ALUMERO

EN

SUSTAINABLE
SOLAR
SOLUTIONS

easyLIGHT
East / West

ASSEMBLY MANUAL

Please read the safety instructions at the end of this manual before starting the installation. Make sure you are using the latest version of the assembly manual.

The layout and planning of the mounting system should be done using the **ALUMERO.PRO.TOOL** software. Refer to the required materials, positions, and arrangement of individual components as detailed in the project report provided by ALUMERO.PRO.TOOL or your ALUMERO sales representative. This data has been statically calculated and are essential for the safe and proper functioning of the system.

The installer of the photovoltaic system must ensure before installation begins that the roof substructure provided is designed for the additional loads.

This manual describes the assembly processes for the according ALUMERO system, attachment in open terrain, and the installation of modules.

This ALUMERO mounting system is designed exclusively for mounting PV modules. Any other use is considered inappropriate.

Installation must only be performed by qualified personnel.
Roofing work in particular should be carried out by a roofing professional.

For further questions, use ALUMERO's professional and comprehensive consulting service.

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TECHNICAL DATA

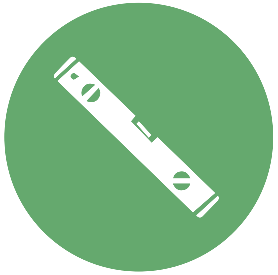
Application:	Foil-bitumen roofs as well as gravel and green roofs
Module dimensions:	950 - 1150 mm × 1500 - 2250 mm (width x length)
Module tilt angle:	10° (East / West facing)
Surface clearance:	Approx. 60 mm
Roof inclination:	Up to 5° depending on roof conditions without roof anchor possible, over 5° only with roof anchor
Wind load:	Suction load up to 2.4 kN/m²
Snow load:	Standard up to 2.4 kN/m², Alpine version up to 4.4 kN/m²
Proof of stability:	Software-supported on the basis of wind tunnel analyses
Roof properties:	The static load-bearing capacity of the roof structure and the building support structure as well as sufficient compressive strength of the thermal insulation must be ensured on site.
Material underconstruction:	Aluminium EN AW 6060; sheet metal made of steel with aluminium-zinc coating; small parts made of stainless steel A2-70 stainless steel; building protection mat made of polyester fleece.

REQUIRED TOOLS

Cordless screwdriver
with bit inserts:
Hexagon **SW 6**

Measuring tape

Torque wrench

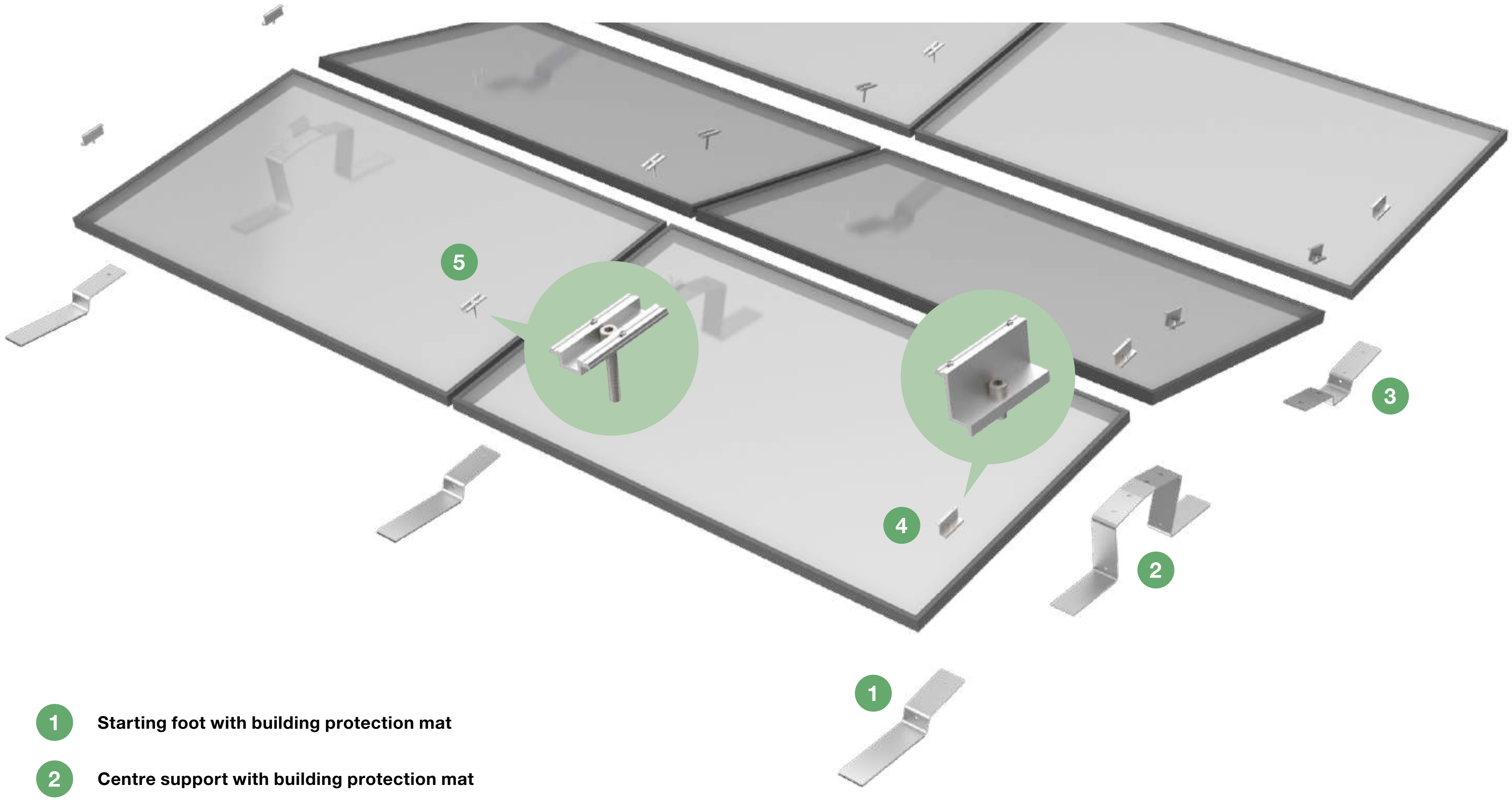


Spirit level

Chalk line

COMPONENTS

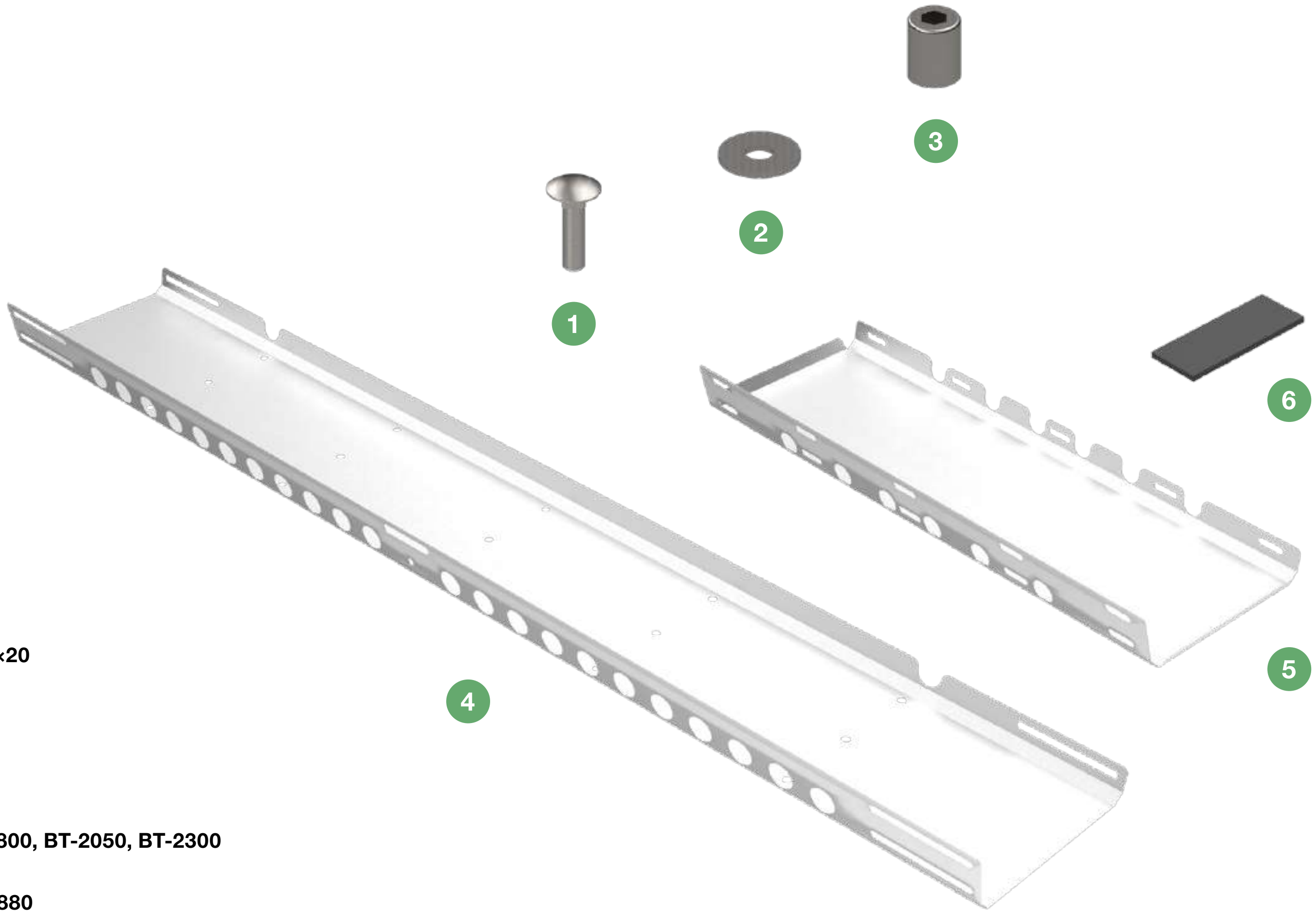
EASYLIGHT



1. **Starting foot with building protection mat**
2. **Centre support with building protection mat**
3. **Connector (long / short) with building protection mat**
4. **End clamp, preassembled with pins**
5. **Middle clamp, preassembled with pins**

