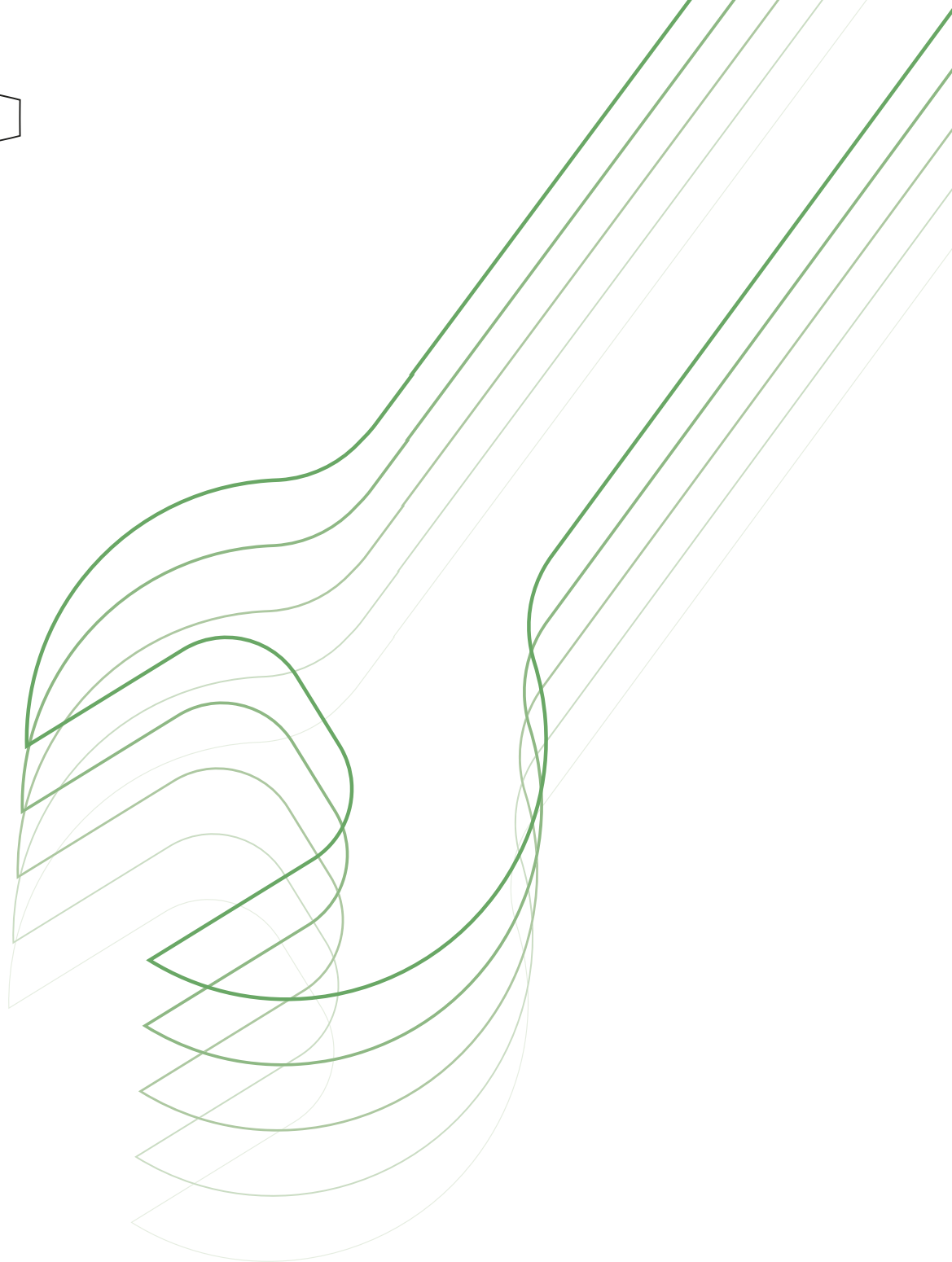


ALUMERO



ASSEMBLY MANUAL
easyMONO



**SUSTAINABLE
SOLAR
SOLUTIONS**

Before starting assembly, please read the safety instructions at the end of these assembly instructions carefully. Before starting assembly, please ensure that you are using the latest version of the assembly instructions.

These installation instructions explain the installation procedures for the ALUMERO components of the system described and the installation of the modules.

The ALUMERO mounting system referred to is designed exclusively for mounting PV modules. Any other use is considered not in accordance with the intended purpose.

Before starting work, the entire set of assembly instructions must be read in full and understood. The applicable health and safety regulations must be observed. Suitable personal protective equipment (helmet, safety footwear, gloves) must be worn at all times.

Particular hazards include: crushing and shearing hazards during assembly, working with heavy components, and the use of pile-driving or drilling equipment.

Assembly and electrical installations must only be carried out by trained specialists.

The system must be inspected regularly. We recommend: visual inspections of the structure, checks on screw connections, and checks for corrosion or damage.

The ALUMERO easyMONO kit system is designed and approved for a snow load of 1.8 kN (standard) and 2.8 kN (alpine), as well as a wind load of 0.5 kN. The actual determination of the prevailing loads must be carried out by the customer or on site. The appropriate kit should be selected on the basis of these loads.

Module dimensions: The system is designed for modules measuring 1,722–1,762 × 1,134 mm with a frame height of 30–42 mm (other and additional module dimensions subject to confirmation).

ALUMERO acts as the material supplier. Upon request, ALUMERO can carry out project-specific preliminary dimensioning. A ground survey, as well as the final structural analysis and any necessary certificates and approvals, must be provided by the client.

If you have any further questions, please make use of the professional and comprehensive advisory service offered by ALUMERO.

