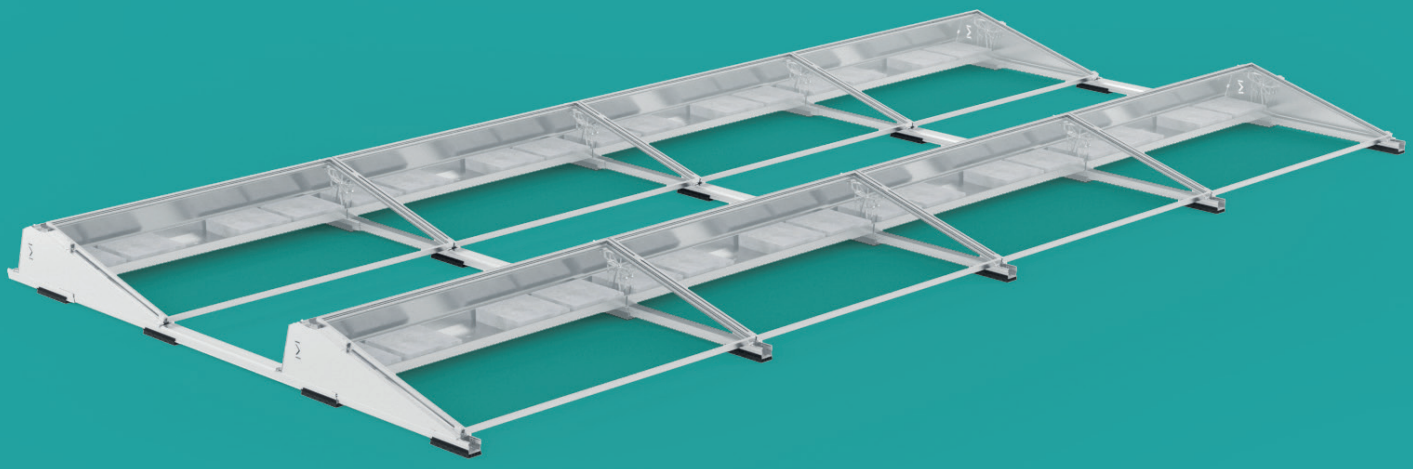
mounting systems

FD3-S Premium Line
Installation Manual



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1. Introduction

1.1 Short description

The FD3-S flat roof system is a heavy-duty frame solution designed for mounting PV modules on flat roofs. Several rows of modules in an south orientation can be connected with the FD3-S system. The system is tilted by 10° or 15° as standard. The FD3-S system is built in connection with the total area of modules of at least 10 m^2. This solution has been specially developed for applications on flat roofs with a low permissible load. All elements have been designed as easy to assemble. The elements used are made from aluminum and stainless steel. The selected materials used for the system guarantees a high resistance to corrosion, while at the same time offering the possibility of full disposal.

1.2 About these instructions

Subject of instructions
These instructions describe the installation of the FD3-S system for flat roofs and contain all the information for this solution in terms of planning, components and safety instructions. The pictures in the first part of the manual show installation with frame modules locked in the corners.

Co-binding documents
In addition to this document, each delivery includes the 'Montageanleitung allgemein' [General Assembly Instructions], which can be found at www.mounting-systems.com, this document provides general information on standards, safety, transportation, maintenance, disassembly, and disposal for systems. Both these instructions and the aforementioned document comprise a permanent part of the FD3-S assembly system and must be observed during all assembly work.

Please read both, this installation manual and the above mentioned documents carefully prior to any installation, maintenance or disassembly work. You will be provided with all information for safe and complete installation, maintenance and disassembly. However, if you have any questions after having read these documents, please contact Mounting Systems GmbH.

User group
These installation instructions are intended for the following persons (user group):

- Skilled stuff
- Instructed stuff

Skilled stuff
Are persons who, on the basis of their professional training, are able to execute installation, maintenance and disassembly work properly.

Instructed stuff
Are persons who have been instructed and taught appropriately regarding the assigned tasks and the possible risks in the event of improper conduct. An instructed person must have received instructions regarding the required safety devices, precautions, relevant regulations, accident prevention regulations as well as operating conditions and must have demonstrated their competence.
The implemented work must be inspected and accepted by skilled personnel.

Guidance notes
The following guidance notes enhance the orientation when handling this installation manual:

Pictograms:

This symbol indicates important information and useful tips.

This symbol indicates ways and means to make the installation process easier.

1.3 Warnings

The following warnings are used in these Installation Instructions to indicate safety-related information. They include:

- Warning symbols (pictograms)
- Signal words which identify the hazard level
- Information about the type and source of the hazard
- Information about the potential consequences if the hazard is disregarded
- Measures for the prevention of hazards and the prevention of injuries or damage to property.

The signal words of the warnings respectively indicate one of the following hazard levels:

Danger!
Indicates a potentially mortal danger, disregard for which may result in death or serious injury.

Attention!
Indicates a potentially dangerous situation which may result in serious injury or damage to property.

1.4 Safety

All universally valid safety instructions for products of Mounting Systems GmbH are listed in the document 'Montageanleitung für PV-Gestellsysteme: allgemeiner Teil' ["Installation manual for PV mounting systems – general part". Please read this document carefully and observe the instructions given therein: Do not use the product in a manner other than intended, please comply with the obligations of the owner and observe all general and specific safety instructions.

In addition, please observe the specific safety instructions given in this installation manual for all installation work. The specific safety instructions are positioned in each case directly with the respective installation step.

1.5 Tools

1 Tape measure

2 String

3 Torque wrench with Allen socket

4 Measure of distance (optional)

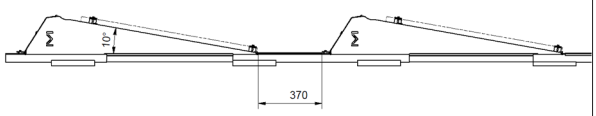
5 Sheet metal shears

2. Basic information about the system

FD3-S 10°

Modulsize
Max. width: 1134mm
Max. length: 2300mm

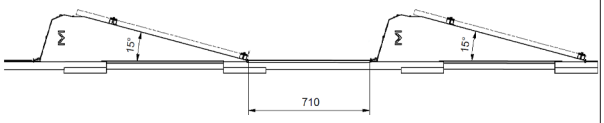
Distance between the rows: 370mm



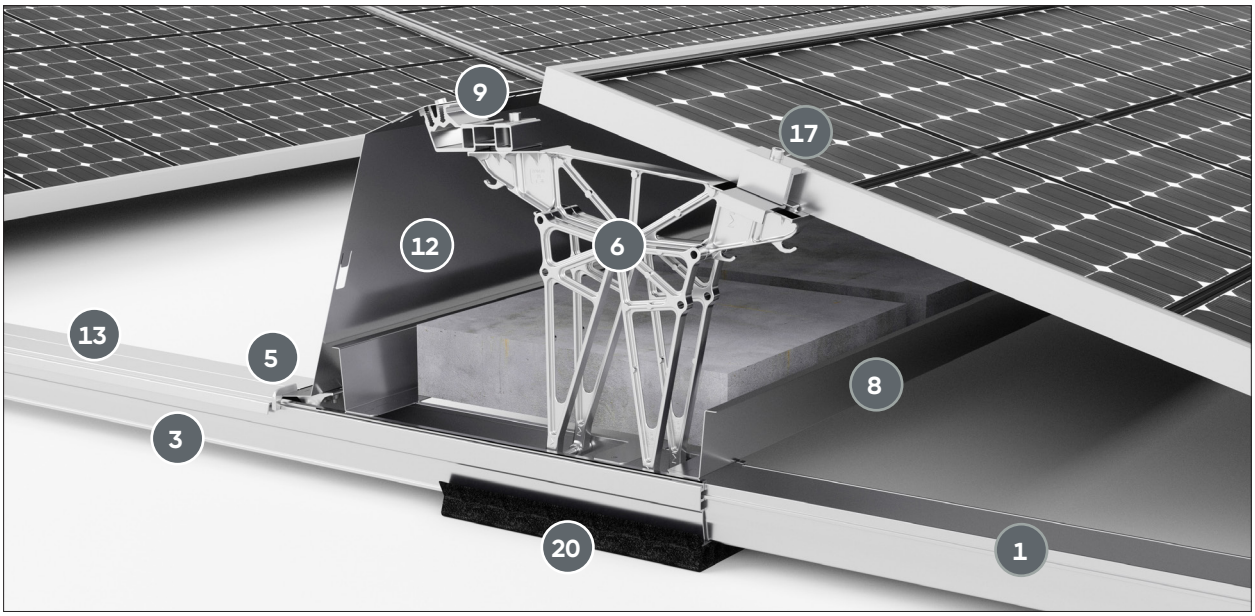
FD3-S 15°

Modulsize
Max. width: 1134mm
Max. length: 2300mm

Distance between the rows: 710mm



FD3-South 2x4



15°

2.1 Elements and components

1

Base rail
10° 1408mm (720-1871)
15° 1265mm (720-1872)

2

Locking front support 250mm (720-1915)

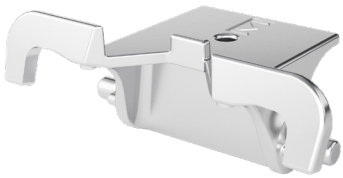
3

Connecting rail 1025mm (720-1917)
Connecting rail 1293mm (720-1919)
Connecting rail 1475mm (720-1926)

4

Connecting profil south 585mm (720-1918)

5



Front support (720-1874)

6

Rear support (720-1873)

7

Ball locking pin
6x50 (720-1892)

8

Ballast tray
1831mm, max. 120kg (720-1889)
2037mm, max. 120kg (720-1890)
2171mm, max. 120kg (720-1891)
2327mm, max. 100kg (720-1932)

9

Adapter wind deflector
40mm (720-1882)

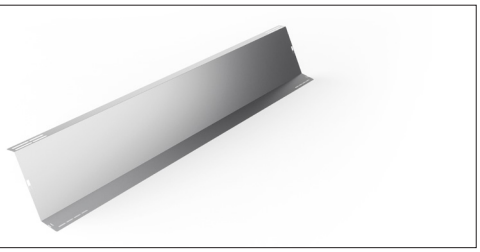
10

Side reflector 10° right (720-1860)
Side reflector 15° right (720-1862)

11

Side reflector 10° left (720-1859)
Side reflector 15° left (720-1861)

12



Back Windreflector 1861mm (720-1866)
Back Windreflector 2066mm (720-1867)
Back Windreflector 2200mm (720-1868)
Back Windreflector 2384mm (720-1933)

13

Rail cover south 10° 370mm (720-1863)
Rail cover south 15° 885mm (720-1864)
Rail cover south 15° 710mm (720-1865)

14

Sheet metal screw
M5,5x13 (720-1883)

15

Washer M6
(720-1885)

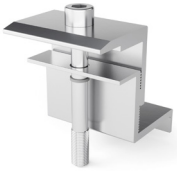
16

Cylinder head screw
M6x35 (720-1899)

17

Cylinder head screw
M6x16 (720-1884)

18



End clamp
30-40mm (720-1855)
40-50mm (720-1856)

19

Middle clamp
30-40mm (720-1857)
40-50mm (720-1858)