COMPONENTS

BALLASTAGE



1 **Gate hinge screw, M8×20**

2 **Washer**

3 **Allen nut, M8 SW6**

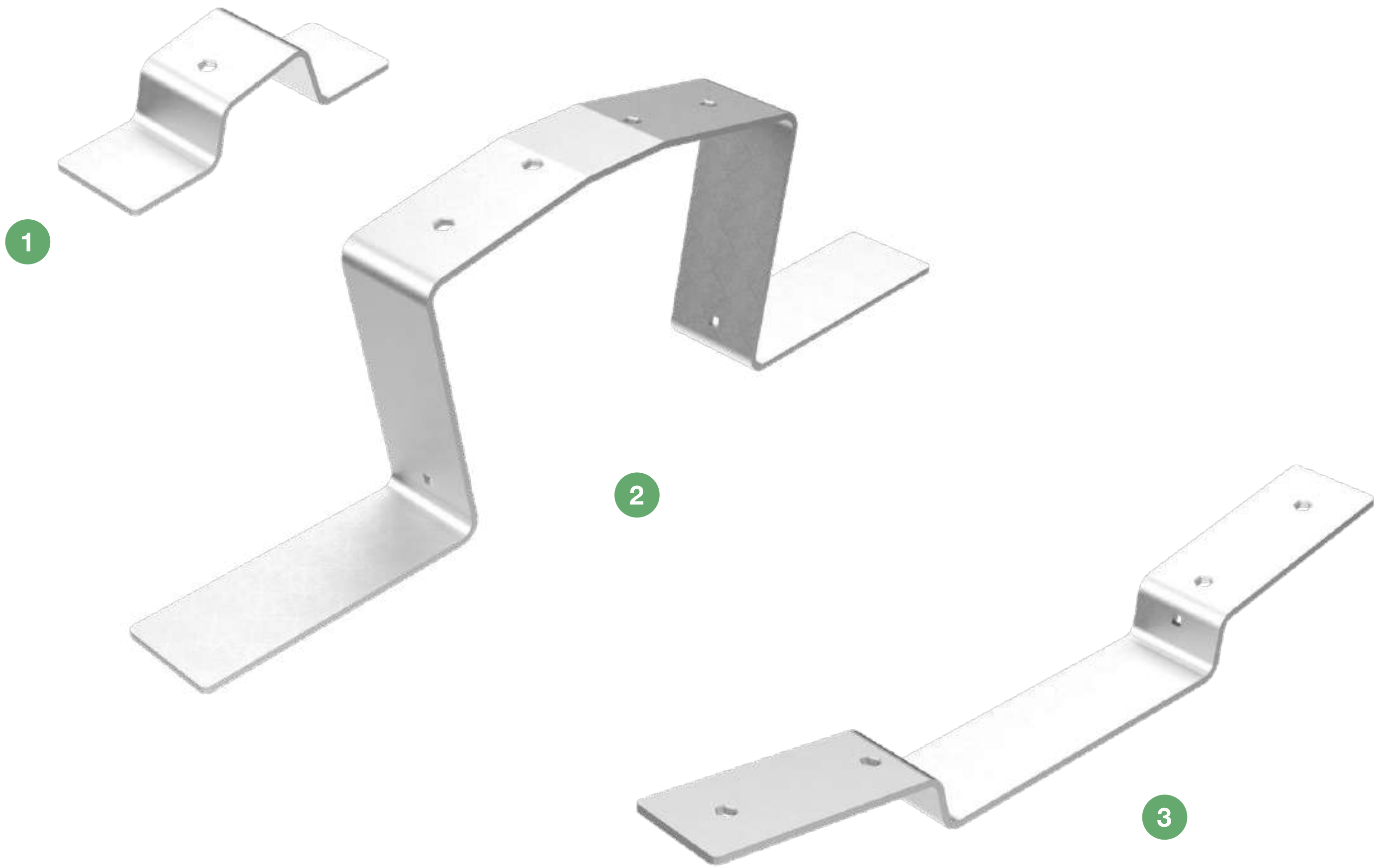
4 **Ballast tray long, BT1800, BT-2050, BT-2300**

5 **Ballast tray short, BT-880**

6 **Building protection mat, PES**

COMPONENTS

ALPINE SUPPORTS



1. **Front alpine support with building protection mat**
2. **Centre support with building protection mat**
3. **Connector (long / short) with building protection mat**

VARIANTS

FLAT ROOF EASYLIGHT

297 mm spacing 10° internal shading angle

FLAT ROOF EASYLIGHT

464 mm spacing 8° - 18° internal shading angle

INSTALLATION

INFORMATION ON MOUNTING ON GRAVEL ROOFS

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

Install the system on waterproofing or protective fleece

Height of gravel fill: 30 - 60 mm

As excessive point loads can cause damage to the roof waterproofing, do not install the system on gravel with a gravel layer of up to 60 mm.

+ Carefully remove the gravel in the area of the module field.
+ Set up the system directly on the waterproofing or on the protective fleece.

Use the gravel for ballasting after assembly according to the PRO.TOOL report.

Set up the system on the gravel

Gravel fill 60 - 100 mm and protective fleece (min. 300 g/m^2) is present or gravel fill is 100 mm or higher.

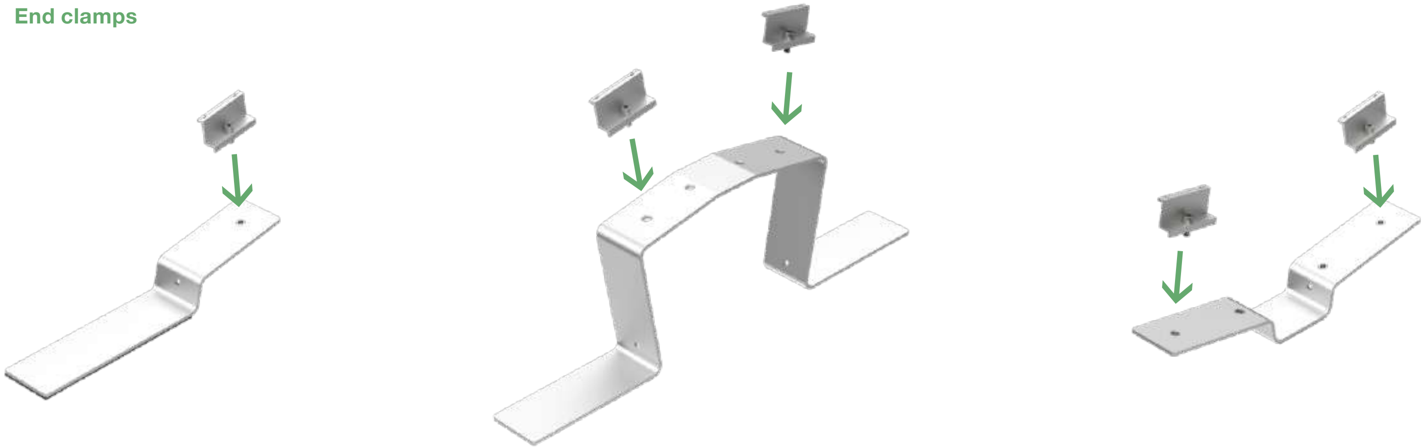
+ Place the system on the gravel.

INSTALLATION

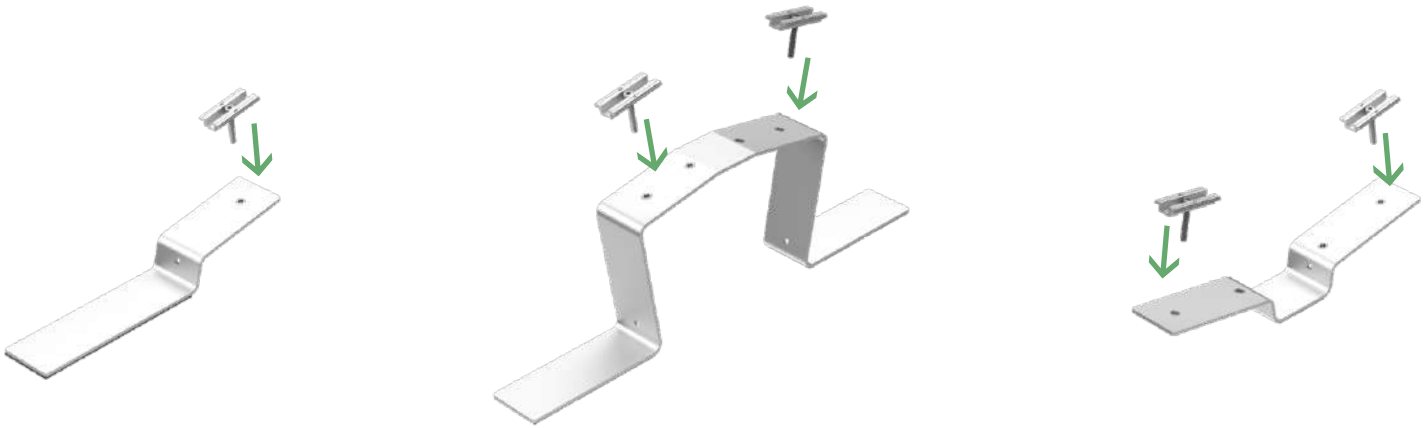
PRE-ASSEMBLE CLAMPS

+ Attach the end or centre clamps to the start legs, centre supports and connectors as required.

End clamps



Middle clamps

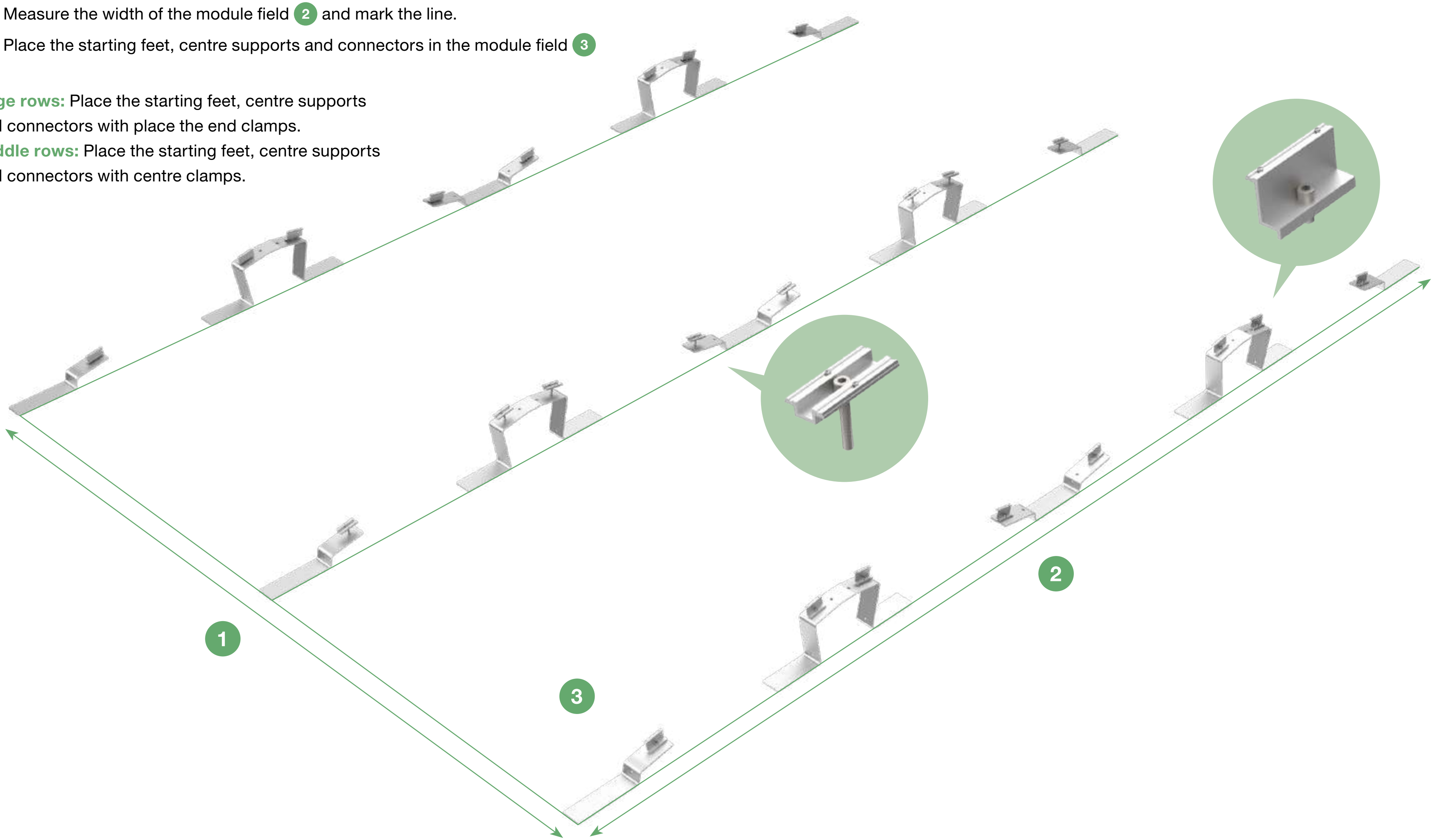


INSTALLATION

MEASURE AREA, PLACE COMPONENTS

+ Take the dimensions of the module field from the planning documents.
+ Measure the length of the module field 1 and mark the line.
+ Measure the width of the module field 2 and mark the line.
+ Place the starting feet, centre supports and connectors in the module field 3

Edge rows: Place the starting feet, centre supports and connectors with place the end clamps.
Middle rows: Place the starting feet, centre supports and connectors with centre clamps.



