Alumil SOLAR

H2300 - SOLFIE

TECHNICAL MANUAL

Version:05.23

Assembly Instructions

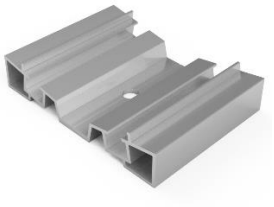
General characteristics:

- Landscape alignment
- Brackets and windshields, rails, clamps

A. MATERIAL LIST

1. Aluminum profiles

BACK POLE SOLFIE
(EX-8962311000)



FRONT POLE SOLFIE
(EX-8962313100)

PROFILE H2410

L PROFILE FOR WEIGHT SUPPORT SOLFIE 40x40x3 - 1250mm
(EX-8969990200)

CORE L50x5 FOR H2410
(EX-8965052000)

2. Steel parts

REAR WINDBREAKER
(EX-89699900xx)*

BALLAST MANAGEMENT
(EX-8969990100)

Rear Windbreaker length (mm)	*Height PV panel (mm)*	*Part number*
1755	*1700-1800*	*EX- 8969990011*
1975	*1950-2000*	*EX- 8969990021*
2094	*2050-2100*	*EX- 8969990031*
2172	*2150-2200*	*EX- 8969990041*
2270	*2250-2300*	*EX- 8969990051*
2380	*2384*	*EX- 8969990060*

**Length of rear windbreaker depends on the height PV panel*

3. Fasteners & other accessories

A. - needed for mounting back and front pole
- needed for mounting windbreaker
- needed for mounting angle 40x40x3mm

HAMMERHEAD BOLT WITH EPDM
M8x22 INOX A2
(EX-8969122081)

HEXAGON NUT WITH SERRATION
DIN6923 M8 INOX A2
(EX-8968808201)

B. - needed for mounting PV panels on base

ALLEN BOLT M8x'LENGTH*'
**Length of allen bolt depends on the thickness of the PV panel*

T-SLOT NUT M8 ALUMINUM
(EX-8968008103)

SERRATED LOCK WASHER DIN6798-A M8 A2 INOX
(EX-7627300801)

END CLAMP LENGTH : X mm*
**Height of end clamp depends on the thickness of the PV panel*

Panel thickness (mm)	***End clamp***	***Allen bolt***
50	*EX-8960330100*	*EX-7629085001*
46	*EX-8960430100*	*EX-7629084501*
42	*EX-8960340100*	*EX-7629084001*
40	*EX-8960440100*	*EX-7629084001*
38	*EX-8960720100*	*EX-7629084001*
35	*EX-8960450100*	*EX-7629083501*
34	*EX-8960460100*	*EX-7629083001*
32	*EX-8960621100*	*EX-7629083001*
30	*EX-8960630100*	*EX-7629083001*

C. - needed for mounting core

HAMMERHEAD BOLT WITH EPDM
M8x22 INOX A2
(EX-8969122081)

HEXAGON NUT WITH SERRATION
DIN6923 M8 INOX A2
(EX-8968808201)

D. - anti slip pad

ANTI SLIP PAD FOR SOLFIE 100x100x6mm
(EX-8962312000)

4. Tooling set

Spirit Level (2m)

String Line

Stell Tape Measure (50 -100m)

Spanners Sockets (Metric)

Tap screw adaptor

Torque Wrench

Screw Rivet Tool

Power Driver & Bits
Impact Driver

Suitable Angular Measuring Device

Health & Safety

It is the installer's responsibility that their personnel ensure that safe working practices as required by the site specific contract are adopted and achieved at all times.
No operation should cause danger to employer, employee, contractor, sub-contractor or any member of the public.

5. Nut's torques

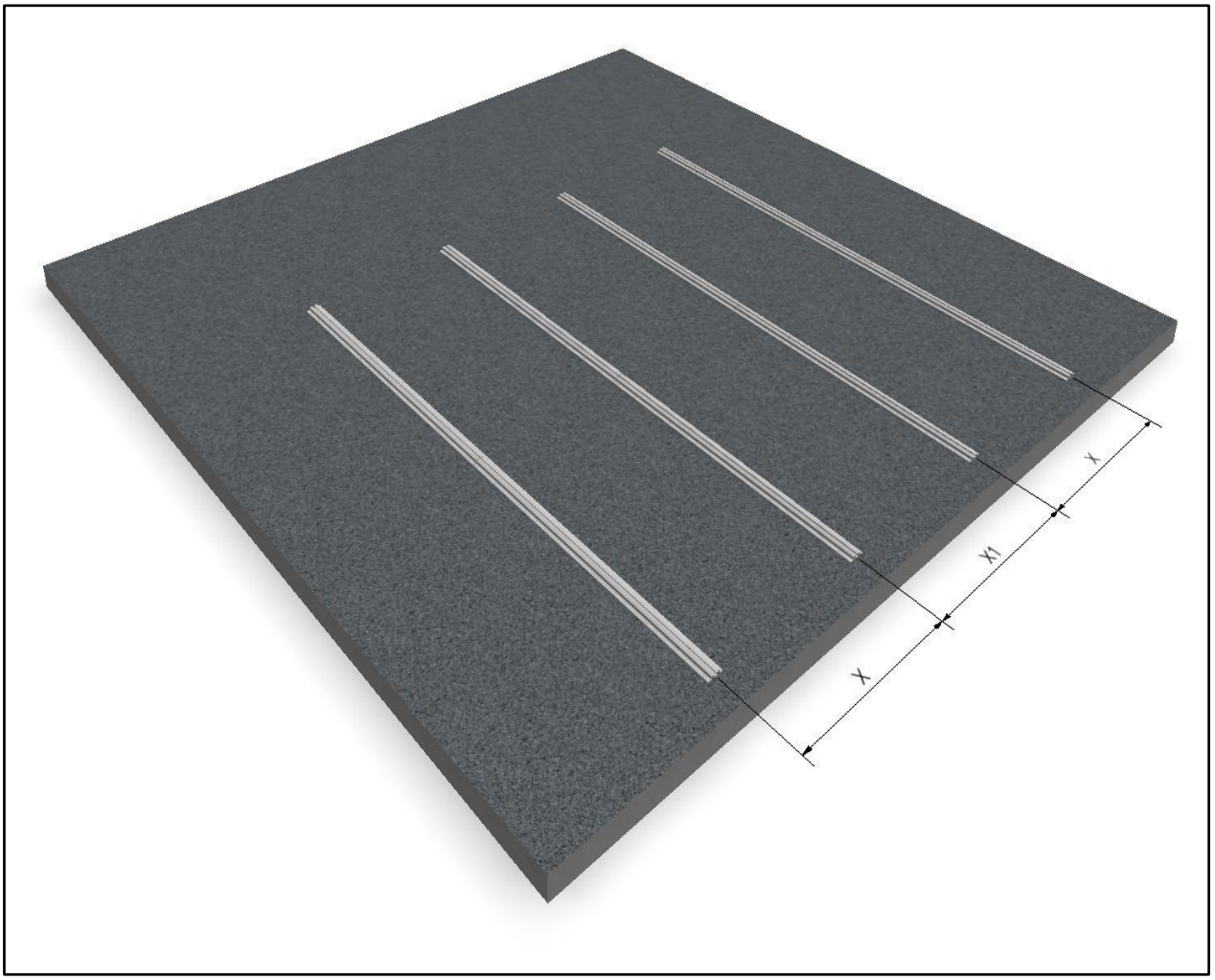
The table below represents the specific torques that should be used for fastening the screws and nut's, according to size (i.e. M8 or M10) and aluminum's finishing (i.e. mill finished or anodized).