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| Optional: Endkappen & Modulkabel | 21 |
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General informations

| | |
|-------------------------------|---|
| Area of use | Open spaces, meadows, embankments |
| Rack layout | 2 upright modules one above the other |
| Rack inclination | 10 - 25° - Freely selectable |
| Rack lengths | Up to 25 m |
| Embedment depth | 1600-1750 mm or as per customer specification |
| Rack lower edge height | Variabel, depending on inclination |
| Connector spacing | These are pre-dimensioned on a project-by-project basis, taking into account local wind and snow load values. The spacing for the easyMONO kits is specified in the relevant drawing. |
| Material | Galvanised steel; mounting rail: EN AW 6063 / T66; fasteners: A2-70 |
| Accessories | Ground terminal for integrating the modules into potential equalization, components for cable routing, components for internal potential equalization, grounding wire |



Table sizes flexible from 2x2 up to 2x22 modules

Required tools



Cordless screwdriver
Bite inserts: Hexagon **SW 6**,
Nut 10, 12, 16



Measuring tape



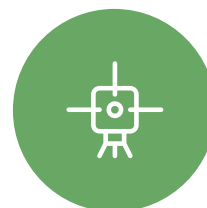
Torque wrench
M8 - 15 Nm | M10 - 40 Nm
M12 - 80 Nm | M16 - 150 Nm



Guideline



Spirit level



Laser

Components



Stahlfuß Betonmontage | Steel base for concrete installation

| Produktnr. Product No. | Abmessungen Dimensions |
|--------------------------|--------------------------|
| 800806 | 300x300 mm |



Montageschiene | Mounting rail

| Produktnr. Product No. | Höhe Height |
|--------------------------|---------------|
| 802102-XX | 65 mm |
| 802104-XX | 80 mm |
| 802103-XX | 95 mm |

Sonderlängen auf Anfrage |
Custom sizes upon inquiry



Schienenverbinder | Rail Connector

| Produktnr. Product No. | Typ Type |
|--------------------------|------------|
| 802152 | 65 mm |
| 802152S | 65 mm |
| 802154 | 80 mm |
| 802154S | 80 mm |
| 802153 | 95 mm |
| 802153S | 95 mm |

Mit Schrauben | With screws

Mit Schrauben | With screws

Mit Schrauben | With screws



Sparren | Beam

Material: S350+ZM310 (Magnelis®), Schichtdicke 25 µm, bandverzinkt
Material: S350+ZM310 (Magnelis®), Layer thickness 25 µm, galvanised

| Produktnr. Product No. | Länge Length |
|--------------------------|----------------|
| 800805-355 | 2750 mm |
| 900000-676 | 3250 mm |



Pfoften | Pile

Material: S350+ZM430 (Magnelis®), Schichtdicke 35 µm, bandverzinkt
Material: S350+ZM430 (Magnelis®), Layer thickness 35 µm, galvanised

| Produktnr. Product No. | Länge Length |
|--------------------------|----------------|
| 800801-355 | 3100 mm |
| 800804-355 | 1400 mm |

Typ | Type

Rammpfoften | Pile

Betonmontage | Concrete installation



Strebe | Strut

Material: S355+FVZ, feuerverzinkt, stückverzinkt
Material: S355+FVZ, hot-dip galvanised, galvanised individually

| Produktnr. Product No. | Länge Length |
|--------------------------|----------------|
| 800762-355 | 900 mm |

Components



Verbindungswinkel | Connection angle

Material: S355+FVZ, feuerverzinkt, stückverzinkt
Material: S355+FVZ, feuerverzinkt, stückverzinkt

Produktnr. | Product No. **Länge** | Length
800803-355 80 mm



Mittelklemme Click mit Pin | Middle clamp click with pin

Produktnr. | Product No. **Farbe** | Colour
802301C P1 28-42 Silber | Silver



Mittelklemme Click schwarz mit Pin | Middle clamp click black with pin

Produktnr. | Product No. **Farbe** | Colour
802391C P1 28-42 Schwarz | Black



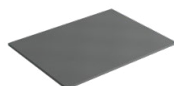
Endklemme Click mit Pin | End clamp click with pin

Produktnr. | Product No. **Farbe** | Colour
802304C P1 30-42 Silber | Silver



Endklemme Click Schwarz mit Pin | End clamp click black with pin

Produktnr. | Product No. **Farbe** | Colour
802394C P1 30-42 Schwarz | Black



EPDM-Trennung 65-95 | EPDM-Separation 65-95

Produktnr. | Product No. **Abmessungen** | Dimensions
800764 60x80x1,5 mm



Endkappe | End cap

Produktnr. | Product No. **Höhe** | Height
802609 65 mm
802613 80 mm
802610 95 mm

Components



Sechskantschraube | Hexagon screw

| Produktnr. Product No. | Typ Type |
|--------------------------|------------|
| 800623 | M10×25 |
| 800630 | M12×25 |
| 800626 | M16×35 |



Sechskant-Mutter | Hexagon Nut

| Produktnr. Product No. | Typ Type |
|--------------------------|------------|
| 800634 | M10 |
| 800635 | M12 |
| 800636 | M16 |



Hammerkopfschraube | Hammerhead screw

| Produktnr. Product No. | Typ Type |
|--------------------------|------------|
| 800646 | M10×25 |



Unterlegscheibe | Flat washer

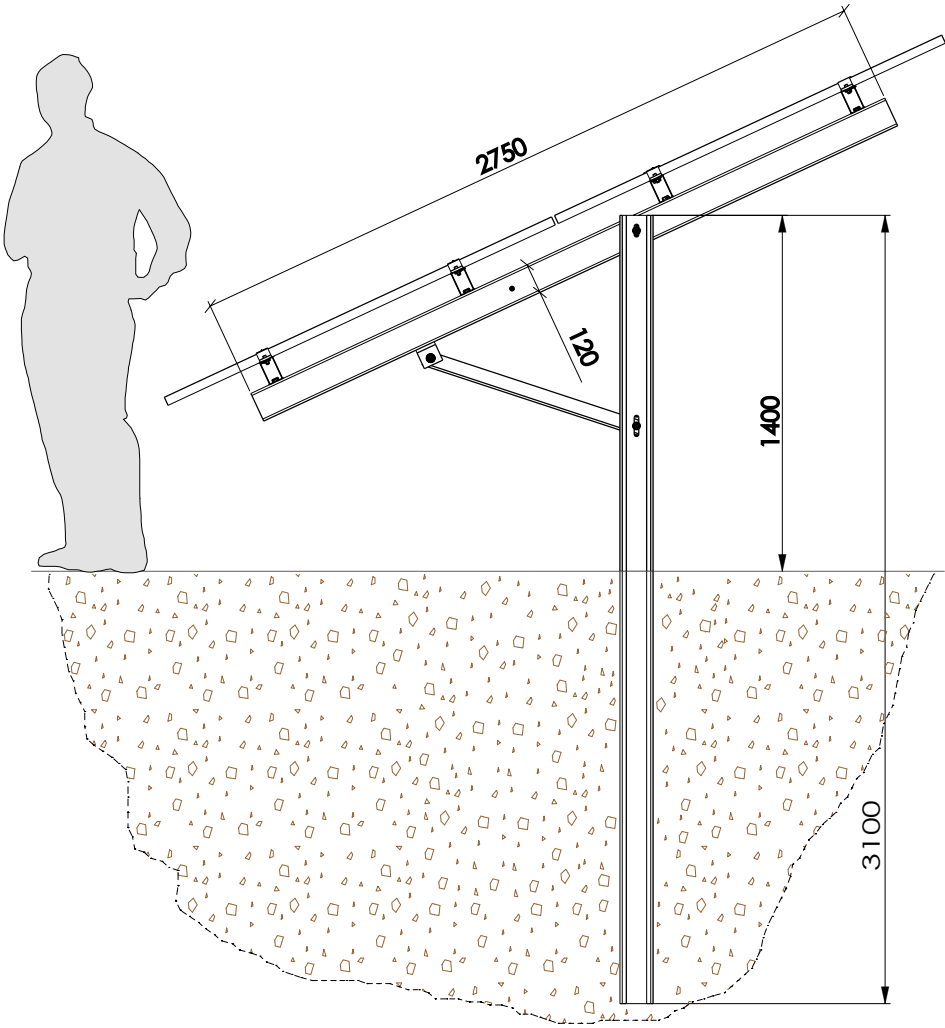
| Produktnr. Product No. | Ø Innen Ø Inside | Ø Außen Ø Outside |
|--------------------------|--------------------|---------------------|
| 800654 | 17 mm | 30 mm |