INSTALLATION

MODULE INSTALLATION

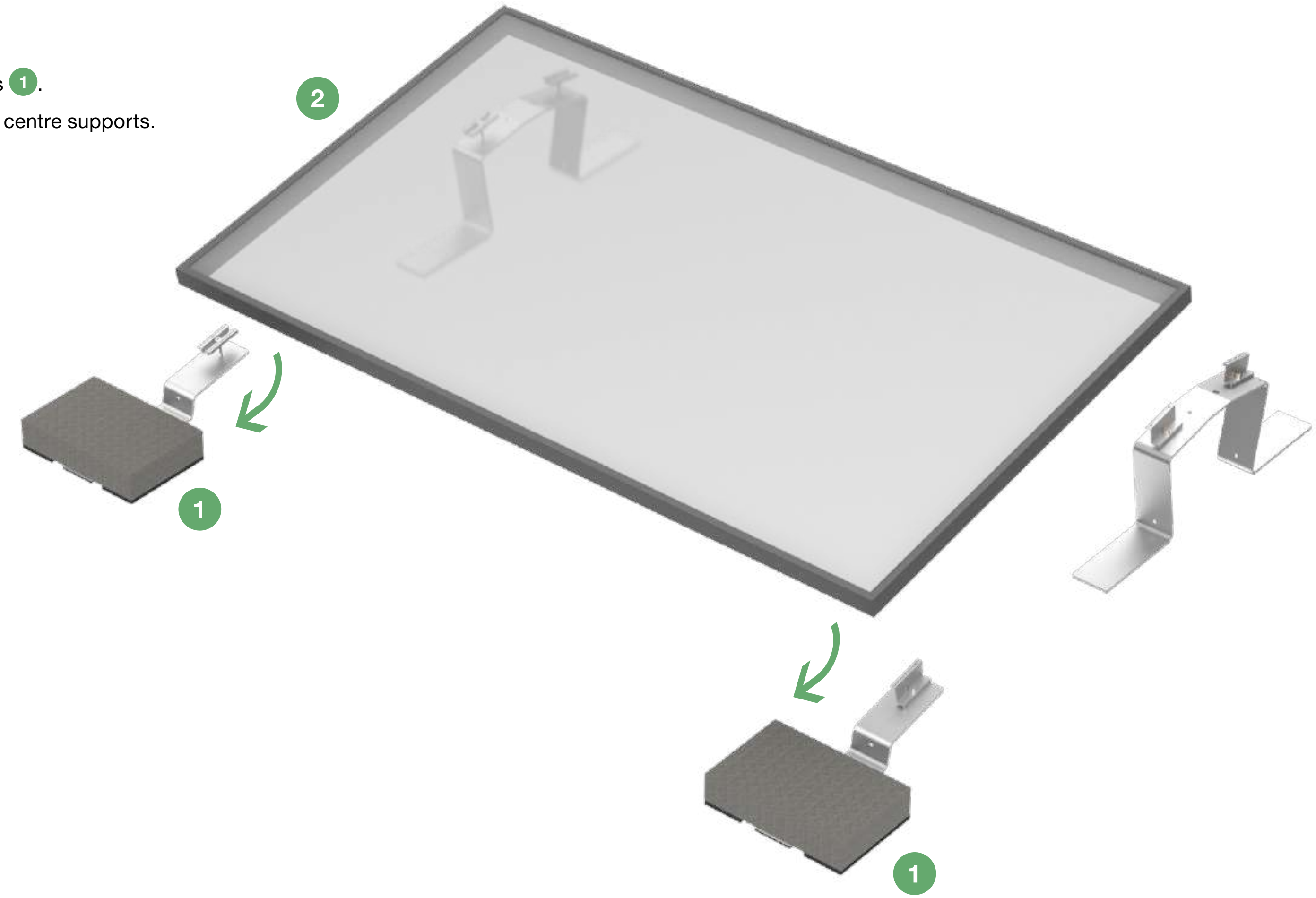
Tip: Wire the modules at the same time during installation.

The cables can be attached to the module using the cable tie clip.

The distance between the clamps is determined by the feet / connectors or by the module size.

Installing the first row of modules

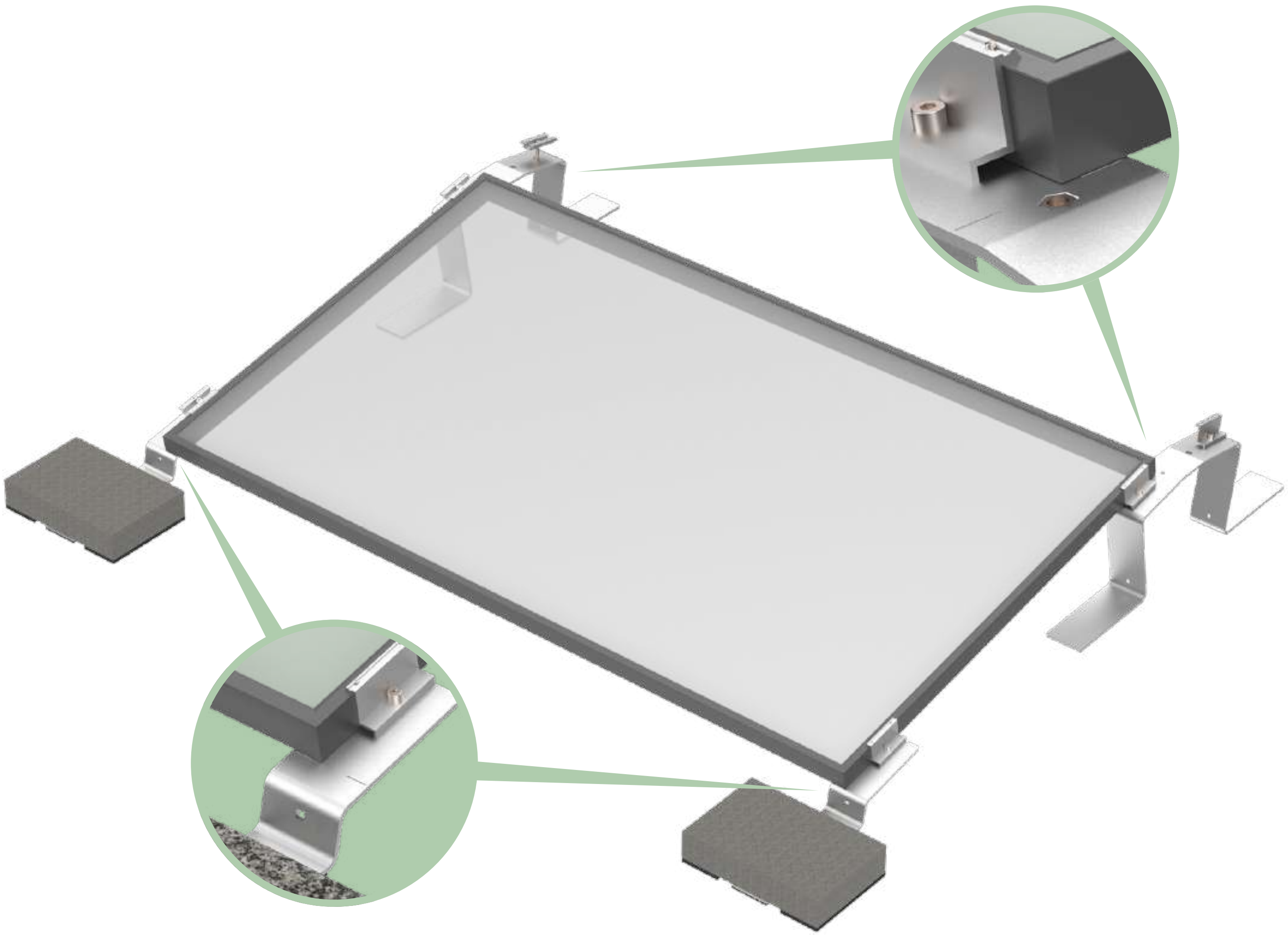
+ Weigh down the initial feet with ballast stones 1.
+ Place the module 2 on the starting feet and centre supports.



INSTALLATION

MODULE INSTALLATION

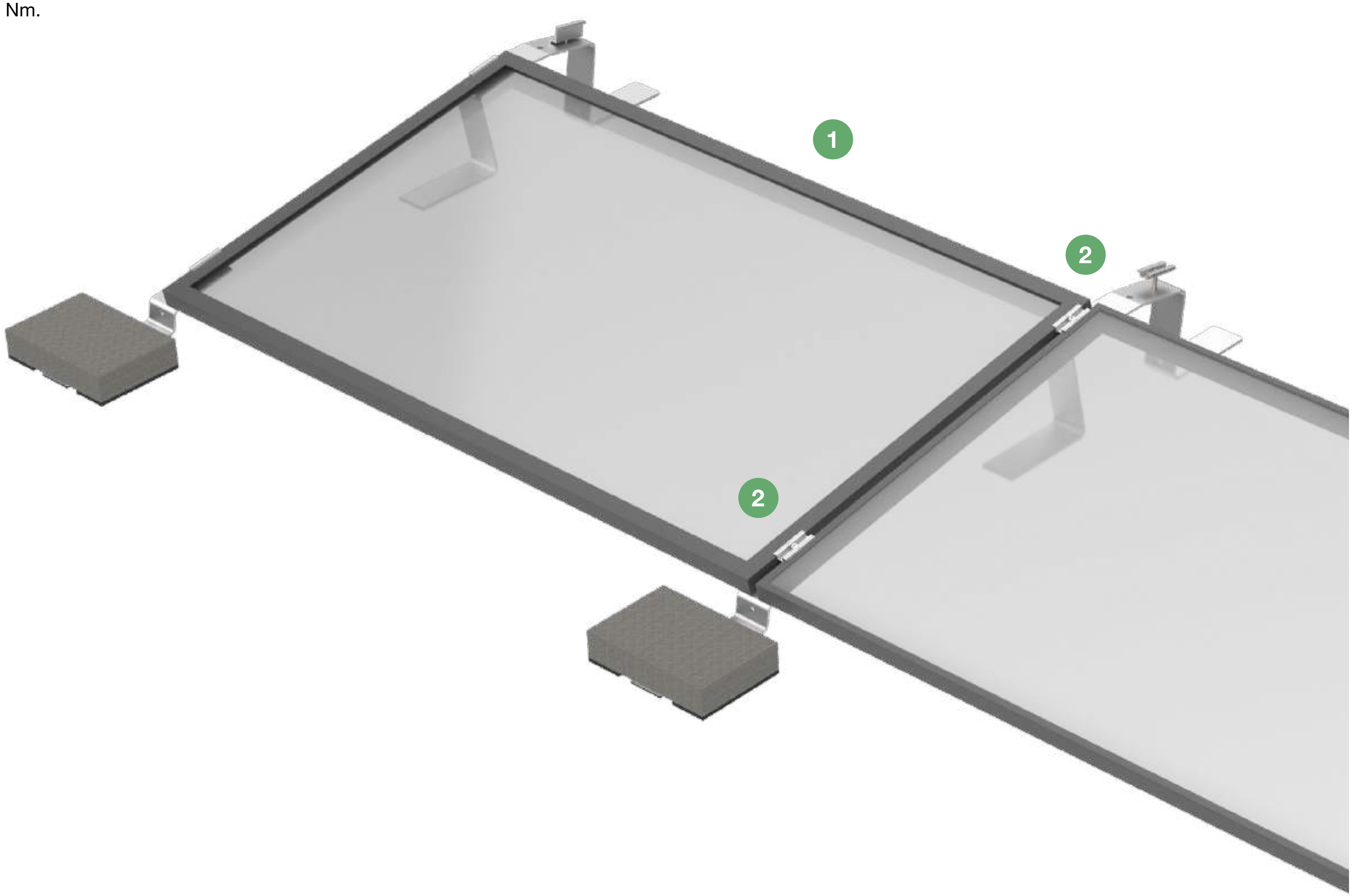
+ Align the module with the notches on the feet / centre supports.
+ Tighten the screws on the end clamps to 15 Nm.



