

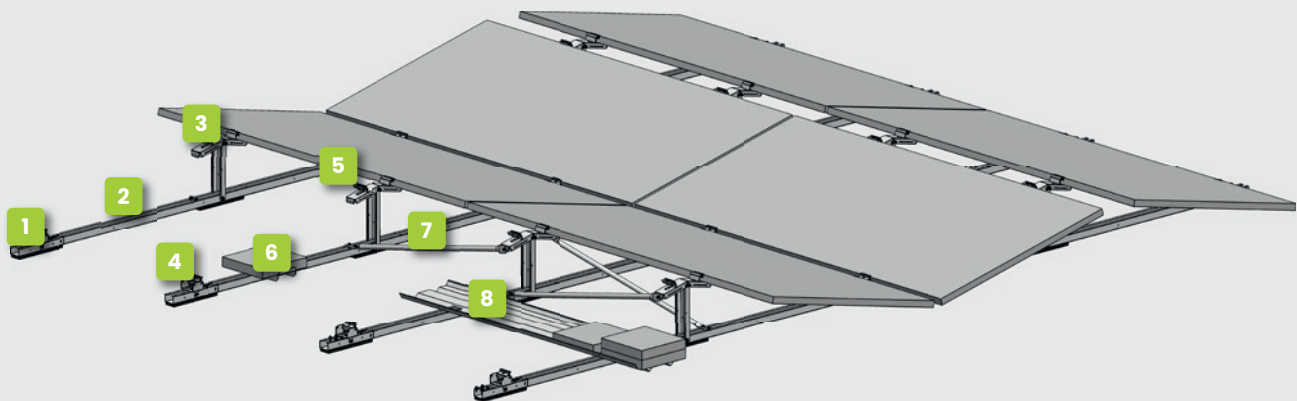
ASSEMBLY INSTRUCTIONS

SOLARSPEED
AVANTIS

131224.ENG

SOLARSPEED AVANTIS

COMPONENTS



STANDARD COMPONENTS

- 1 starter piece
- 2 basic unit
 - rail
 - footing system
 - vertical support
 - hinge bracket
- 3 top piece
- 4 hinge clamp + M8 bolt
- 5 end clamp + M8 bolt
- 6 ballast holder
- 7 cross-bar
- 8 ballast plate

FOOTING SYSTEMS

- rubber footing
- concrete footing + rubber
- PP footing (+ rubber)
- omega bracket

For PVC roofs use rubber with aluminium underlay.

ADDITIONAL COMPONENTS

- ridge connection
- anchor profile
- cable management

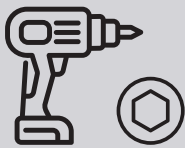
PROVIDED BY INSTALLER

- ballast tiles
- lightning connection
- earthing connection
- solar module

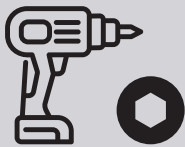
required assembly tools



torque wrench
range 15-30Nm
+
hex 6.0



electric tool
+
socket 3/8"



electric tool
+
socket SW8



hammer
+
driver tool



chalk line



Avantis spacer

prior to assembly

Ensure that the surface where the SolarSpeed Avantis will be mounted on is clean and flat. Contaminants such as gravel, sand or pebbles can cause roof damage or installation instability.

correct installation of M8 bolts

Always tighten the M8 bolts with the correct torque: Minimum 19Nm is required, maximum 25Nm is allowed.

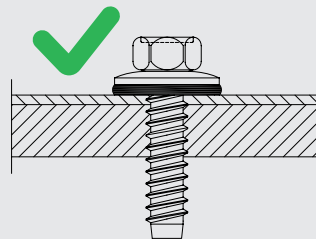
A loss of torque is to be expected: at least 13Nm must be measured during inspection after installing.

Using an impact wrench is not advised, as it may damage bolts and nuts.

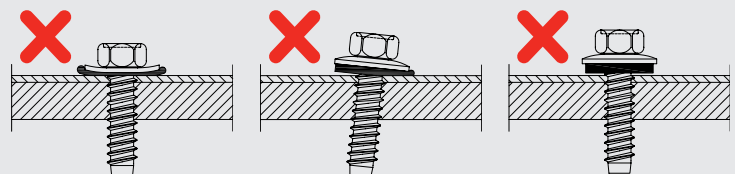
correct installation of sheet metal screws

Prescribed compression EPDM washer: 25% of original thickness.

Use tools with depth control!



Correctly screwed on



Secured too far

Secured too angled

Secured too loosely

Choosing the correct installation tool is essential for the screw to drill and tap as designed. The selected electric tool must have a variable trigger to deliver a controlled speed between 1700 and 2000 rpm without end loading. It should provide torque up to 30Nm with a clutch mechanism to prevent excessive torque and speed, which can cause damage or 'stripping out' the screw. Socket 3/8" must be used with sheet metal screws, socket SW8 with self-drilling screws.

step 1: aligning starter pieces

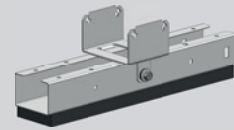
required tools and components:



chalk line



Avantis spacer

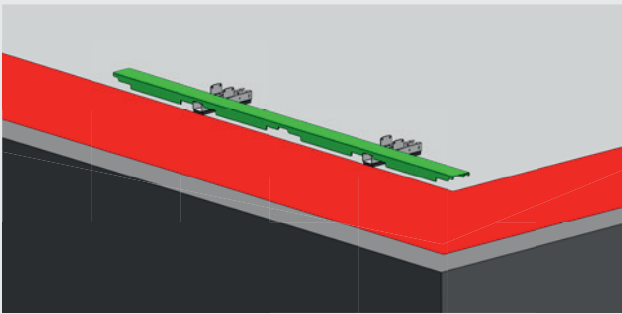


starter piece

- Use a chalk line to mark a straight horizontal and vertical line on the roof.
- Respect the minimum edge zones (see general notes).
- Place the 1st & 2nd starter piece on the horizontal line.
- Use the Avantis spacer to place the 1st & 2nd starter piece at the correct distance from the vertical line.

Pro Tip!

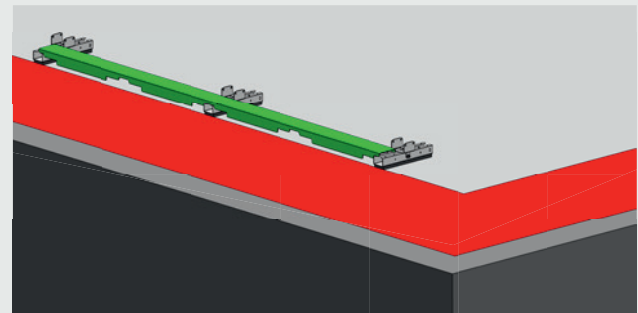
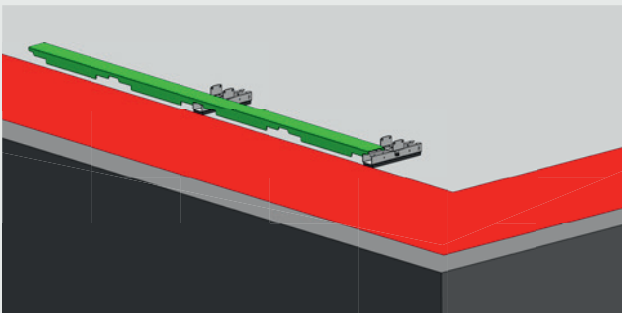
Use the Avantis Spacer regularly to keep rows parallel and evenly spaced.



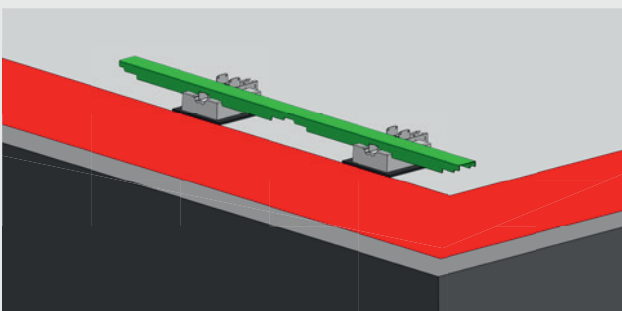
Pro Tip!

Mark additional chalk lines to ensure better control over the straightness of the installation.

- Use the Avantis spacer to place the 3rd and following starter pieces at the correct distance from previous placed starter pieces.