All product illustrations contained in these assembly instructions are for illustrative purposes only and are not to scale. Subject to changes and errors!

RAMMED VERSION

Illustration & Sketch



RAMMED VERSION

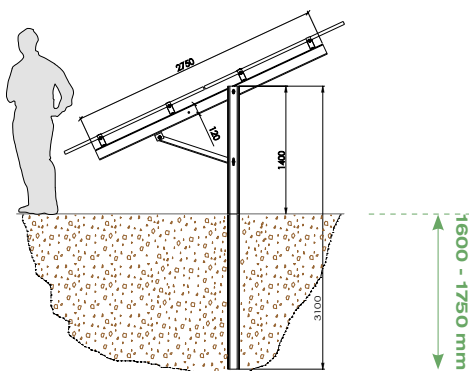
Assembly of the construction

1 Driving the piles into the ground

The position of the piles and the foundations is determined in accordance with project-specific plans; this is not included in the scope of services provided by ALUMERO.

In the case of driven pile foundations, particular attention should be paid to the following:

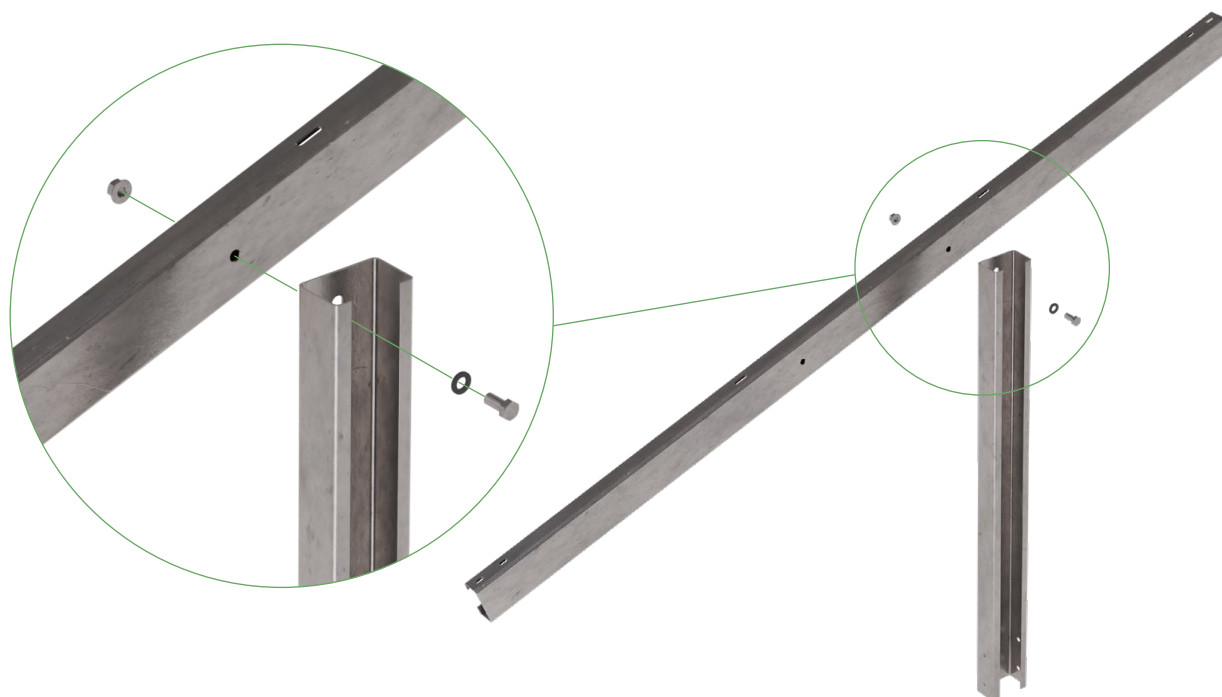
- + Adherence to the specified driving depth
- + Vertical alignment of the profiles
- + Compliance with the permissible tolerances
- + Position as shown on the detailed plan



The load-bearing capacity of the subgrade must be ensured.