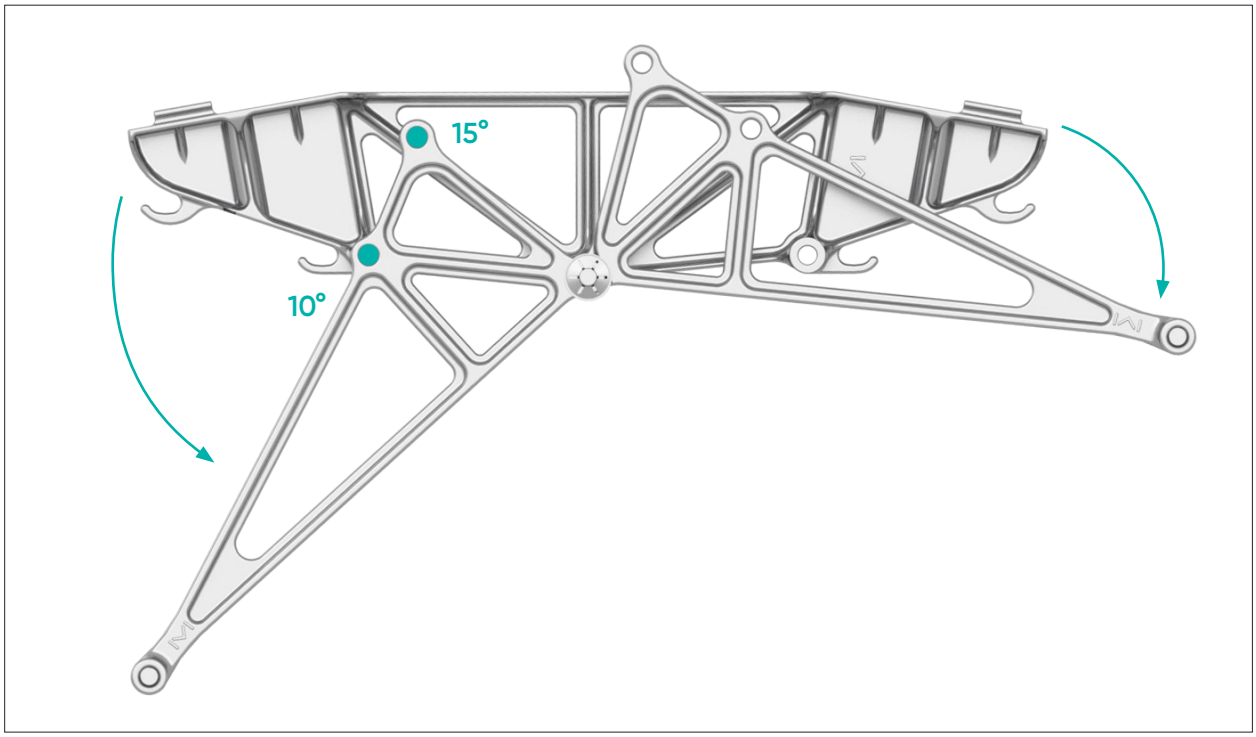
20

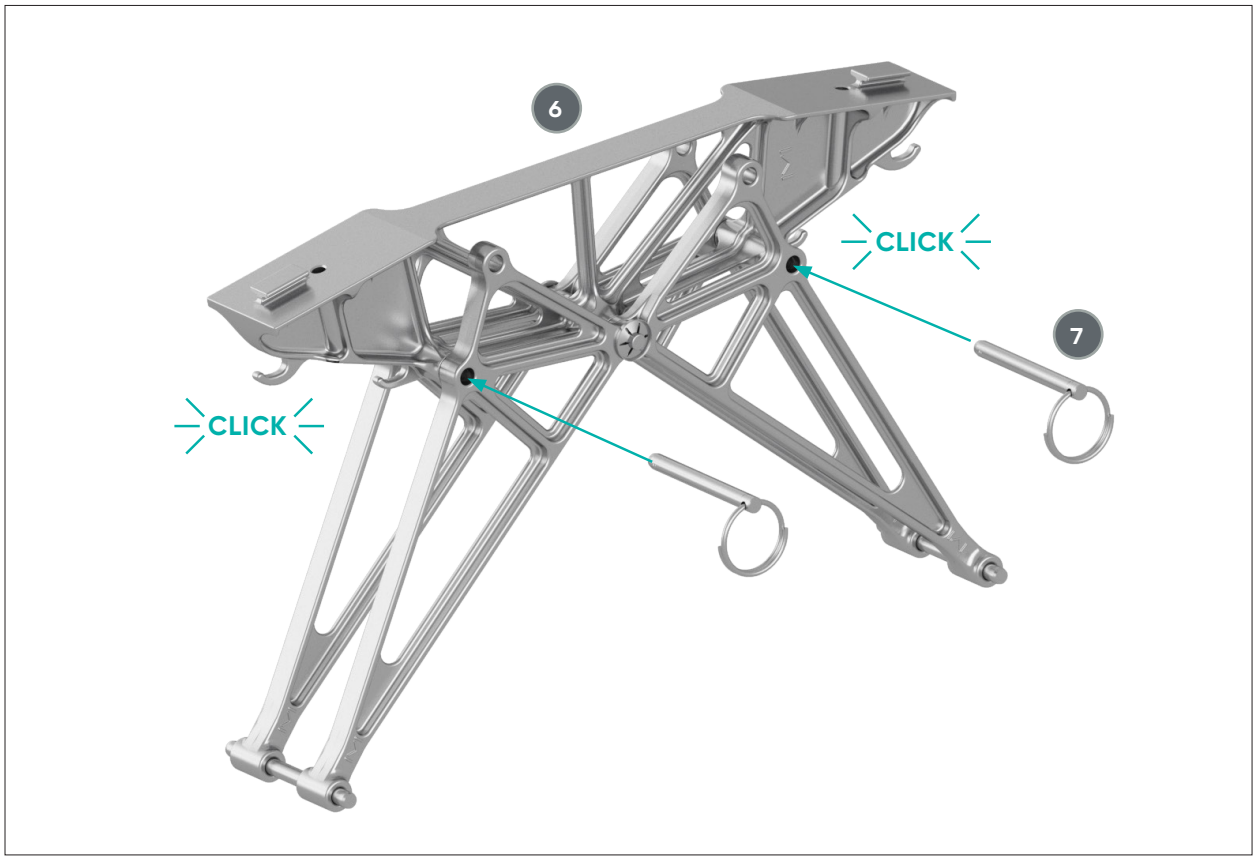
Protection mat 250 mm (720-1921)

3. Assembly

3.1 Universal central and end support – 10° & 15°

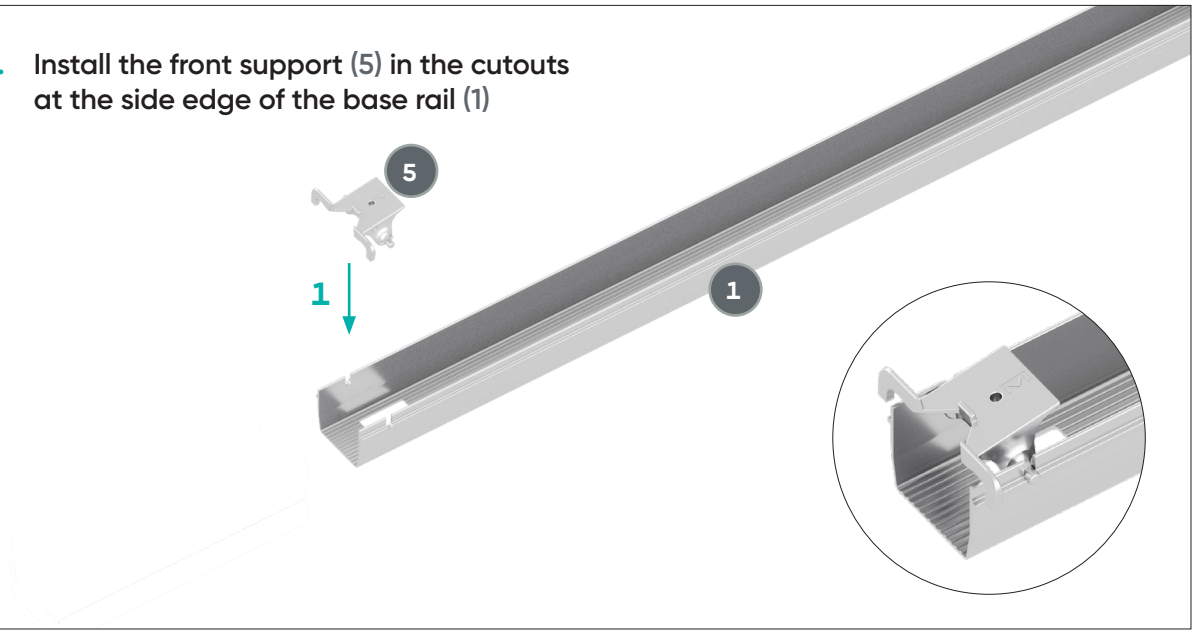
Fold the feet down and secure with two ball locking pins (7) to desired positions 10° or 15°.
See designation.





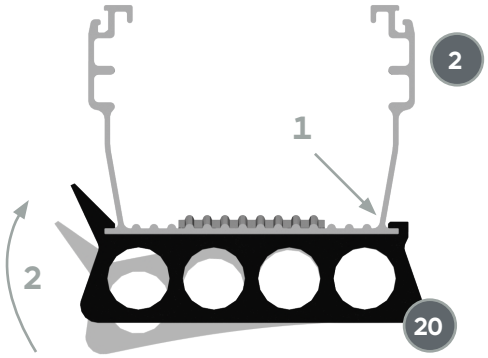
3.2 Front support

1. Install the front support (5) in the cutouts at the side edge of the base rail (1)



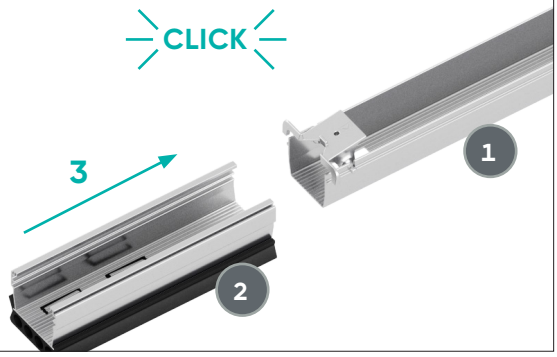
2. **Assembling the protection mat**

Pprotection mat beneath the front and middle support



3. **Lock together with the rail** (2)

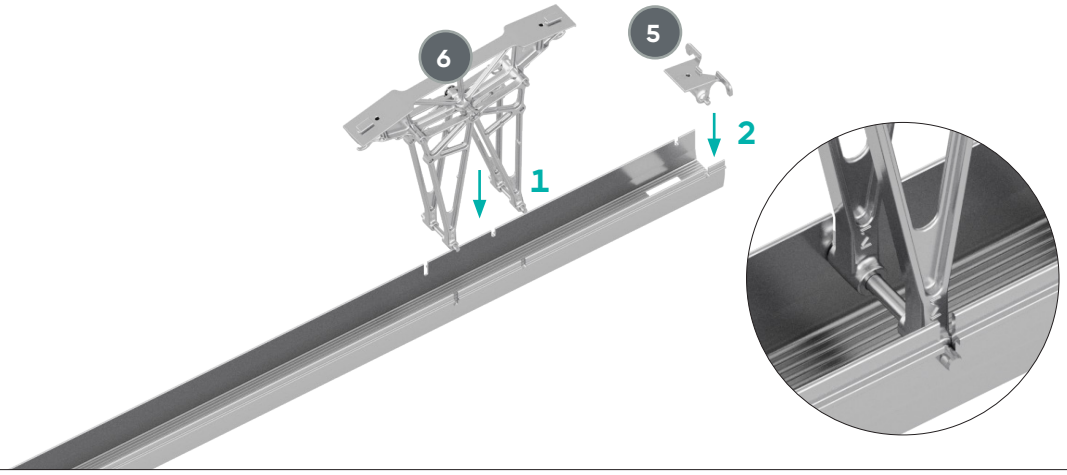
up to an audible click



At the beginning of the system lock with component (2)

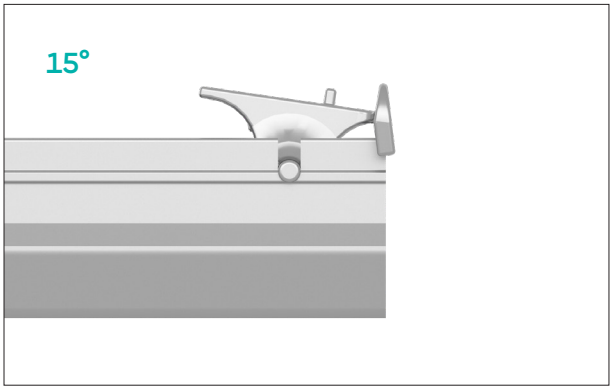
3.3. Rear support

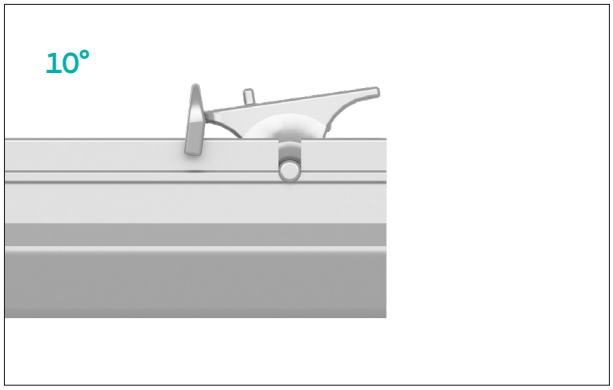
1. Place the rear support (6) in the cutouts