SCREW TIGHTENING TORQUES (MILL FINISHED PROFILES)		
M10	**M8**	**M8 Allen**
T=40-45 Nm	T=25 Nm	T = 9 - 10Nm (for thin film panels) T =12-15 Nm (for poly panels)
SCREW TIGHTENING TORQUES (ANODISED PROFILES)		
M10	**M8**	**M8 Allen**
T=50 Nm	T=25-30 Nm	T = 9 –11 Nm (for thin film panels) T =14–17 Nm (for poly panels)

B. ASSEMBLY INSTRUCTIONS FOR SOLFIE

1. Placing rails in the ground

The instructions in the technical manual are telling you to lay the rails on the ground in a parallel arrangement, with the distance between each consecutive rail being determined by the dimensions X and X1. It is important to ensure that the rails are placed according to the specified dimensions, as this will ensure proper alignment and stability of the structure being built. Make sure to measure carefully and double-check your work to ensure that the rails are placed correctly.



**Dimensions X = Panel Length / 2*

***Dimensions X1 = (Panel Length / 2) + 20*

2. Connecting rails together by using cores

The instructions in the technical manual are detailing the steps for assembling a certain component or system.

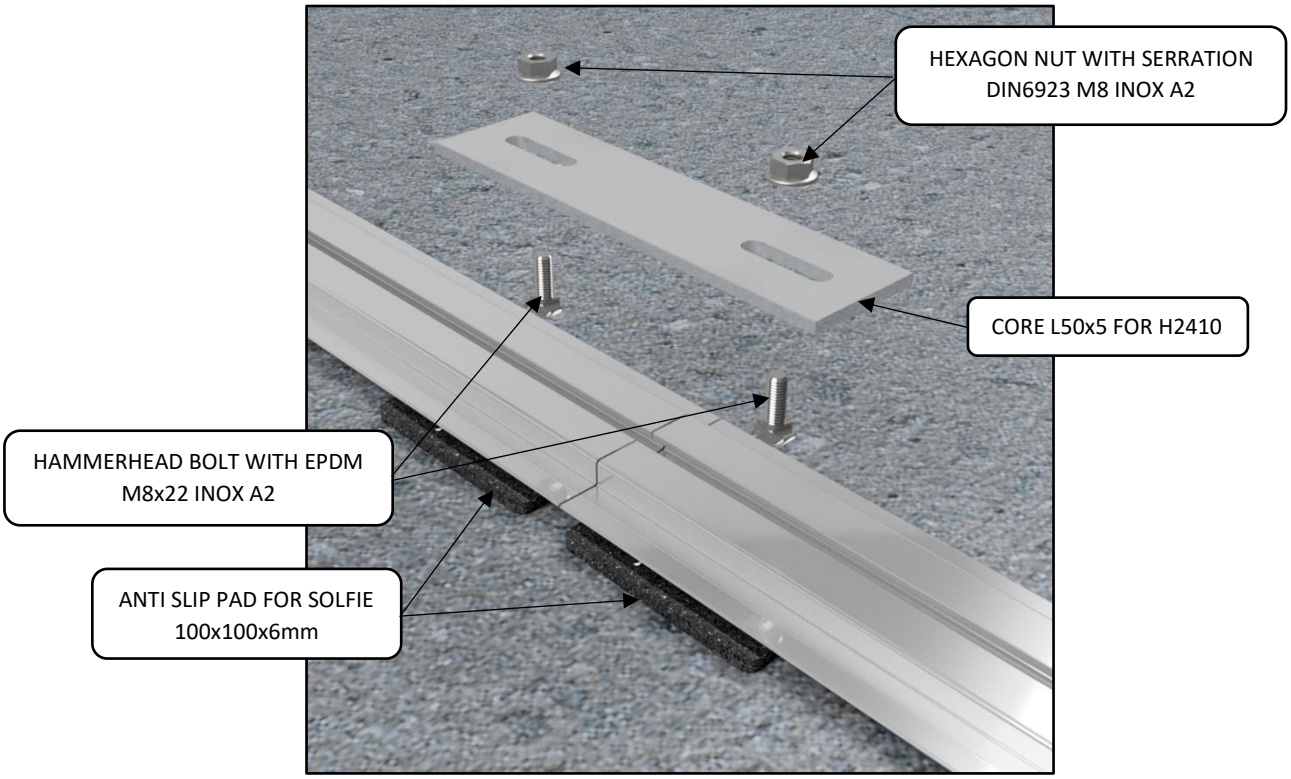
In **Step 1**, you are instructed to place two anti-slip pads under the rail to prevent it from slipping or sliding during the assembly process.

In **Step 2**, you are told to place a hammerhead screw on the rail and rotate it in a clockwise direction to lock it in place.

In **Step 3**, you are instructed to place the core and align its holes with the other components.

In **Step 4**, you are told to use M8 hex flange nuts to fasten all parts together, securing the assembly and ensuring its stability.

It is important to follow these steps in order and to tighten the nuts securely to avoid any issues during use.



In **Step 5**, repeat the process described in Steps 1 to 4 for each additional core that needs to be assembled. This means that you should follow the same steps, placing the anti-slip pads, hammerhead screw, core, and hex flange nuts, for each core until all cores have been assembled. This will ensure that all cores are properly assembled and securely fastened together. It is important to pay attention to detail and follow the instructions carefully to avoid any mistakes or issues during the assembly process.

3. Mounting joint front poles on rails

The instructions in the technical manual are detailing the steps for assembling a component or system.

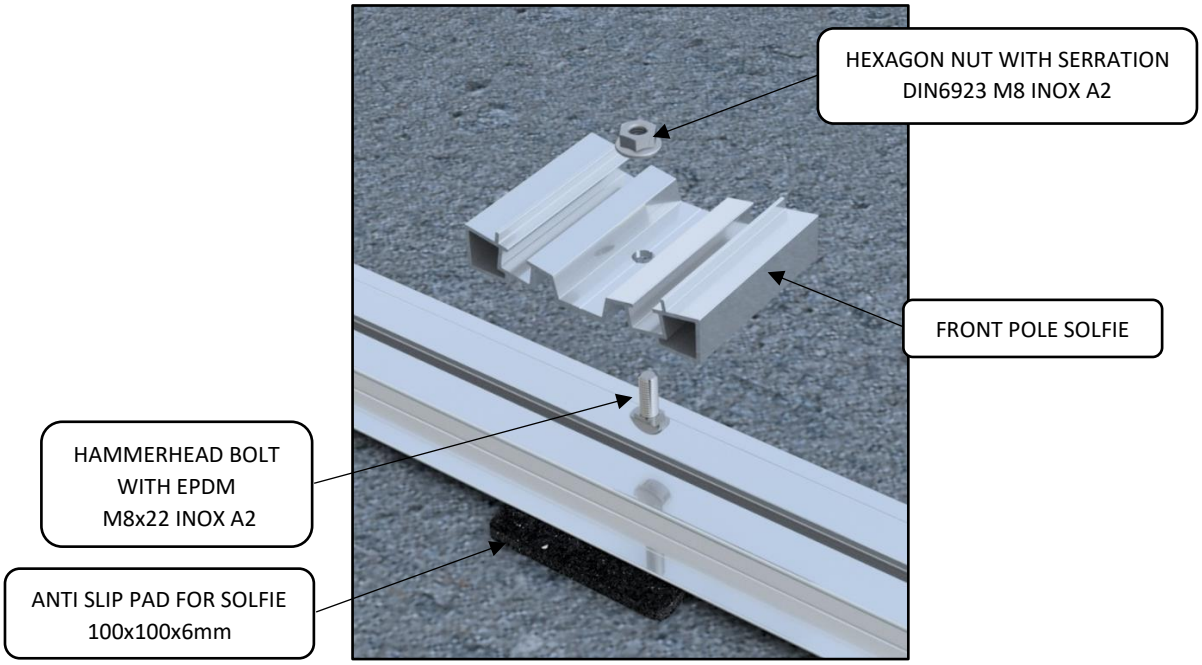
In **Step 1**, you are instructed to place one anti-slip pad under the rail to prevent it from sliding or slipping during the assembly process.