- Use a similar method when working with concrete footings.



 edge zone

step 2: connecting basic units

required tools and components:

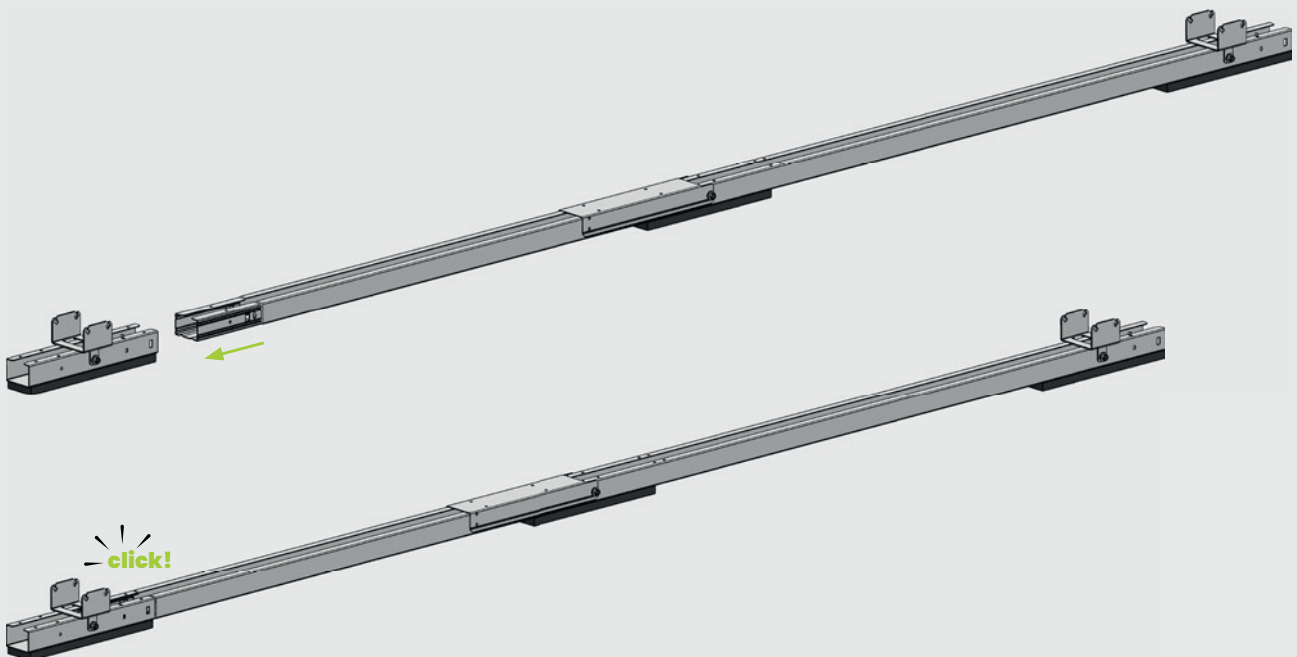


Avantis spacer

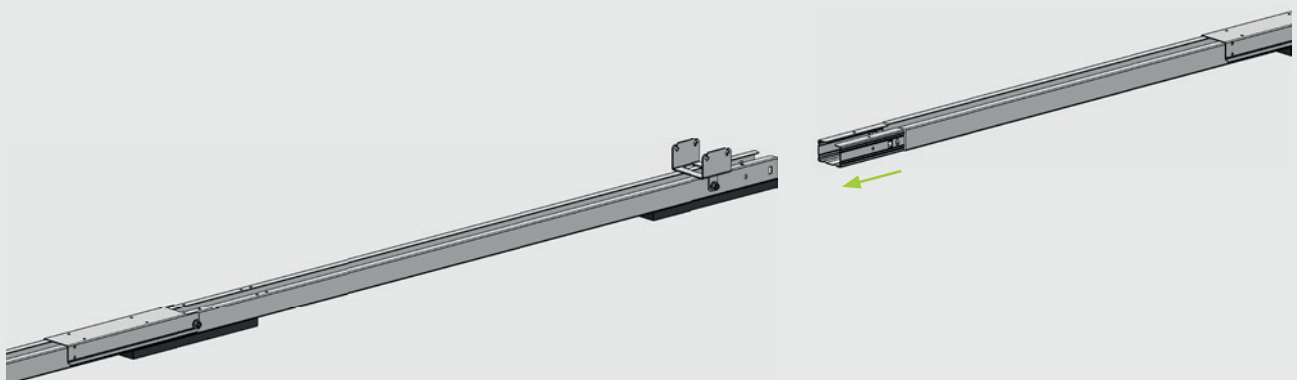


basic unit

- Slide the tapered rail end of each basic unit into the starter piece until you hear a click.

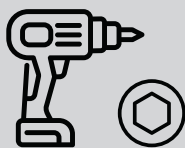


- Connect each following basis unit to the previous one in the same way.



step 3: installing top pieces

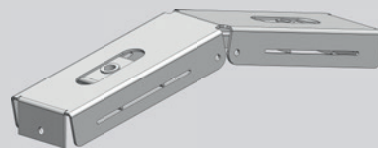
required tools and components:



electric tool
+
socket 3/8"

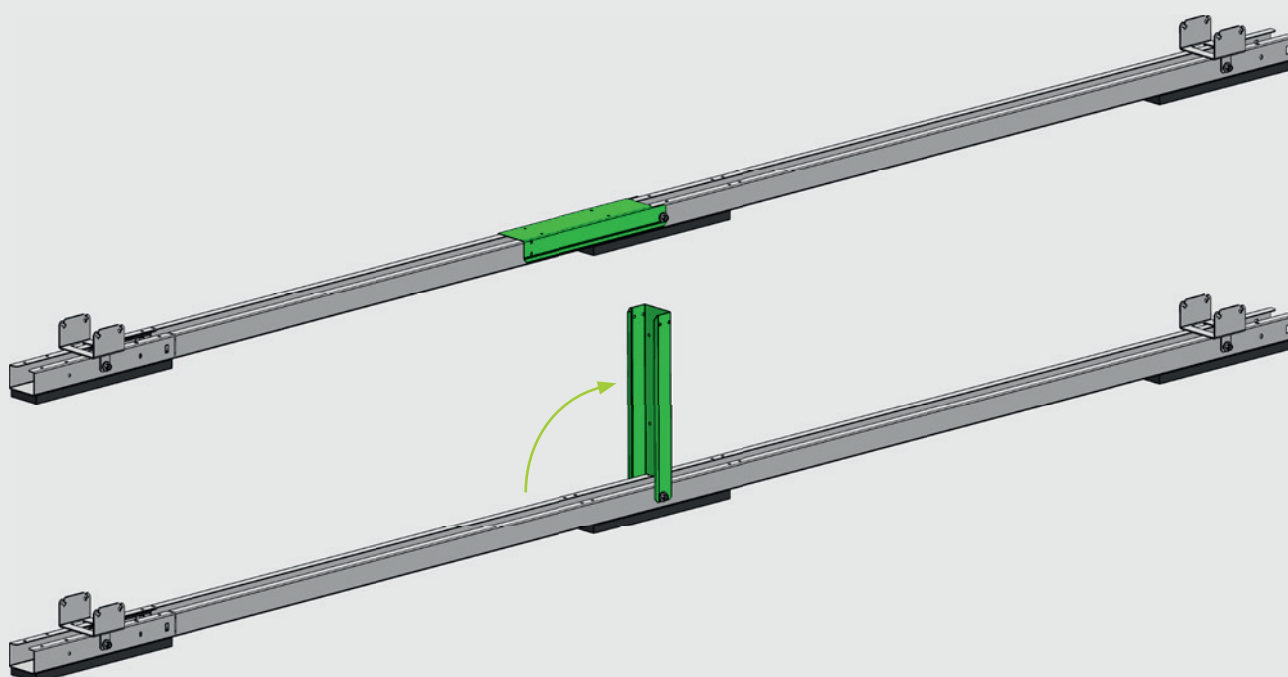


sheet metal screws
(Ø6.5x19mm)