INSTALLATION

MODULE INSTALLATION

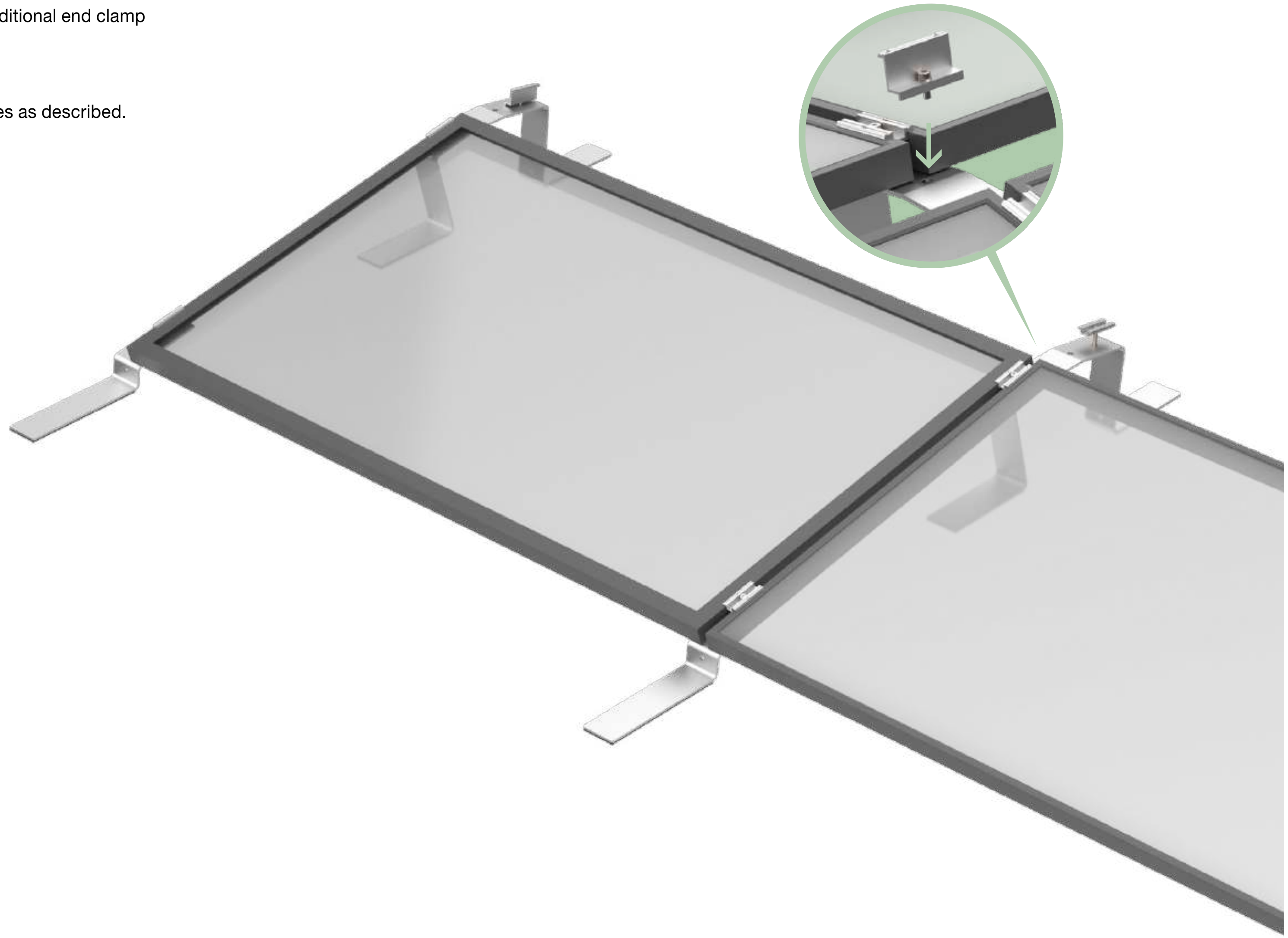
- Place the next module 1.
- Tighten the screws on the centre terminals 2 of the previous module to 15 Nm.



INSTALLATION

MODULE INSTALLATION

+ For a stronger bond, attach an additional end clamp to each of the centre supports.
+ Tighten the screws to 15 Nm.
+ Install further modules in this series as described.

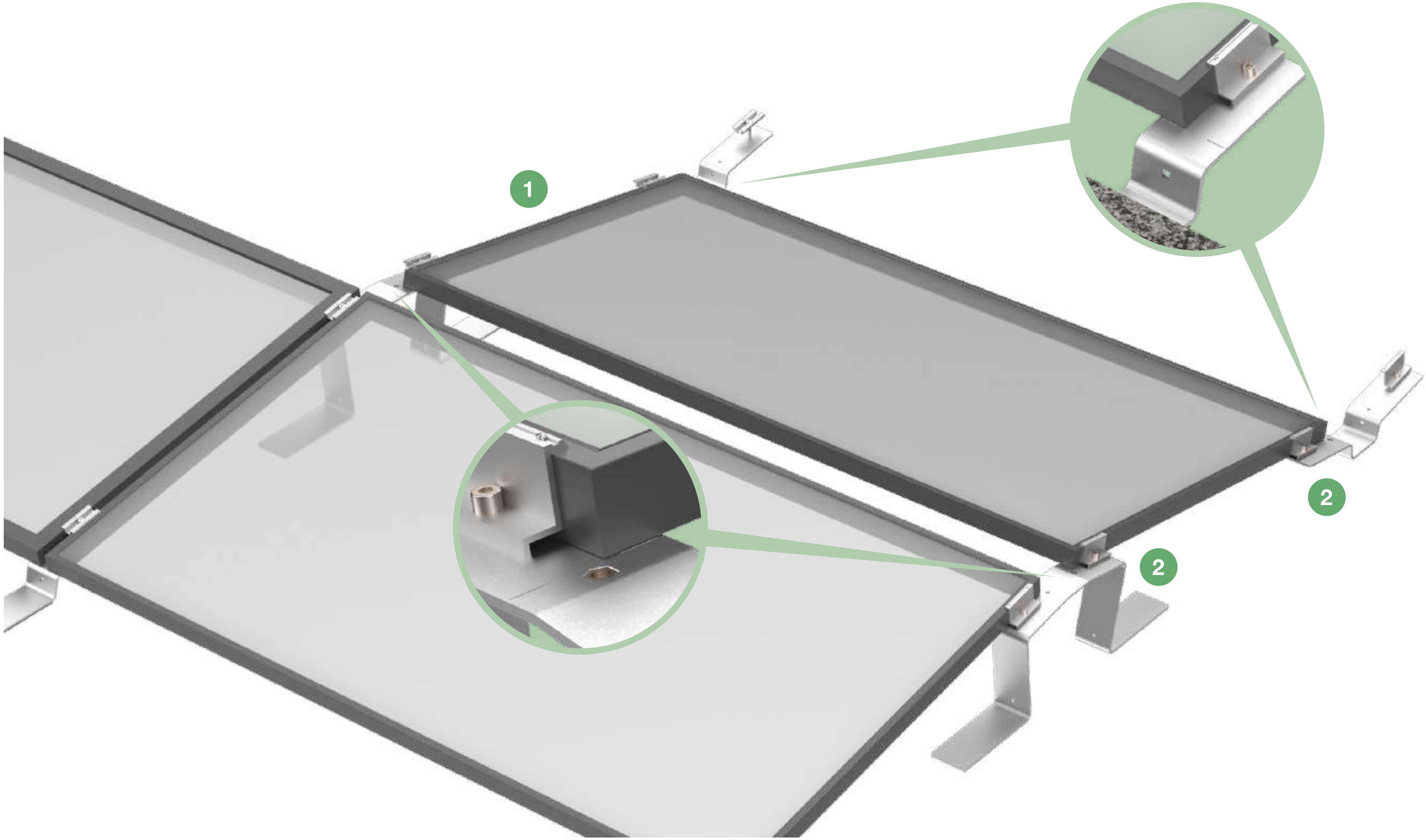


INSTALLATION

MODULE INSTALLATION

Installing the second row of modules

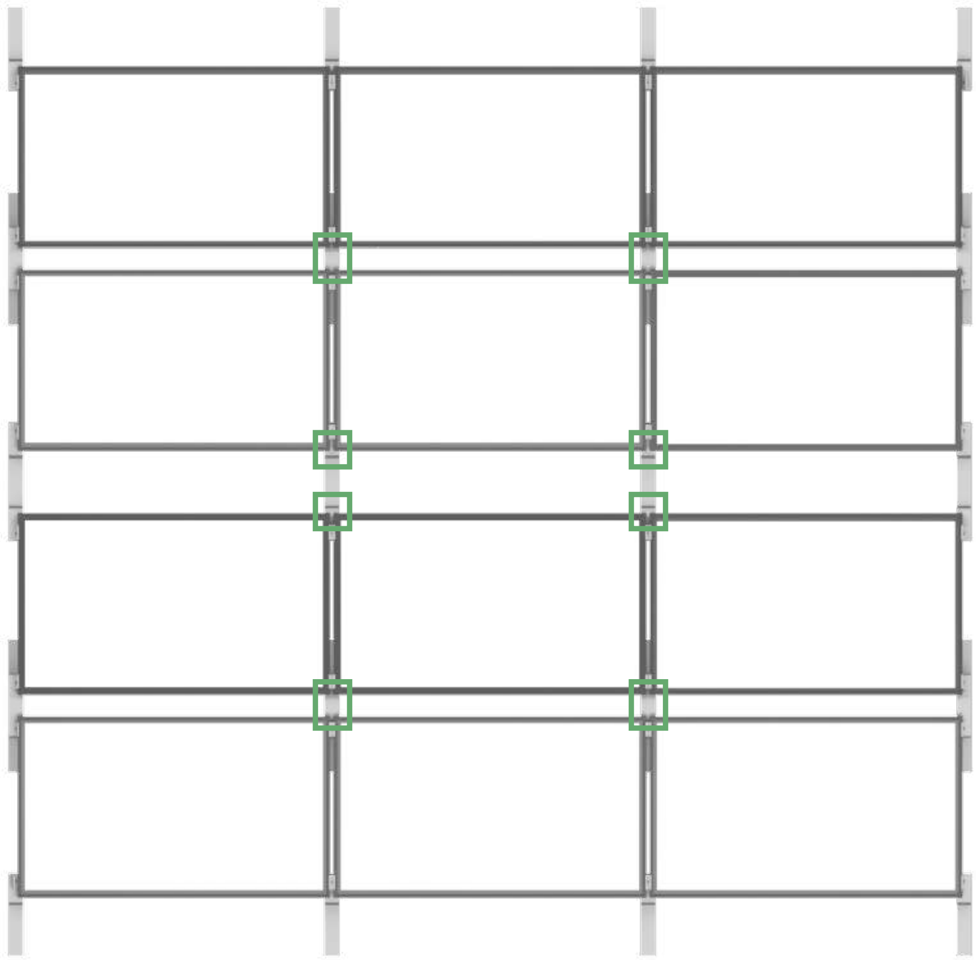
- Place the module 1 on the centre supports and connectors.
- Align the module with the notches on the centre supports / connectors.
- Tighten the screws on the end terminals 2 to 15 Nm.



INSTALLATION

MODULE INSTALLATION

- For a stronger bond on the centre supports, attach another end clamp to each of the marked positions.
- Tighten the screws to 15 Nm.