In **Step 2**, you are told to place a hammerhead screw in the canal of the rail, according to the dimension Y, and rotate it to lock it in place.

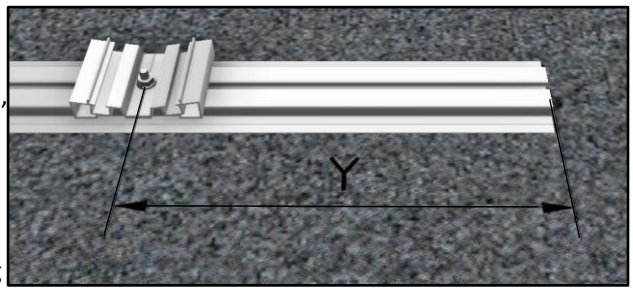
In **Step 3**, you are instructed to place the Front Pole and align its holes with the hammerhead screw.

In **Step 4**, you are told to use an M8 hex flange nut to fasten all parts together, securing the assembly and ensuring its stability.

It is important to follow these steps in order and to tighten the nuts securely to avoid any issues during use. Pay close attention to the dimension Y, as this is critical for proper alignment and stability of the assembly.



In **Step 5**, repeat the process described in Steps 1 to 3 for each additional front pole that needs to be assembled. This means that you should follow the same steps, placing the anti-slip pad, hammerhead screw, and front pole, for each front pole until all front poles have been assembled. This will ensure that all front poles are properly assembled and securely fastened together. It is important to pay attention to detail and follow the instructions carefully to avoid any mistakes or issues during the assembly processes.



**Dimensions Y ≥ 100mm*

4. Mounting joint rear poles on rails

The instructions in the technical manual are detailing the steps for assembling a component or system.

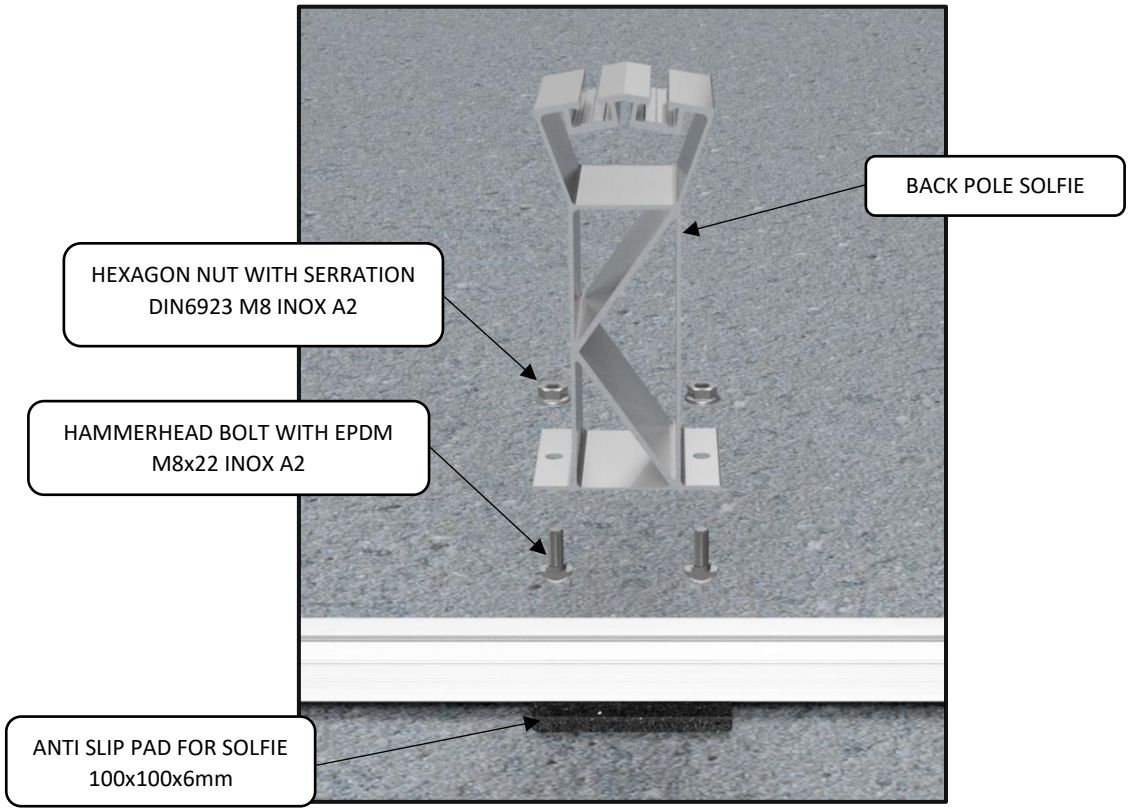
In **Step 1**, you are instructed to place one anti-slip pad under the rail to prevent it from sliding or slipping during the assembly process.

In **Step 2**, you are told to place a hammerhead screw in the canal of the rail, according to the dimension L, and rotate it to lock it in place.

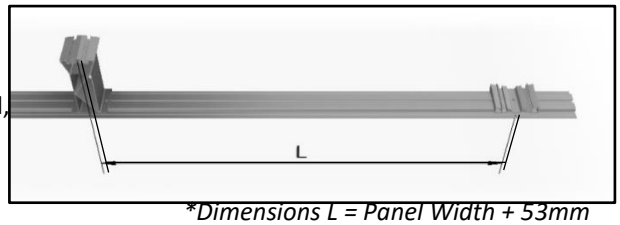
In **Step 3**, you are instructed to place the Back Pole and align its holes with the hammerhead screw.

In **Step 4**, you are told to use an M8 hex flange nut to fasten all parts together, securing the assembly and ensuring its stability.

It is important to follow these steps in order and to tighten the nuts securely to avoid any issues during use. Pay close attention to the dimension L, as this is critical for proper alignment and stability of the assembly.



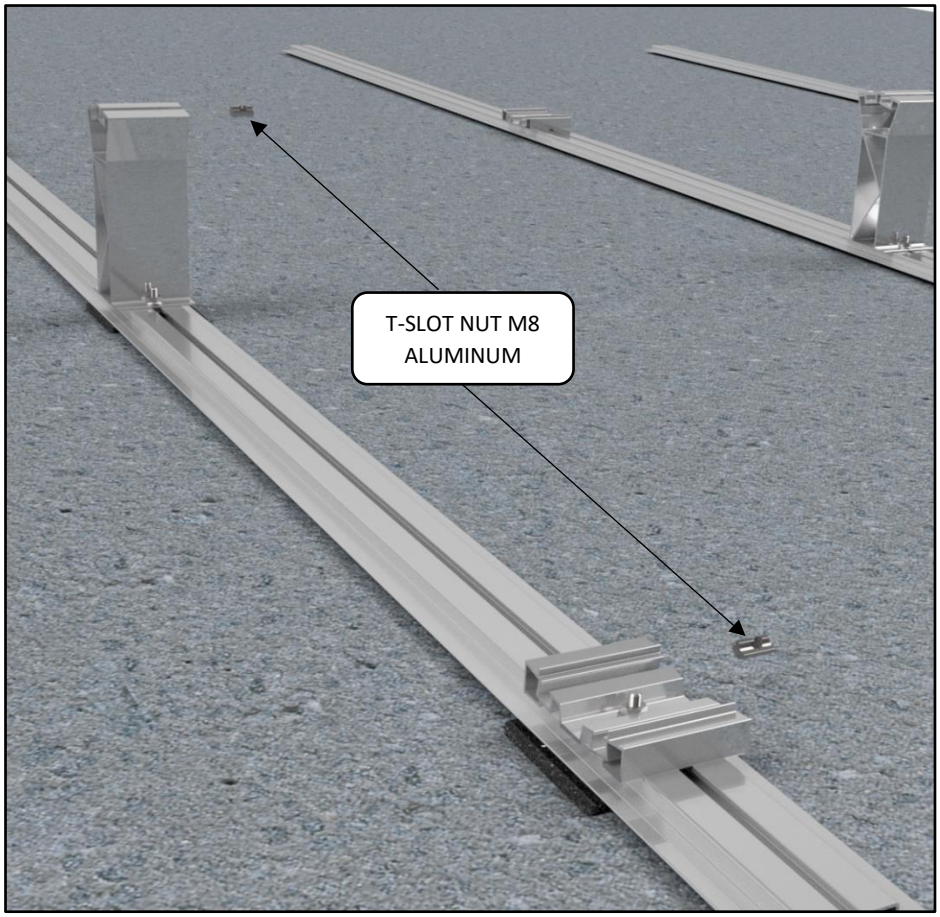
In **Step 5**, repeat the process described in Steps 1 to 3 for each additional front pole that needs to be assembled. This means that you should follow the same steps, placing the anti-slip pad, hammerhead screw, and back pole, for each back pole until all back poles have been assembled. This will ensure that all front poles are properly assembled and securely fastened together. It is important to pay attention to detail and follow the instructions carefully to avoid any mistakes or issues during the assembly process.