2. Place the front support (5) in the cutouts. See page 20.

ⓘ Front support rotated 180° for back wind deflector for

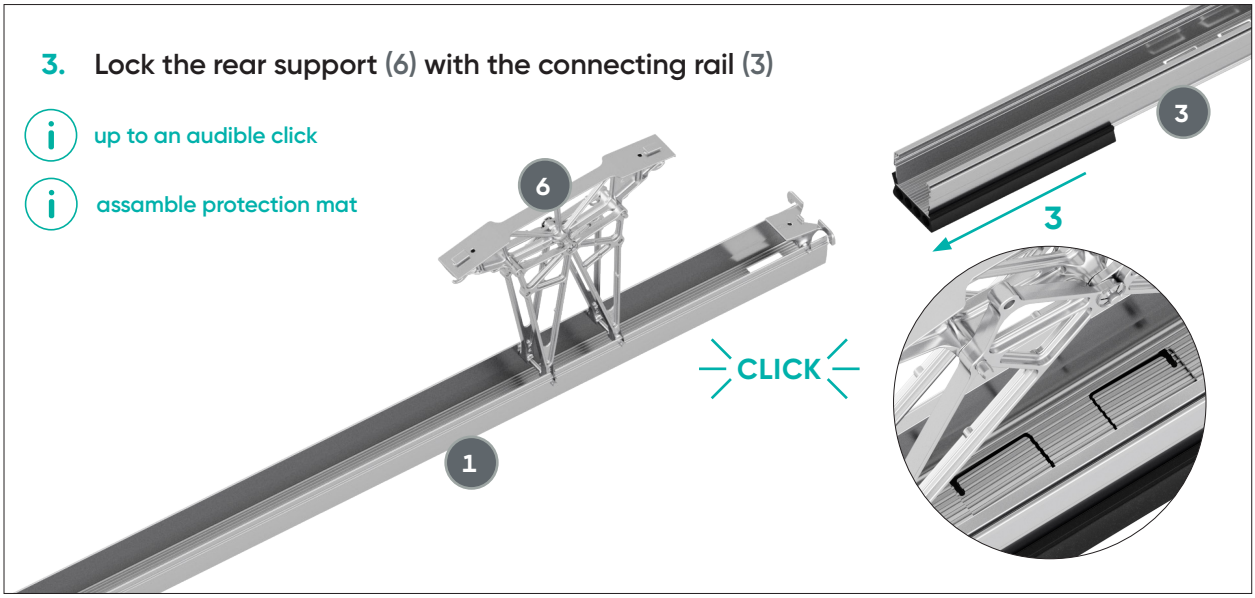




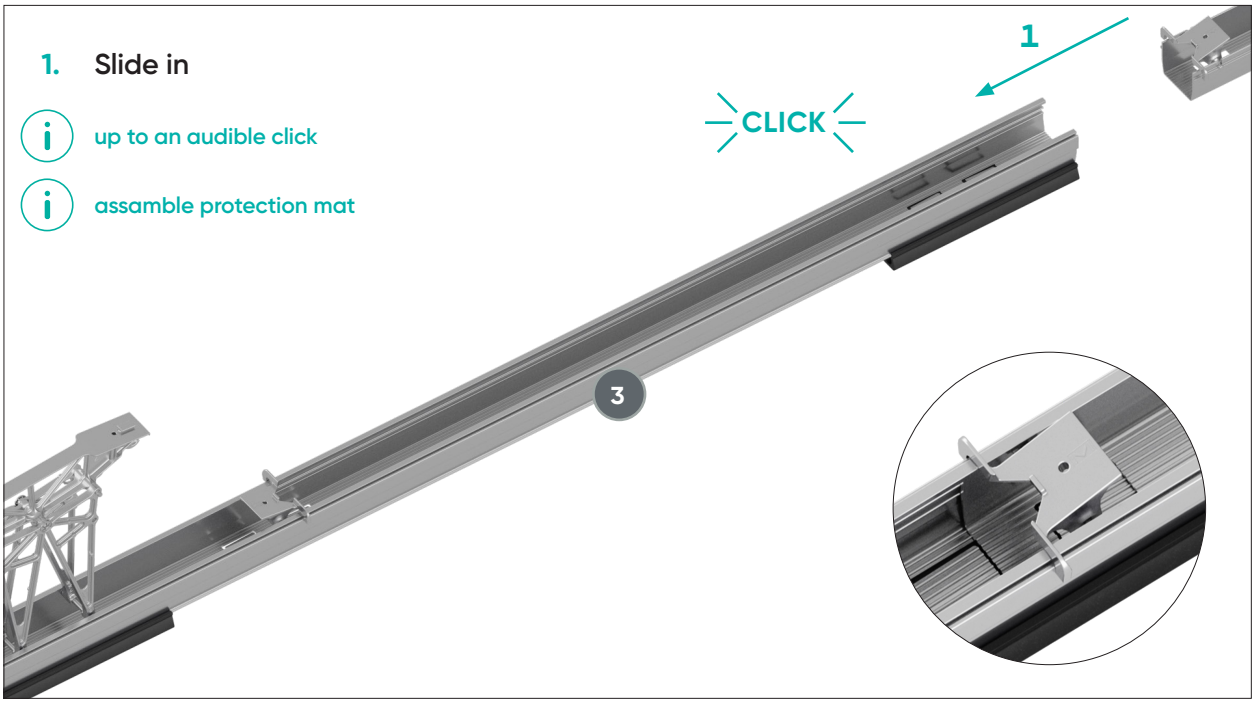
3. Lock the rear support (6) with the connecting rail (3)

ⓘ up to an audible click

ⓘ assamble protection mat



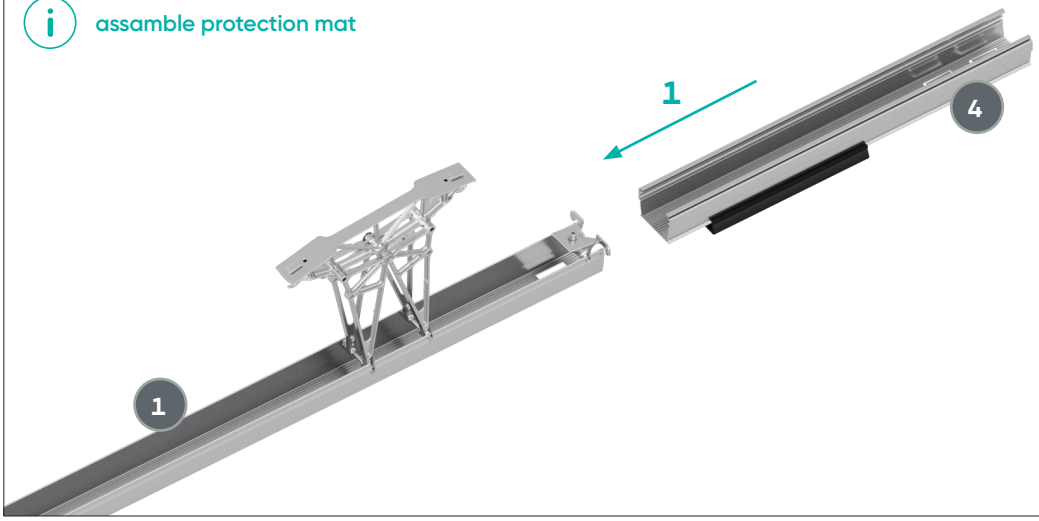
3.4 Connecting rails



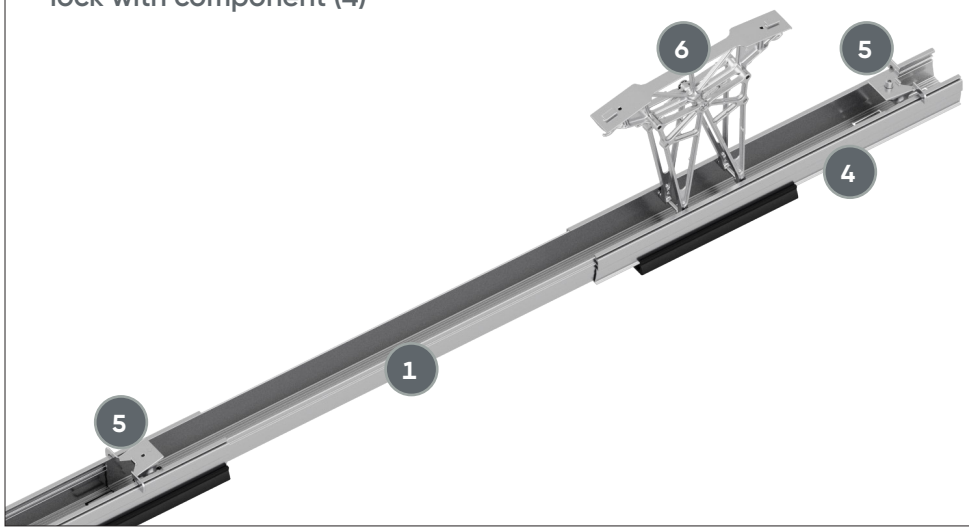
3.5 End of the rail connection

1 **Lock together with the locking rear support** (4)

assamble protection mat



At the end of the system
lock with component (4)