2 Screwing the beam to the pile

- + Secure the rafter to the post using an M16x35 hexagon bolt, an A17 washer and an M16 hexagon nut.
- + Tighten the bolt to a torque of **at least 150 Nm.**

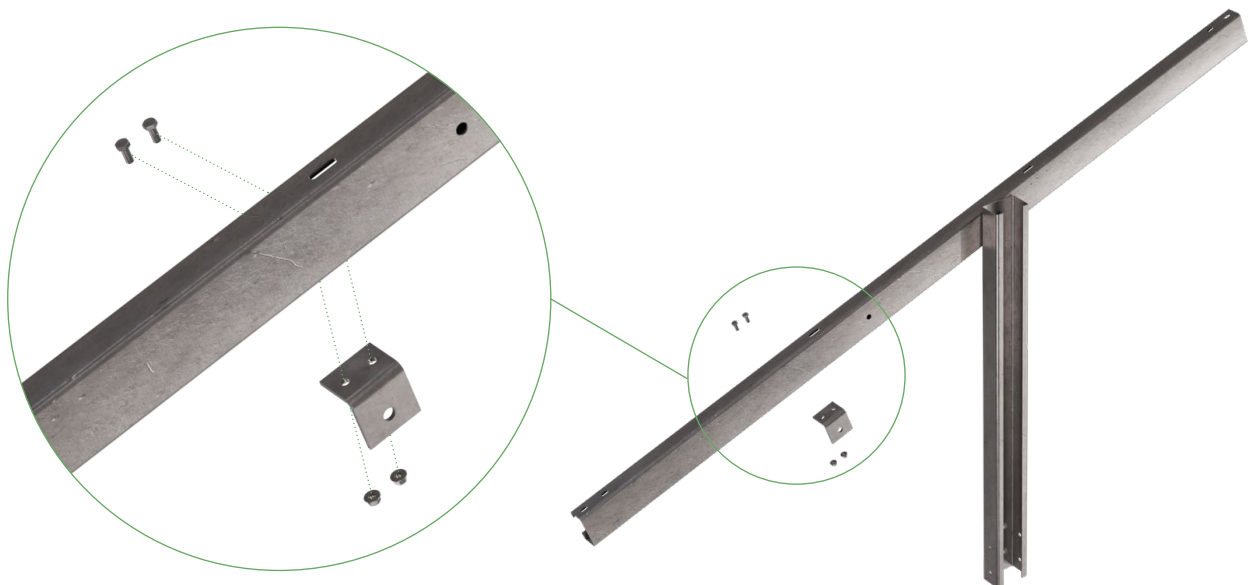


RAMMED VERSION

Assembly of the construction

3 Fitting the connection angle

- + To achieve the desired pitch, the connecting bracket should be fixed into the appropriate hole on the rafter. The pitches corresponding to the various holes are listed below.
- + Use an M10x25 hexagon bolt and an M10 hexagon nut for the screw connection and tighten to a torque of **40 Nm**.



- + Hole 1-2 10°
- + Hole 2-3 12,5°
- + Hole 3-4 15°
- + Hole 4-5 17,5°
- + Hole 5-6 20°
- + Hole 6-7 22,5°
- + Hole 7-8 25°
- + Hole 8-9 27,5°
- + Hole 9-10 30°



PLEASE NOTE:

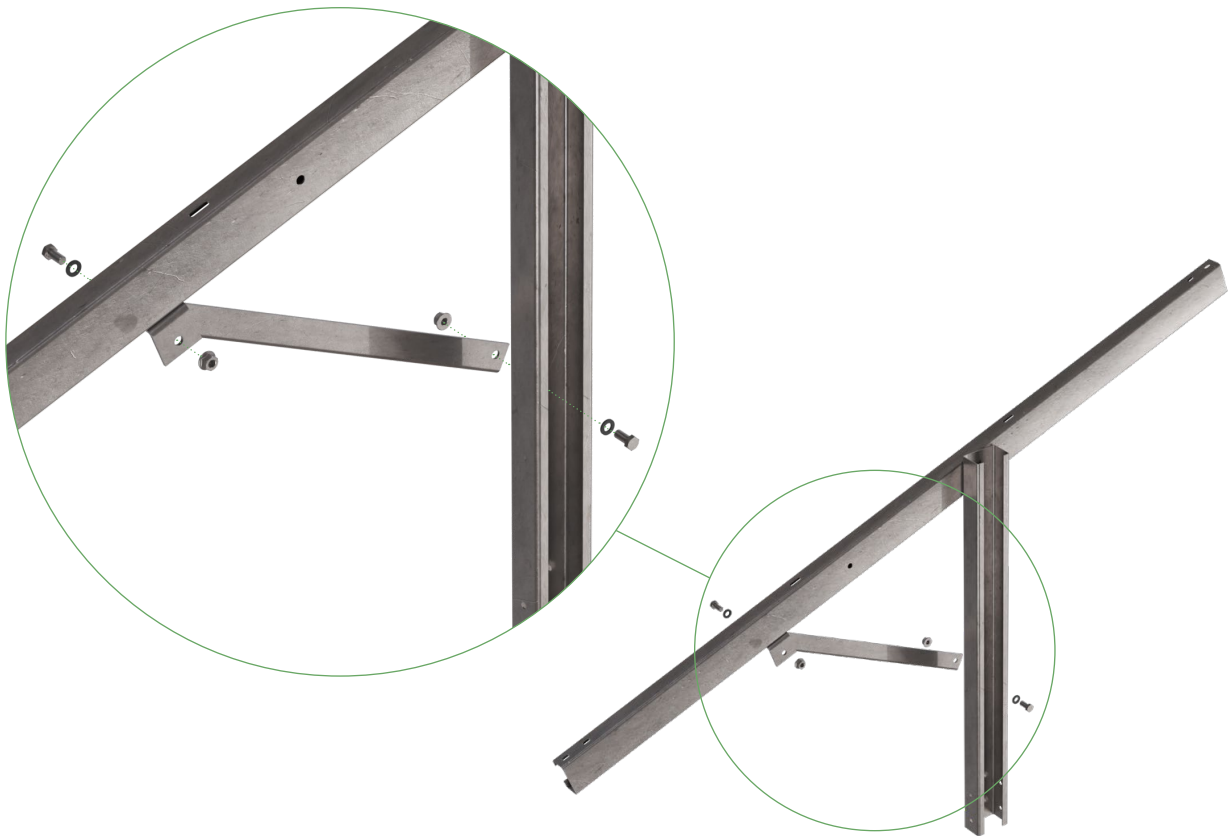
A table tilt of 27.5–30° must be structurally assessed on a project-by-project basis!

RAMMED VERSION

Assembly of the construction

4 Securing the strut

- + Secure the strut to the shaft using an M16x35 hexagon bolt, an A17 washer and an M16 hexagon nut, and tighten to a torque of **150 Nm**.
- + Then secure the strut to the connecting bracket in the hole provided for the correct angle using an M16x35 hex nut, an A17 washer and an M16 hex nut.



RAMMED VERSION

Assembly of the construction

5 Fitting the mounting rail

Now fit the mounting rail to the rafter, ensuring a torque of at least **40 Nm**. For the screw connection, use an M10x25 hammer-head screw and an M10 hex nut, with EPDM rubber in between as a spacer.