**Dimensions L = Panel Width + 53mm*

5. Insert T-slot nuts in pole canals

In **Step 1**, you are instructed to insert one T-Slot Aluminum Nut M8 into each canal of the front and back poles.



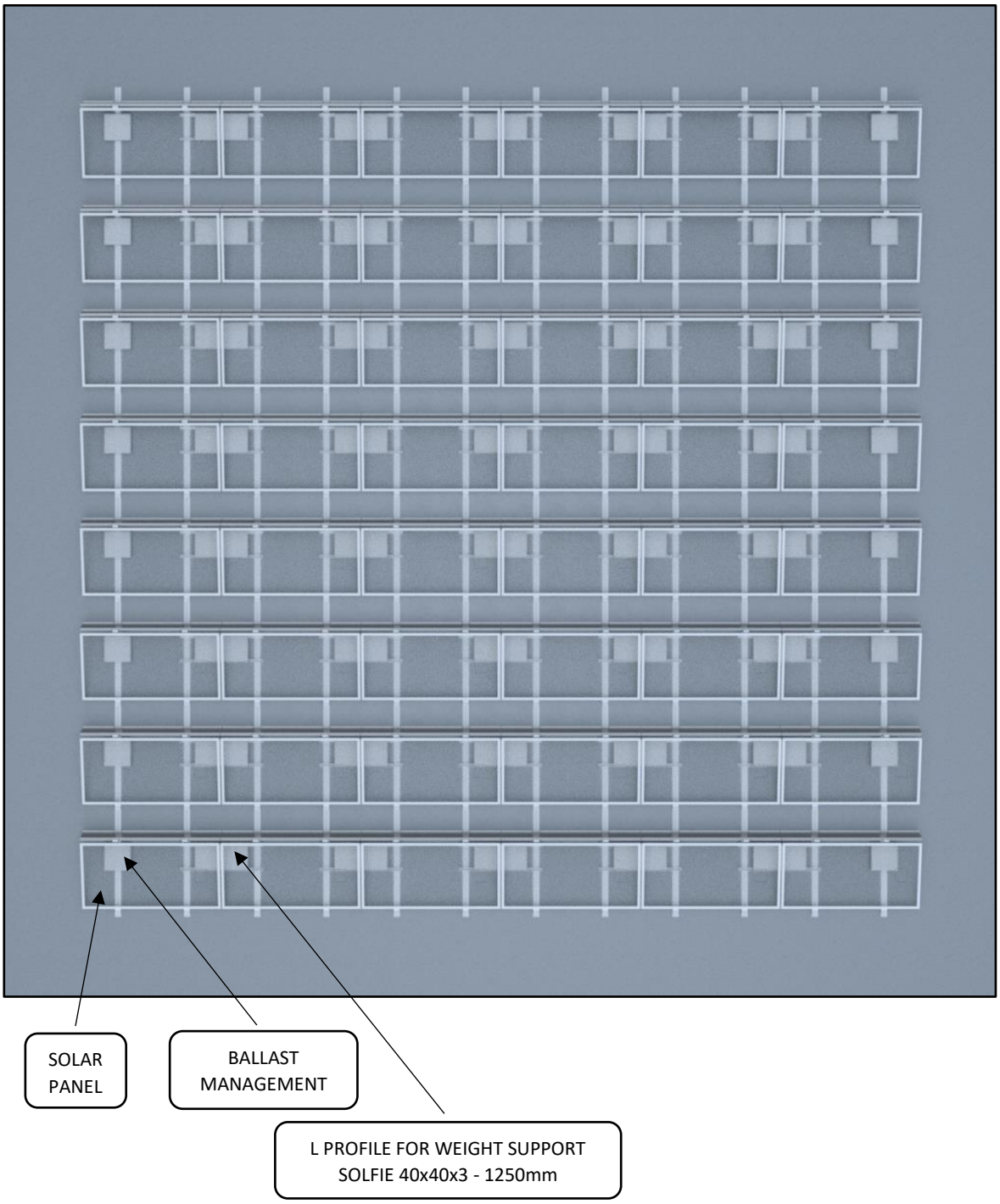
In **Step 2**, you are told to repeat Step 1 for each front and back pole. This means that you should insert one T-Slot Aluminum Nut M8 into each canal of each front and back pole until all poles have been assembled.

This step ensures that the T-Slot Aluminum Nuts are properly inserted and positioned in the correct location, providing a secure connection for other components. It is important to pay attention to detail and follow the instructions carefully to avoid any mistakes or issues during the assembly process.

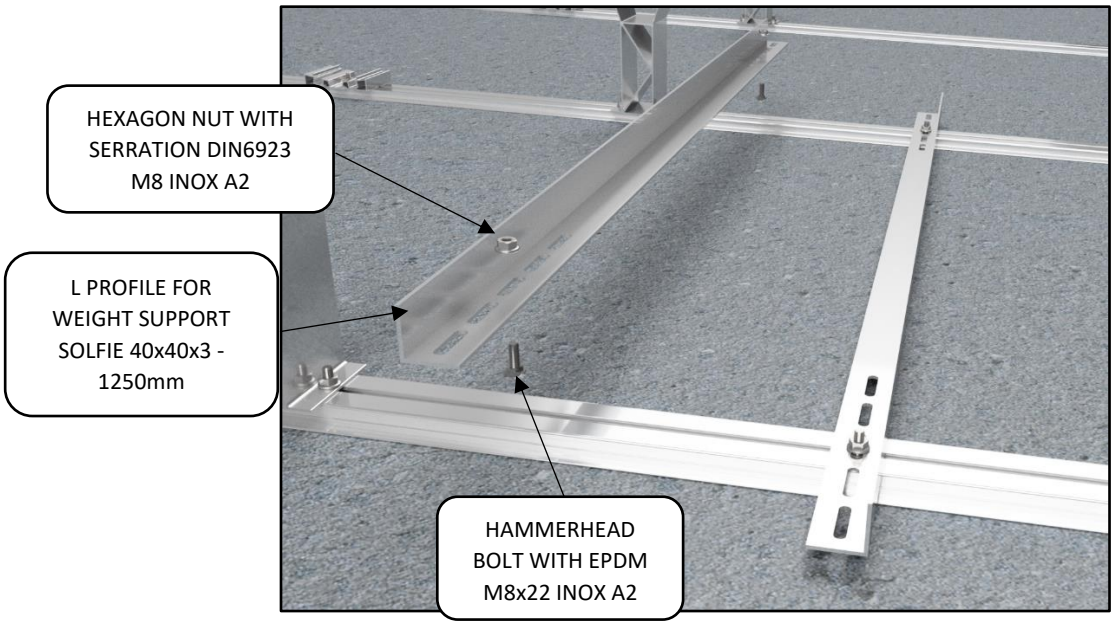
6. Mounting L profile on rail

Place the L profile in the desired location, ensuring that it is aligned straight and level.