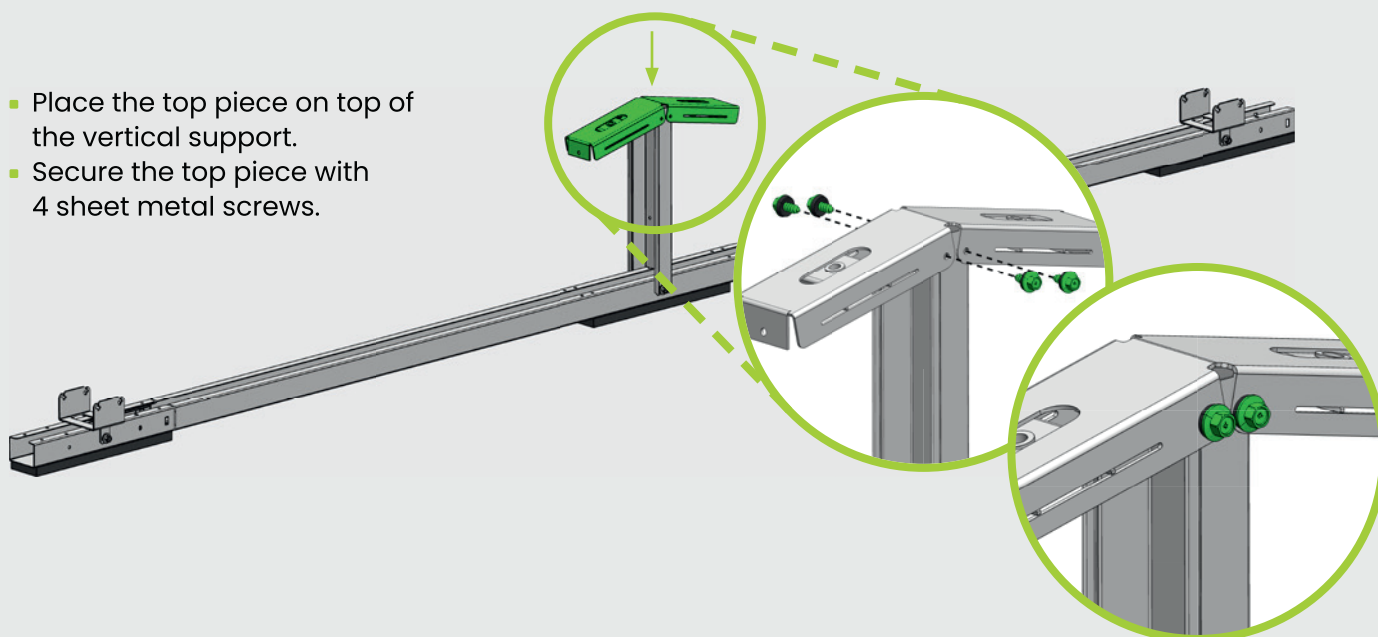


top piece

- Rotate the vertical support until it is in the upright position.

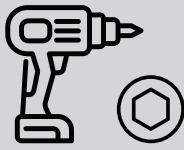


- Place the top piece on top of the vertical support.
- Secure the top piece with 4 sheet metal screws.



step 4: installing cross-bars

required tools and components:



electric tool
+
socket 3/8"

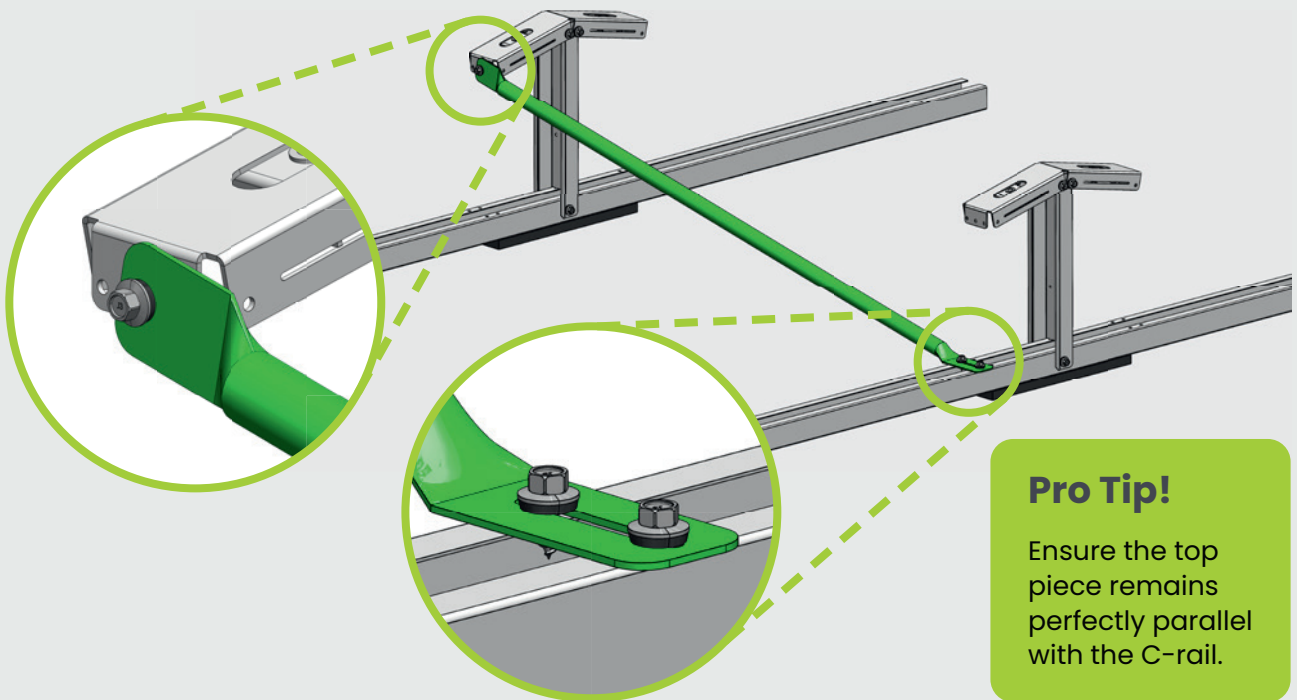


sheet metal screws
(Ø6.5x19mm)

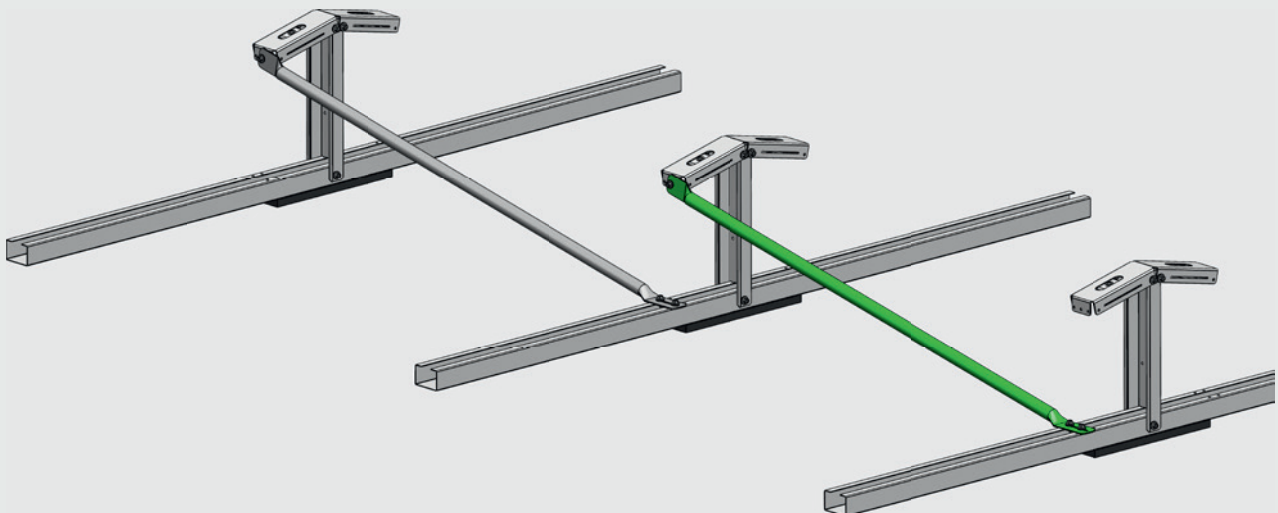


cross-bar

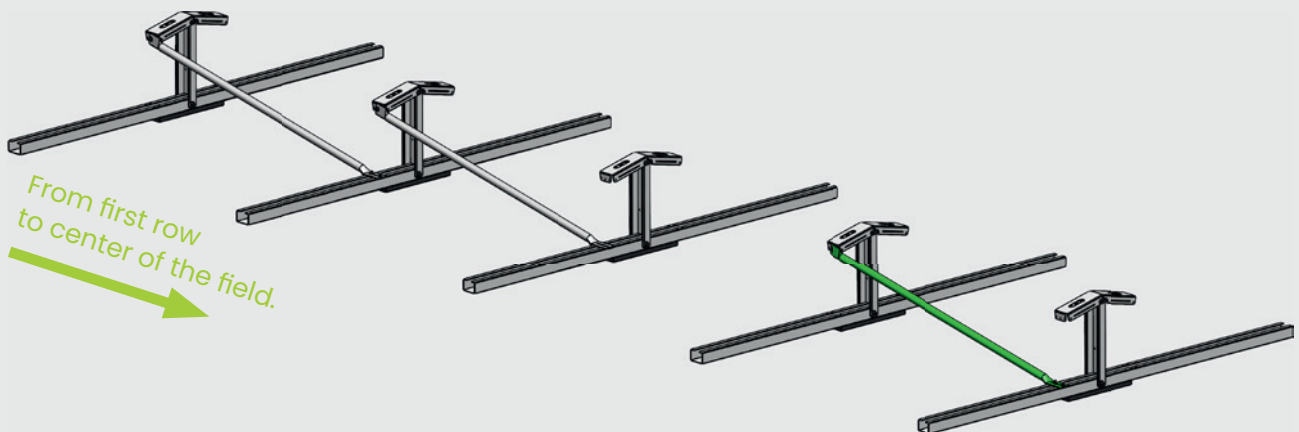
- Secure a cross-bar to the **top piece** of the 1st row with 1 sheet metal screw
- Secure the cross-bar to the C-rail of the 2nd row with 2 sheet metal screws.