PLEASE NOTE:

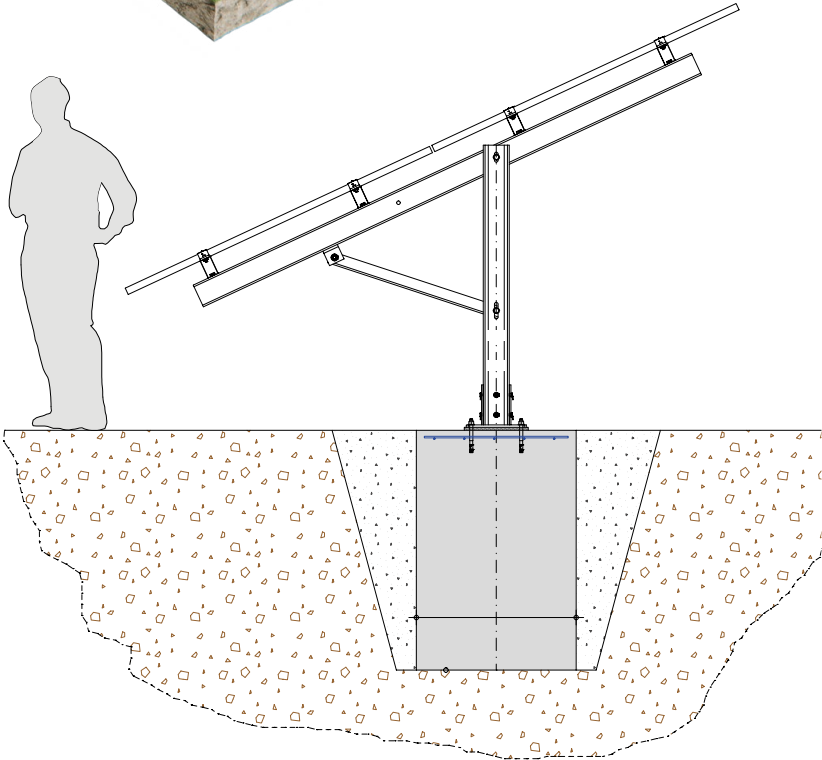
EPDM rubber should be used as a barrier at points of contact between steel and aluminium.

6 Fitting the modules

To install the modules, please turn to page 18.

CONCRETE FASTENING

Illustration & Sketch



PLEASE NOTE:

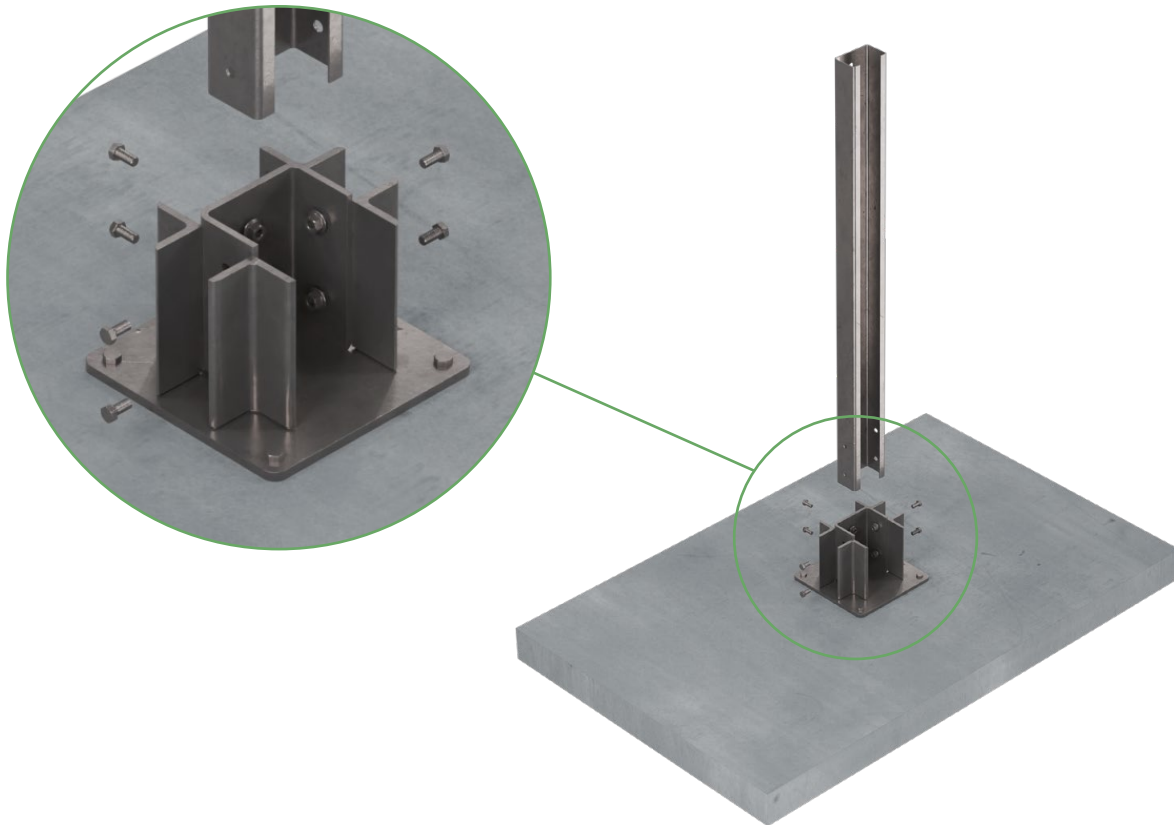
The weight of the foundation must be at least 1200 kg per post. The shape, reinforcement and construction are to be specified by the client and are not part of ALUMERO's scope of work.

CONCRETE FASTENING

Assembly of the construction

1 Screwing the pile to the steel base

- + Fixing the steel base to the concrete plinth. Concrete of grade C25/30 XF3, or better, should be used for bolting to the concrete.
- + Anchors with a minimum pull-out force of **28 kN** must be used. Anchors are to be provided by the client.
- + Place the pile into the steel base and secure it using M12x25 hexagon bolts and M12 hexagon nuts through the holes provided.
- + Tighten to a torque of **80 Nm**.