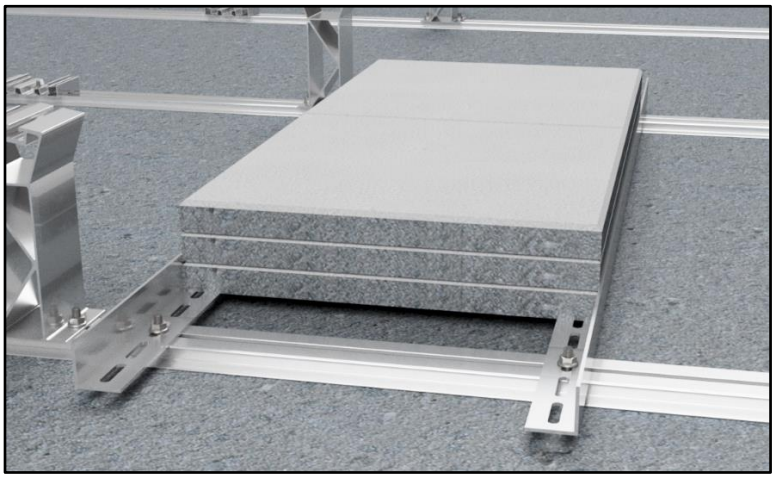
Top view



Step 1: Place the hammerhead bolt in the channel of the rail and rotate it to lock it in place. Ensure that the bolt is securely in place and properly aligned.
Step 2: Place the L profile 40x40x3 vertically on the rails, making sure that the L profile is centered over the hammerhead bolt.
Step 3: Use a Hex Flange Nut M8 to fasten all parts together. Begin by threading the nut onto the end of the bolt and tighten it using a wrench until the L profile is securely fastened to the rail. Repeat this process for each of the fastening points along the length of the L profile.



Step 4: Finally, place the concrete plates into the L profiles to complete the installation.

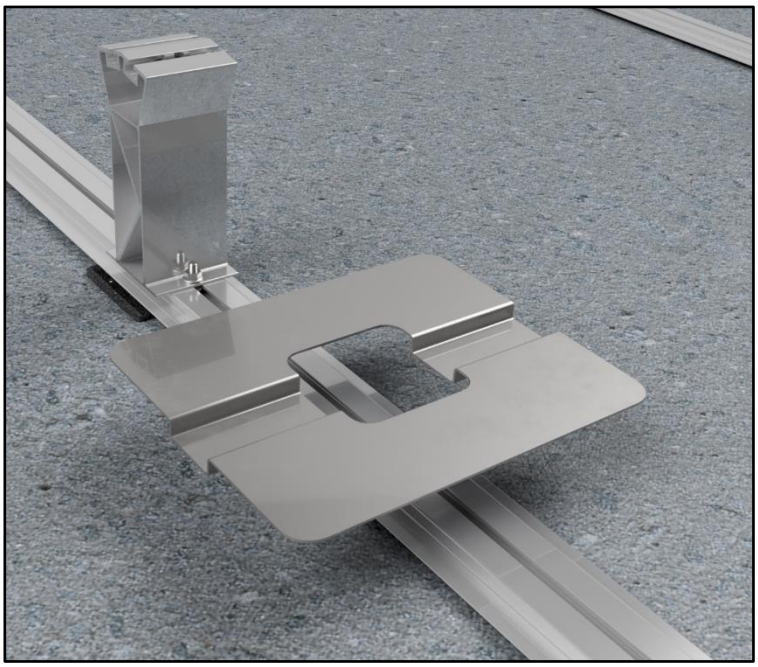


Step 5: repeat the process described in Steps 1 to 4 for L profiles.

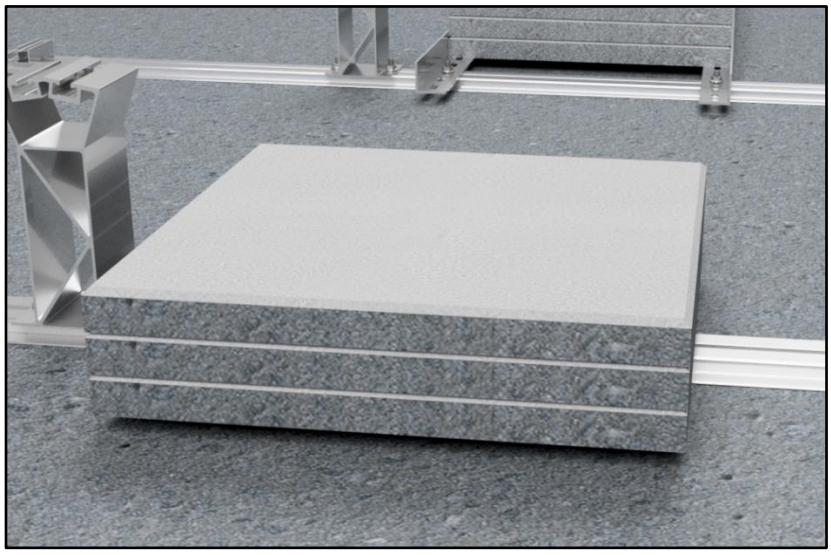
It is essential to follow these instructions carefully and to tighten the nuts securely to ensure the stability and security of the assembly.

7. Mounting ballast management

Step 1:
Place ballast management on the rail.



Step 2:
Place concrete plates on the ballast management.

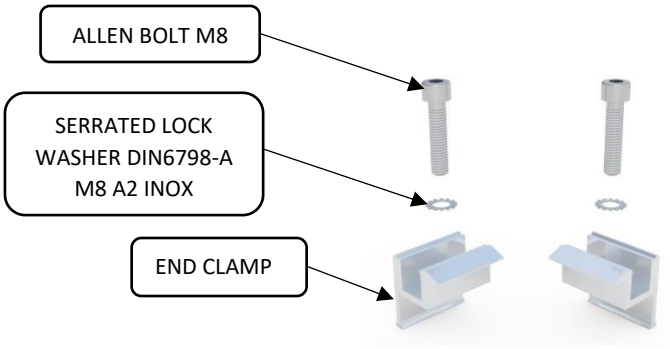


Step 3:
Repeat Steps 1-2 for every angle.

8. Mounting panel on pole

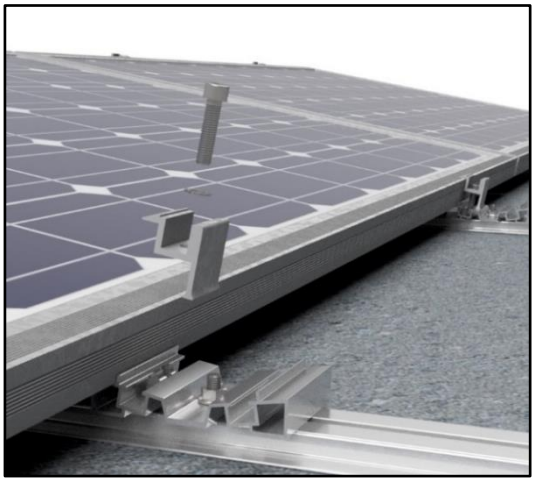
Step 1:

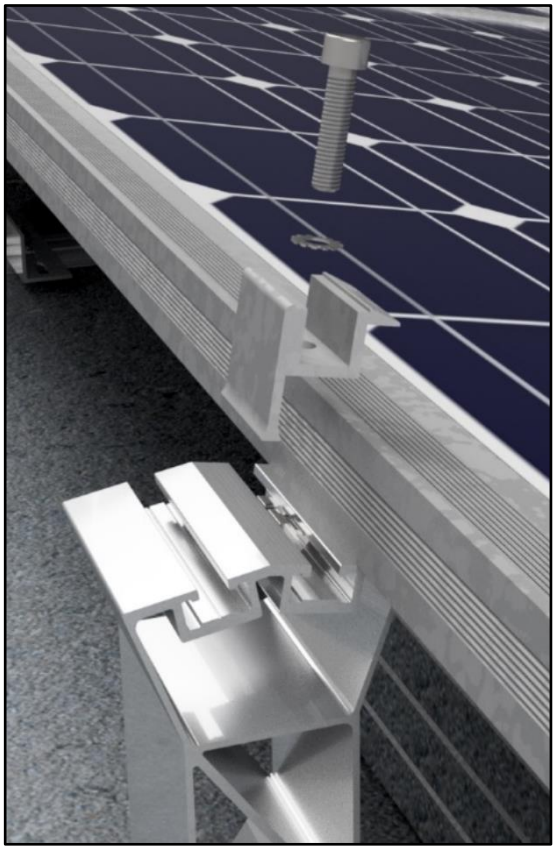
Use End clamp, Allen bolt M8 x 'Length', Serrated lock washer M8 to mount the edge panels on the poles.