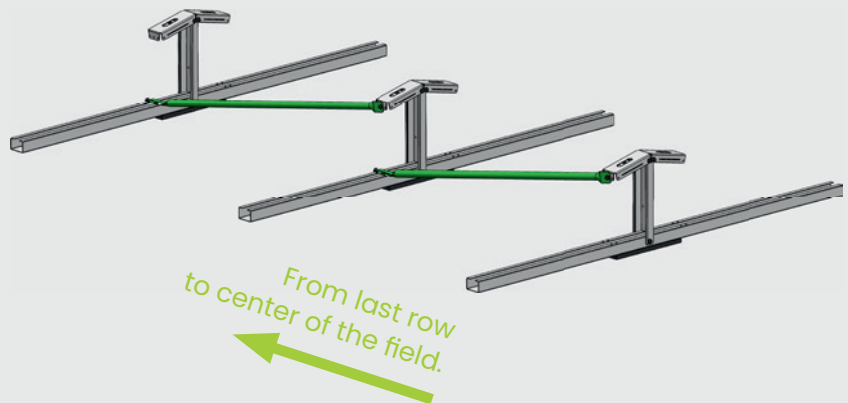
- Secure a cross-bar to the top piece of the 2nd row, similar to the previous steps.



- Secure a cross-bar to the top piece of every even row, similar to the previous steps.
- Repeat this process until you reach the center of the field.



- Secure a cross-bar to the top piece of the last row in the opposite direction.
- Secure a cross-bar to the top piece of every uneven row, similar to the previous steps.
- Repeat this process until you reach the center of the field.



- Install a double cross-bar in **all corners** of the field.



Pro Tip!

Use the Avantis Spacer regularly to keep rows parallel and evenly spaced.

- The final lay-out can look like this:

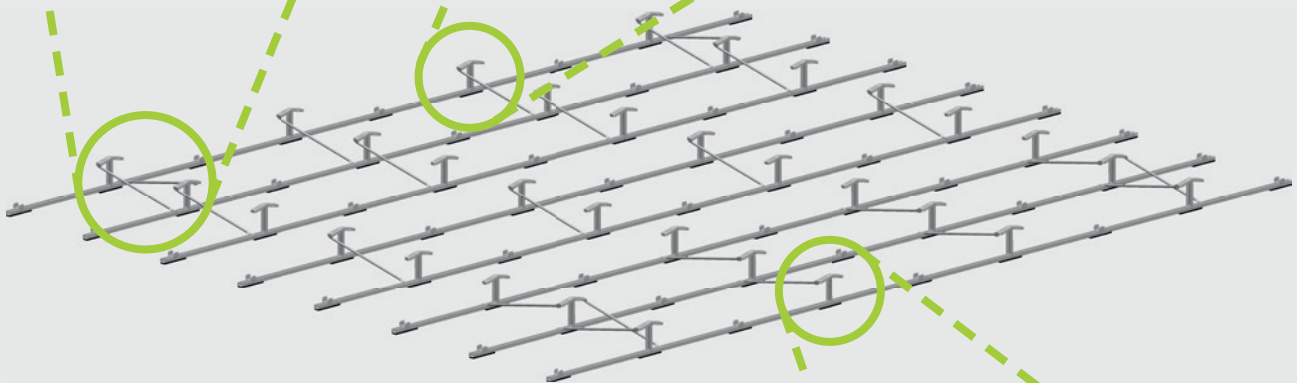
Note!

Make sure to have a double cross-bar in all corners of the field.



Note!

Make sure cross-bars are installed to the top pieces of the first and last row.

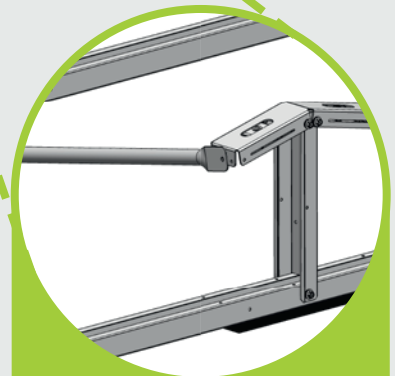


Pro Tip!

To ensure proper dilatation (thermal breaks), the field size must not exceed 36x36 meters.

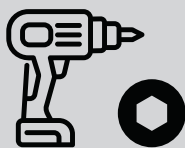
Note!

Make sure cross-bars are installed to the top pieces of the first and last row.



Step 5: (optional) installing ridge connection

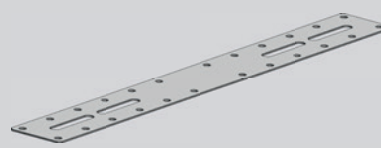
required tools and components:



electric tool
+
socket SW8



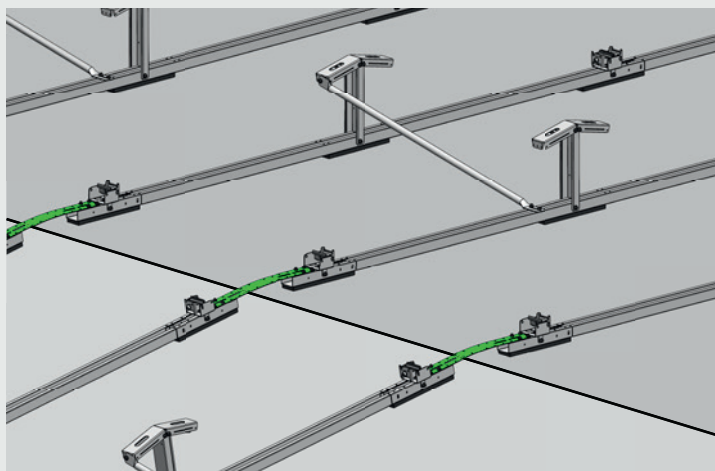
self drilling screws
(Ø5.5x25mm)



ridge connector

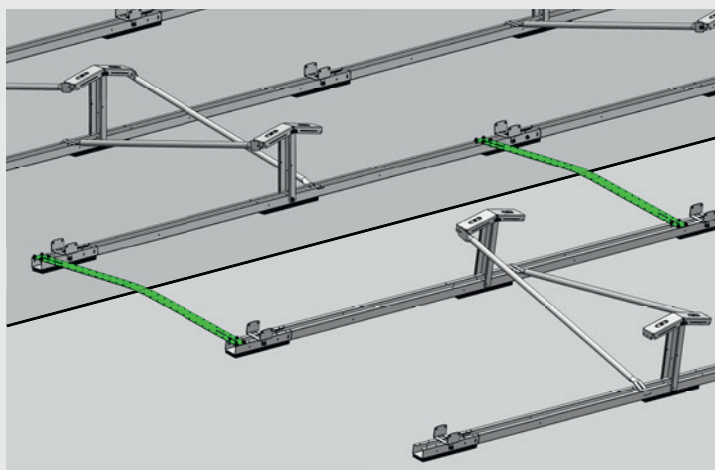
step 5.1: transverse ridge connections

In the transverse direction, one ridge connection is placed on every basic unit. These are attached on top of both rails. The ridge connection will bend to the appropriate slope when attached to the basic units. Use 4 self-drilling screws (Ø5.5x25mm) per C-rail.



step 5.2: longitudinal ridge connections

In the longitudinal direction, one ridge connection is placed on every basic unit. These are attached on top of both rails. The ridge connection will bend to the appropriate slope when attached to the basic units. Use 4 self-drilling screws (Ø5.5x25mm) per C-rail.

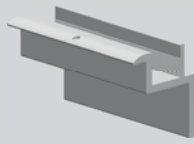


Note!