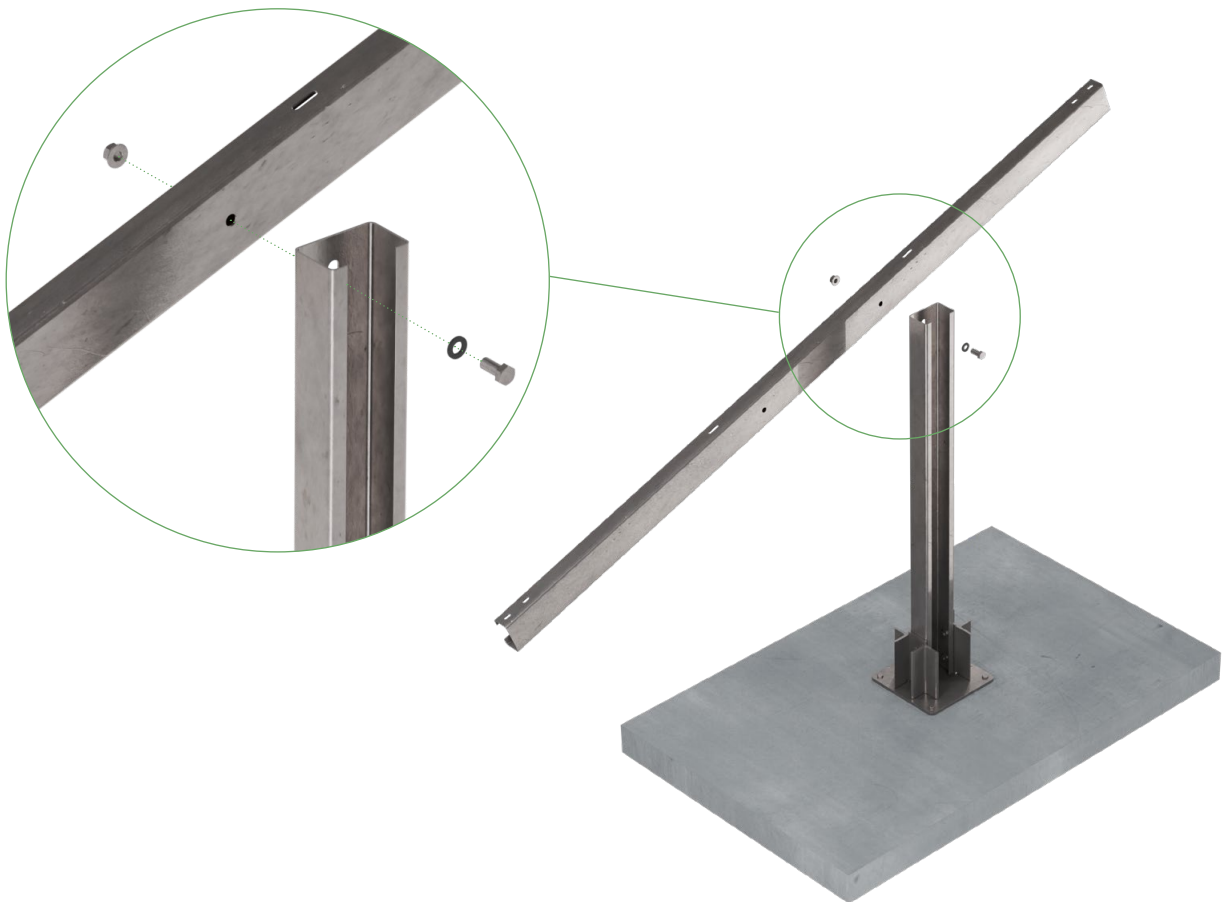


CONCRETE FASTENING

Assembly of the construction

2 Screwing the beam to the pile

- + Secure the beam to the pile using an M16x35 hexagon head screw, an A17 washer and
- + an M16 hexagon nut.
- + Tighten to a torque of **150 Nm**.



CONCRETE FASTENING

Assembly of the construction

3 Fitting the connection angle

- + To achieve the desired pitch, the connecting bracket should be fixed into the appropriate hole on the rafter. The pitches corresponding to the various holes are listed below.
- + Use an M10x25 hexagon bolt and an M10 hexagon nut for the screw connection and tighten to a torque of **40 Nm**.



PLEASE NOTE:

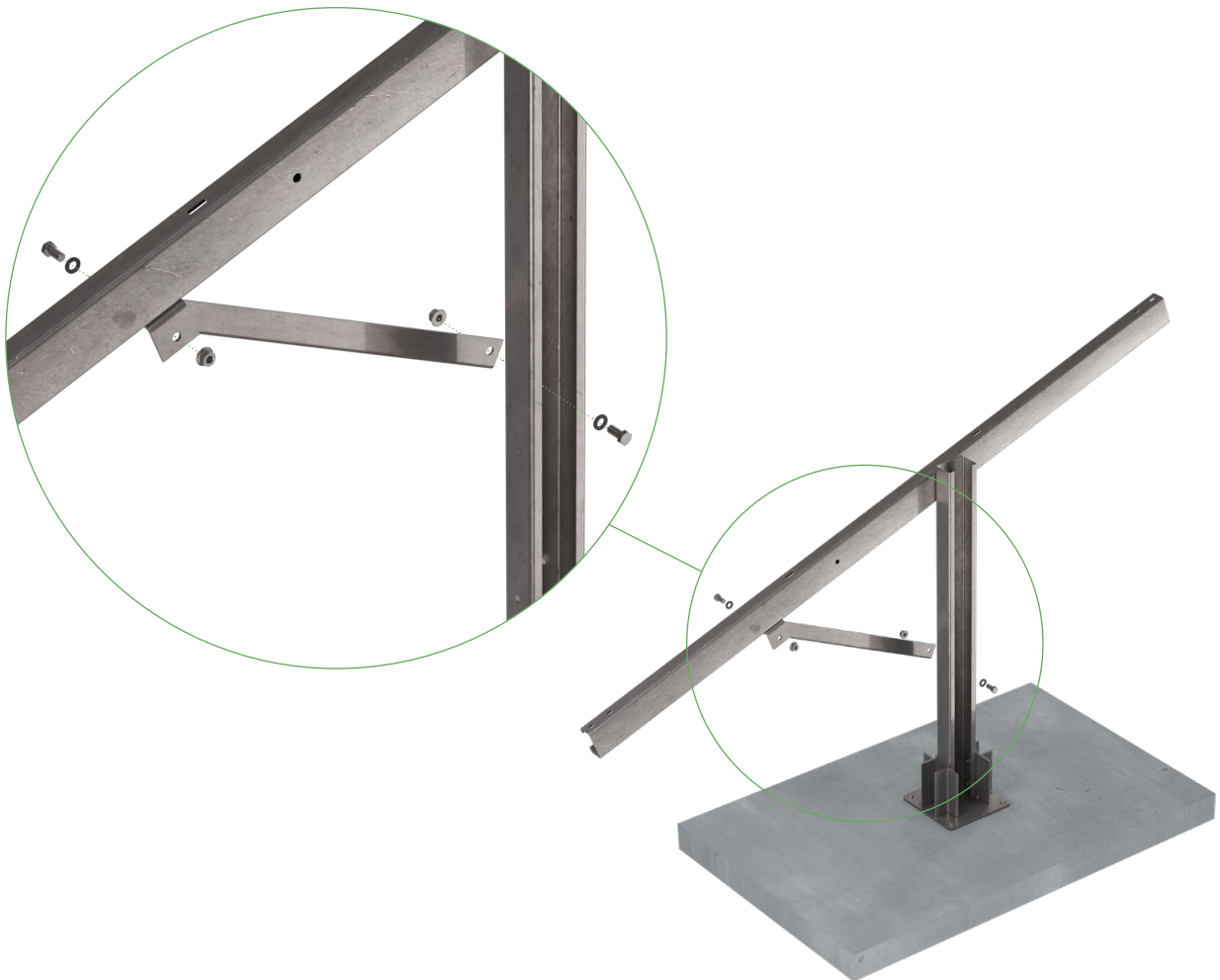
A table tilt of 27.5–30° must be structurally assessed on a project-by-project basis!