Step 2:

Use End clamp, Allen bolt M8X 'Length', Grover M8 to mount the panels on the front and back poles.



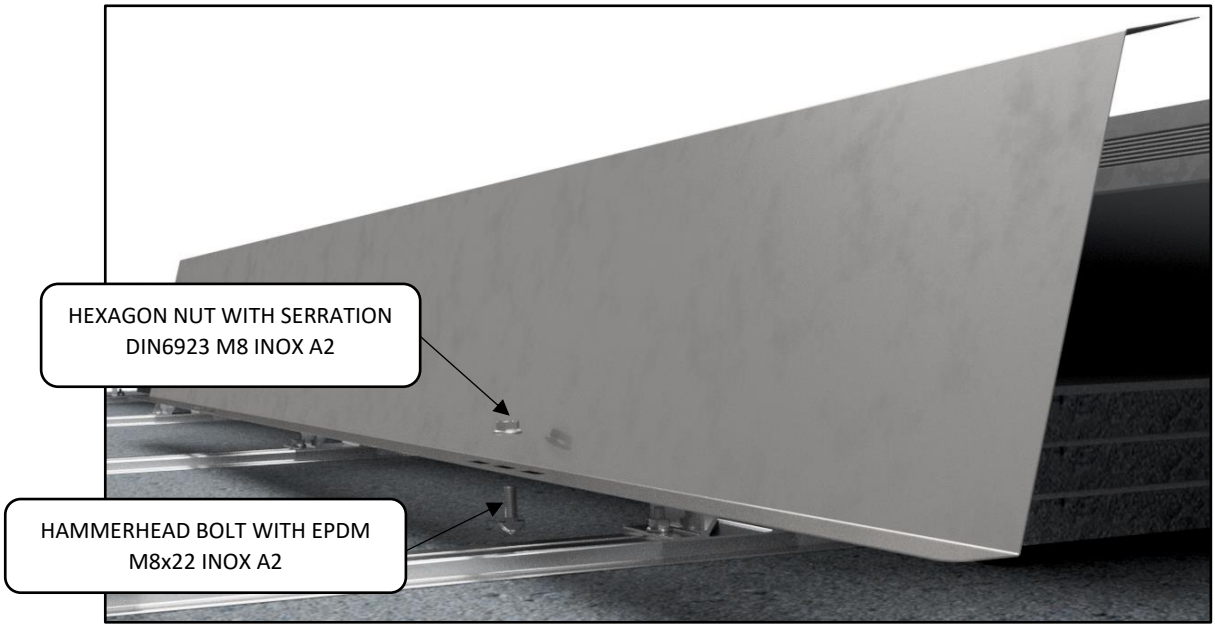


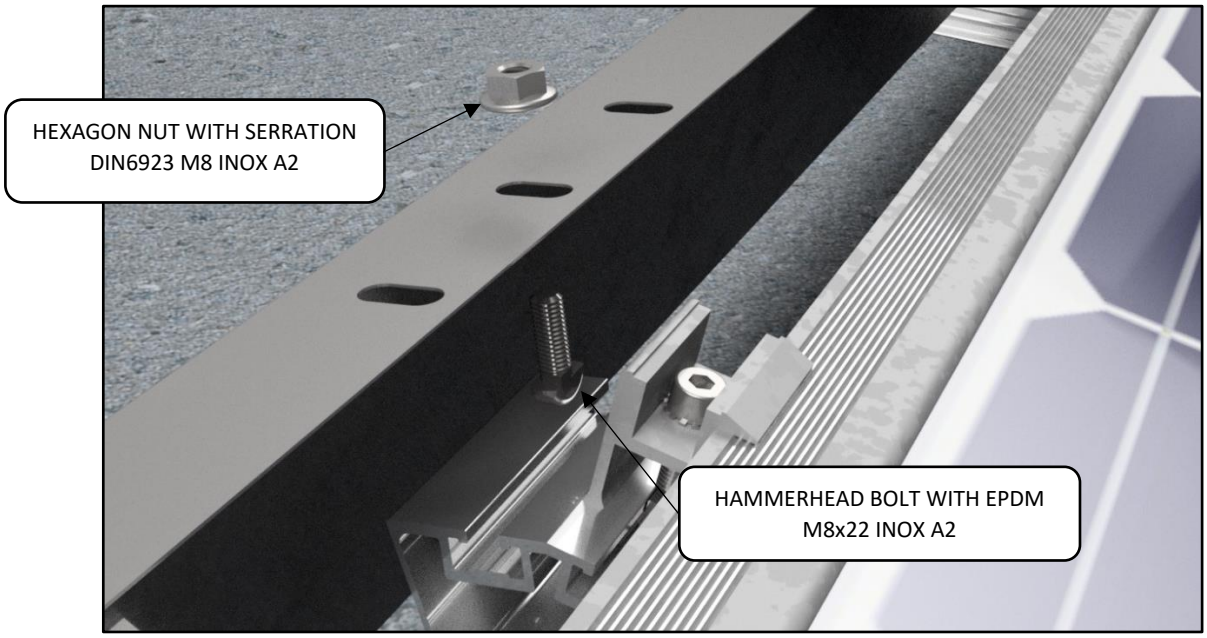
Step 3:

Repeat Steps 1-2 for every front and back poles.

9. Mounting Rear Windbreaker

Step 1:
Place the hammerhead bolt in the canal of rail and rotate to lock.
Step 2:
Place the hammerhead bolt in the upper canal of poles and rotate to lock.
Step 3:
Use Hex Flange Nut M8 to fasten all parts together.