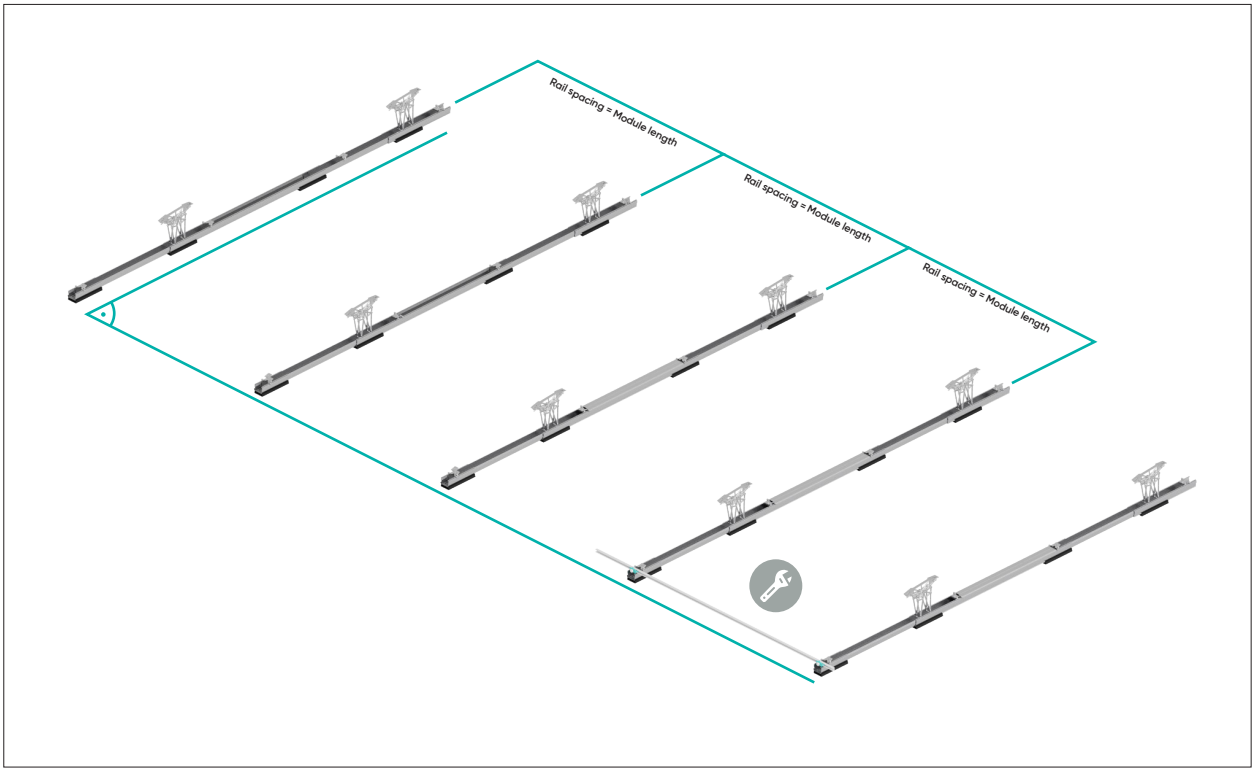
Overview of the rails in a row

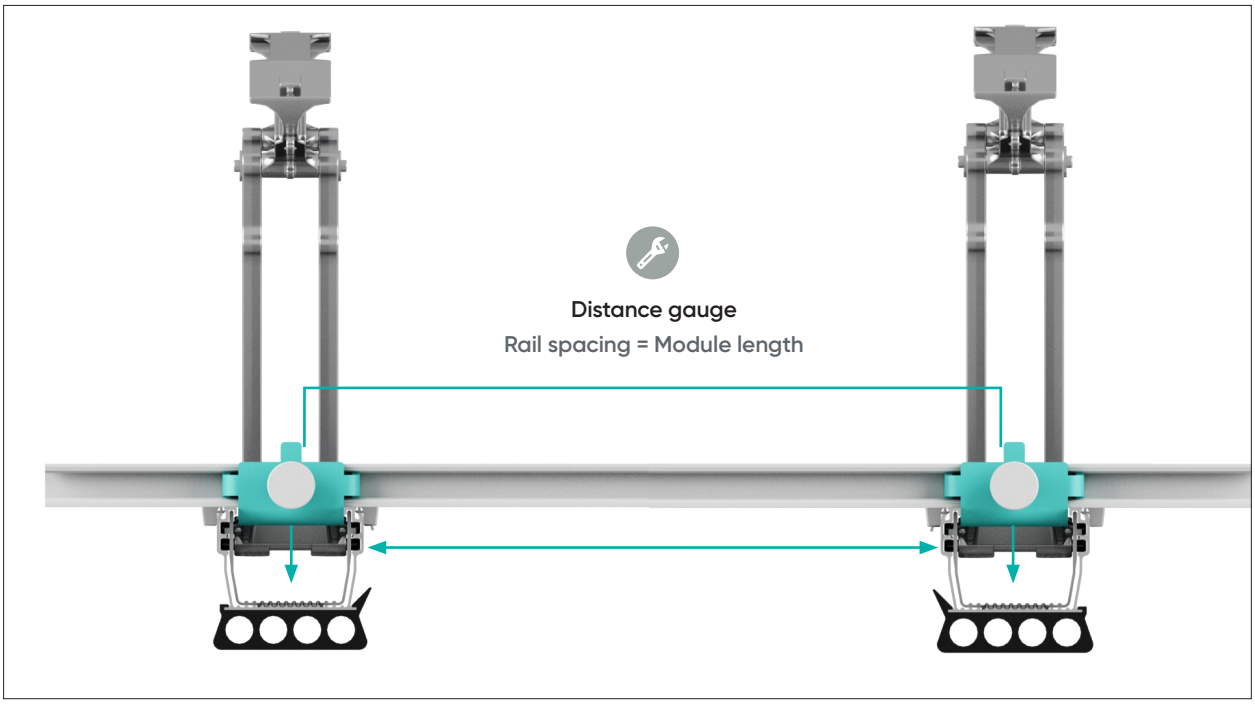
2 - 1 - 3 - 1 - 4

for further rows always put (3) and (1) in a row

3.6 Rail layout

Place the rails parallel to the length of the module.





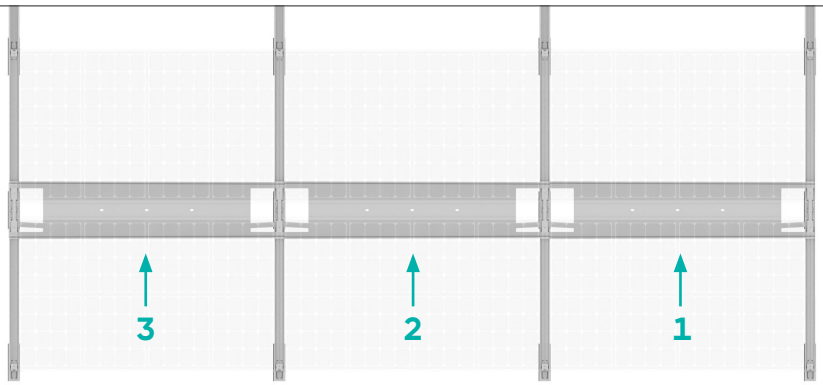
3.7.1 Ballast tray for multi-row arrangement tray

Note the maximum weight per ballast tray

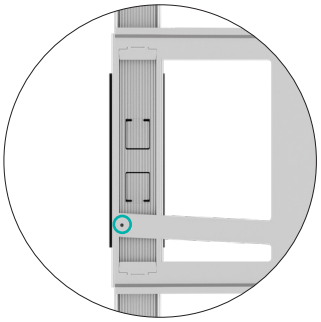
The number, position and weight of the necessary ballast (stones or gravel) should always be included in the project information

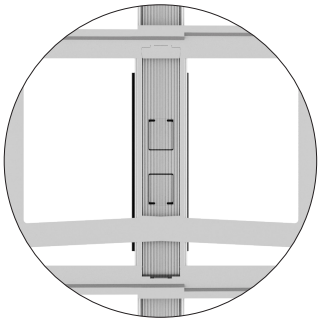
Order

First, place a narrow side on the outside

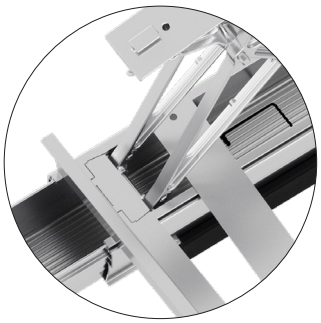


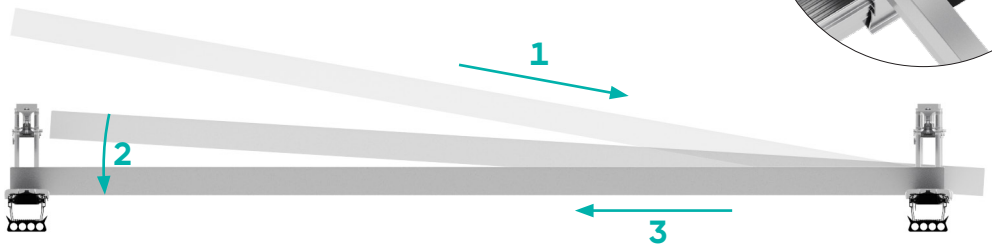
Hole marked the wide side





1. Insert the ballast tray (8) diagonally
2. Slide in
3. Fixing between support

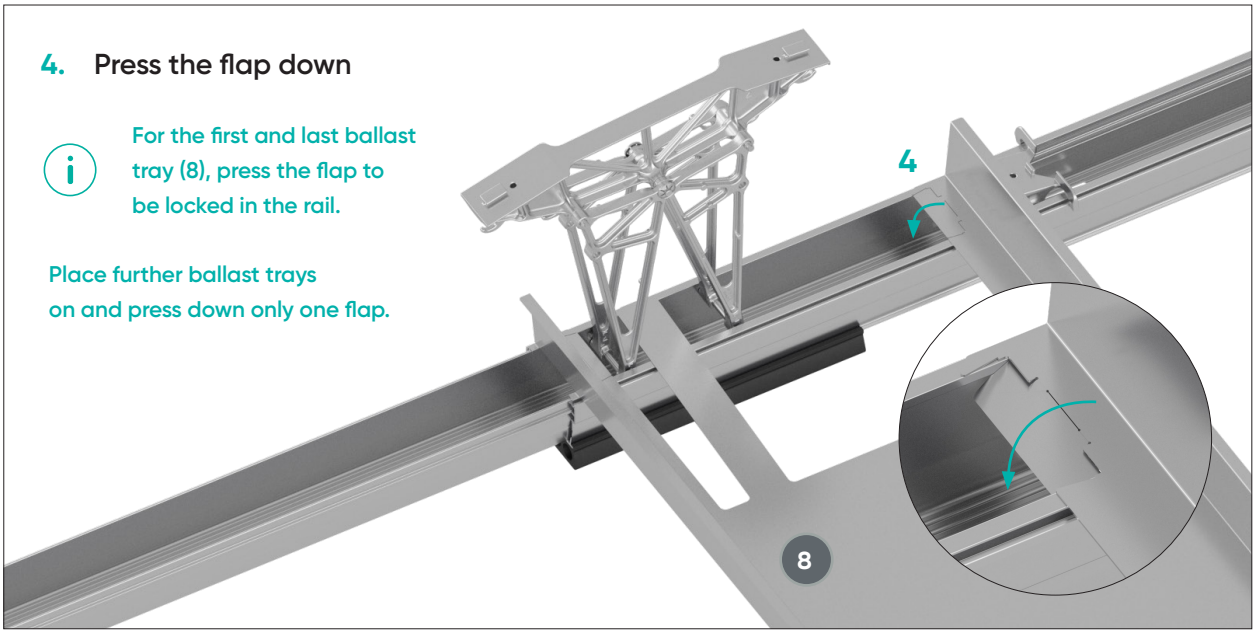




4. Press the flap down

For the first and last ballast tray (8), press the flap to be locked in the rail.

Place further ballast trays on and press down only one flap.

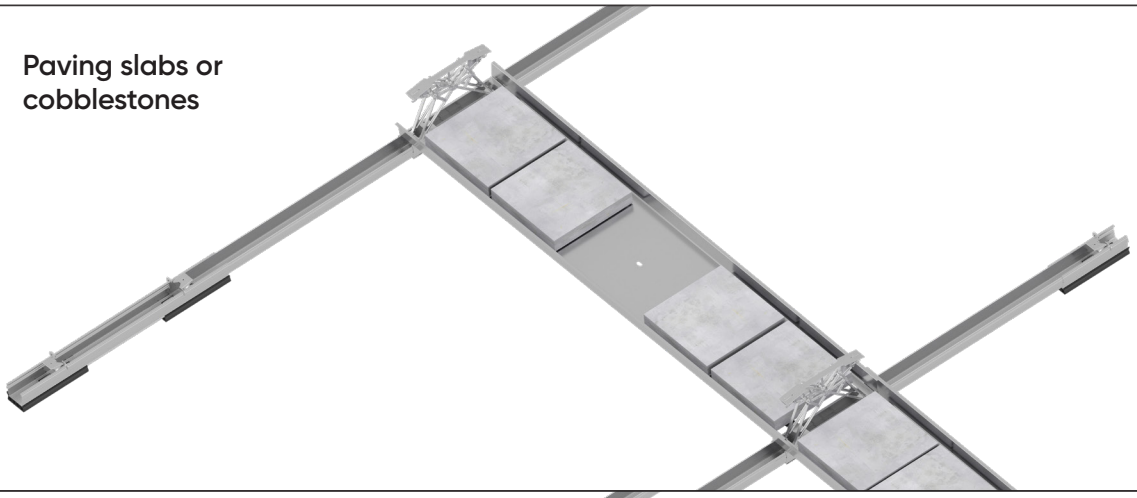


5. **Apply ballast** evenly, from the outside to the inside

Note the maximum weight per ballast tray

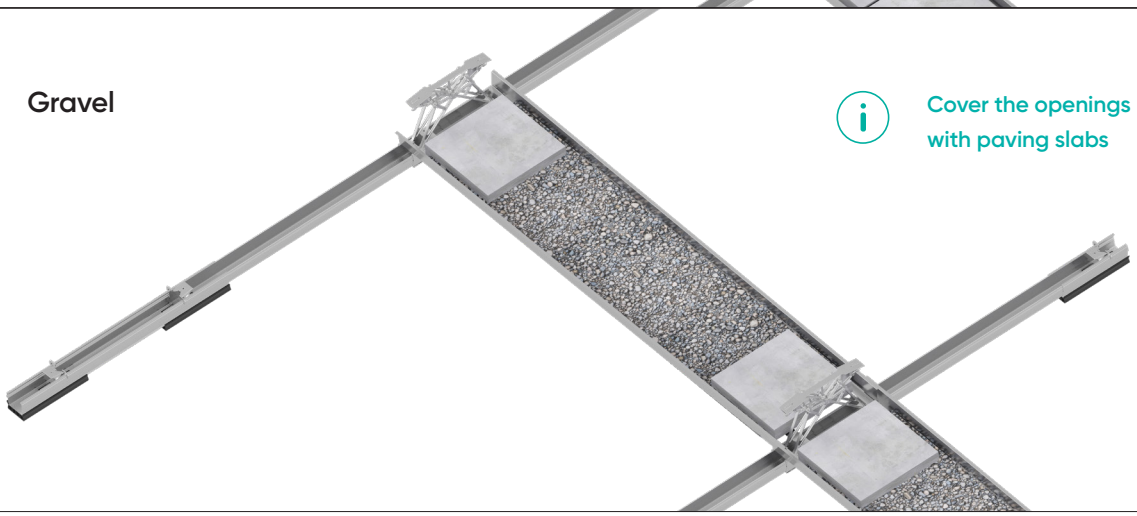
Ballast must be put in the ballast tray starting from both ends in parallel at the same weight volume. Ballast must be evenly distributed.