OPTIONAL: INSTALLING ALPINE SUPPORTS

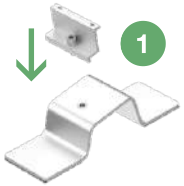
MODULE INSTALLATION

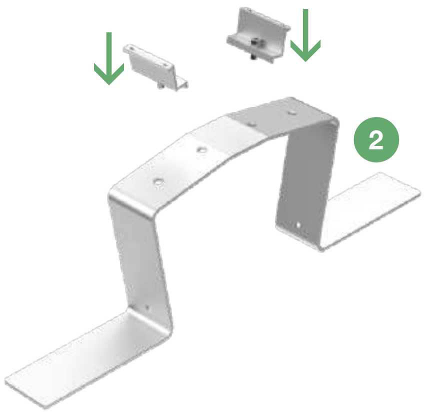
Above a certain snow load, additional support feet (Alpine supports) are mounted in the centre of the module. The planning documents indicate whether Alpine supports are required.

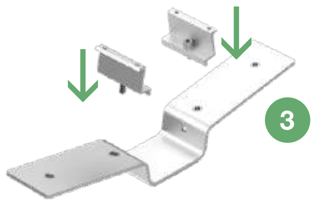
Before installing the Alpine supports, ensure that the modules are suitable for increased snow loads and that the clamping is suitable for the intended clamping area.

+ Attach end clamps to the front alpine supports 1, the additional centre supports 2 and connectors 3.

End clamps





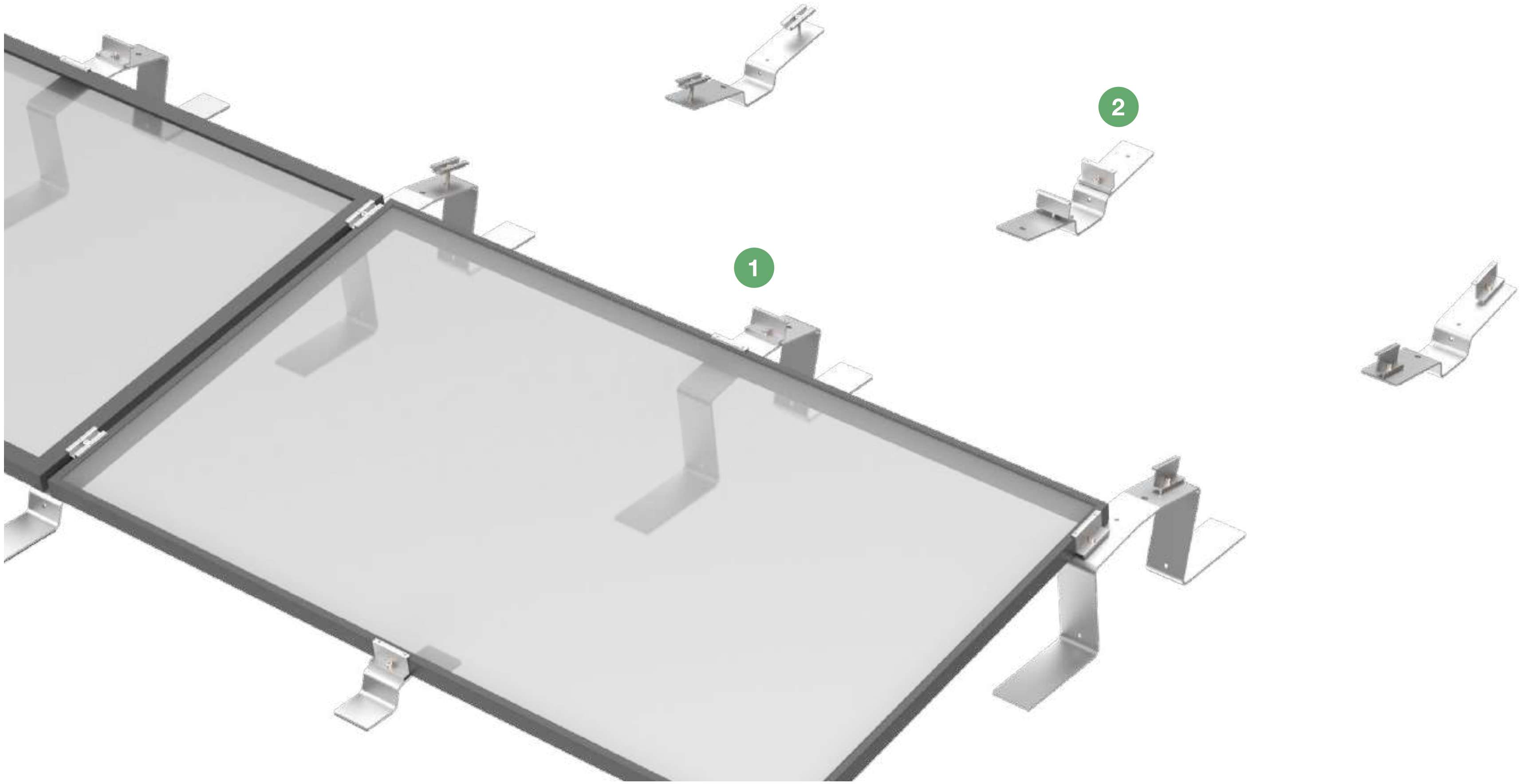


OPTIONAL: INSTALLING ALPINE SUPPORTS

MODULE INSTALLATION

| The alpine supports are mounted in parallel with the modules.

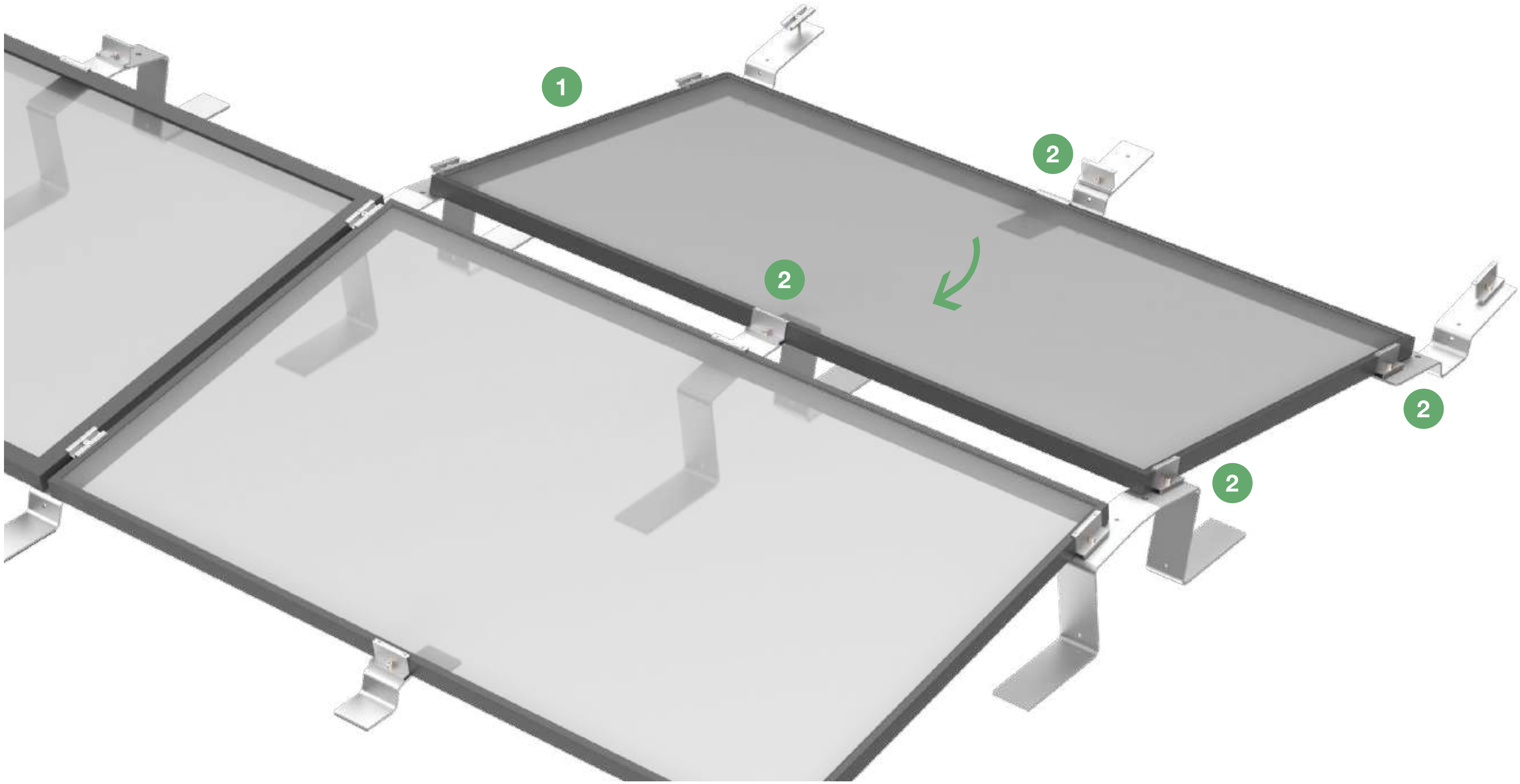
+ Place a centre support 1 and a connector 2 in the centre of each module.



OPTIONAL: INSTALLING ALPINE SUPPORTS

MODULE INSTALLATION

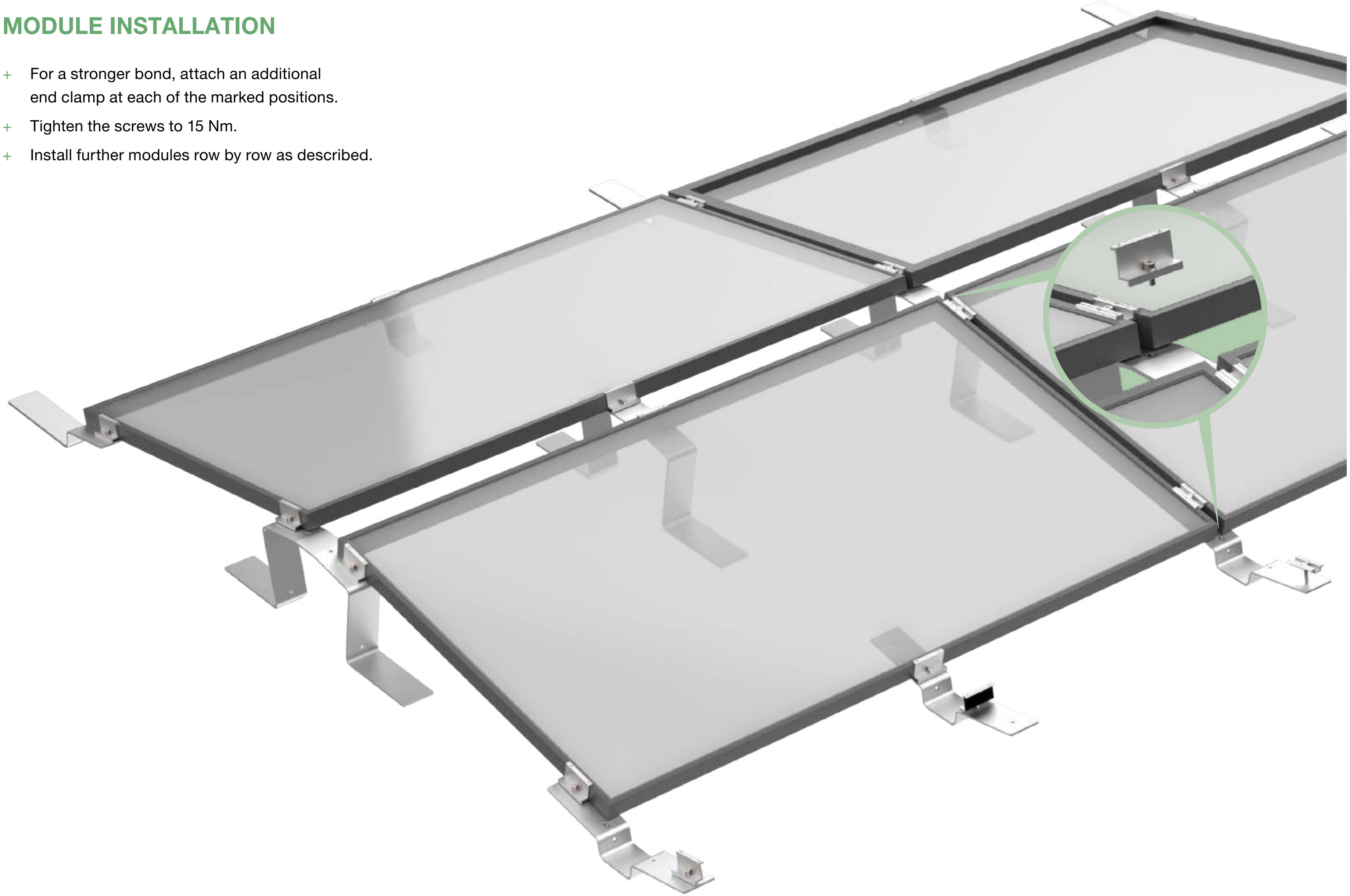
- Place the module 1 on the centre supports and connectors.
- Tighten the screws on the end clamps 2 to 15 Nm.