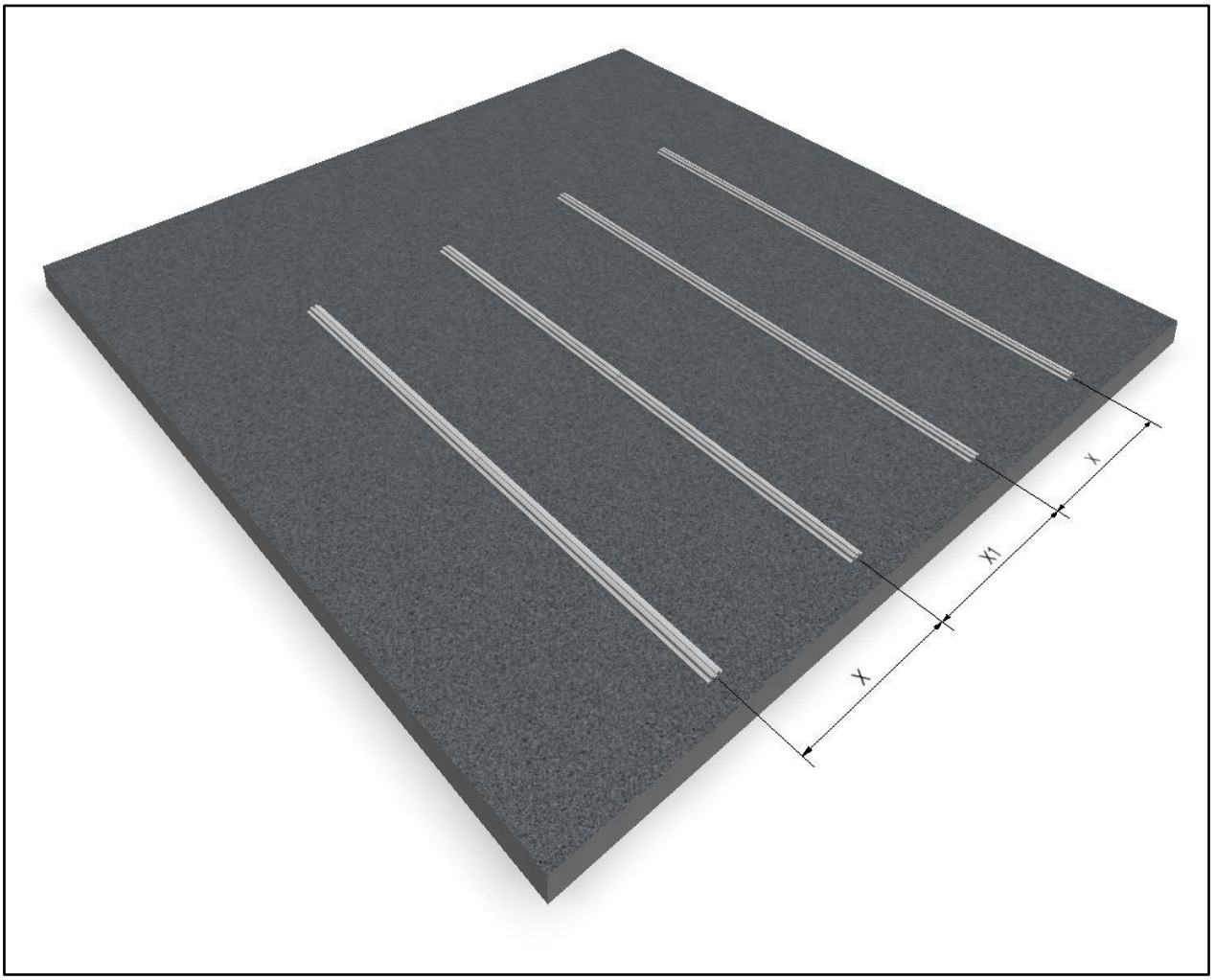


Step 3:
Repeat Steps 1-2 for every Rear Windbreaker.

C. ASSEMBLY INSTRUCTIONS FOR SOLFIE E/W

1. Placing rails in the ground

Place the rails on the ground according to X and X1 dimension. Parallel distance between 2 consecutive rails is according to dimension X and X1.