Paving slabs or cobblestones



Gravel

Cover the openings with paving slabs



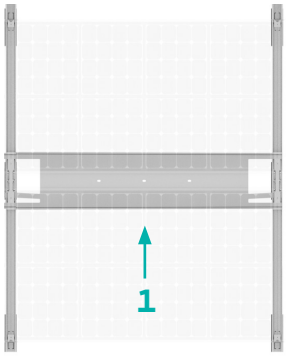
3.7.2 Ballast tray for single row arrangement

Note the maximum weight per ballast tray

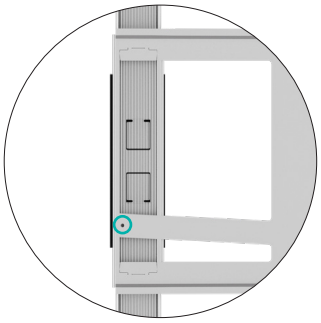
The number, position and weight of the necessary ballast (stones or gravel) should always be included in the project information

Order

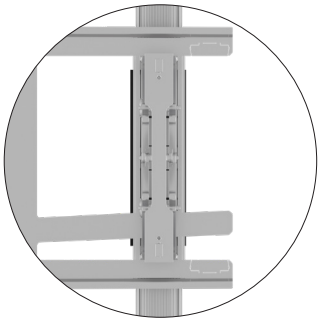
First, place a narrow side on the outside



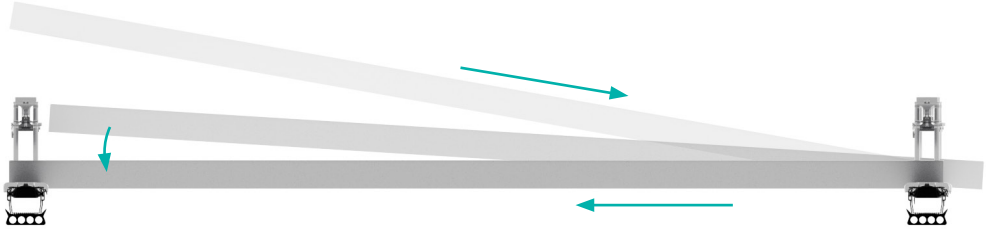
Hole marked the wide side.



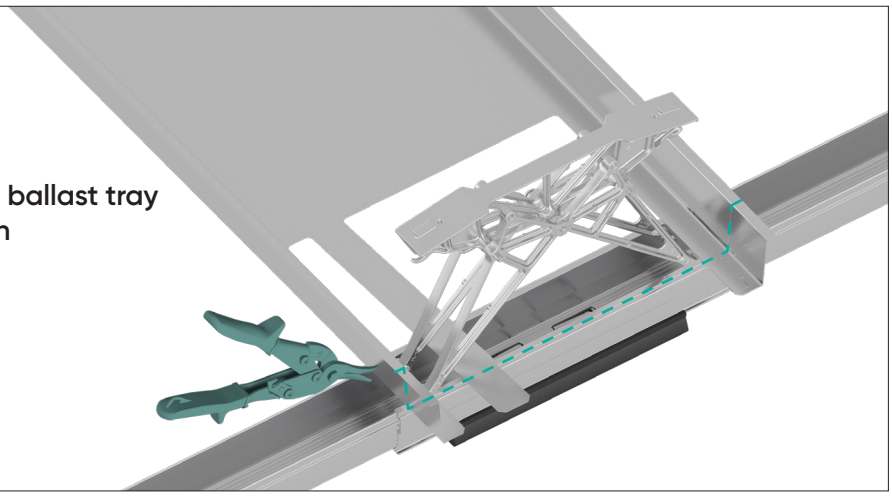
The overhang of the ballast tray depends on the module width



1. Insert the ballast tray (8) diagonally, see chapter 3.7.1



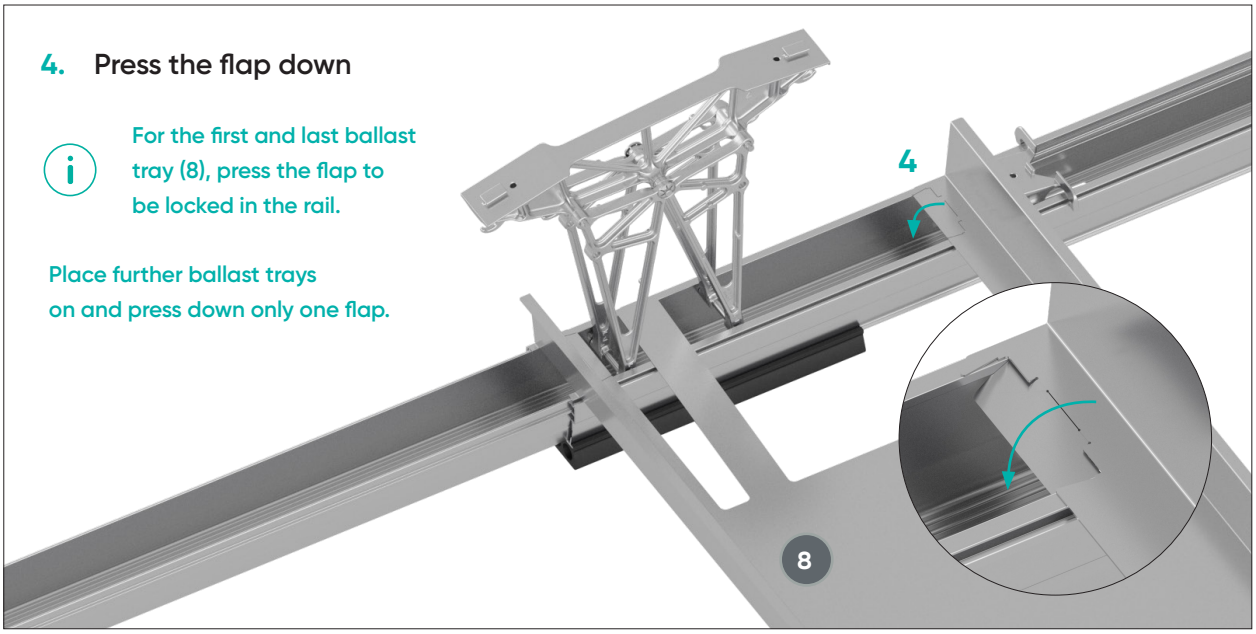
2. For later installation of the side plate, the ballast tray must be cut to length flush with the rail.



4. Press the flap down

For the first and last ballast tray (8), press the flap to be locked in the rail.

Place further ballast trays on and press down only one flap.

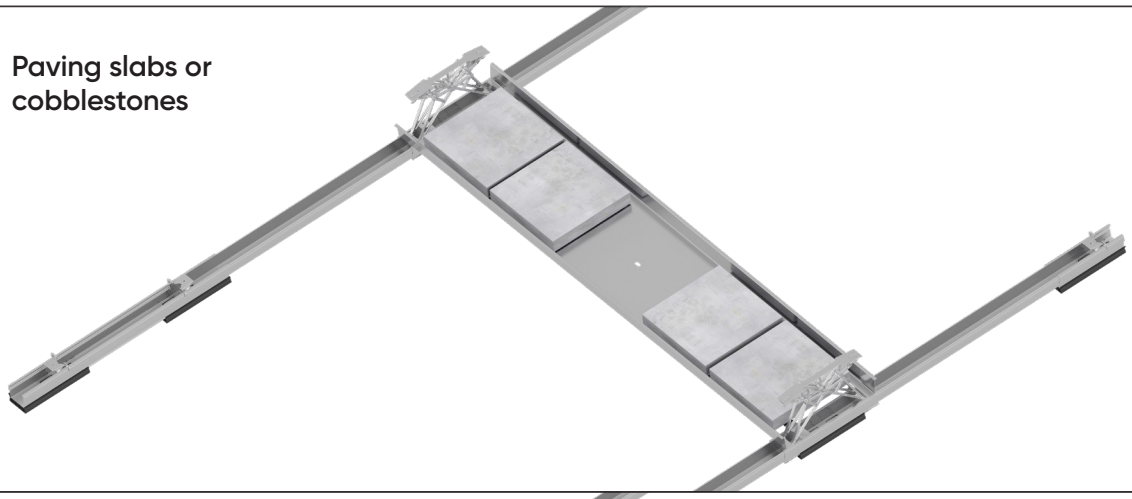


5. **Apply ballast** evenly, from the outside to the inside

Note the maximum weight per ballast tray

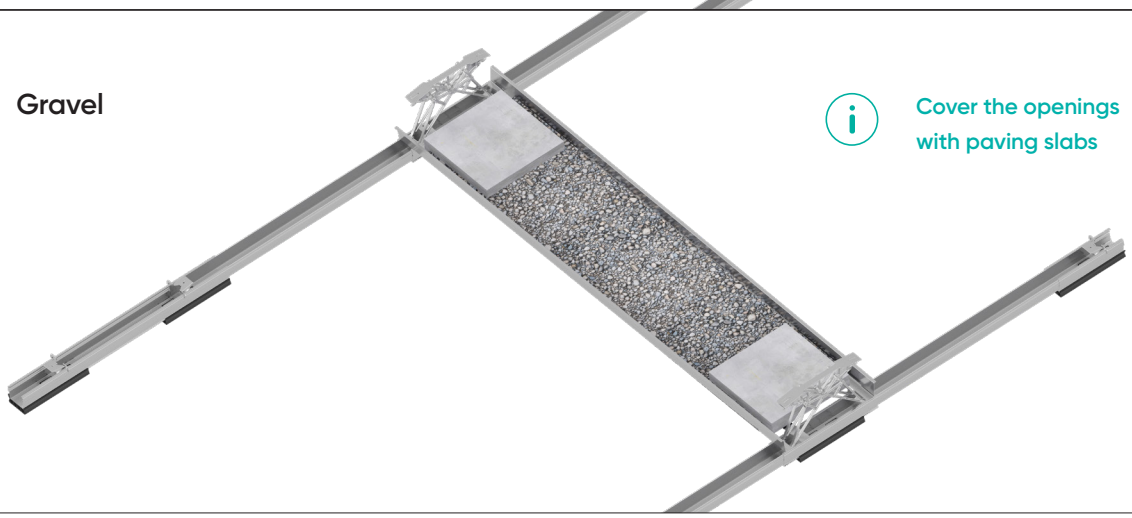
Ballast must be put in the ballast tray starting from both ends in parallel at the same weight volume. Ballast must be evenly distributed.

