Insert the clamp (1) into the device (3) of the MLPE (2) as shown in the illustration.



- Tighten the screw (1) with a torque of 15 Nm or 11 lb-ft.



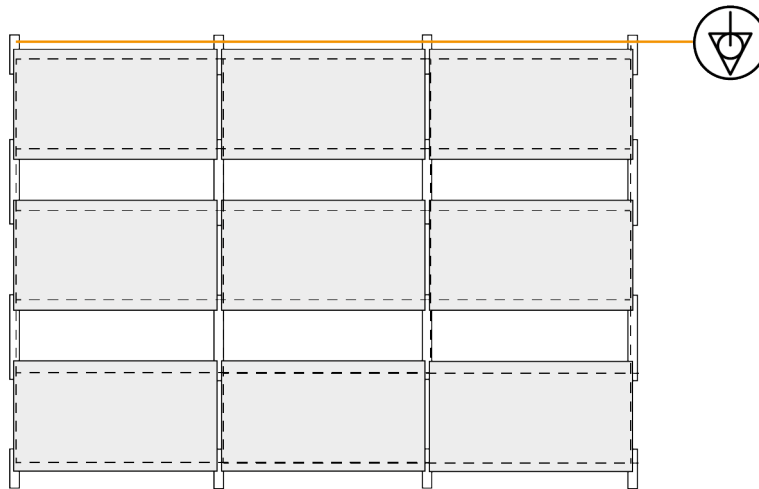
- Guide the MLPE (1) with the clamp to the connector (2).
- Insert the clamp (1) so that the connector (2) is between the clamp.
- Then tighten the screw (3) with a torque of 15 Nm or 11 lb-ft.
- ✓ The MLPE is now mounted.