OPTIONAL: INSTALLING ALPINE SUPPORTS

MODULE INSTALLATION

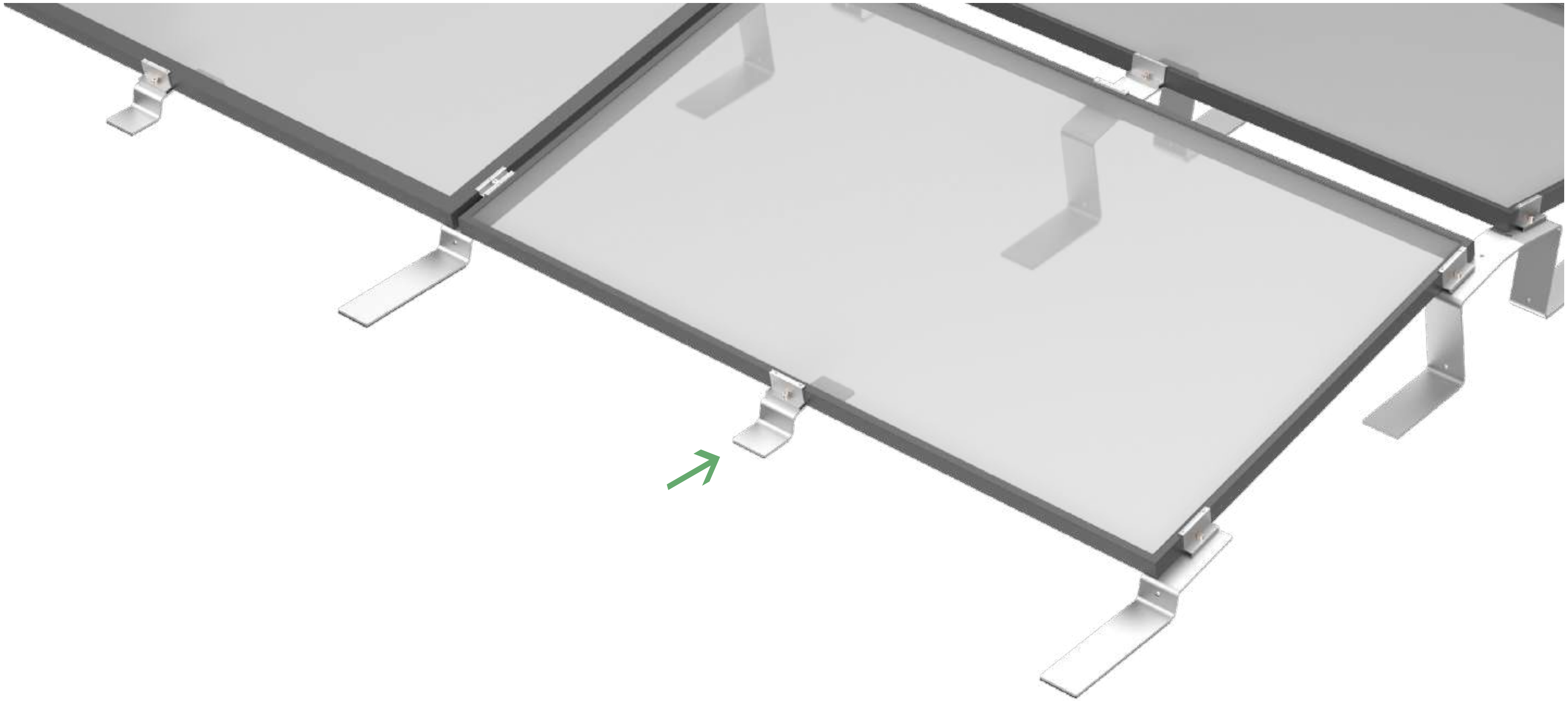
- For a stronger bond, attach an additional end clamp at each of the marked positions.
- Tighten the screws to 15 Nm.
- Install further modules row by row as described.



OPTIONAL: INSTALLING ALPINE SUPPORTS

MODULE INSTALLATION

- Position a front alpine support in the centre of the module on the front and rear row of each module.
- Ensure that the end clamps are flush with the module.
- Tighten the screws to 15 Nm.



OPTIONAL: INSTALLING BALLASTAGE

The system is ballasted differently depending on the circumstances.

BALLASTING FOR GRAVEL ROOFS

+ Set up the system on waterproofing or protective fleece
+ Install ballast trays according to plan.
+ Use existing gravel for ballasting according to the ALUMERO.PRO.TOOL report.
+ Spread the remaining gravel evenly over the roof.
+ Ensure that there is sufficient gravel on the entire roof.
+ gravel is available on the entire roof. Add gravel if necessary.

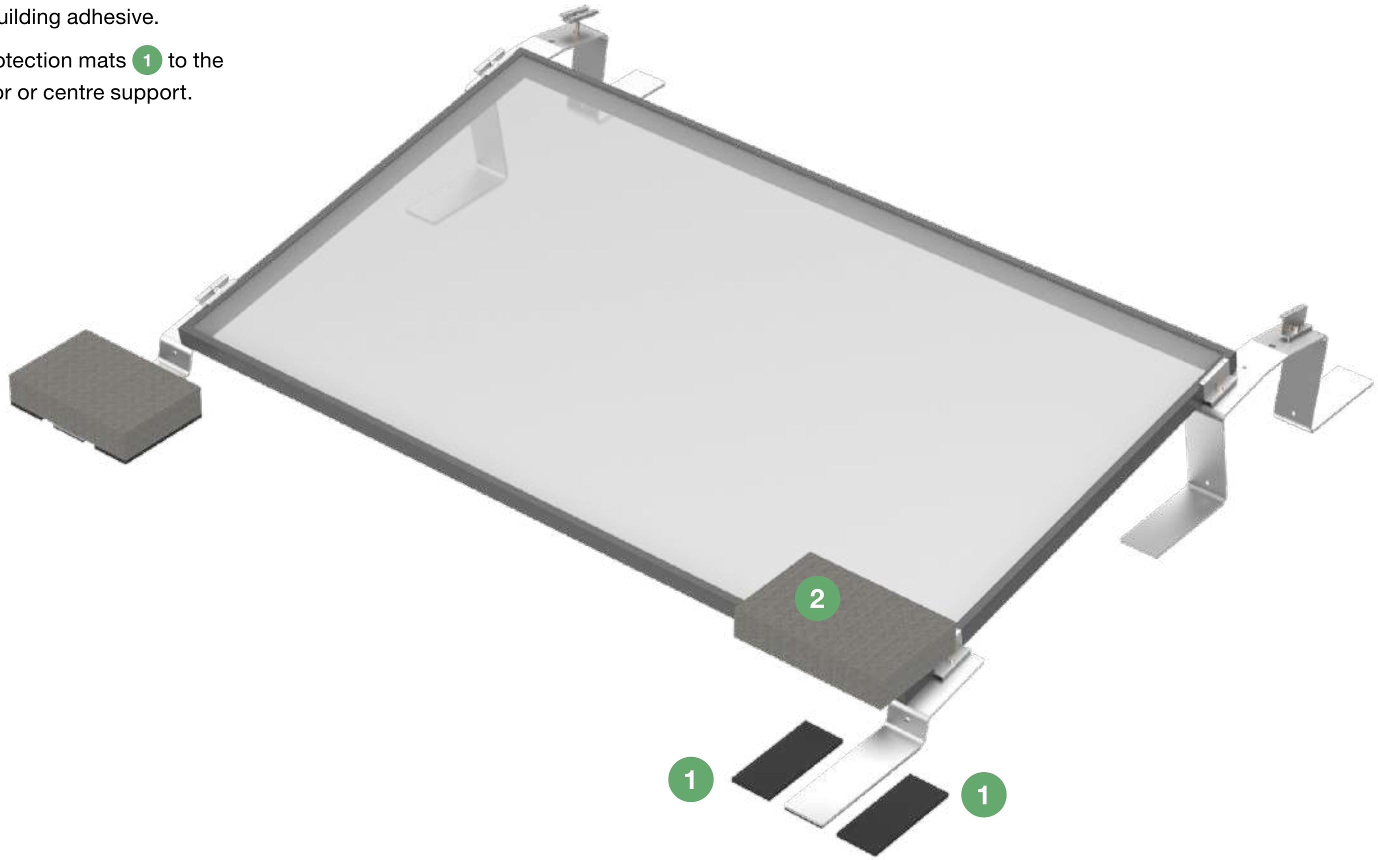
OPTIONAL: INSTALLING BALLASTAGE

VARIANT 1: BALLASTING DIRECTLY ON THE STARTER LEGS, CENTRE SUPPORTS OR CONNECTORS

With this ballasting variant, the ballast blocks are placed directly onto the the starting feet, connectors or centre supports.

> Refer to the ALUMERO.PRO.TOOL planning documents for the exact number and position of the ballast blocks.
>
> Recommendation: Glue the building protection mats and ballast blocks with a weather-resistant building adhesive.

+ For height levelling, position building protection mats 1 to the right and left of the starter leg, connector or centre support.
+ Place the ballast stone 2 on top.



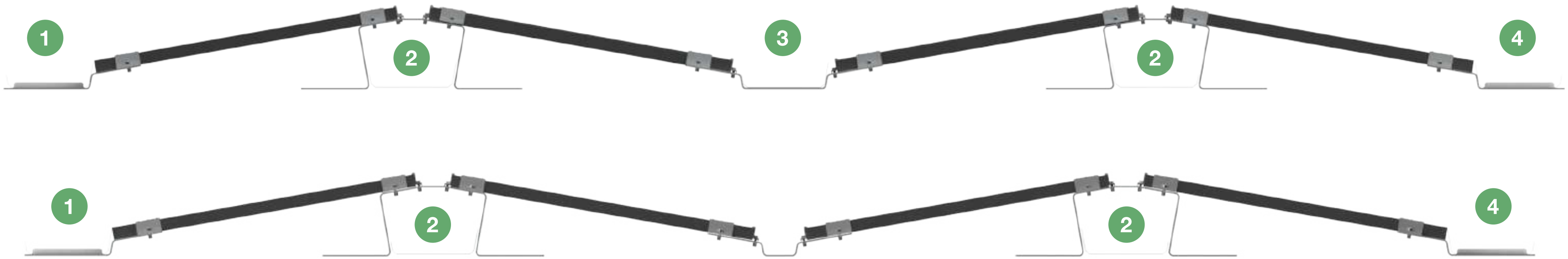
OPTIONAL: INSTALLING BALLASTAGE

VARIANT 2: SHORT BALLAST TRAY

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

1. at the starting foot
2. on the centre support
3. on the connector
4. at the starting foot - last row, mirror-inverted

> The exact number and position of the short ballast trays can be found in the ALUMERO.PRO.TOOL planning documents.