If the ridge connector is at risk of touching the roof, it is recommended to place a rubber (325x325x10 mm) between the ridge connector and the roof.

step 6: installing end clamps

required tools and components:

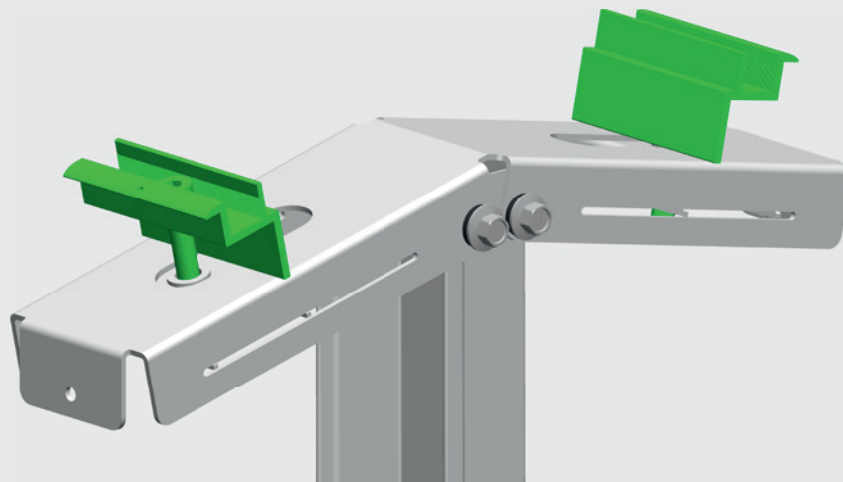


end clamp

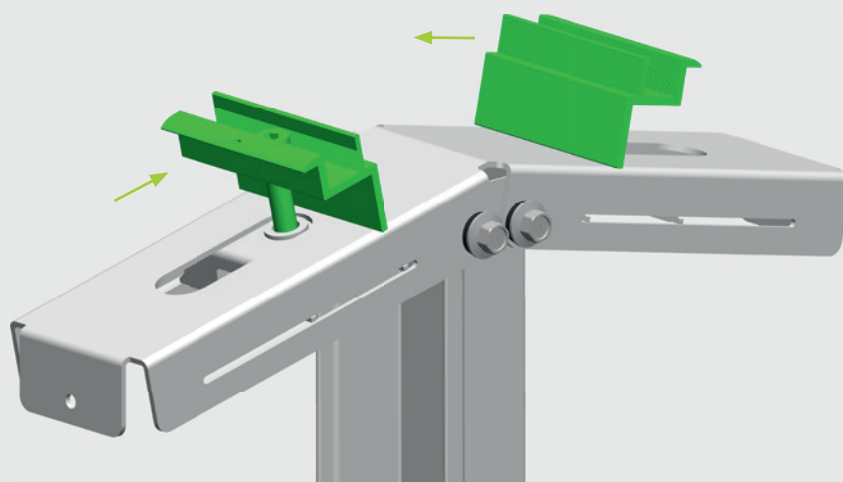


M8 bolt

- Connect loosely 2 end clamps on each top piece with M8 bolts.

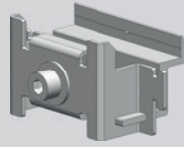


- Slide the 2 end clamps upwards.



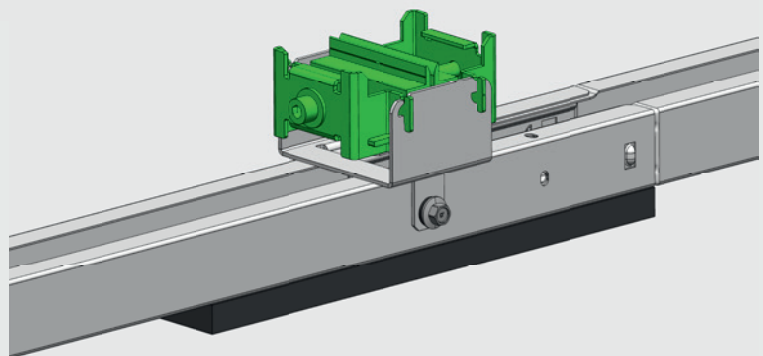
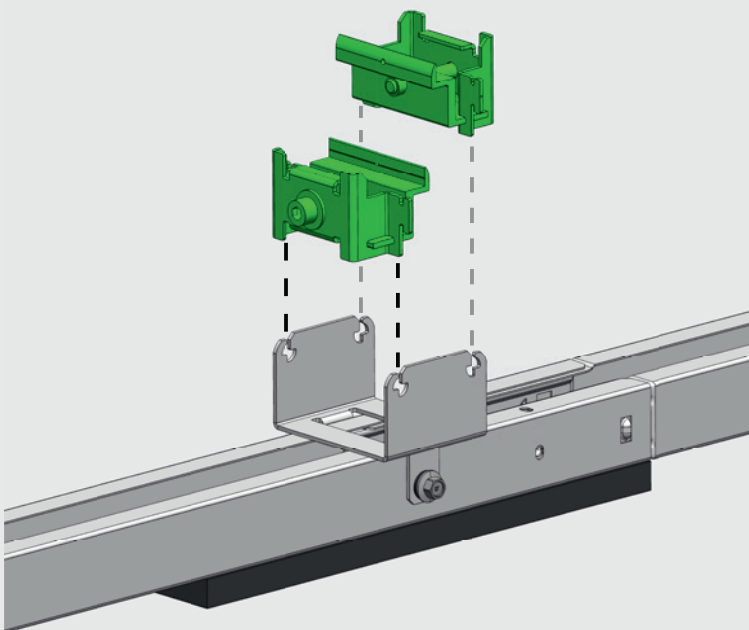
step 7: installing hinge clamps

required tools and components:



hinge clamp

- Slide the pre-assembled hinge clamps in the hinge brackets.
Remark: in the 1st and last hinge bracket, only 1 hinge clamp is needed.



Note!

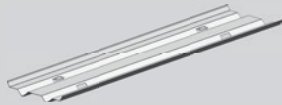
Make sure both end clamps and hinge clamps are appropriate for the module thickness.

Step 8: placing the ballast

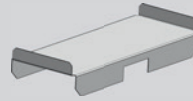
required tools and components:



ballast report
(created by online
calculator)
solarspeed.avasco.be



ballast plate

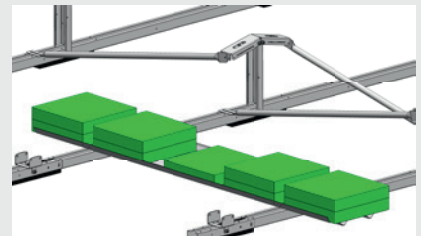
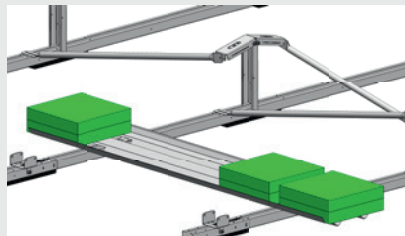
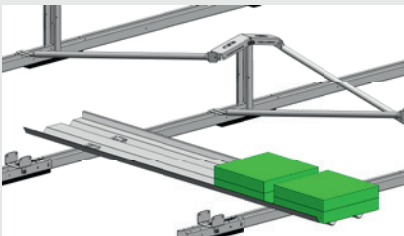


ballast holder

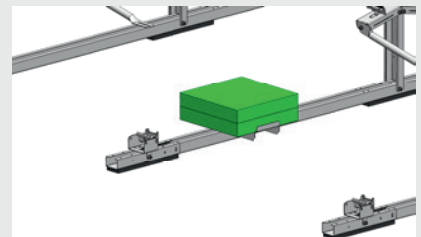
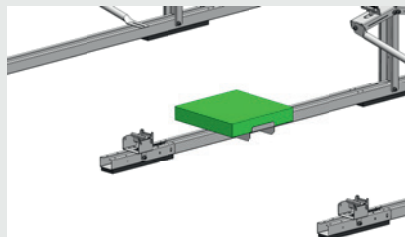
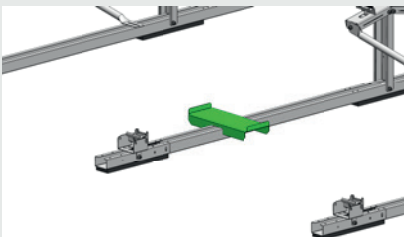


ballast tile
(provided by
installer)

- Place ballast plates as shown on the ballast report.
- Place ballast tiles:
 - as close to **the edges of the field** as possible.
 - as symmetrically as possible over the C-rails.



- In some occasions the ballast can be placed on a single ballast holder.
- Position the ballast holder on the C-rail, then place the ballast on top of the holder.



Note!

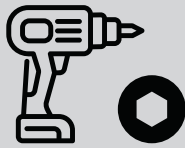
Ideally, place the ballast plates in the same rows as the cross-bars.

Note!

Ballast plates can overlap each other.

Step 9: ensuring earthing and equipotential bonding

required tools and components:



electric tool
+
socket SW8



self-drilling screws
(Ø5.5x25mm)



earthing wire
(provided by installer)

The individual fields should be connected with an earthing wire, which can be secured to the basic unit using a self-drilling screw. Ensure the use of cable shoes made of materials other than uncoated copper or stainless steel.

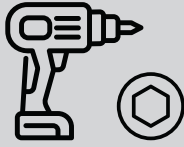
For optimal equipotential bonding, consider attaching the ballast plates to the C-rails using self-drilling screws.

Finally, connect the SolarSpeed Avantis to the building's earthing wire.