Paving slabs or cobblestones



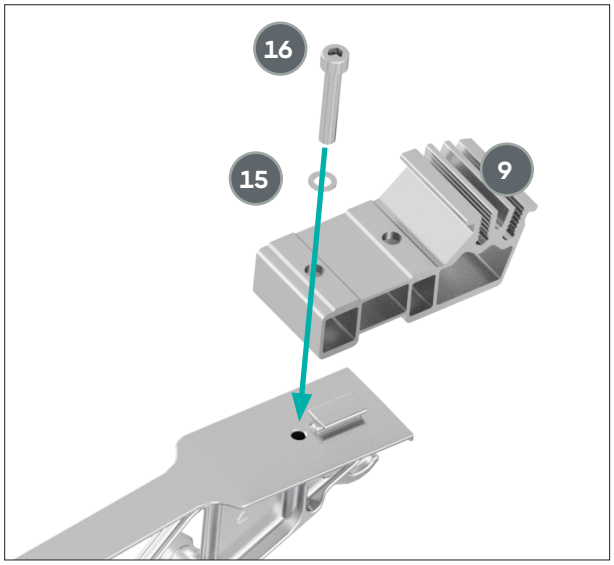
Gravel

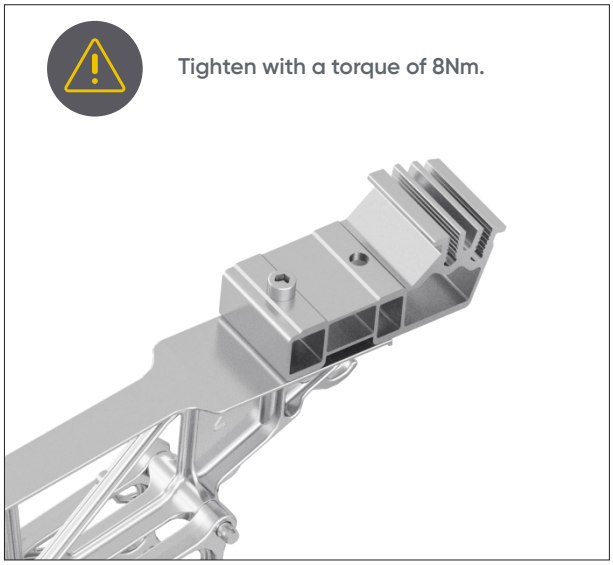
Cover the openings with paving slabs



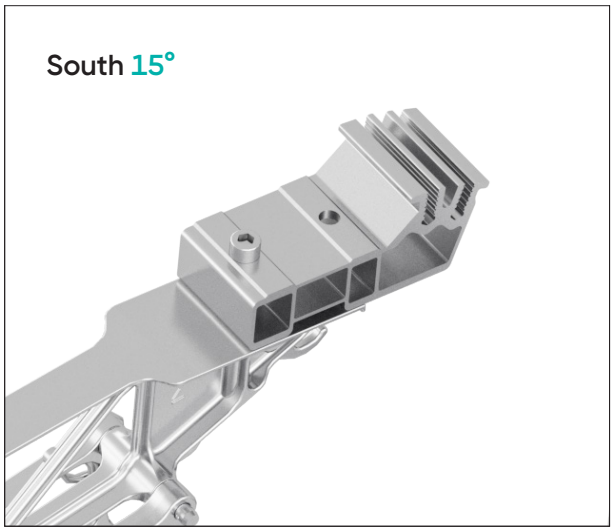
3.8 Adapter wind deflector

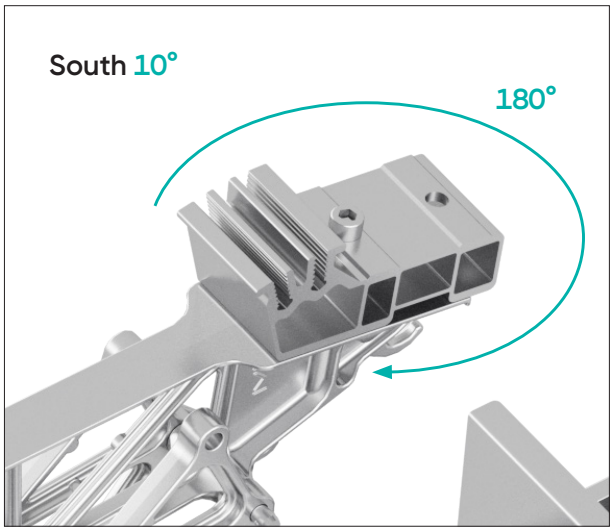
Mount on the middle support.

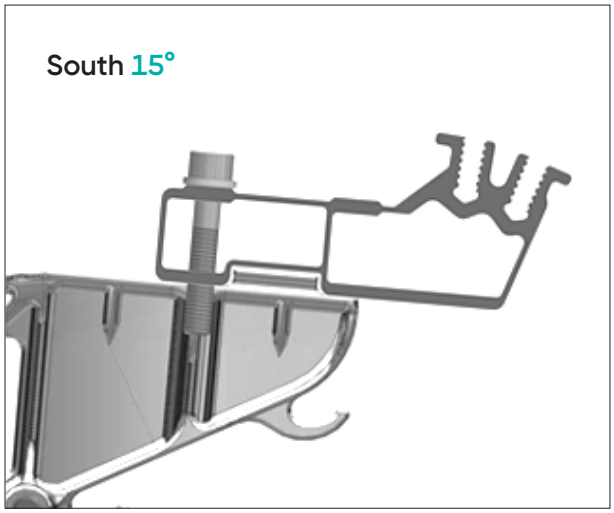


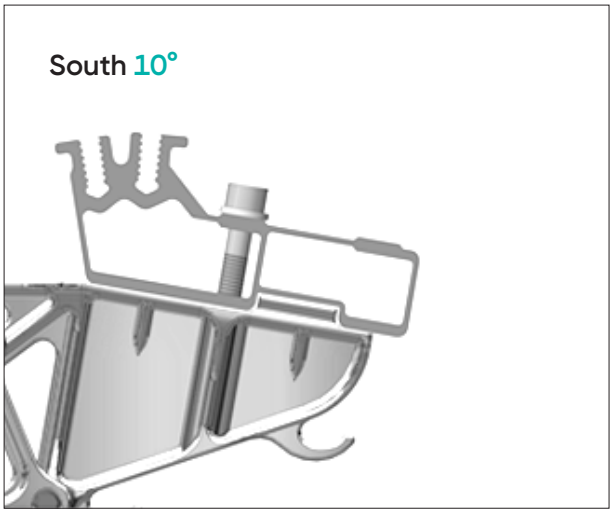


For the 10° variant, the adapter (9) must be rotated by 180°.



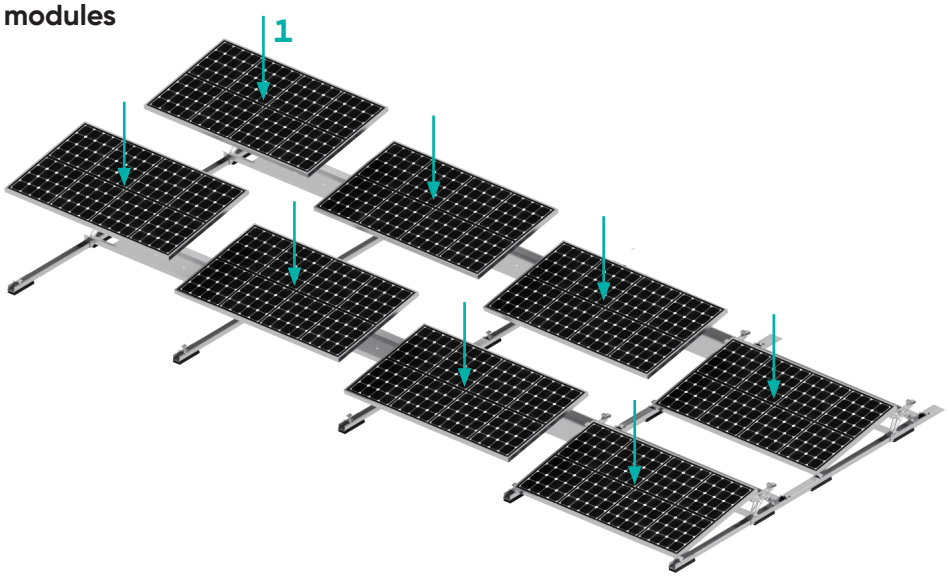




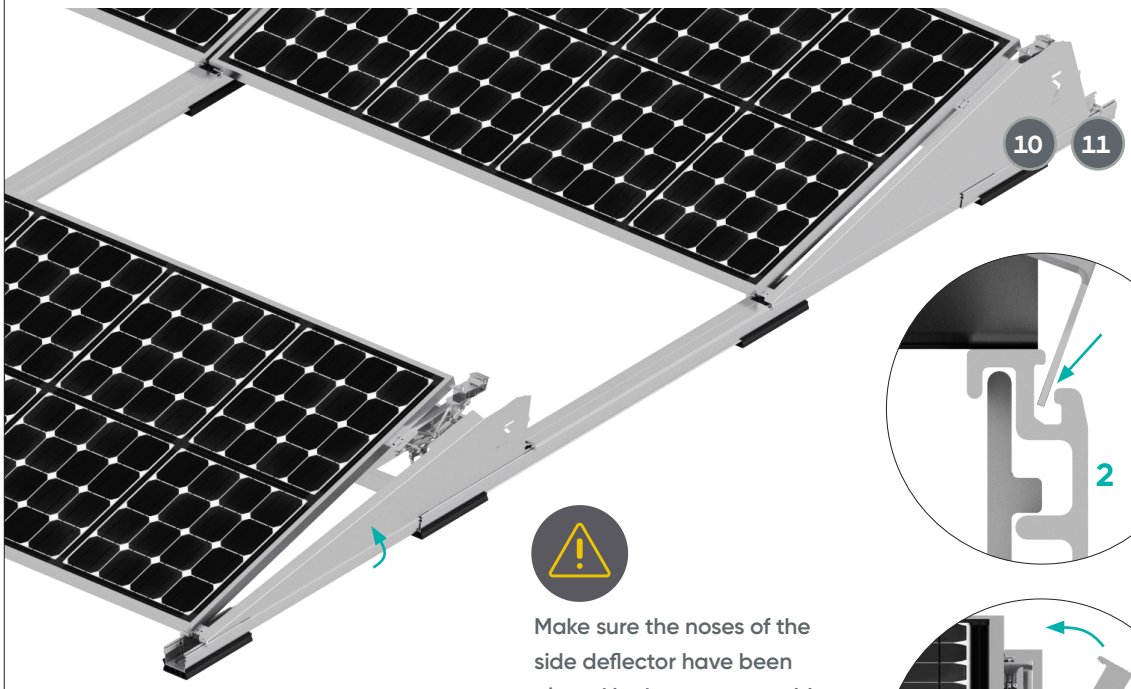


3.9 Assembly of modules and side covers

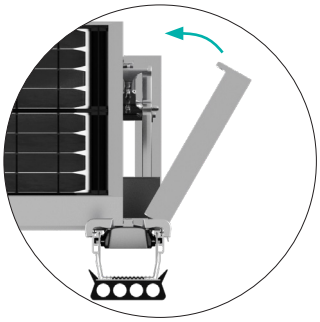
1. Arrange modules



2. Insert in and fix the right (10) and left (11) side deflector

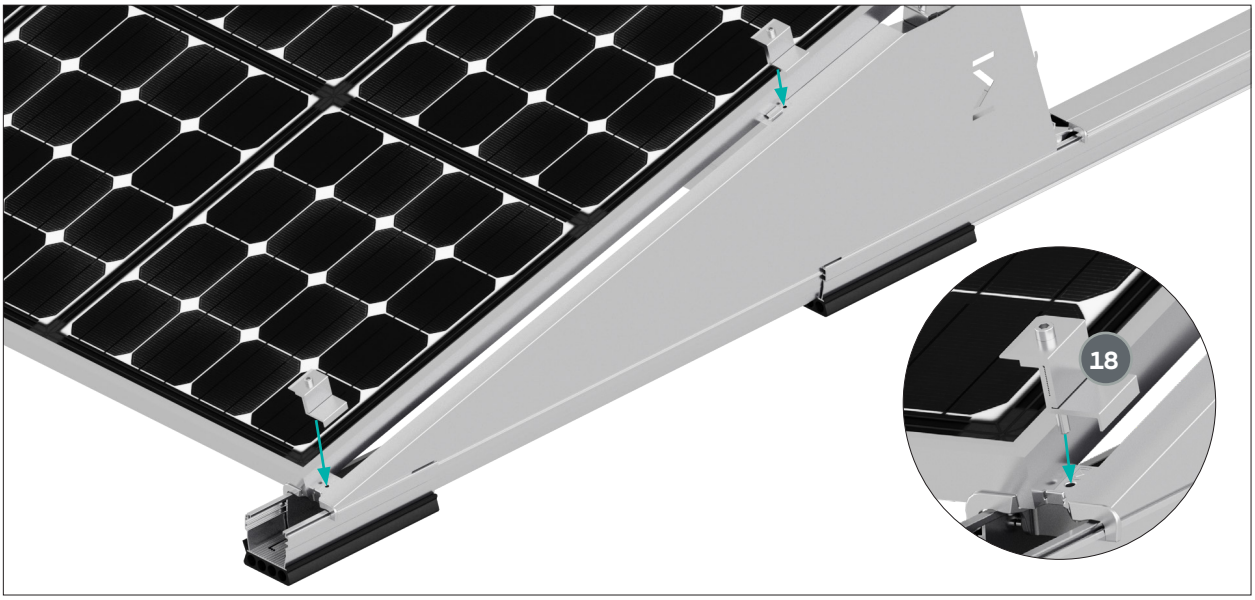


Make sure the noses of the side deflector have been placed in the correct position, to ensure a correct grip.