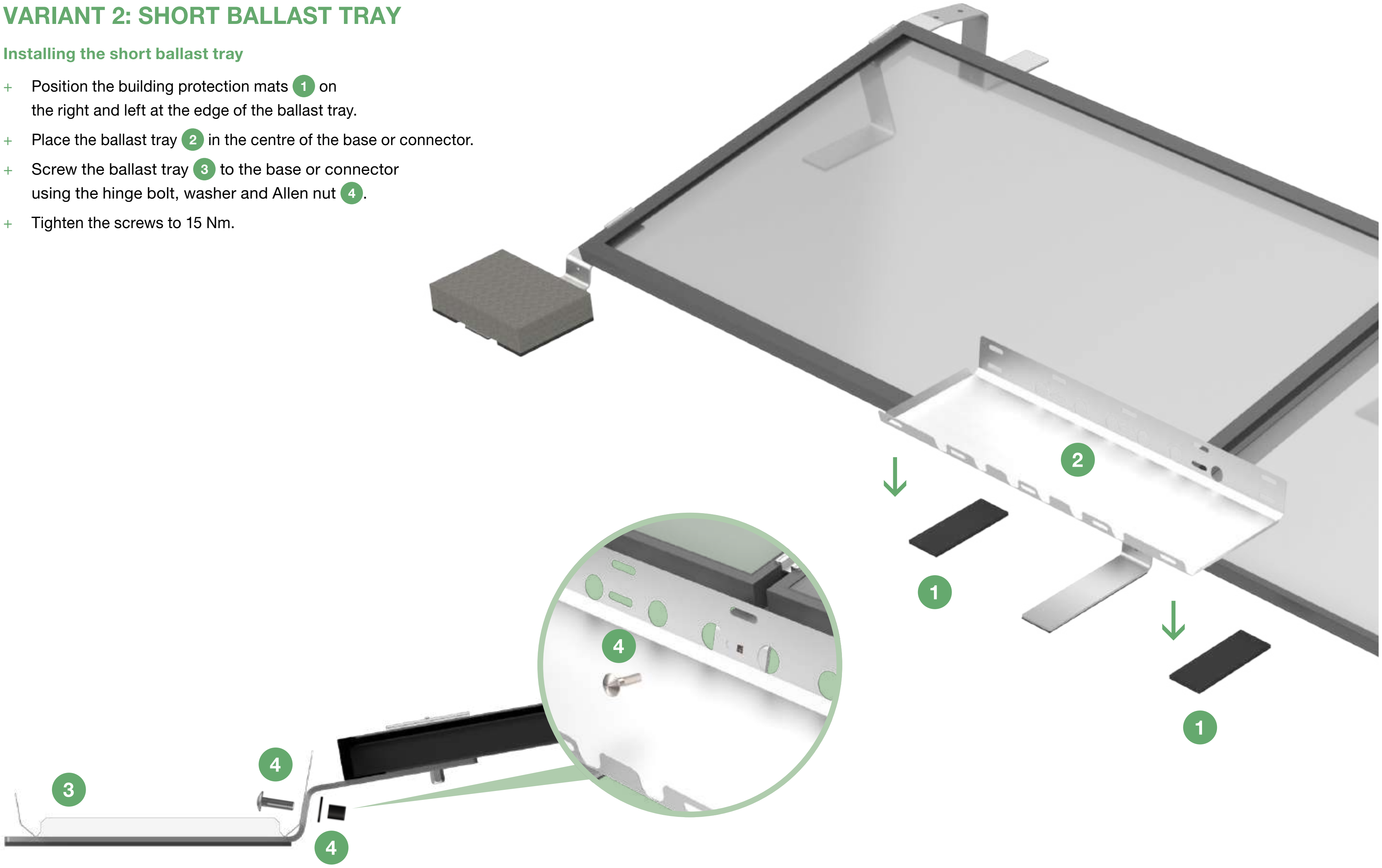


OPTIONAL: INSTALLING BALLASTAGE

VARIANT 2: SHORT BALLAST TRAY

Installing the short ballast tray

+ Position the building protection mats 1 on the right and left at the edge of the ballast tray.
+ Place the ballast tray 2 in the centre of the base or connector.
+ Screw the ballast tray 3 to the base or connector using the hinge bolt, washer and Allen nut 4.
+ Tighten the screws to 15 Nm.



OPTIONAL: INSTALLING BALLASTAGE

VARIANT 3: LONG BALLAST TRAY

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

1 at the starting foot
2 on the centre support
3 on the connector
4 at the starting foot - last row, mirror-inverted

> The exact number and position of the short ballast trays can be found in the ALUMERO.PRO.TOOL planning documents.

OPTIONAL: INSTALLING BALLASTAGE

VARIANT 3: LONG BALLAST TRAY

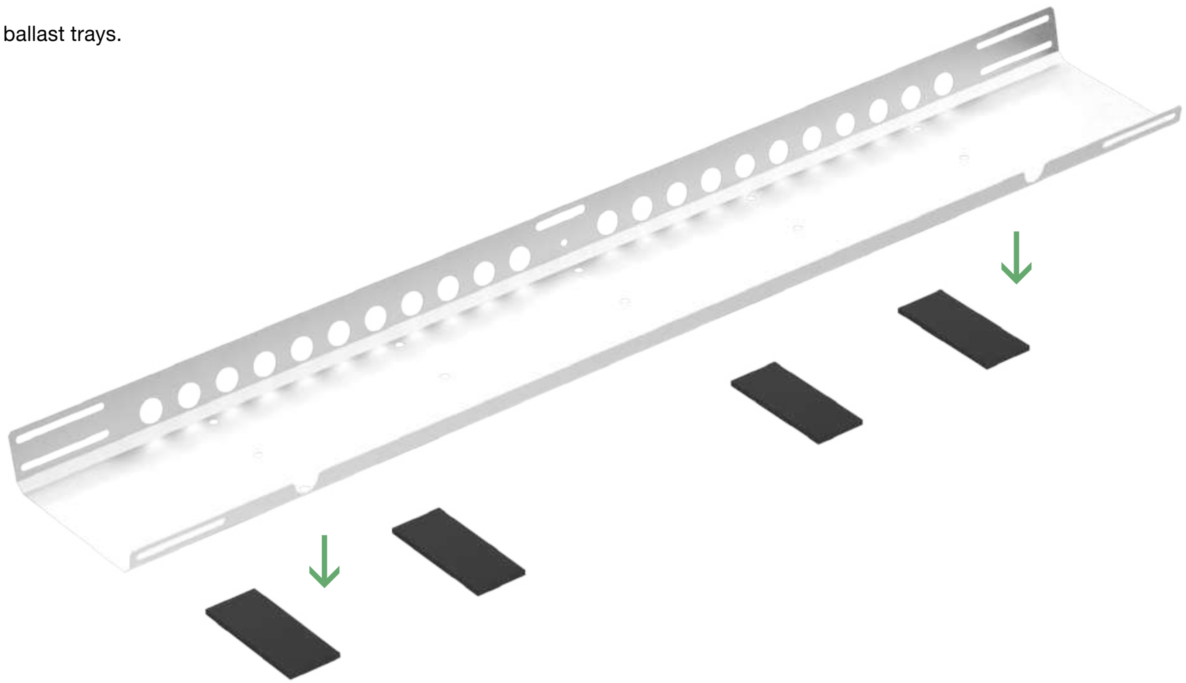
Placing building protection mats

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

Length 1800 mm: 3 structural protection mats per ballast tray
Length 2050 mm: 4 structural protection mats per ballast tray
Length 2300 mm: 5 structural protection mats per ballast tray

> When positioning the building protection mats, ensure that the drainage holes are not covered.

+ Distribute building protection mats evenly under the ballast trays.

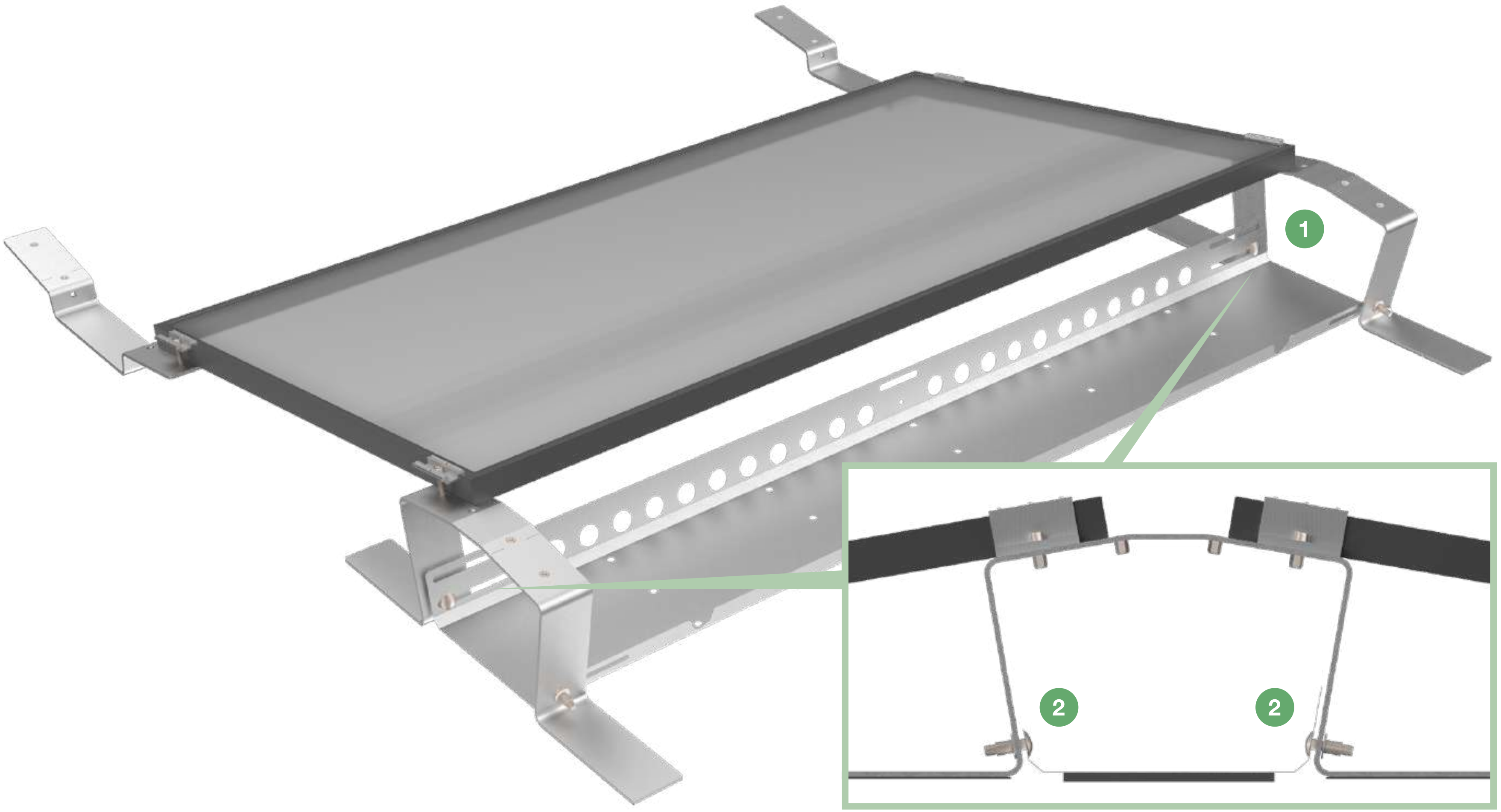


OPTIONAL: INSTALLING BALLASTAGE

VARIANT 3: LONG BALLAST TRAY

Mount the long ballast tray on the starting foot, centre support or connector

+ If several ballast trays follow one another: Lay out the ballast trays so that they overlap at the starting foot, centre support or connector 1.
+ Screw the ballast tray to the supports using the hinge bolt 2.
+ Tighten the screws to 15 Nm.