If the solar modules do not provide adequate earthing, use an equipotential bonding profile or wire to connect the C-rails that are not yet linked by a cross-bar.

Step 10: ensuring lightning protection

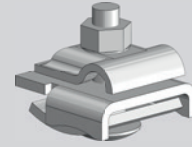
required tools and components:



electric tool
+
socket 3/8"



sheet metal screws
(Ø6.5x19mm)



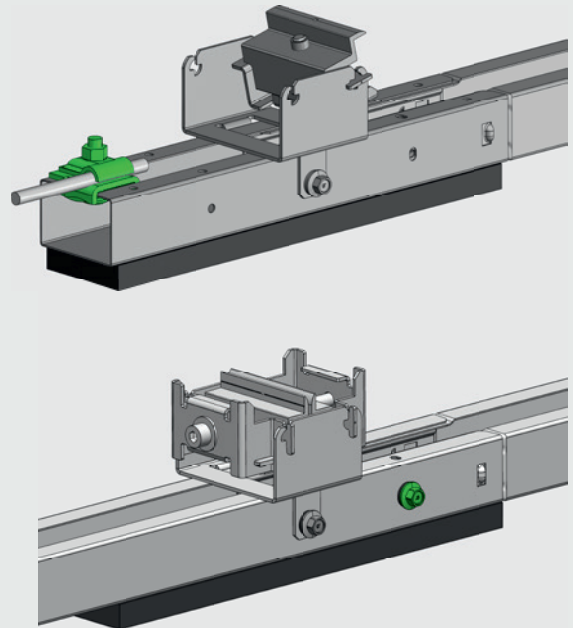
lightning protection clamp
(provided by installer)

All Avasco SolarSpeed basic units are designed following the principles of IEC 62561-1:2023-03 and IEC 62305-3.

Connections between each SolarSpeed field and the earthing wire must be made with approved connectors on the C-rails following the lightning protection plan of the specific project (lightning protection plan is not provided by Avasco Solar). An example of an approved connector is Seam Clamp of the manufacturer DEHN (Part-No. 365 010) with aluminium round wire (Ø8mm).

Replace solar module & clamps after a direct lightning strike.

Secure the click system of the basic units with at least 1 sheet metal screw.



Step 11: installing the modules

required tools and components:

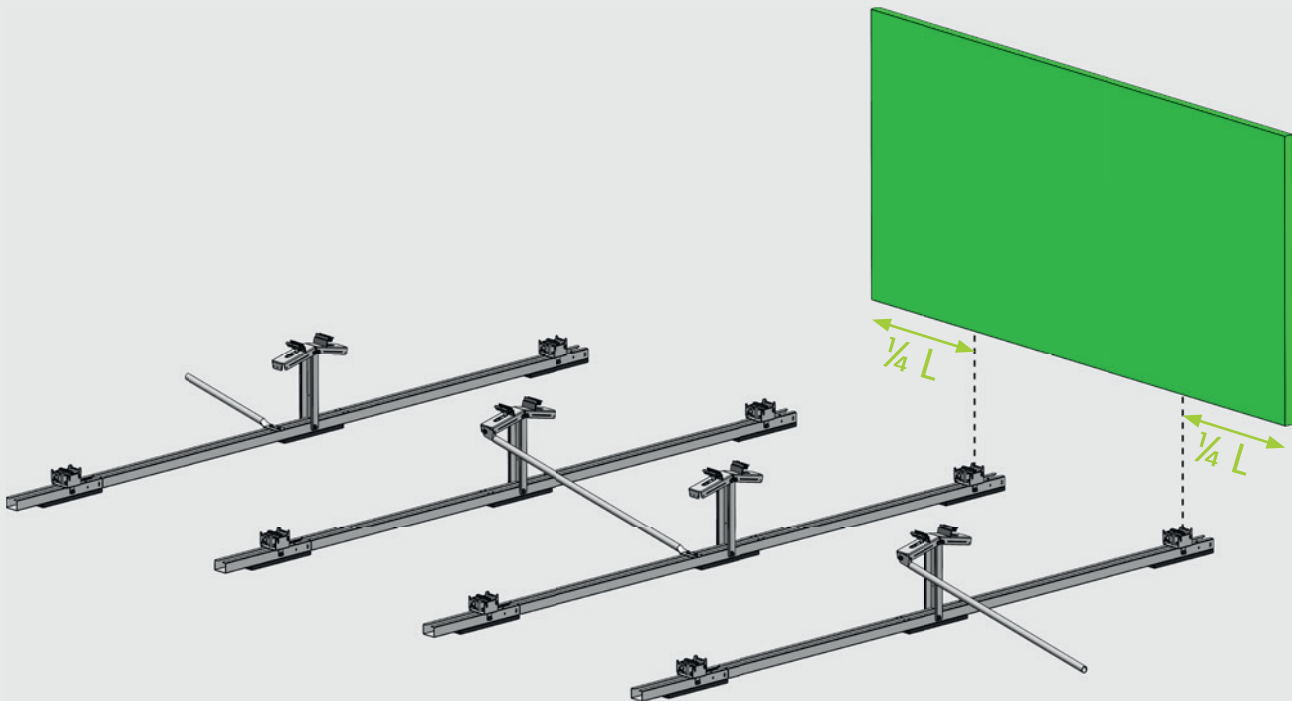


torque wrench
range 15-30Nm
+
hex 6.0

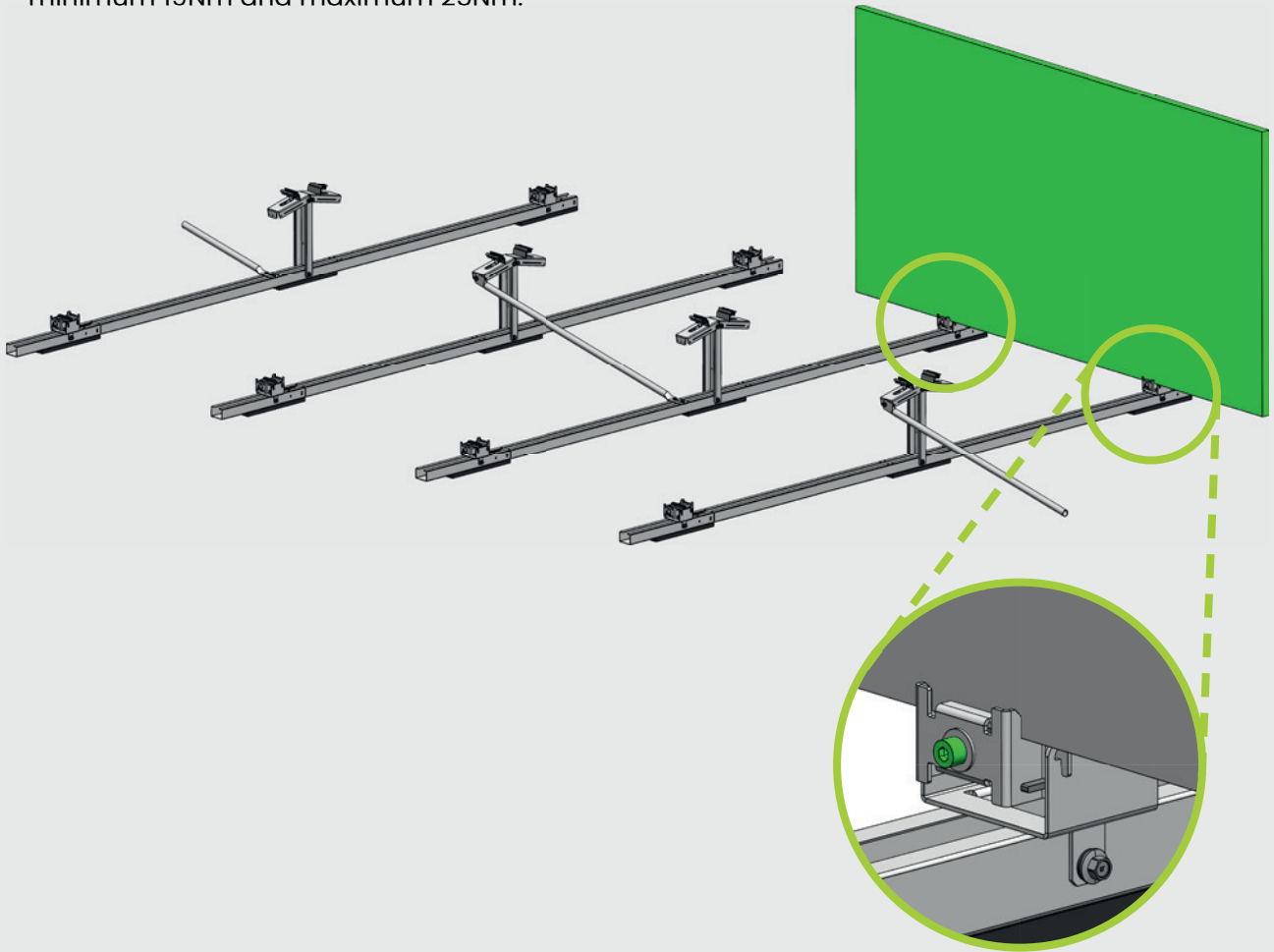


solar module
(provided by installer)