CONCRETE FASTENING

Assembly of the construction

4 Securing the strut

- + Secure the strut to the shaft using an M16x35 hexagon bolt, an A17 washer and an M16 hexagon nut, and tighten to a torque of **150 Nm**.
- + Then secure the strut to the connecting bracket in the hole provided for the correct angle using an M16x35 hex nut, an A17 washer and an M16 hex nut.



CONCRETE FASTENING

Assembly of the construction

5 Fitting the mounting rail

Now fit the mounting rail to the rafter, ensuring a torque of at least **40 Nm**. For the screw connection, use an M10x25 hammer-head screw and an M10 hex nut, with EPDM rubber in between as a spacer.



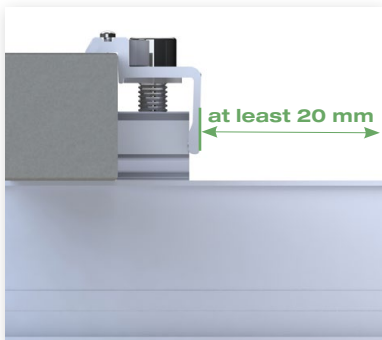
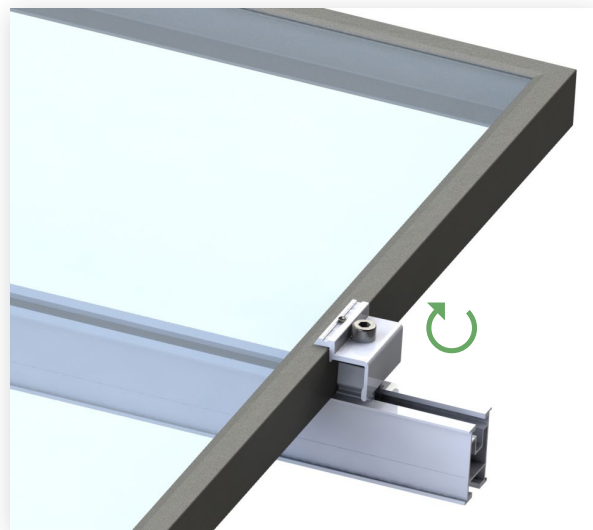
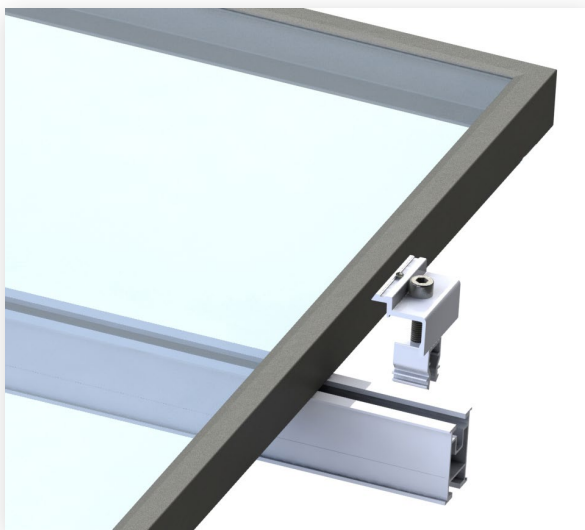
PLEASE NOTE:

EPDM rubber should be used as a barrier at points of contact between steel and aluminium.

INSTALLATION OF THE MODULES

1 Installing the end clamps

- + Start with the bottom row of modules. Place the first module onto the mounting rail and align it.
- + Gently click the end clamp into place at a slight angle and slide it towards the module frame.
- + Tighten the M8 Allen screw to a torque of **15 Nm**.



PLEASE NOTE:

The end clamps must be fitted at least 20 mm from the end of the relevant mounting rail.

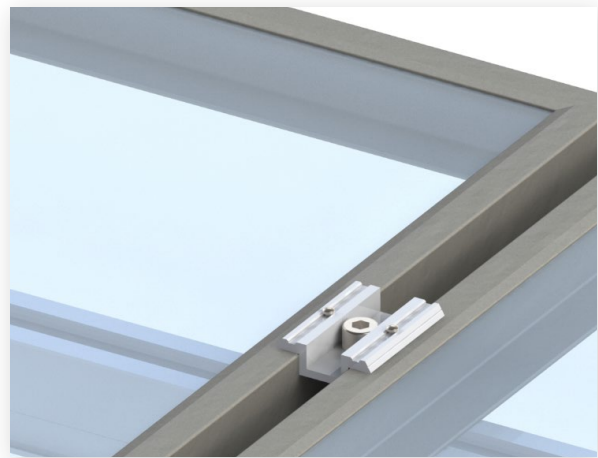
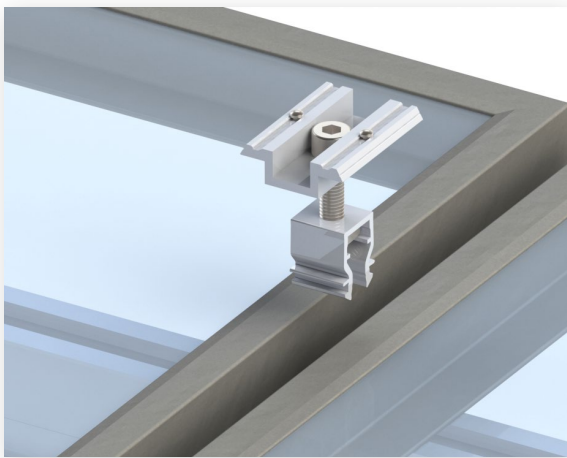


Attention: When using end clamps with threaded plates, care must be taken to ensure they are correctly aligned. The threaded plate must be positioned at right angles to the profile channel.