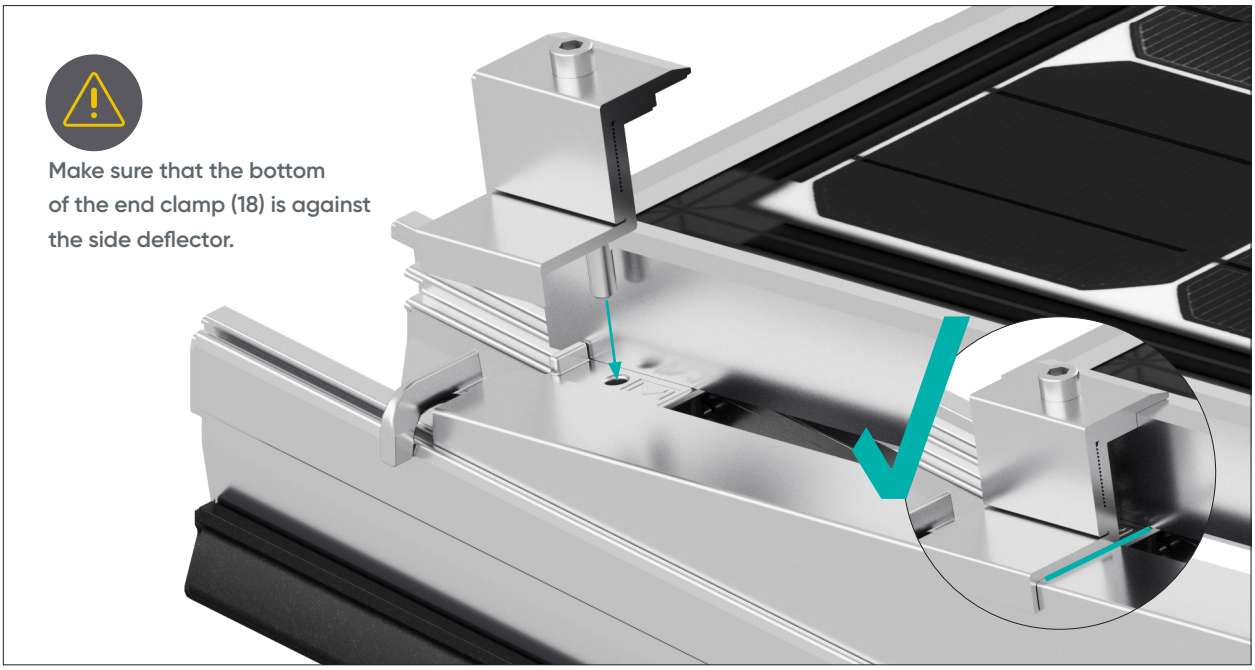


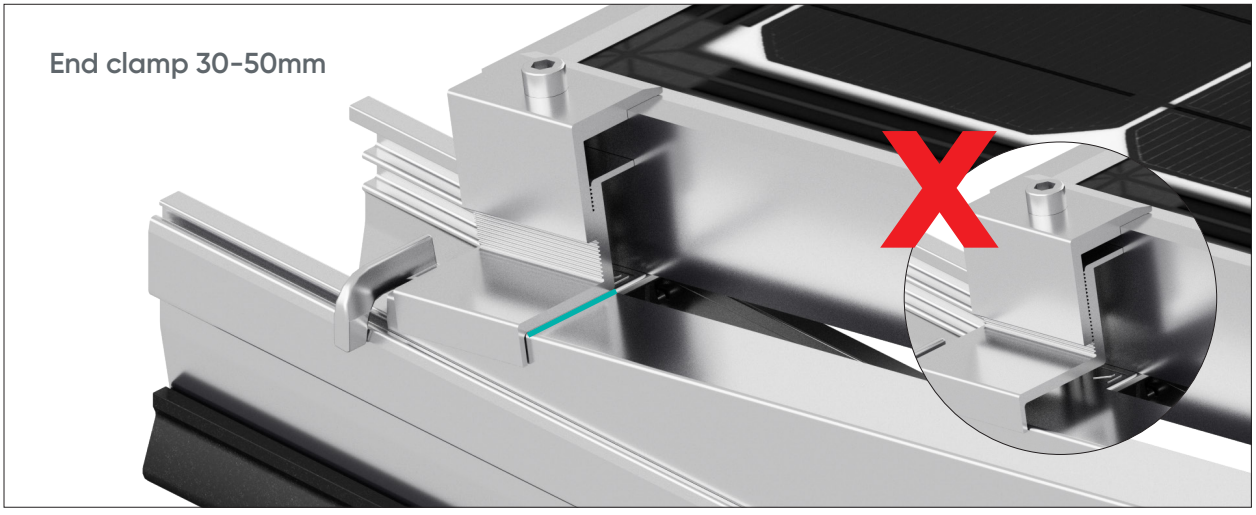
The side deflector is locked with the end clamp (18) locked. See next page

3.10 End clamp



Make sure that the bottom of the end clamp (18) is against the side deflector.