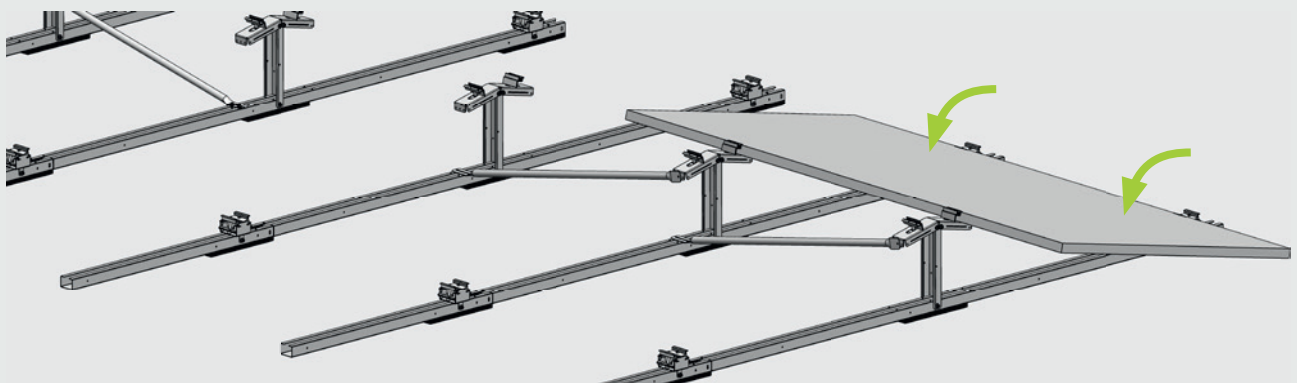
- Carry the solar module with two people.
- Position the solar module with its long side into the hinge clamps.
- Ensure the hinge clamps are positioned at $\frac{1}{4}$ and $\frac{3}{4}$ of the solar module's length.



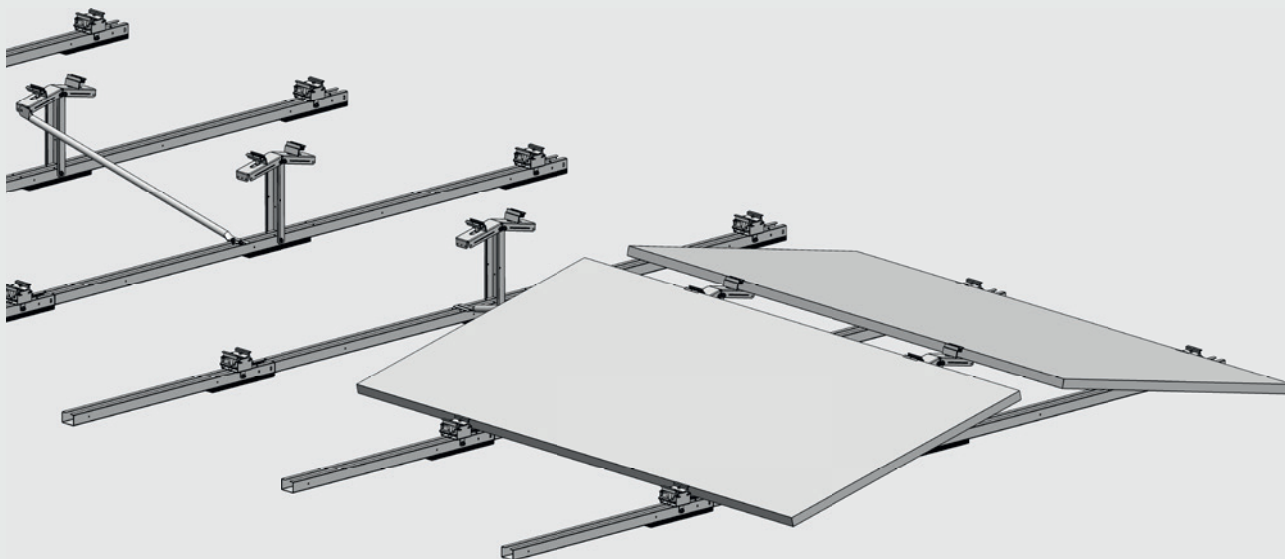
- Hold the solar module in the upward position, tighten the bolts of the 2 hinge clamps with minimum 19Nm and maximum 25Nm.



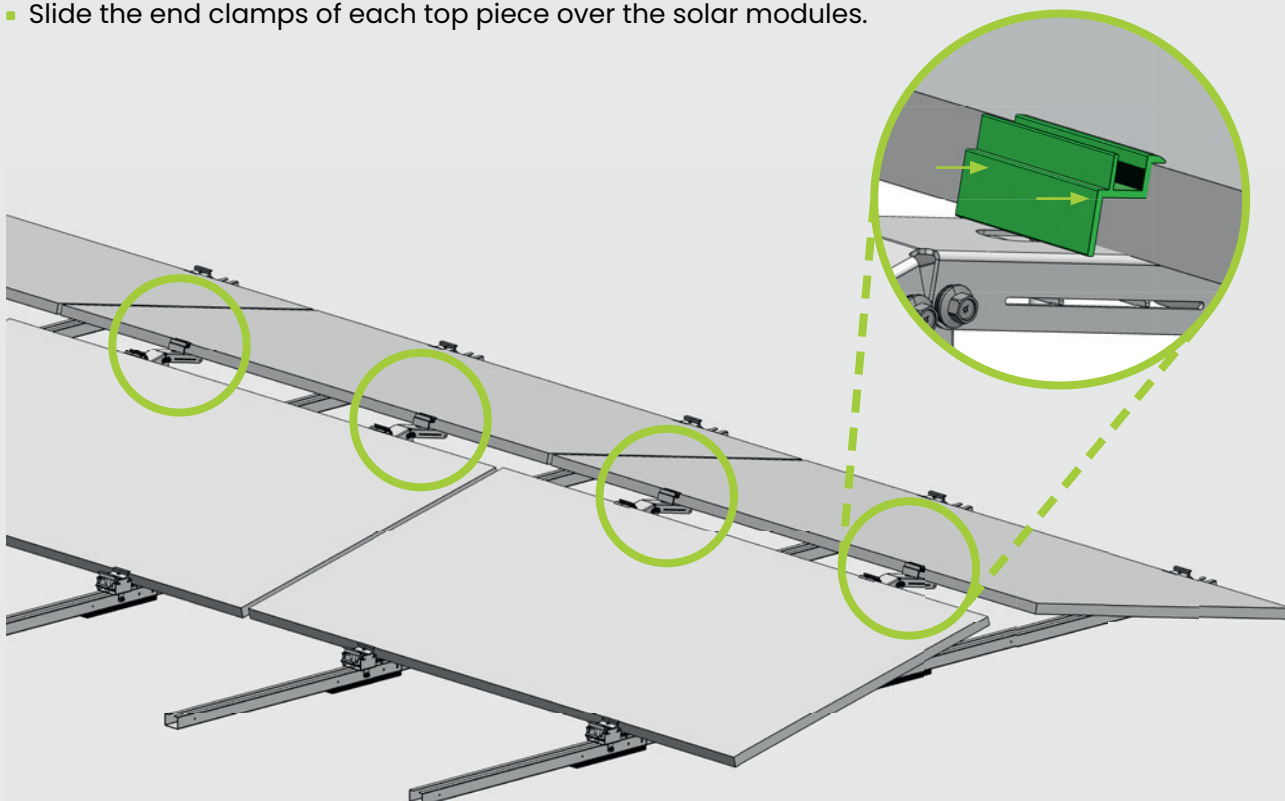
- After securing the bolts of the 2 hinge clamps, rotate the solar module.
- Gently place the solar module on the top piece.