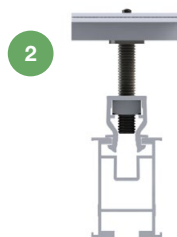
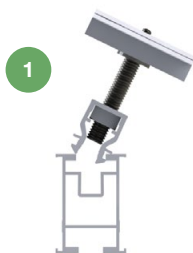
INSTALLATION OF THE MODULES

2 Installing the middle clamps

- + Middle clamp Click it on the frame of the previous module and click it into place at a slight angle.
- + Push the module into place so that both modules are firmly aligned.
- + Tighten the M8 Allen screw to a torque of **15 Nm**.



- + Fit the final module in each series of modules with terminal blocks, as described above.
- + Install the remaining rows of modules in the same way.



PLEASE NOTE:



- + Distance between the terminals and the ends of the mounting rail: at least **20 mm!**
- + Modules must only be clamped at the specified fixing points! These can be found in the module manufacturer's data sheet.
- + Distance (horizontal and vertical) between modules: approx. **20 mm!**

POTENTIAL EQUALISATION & GROUNDING

Equipotential bonding between the individual system components must be carried out in accordance with the relevant country-specific regulations. The following section outlines one method of earthing the ALUMERO easyMONO system. Cable cross-sections and the overall earthing concept are not included in these instructions and must be calculated or drawn up by the installer in accordance with the applicable standards and guidelines. The installation must be carried out in accordance with the applicable standards and regulations.

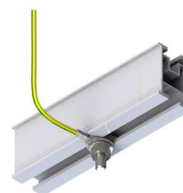
Dehn confirmed that the lightning current carrying capacity was **50 kA**.

1 Earthing the rows of support profiles

- + Insert a wire clamp into the lower channel of the support profile in each row of profiles.
- + Insert the aluminium wire into the wire clamp and secure it by tightening the screw.
- + Connect all the module rows to each other in this way so that they are electrically conductive.



Securing the aluminium wire using a wire clamp



Securing the earth wire using a hammer-head screw

2 Potential equalization of the modules

Whether the modules need to be earthed is specified by the module manufacturer in the relevant module data sheet. If so, the equipotential bonding for the modules can be carried out as follows, in accordance with ALUMERO's recommendations:

To integrate the modules into the equipotential bonding system, you can use ALUMERO end and centre clamps with pins. The pins are fitted into the clamps, pierce through the anodised layer of the module frames and thus provide a conductive connection between all rows of modules.



End clamp click with pin



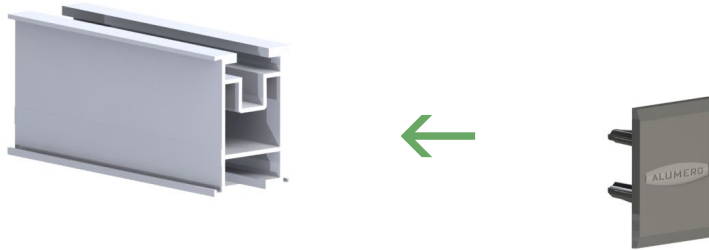
Middle clamp click with pin

END CAPS & MODULE CABLES

Optional

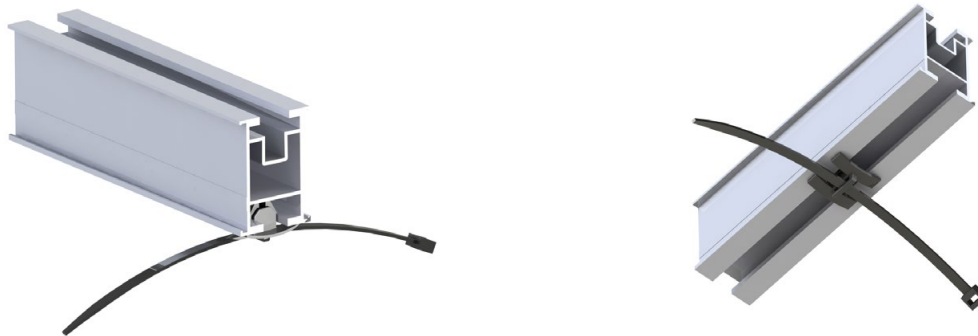
Installing the end caps

- + Press the end caps into the end of the support by hand.



Securing the module cable

- + The cable tie makes it possible to neatly route the cables directly beneath the module onto the mounting profile.
- + Press the clip attached to the cable tie into one of the slots in the support profile. Secure the cable with the cable tie.
- + **Removing the clip:** By sliding it out sideways from the profile channel



Once assembly is complete, the following tasks must be carried out:

- + Visual inspection of all connections
- + Checking the alignment
- + Tightening all bolted connections
- + The installation must be documented.



PLEASE NOTE THE FOLLOWING ADDITIONAL DOCUMENTS!

In addition to the installation instructions, the following documents are essential for the correct installation of the system:

- + Project- and country-specific approvals and documents
- + Planning documents and drawings
- + The general document “Assembly notes” at <https://www.alumerogroup.eu/service> unter “General” -> “Miscellaneous”

Please also familiarise yourself with the safety regulations for the other system components.



Helmond, NL

Chorzow, PL

Nenzing, AT

Salzburg, AT



**SUSTAINABLE
SOLAR
SOLUTIONS**

ALUMERO Systematic Solutions GmbH
Sonnenweg 1-2, 5164 Seeham
T +43 (0) 6217 / 68 41 0
M alumero@alumero.at
www.alumerogroup.eu