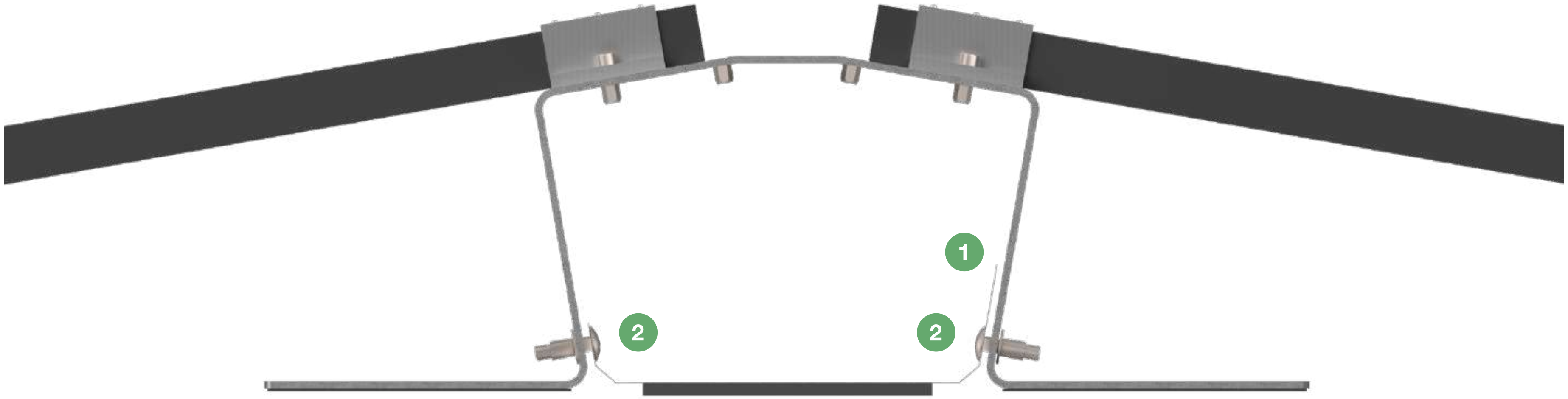


OPTIONAL: INSTALLING BALLASTAGE

VARIANT 3: LONG BALLAST TRAY

Fitting the long ballast tray to the centre support

+ Place the ballast tray 1 under the centre support.
+ Screw the ballast tray to the centre supports with two hinge bolts 2.



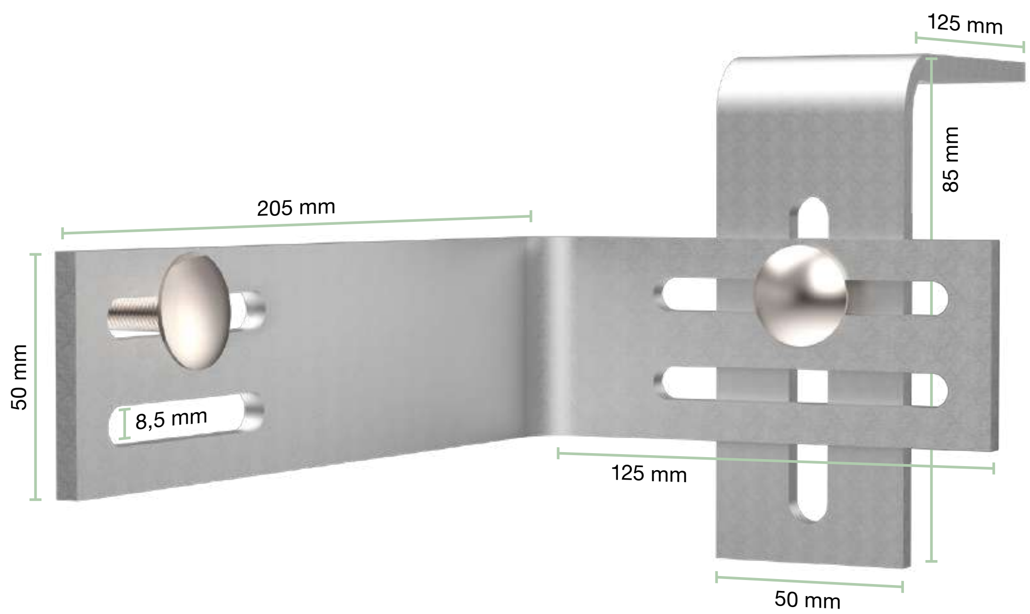
OPTIONAL: INSTALLING THE ROOF ANCHOR

MOUNTING BRACKET DIMENSIONING

The roof anchors must be provided by the customer and are not included in the scope of delivery. To install the roof anchor connection, the roof anchors must be fitted on site with a threaded rod with a maximum size of M10.

Refer to the ALUMERO.PRO.TOOL planning documents for the number and positions of the roof anchors.

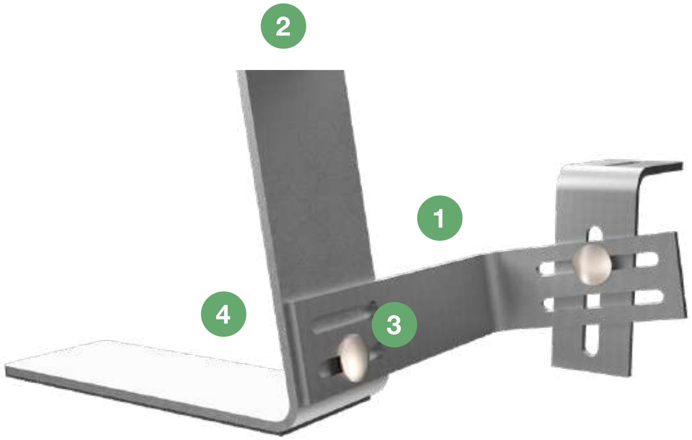
ALUMERO.PRO.TOOL only marks the component on which the roof anchor is mounted.

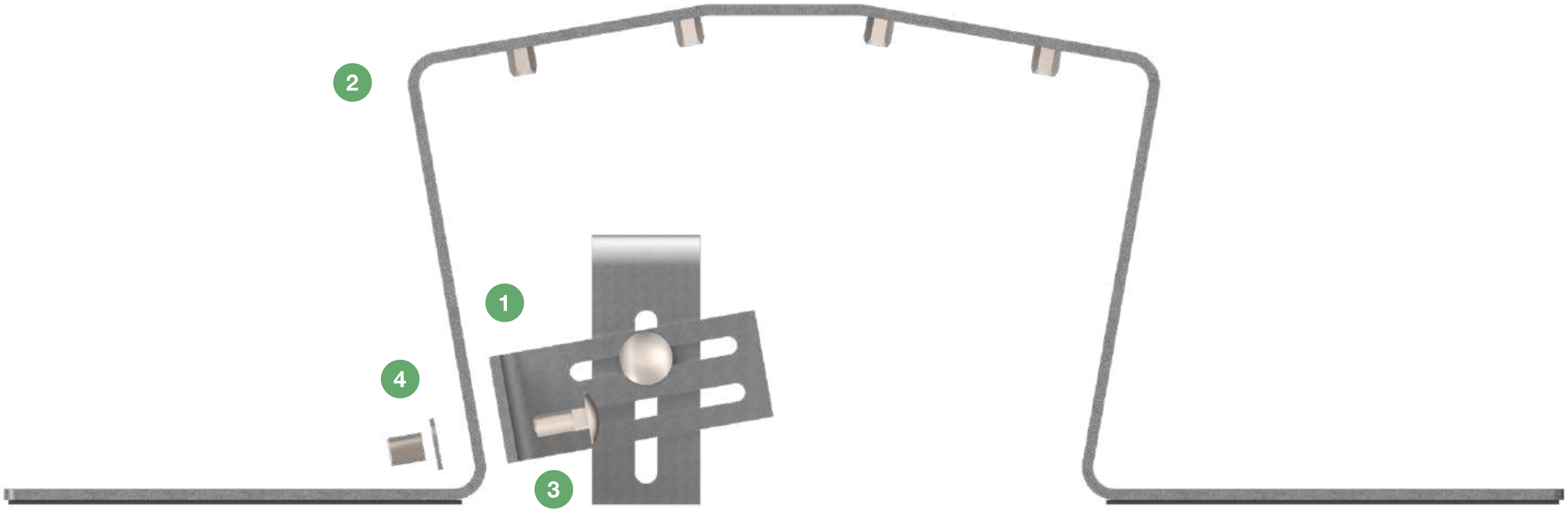


OPTIONAL: INSTALLING THE ROOF ANCHOR

CONNECT SYSTEM WITH MOUNTING BRACKET

+ Position the angle connector 1 and the bracket 2 flush with each other.
+ Connect the angle connector 1 and bracket 2 to each other at the slotted holes using the hinge bolts 3 and nuts 4.
+ Connect both angle connectors 1 with the hinge bolt 3, washer and Allen nut 4.
+ Screw the angle connector 1 to the roof anchor prepared on site.
+ Tighten the nuts 4 to 15 Nm each.

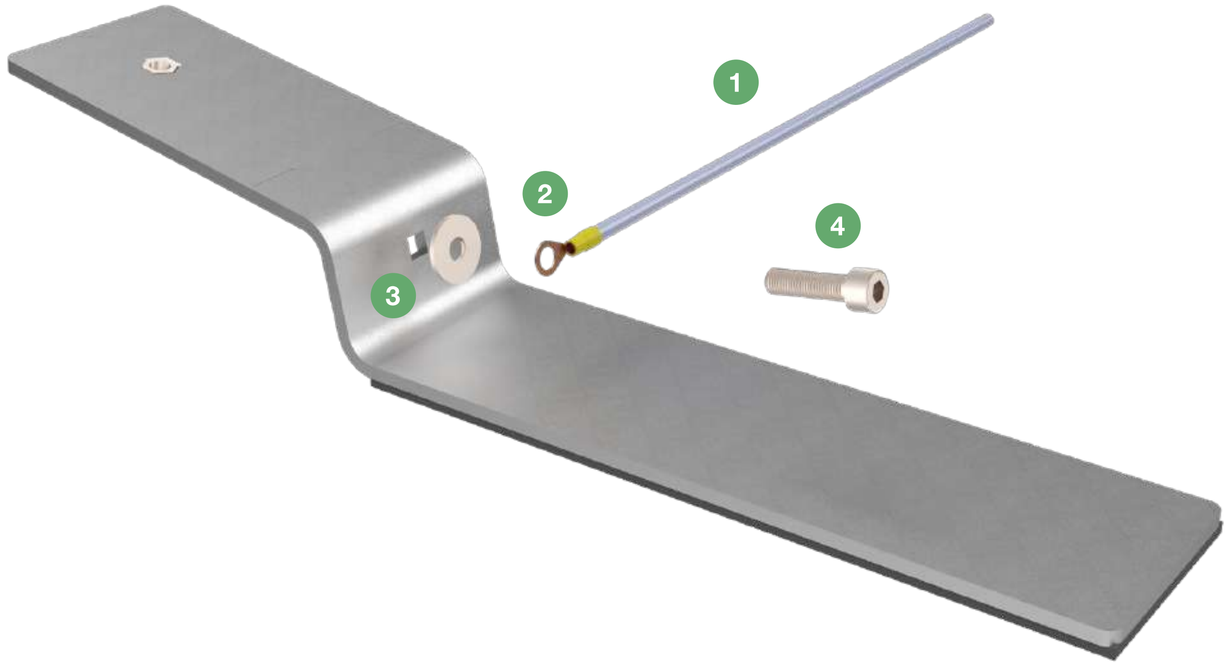




OPTIONAL: GROUNDING / POTENTIAL EQUALISATION

The earthing / potential equalisation is attached to the edge of a module field on a base with a screw (max. M8). The components are not included in the scope of delivery.

- Connect the earthing wire (provided by the customer) 1 firmly to the cable lug 2.
- Attach the washer 3 and cable lug 2 with the screw 4 in the order shown.



PLEASE NOTE THE FOLLOWING ADDITIONAL DOCUMENTS!

The following documents are required in addition to the installation instructions and for correct installation of the system:

+ Project report from ALUMERO.PRO.TOOL
+ Planning documents and drawings
+ The generally applicable document “Installation instructions” at https://www.alumerogroup.eu/service under “General” -> “Other”

Please also inform yourself about the safety regulations of the other system components.

CONGRATULATIONS,
WELL DONE!

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