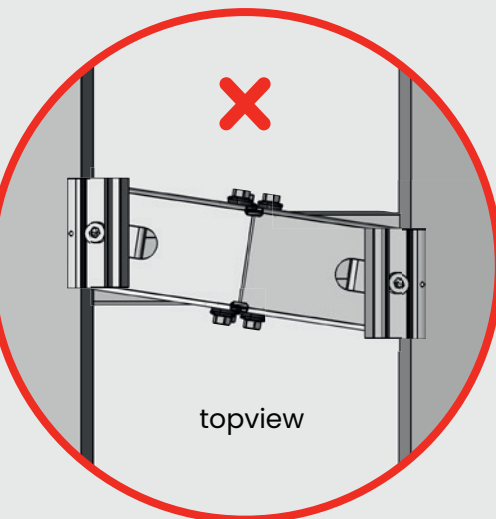
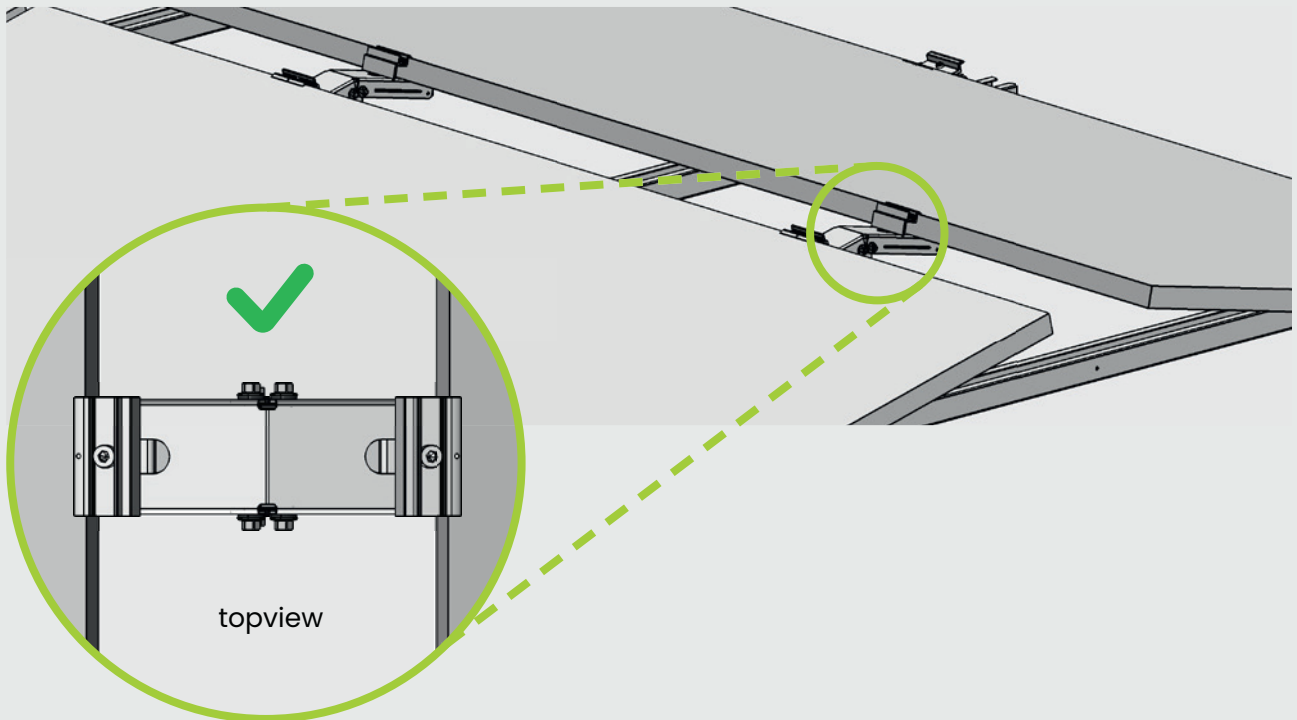
- Repeat these steps for both the east and west side oriented solar modules.



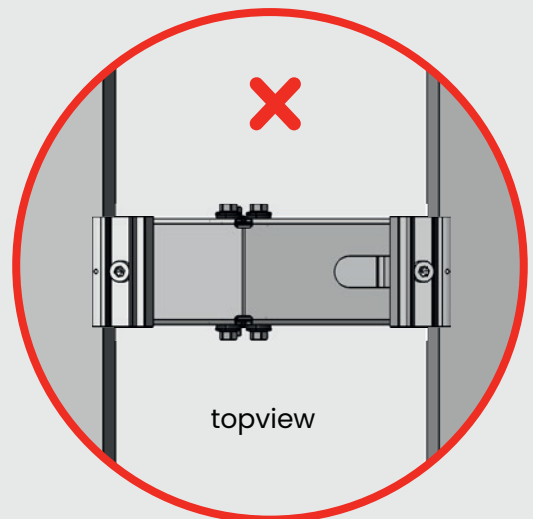
- Slide the end clamps of each top piece over the solar modules.



- Ensure precise alignment between the top piece, C-rail, and solar module.



Top piece not alligned with C-rail.



Top piece not centered between solar modules.

- Tighten the bolts of the end clamps with minimum 19Nm and maximum 25Nm.

Step 12: cable management

required tools and components:



Avantis cable clamp

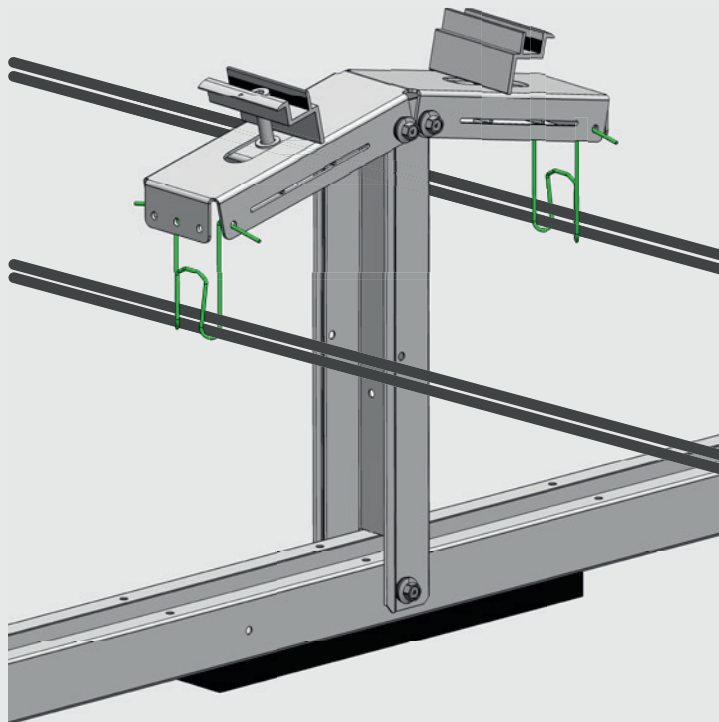


cable tie
(provided by installer)

Ensure that all solar module cables are kept clear of the roof.

Use an Avantis cable clamp by installing it in the top piece where necessary, and securely push the cable(s) into the clamp.

Alternatively, cable ties can be used.



general notes

- The installer should always check whether the rubber protection is sufficient when installing on soft or semi-soft surfaces. The installer should also check the compatibility of the rubber protection with the roof surface.
- Only use the clamps approved and/or recommended by the module manufacturer.
- Always tighten the clamping bolt with the correct torque: Minimum 19Nm is required, maximum 25Nm is allowed.
- A loss of torque is to be expected: At least 13Nm must be measured during inspection after installing.
- In the following situations/circumstances, the mounting frames of **Avasco Solar plc** are not suitable, unless written confirmation is provided for a specific project:
 - PVC or TPO roofs with pitches $> 3^\circ$
 - Bitumen or EPDM roofs with pitches $> 5^\circ$
 - Places where buildings or other objects can cause a wind tunnel effect or increased wind speeds.
 - Installations closer than 2 km as the crow flies from the coastline.
 - In an aggressive environment: All materials must be in stainless steel with the correct specifications to be determined on the basis of the aggressive substances.
 - In a saline environment: Execution in anodised aluminium or stainless steel.
- Polluted roof surfaces can lead to a lower friction coefficient over time, which means that more ballast or (extra) mechanical connections must be provided to prevent sliding.
- Edge zone: The installer must always keep the minimum edge zone free as described in the applicable standard(s). An example of such a standard is the NEN7250, but this is not exhaustive.
- Installers must always provide sufficient ballast depending on the situation. In case of doubt, please contact a specialised consultancy/engineering bureau.
- It is the installer's responsibility to check if the panels can be clamped in the manner (on the short or long side, position of the clamps, etc.) as provided in this manual. If this is not the case, **Avasco Solar plc** can in no way be held responsible for any damage, in whatever form.
- **Avasco Solar plc** can never be held liable if materials are used for assembly that are not supplied by **Avasco Solar plc**.
- The warranty conditions with regard to the assembly frames of **Avasco Solar plc** are available upon request. Failure to strictly follow the assembly instructions will void all warranty.
- The installer is responsible for the use of the necessary PPE.
- **Avasco Solar plc** reserves the right to change the assembly instructions at any time. It is the installer's responsibility to always follow the latest version, which is the only valid one. This is available at all times on www.avasco-solar.be or can be obtained upon request.



Avasco Solar plc
Rodenbachstraat 53
8908 Vlamertinge
Belgium

T +32 (0)57 27 15 00
VAT BE 0721.474.320

info@avasco-solar.be
www.avasco-solar.be