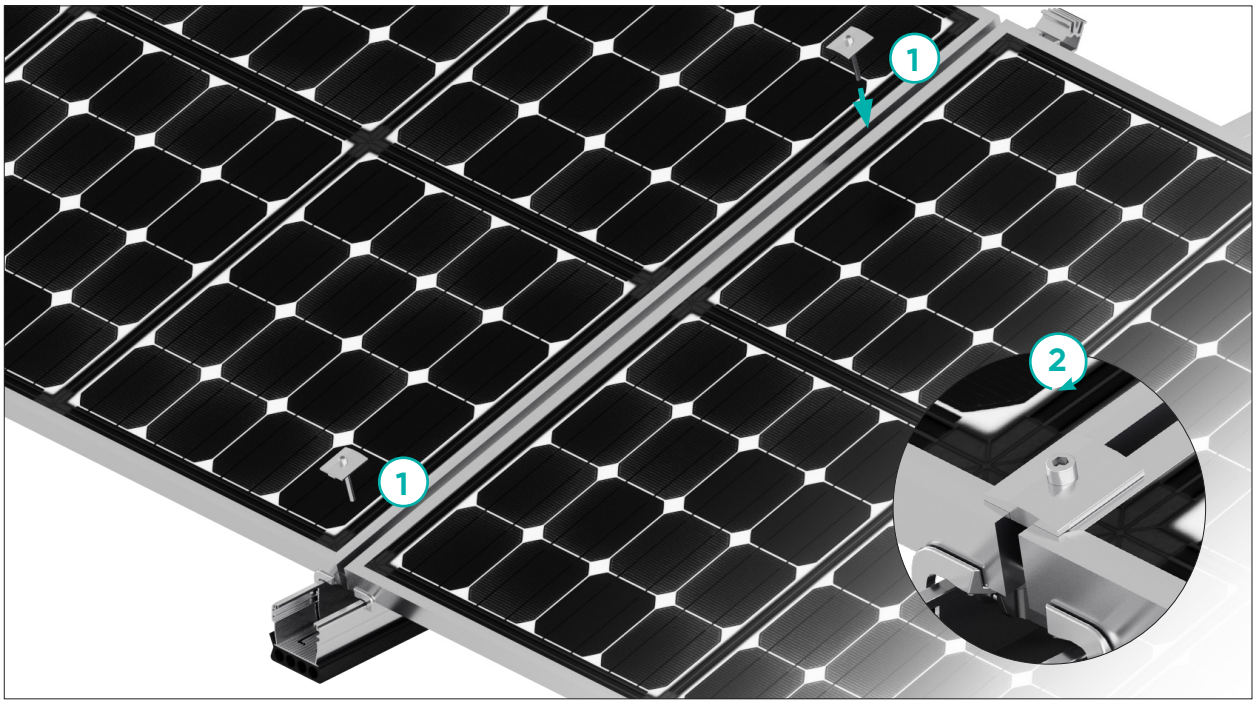


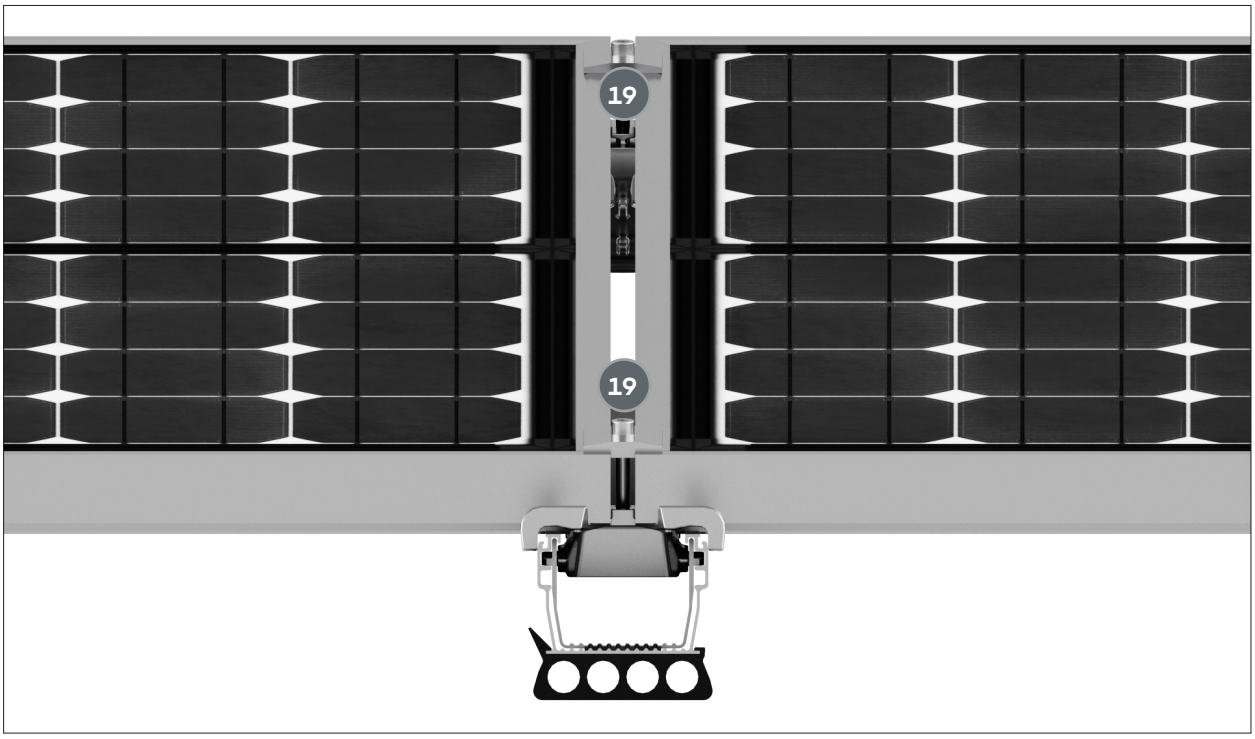
3.11 Middle clamp

Torque wrench
Allen key torque ratchet wrench

1. Insert module clamps (19)
2. Tighten

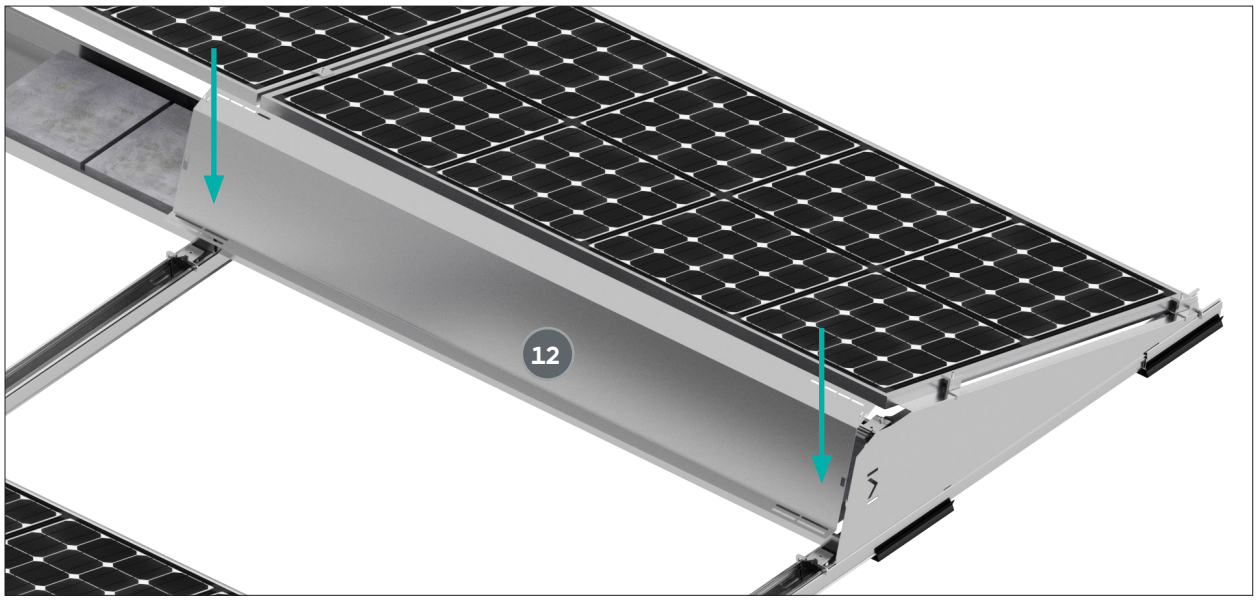
Tighten with a torque of 8 Nm.

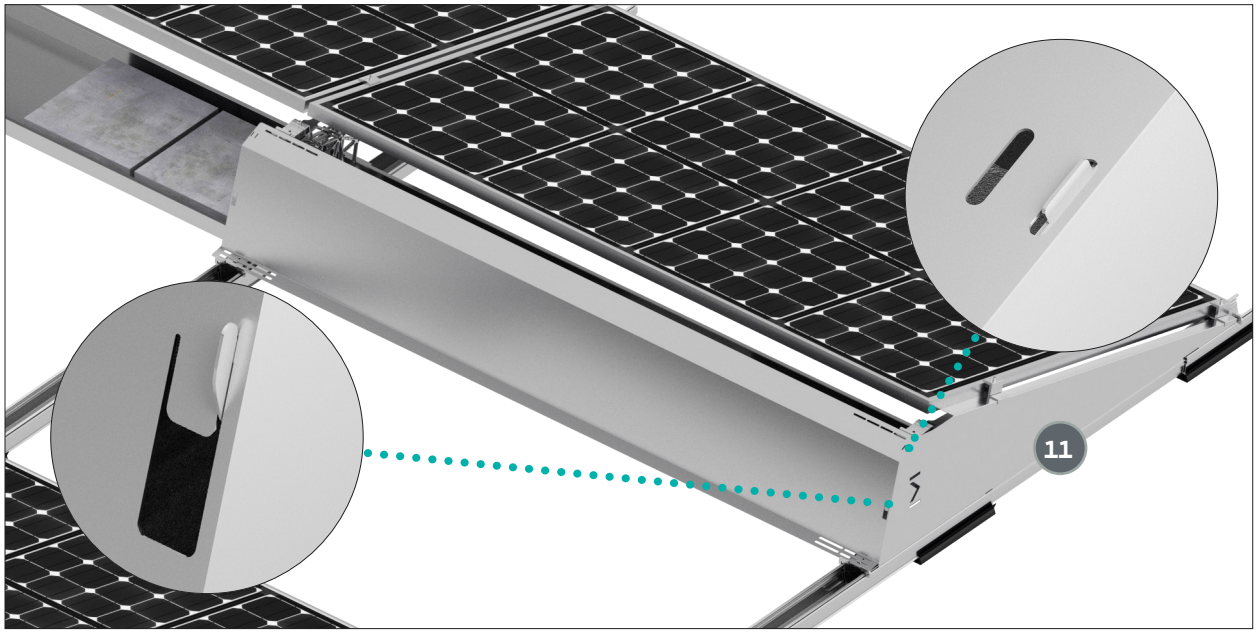


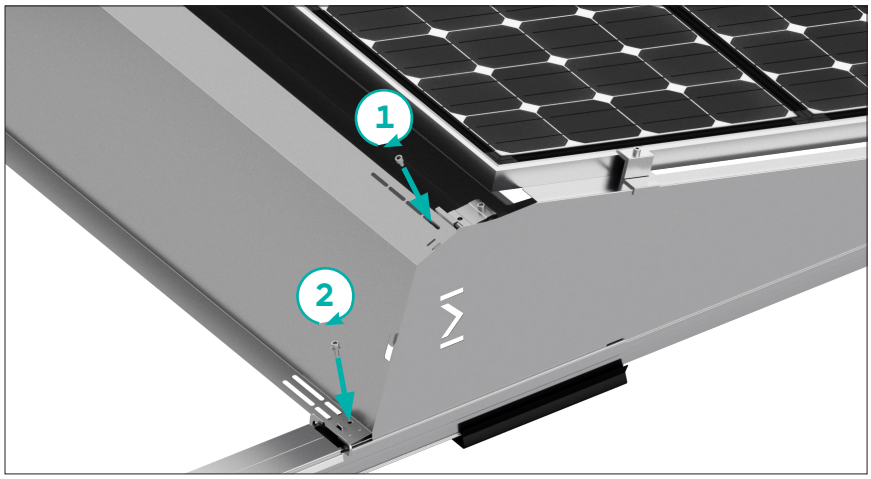


3.12 Wind deflector

Hang the wind deflectors (12) in the provided openings and fix them with screws.







1 Sheet metal screw

6 Nm

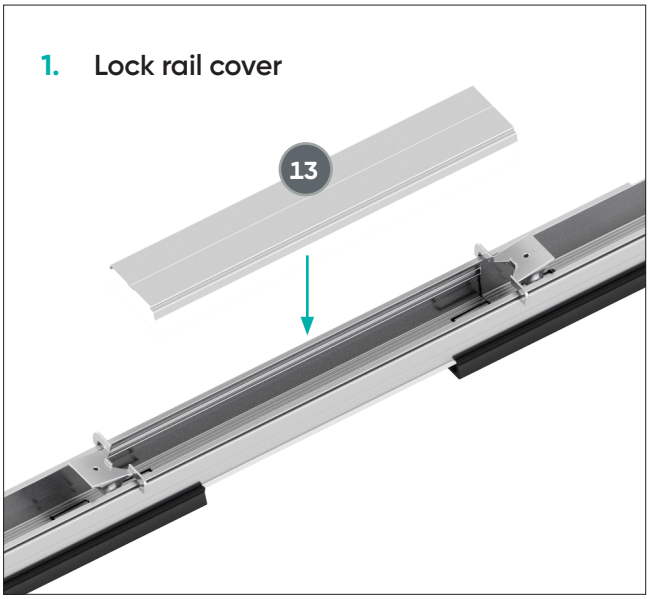
2 Cylinder head screw M6x16

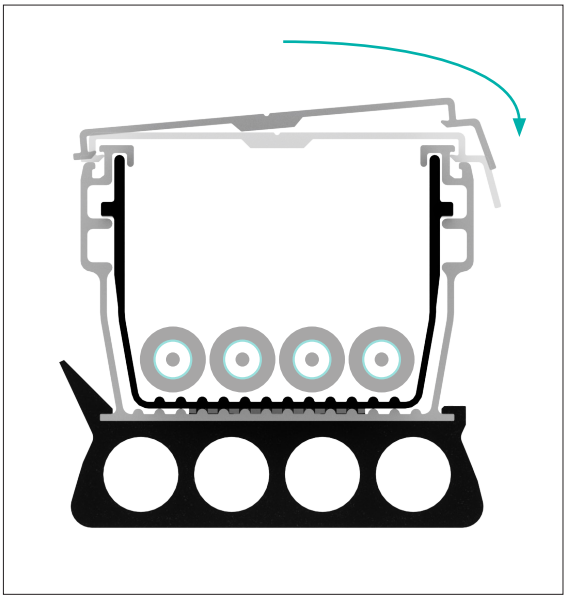
6 Nm

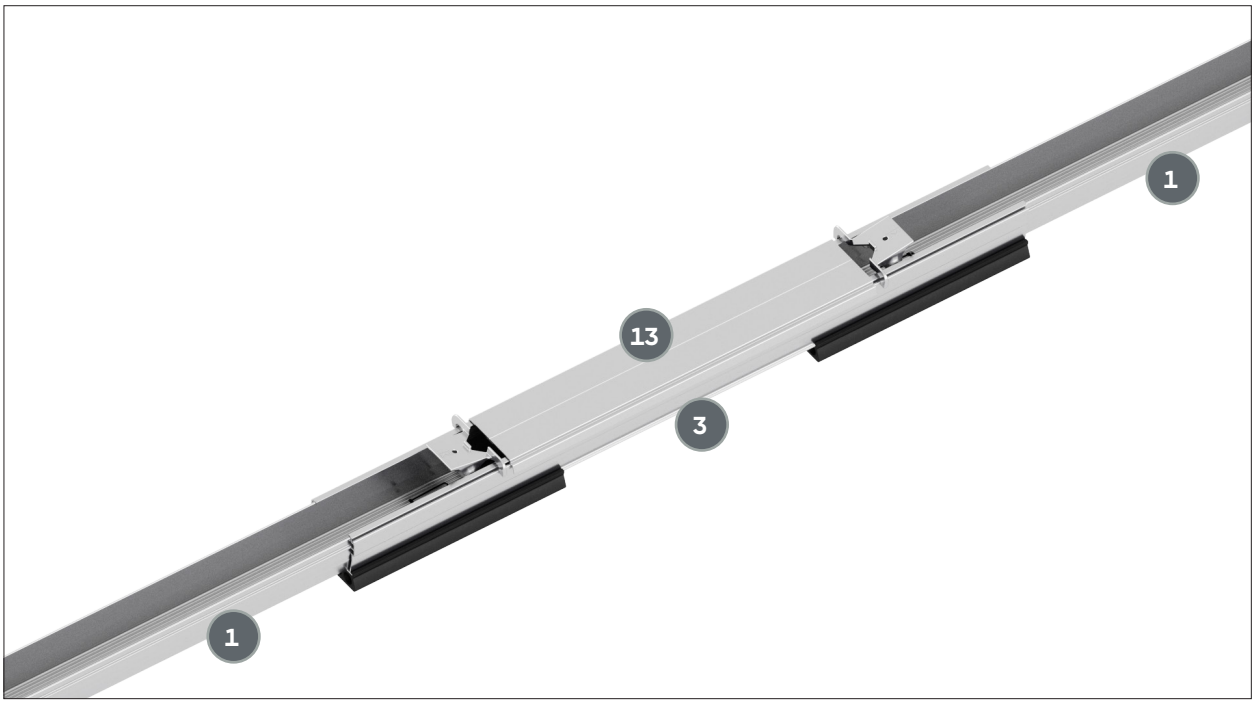
3.13 Top rail cover

To be put only on the top cover after the cables have been passed through!

1. Lock rail cover







mounting systems

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