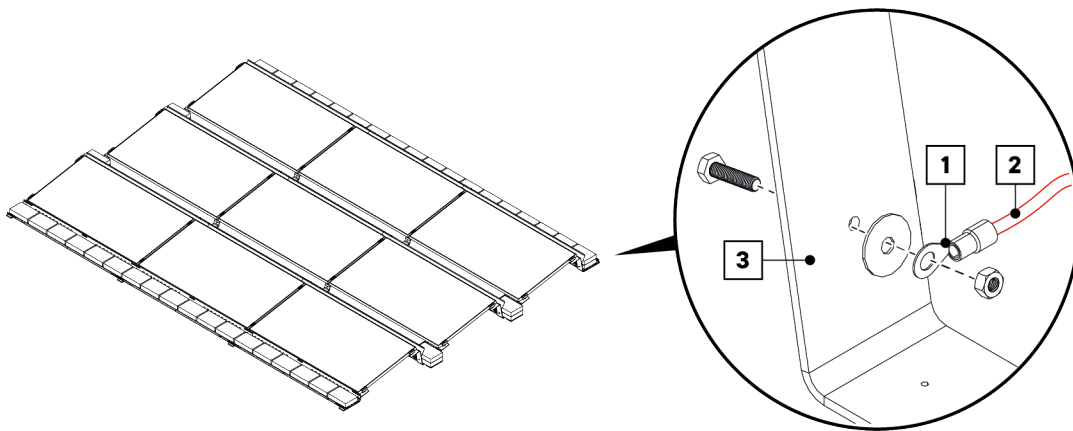
## POTENTIAL EQUALIZATION

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



### MOUNT EQUIPOTENTIAL BONDING

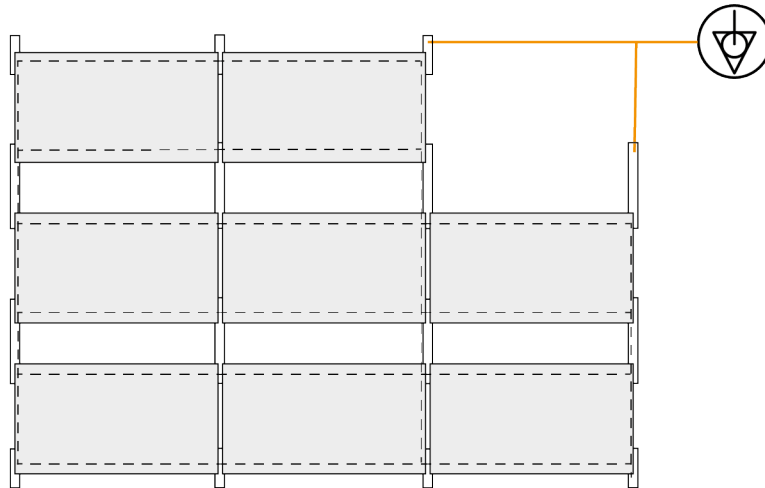
**i** For grounding, use a commercially available cable lug in accordance with national regulations / certifications. Use a suitable bolt (M6), washer and self-locking nut. The grounding materials must be provided by the customer (cable lug, M6 screw, washer, self-locking nut, ground wire).



**i** Attach the grounding to the bracket. If wind deflectors/ballast trays are available, they can be mounted together.

- Remove existing screw.
- Connect ground wire (2) firmly to cable lug (1).
- Fasten the cable lug to the bracket (3) with the screw, washer and self-locking nut and tighten with a torque of 15 Nm or 11 ft lb.

## POTENTIAL EQUALIZATION DURING MAINTENANCE WORK



### **i** Heads up!

To ensure that the connection between the remaining modules and the equipotential bonding is guaranteed, additional grounding clamps and grounding wire must be attached when a module is removed.

# MAINTENANCE, DISASSEMBLY AND DISPOSAL

## MAINTENANCE

To prevent personal injury and damage to property, the system must be checked regularly by qualified personnel and annual maintenance is required.

- Check all system components for damage. In the event of damage, replace the affected component immediately.
- Check all screw connections. Tighten loose screw connections, observing the tightening torque specified in the installation instructions.
- Checking all components for damage caused by the weather, animals, dirt, deposits, build-up, vegetation, roof penetrations, seals, stability and corrosion. In the event of damage, clean, repair or replace the affected component.

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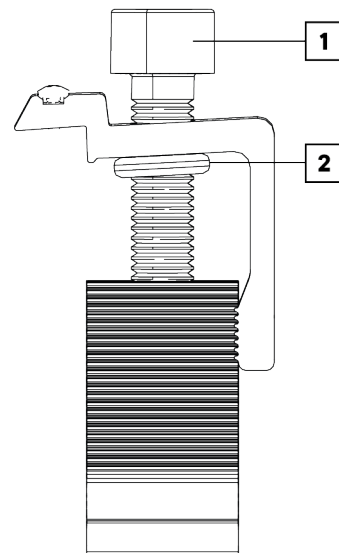
## DISASSEMBLY

### DISMANTLING THE CLAMPS (EXAMPLE)



**i** To disassemble the system, carry out the assembly steps in reverse order.

- Unscrew the screw (1) on the clamp.
- When reusing the clamp, ensure that the O-ring (2) is not lost.
- i** If the components are reused, it must be noted that these are wearing parts. Therefore, the AEROCOMPACT Europe GmbH cannot assume any responsibility for checking the degree of wear. For this reason, any liability or warranty of AEROCOMPACT Europe GmbH in case of reuse is excluded and reuse is at the installer's own responsibility.



## DISPOSAL

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

- Give metals and 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 PERFORMANCE



Manufacturer: **AERCOMPACT Europe GmbH**  
Designation: **CompactFLAT S South system for flat roofs**  
Identification code: **S5, S10, S15**  
Applied standard: **EN 1090**  
Certification body: **2397**



[For the declaration of performance](#)

## REVISION HISTORY

Version	Chapter	Modification
v3.4	"Cable management" on page 28	New chapter added

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