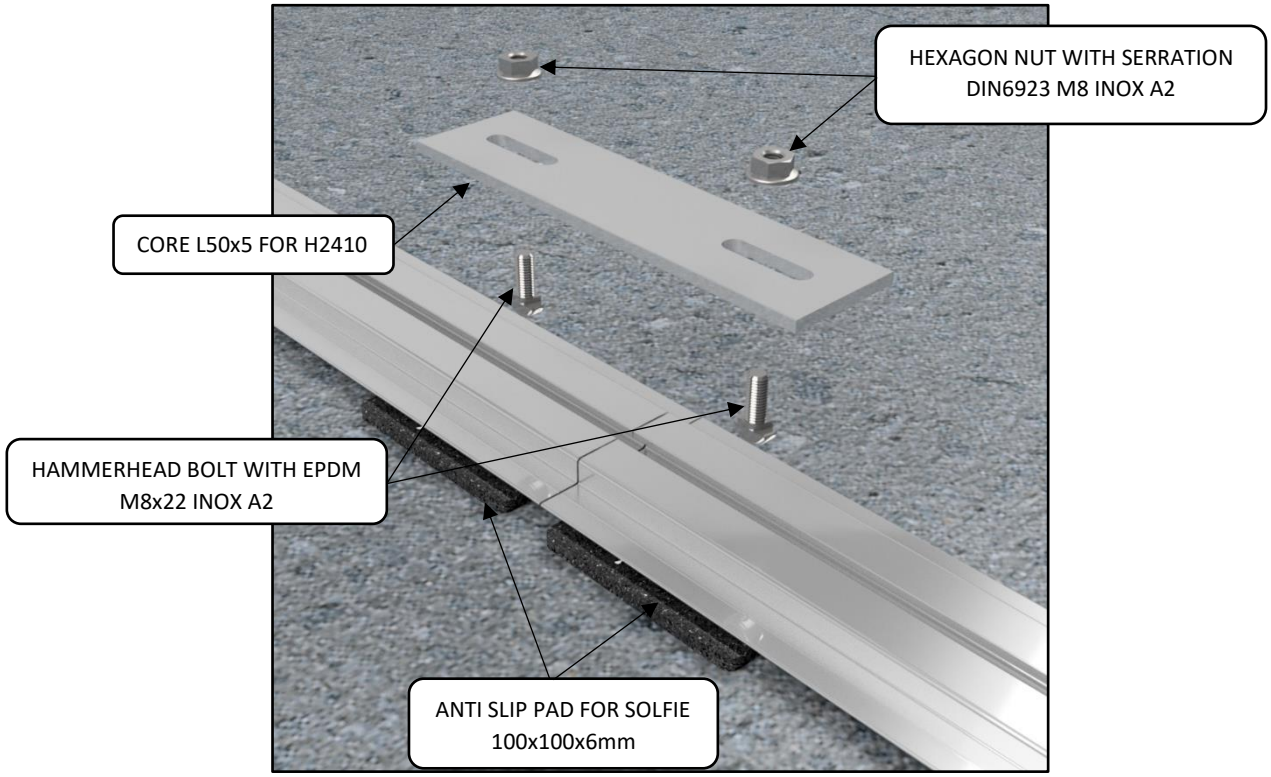


**Dimensions X = Panel Length / 2*

***Dimensions X1 = (Panel Length / 2) + 20*

2. Connecting rails together by using cores

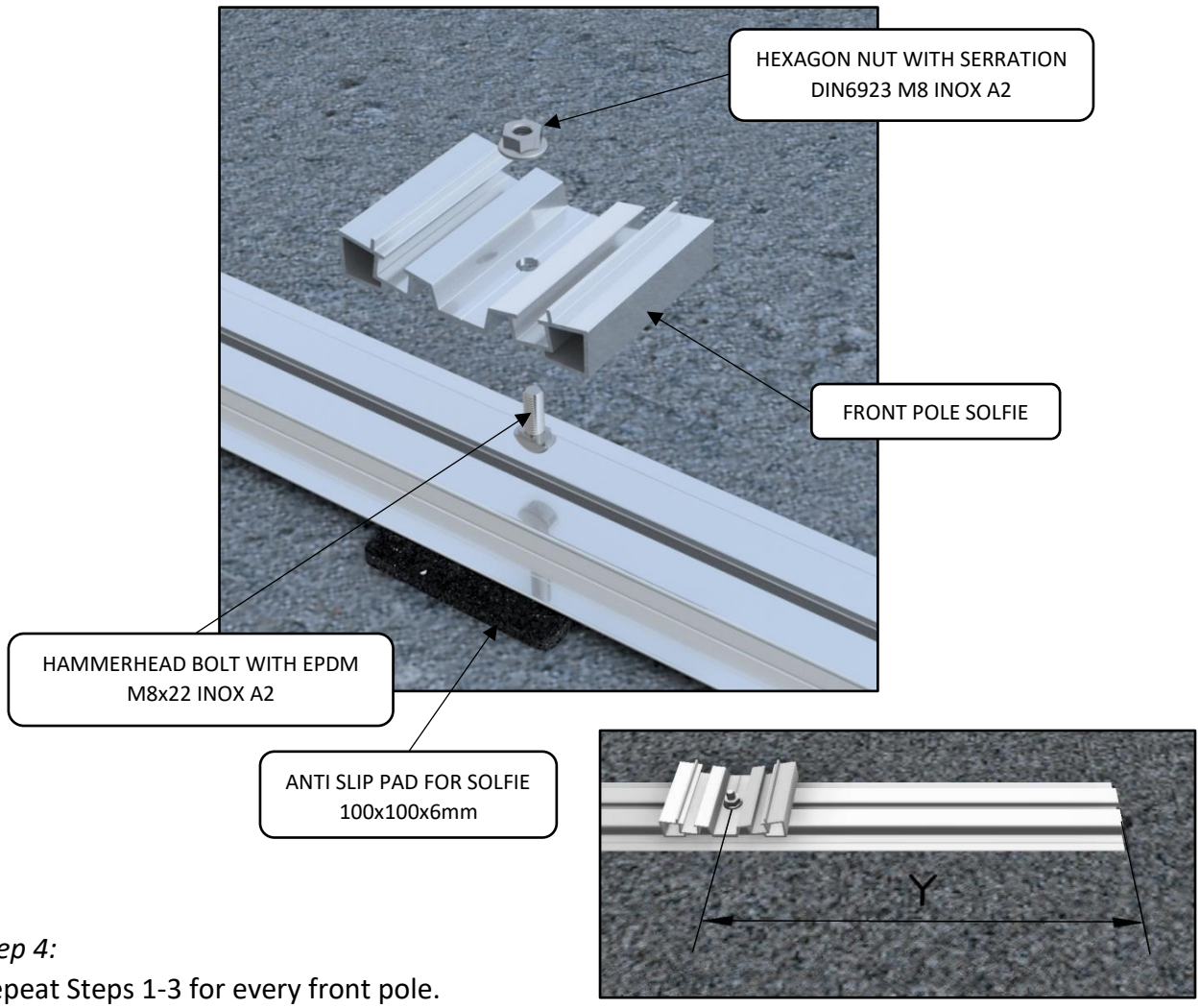
Step 1:
Place the hammerhead screw on the rail and rotate clockwise to lock.
Step 2:
Place the core aligning its holes.
Step 3:
Use Hex Flange Nuts M8 to fasten all parts together.



Step 4:
Repeat Steps 1-3 for every core.

3. Mounting joint front poles on rails

Step 1:
Place the hammerhead screw in the canal of rail according to dimension Y and rotate to lock.
Step 2:
Place the front pole aligning its holes with the hammerhead screw.
Step 3:
Use Hex Flange Nut M8 to fasten all parts together.

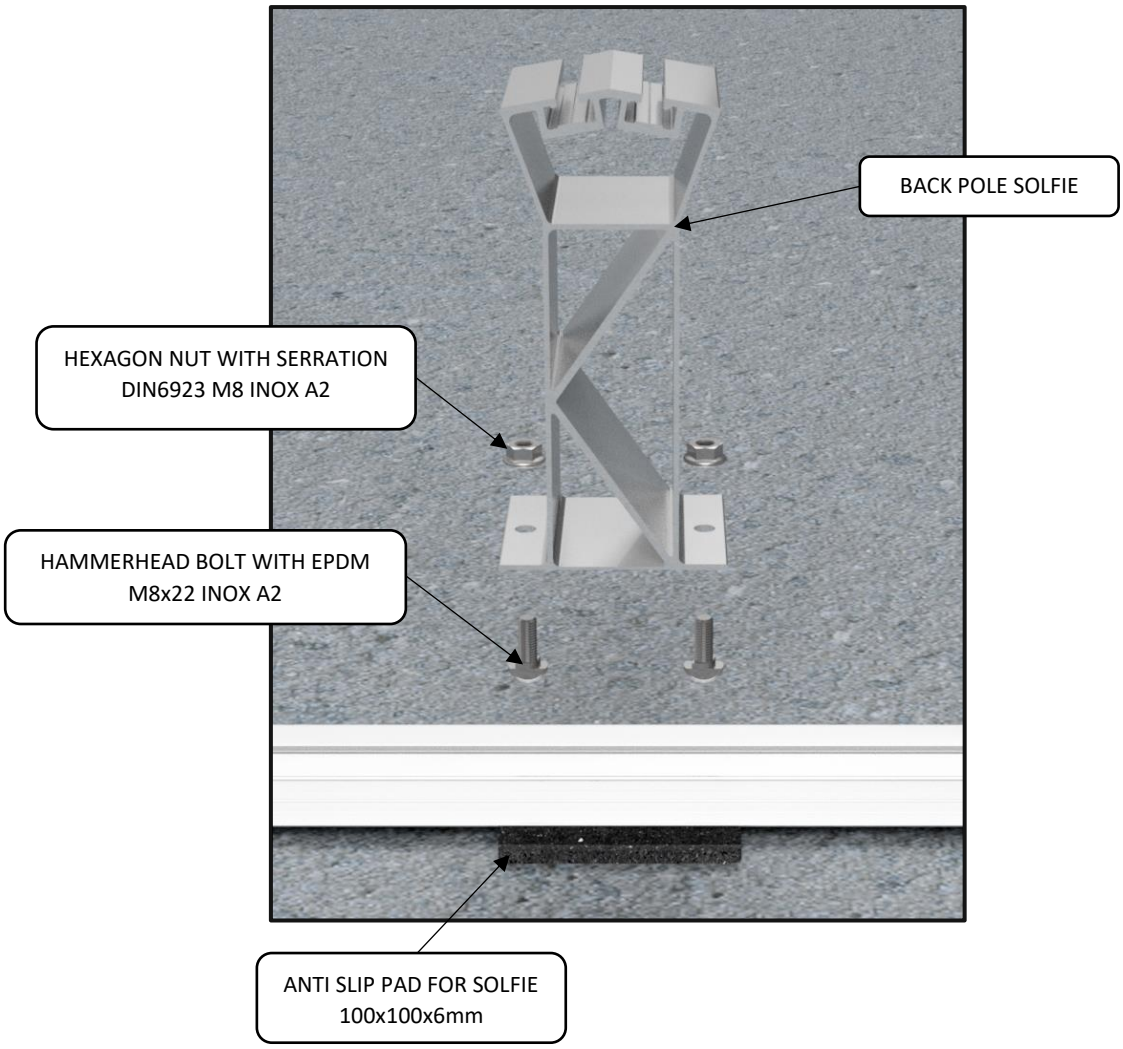


Step 4:
Repeat Steps 1-3 for every front pole.

**Dimensions Y ≥ 100mm*

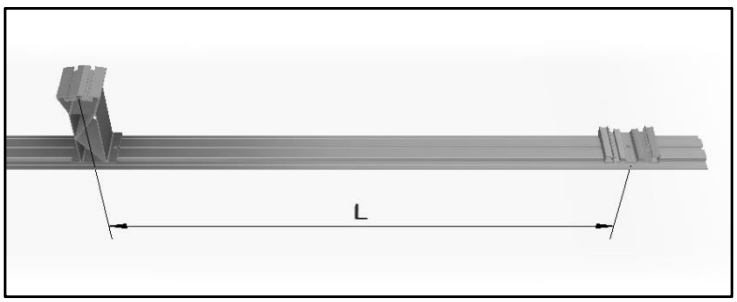
4. Mounting joint rear poles on rails

Step 1:
Place the hammerhead screw in the canal of rail according to dimension L and rotate to lock.
Step 2:
Place the front pole aligning its holes with the hammerhead screw.
Step 3:
Use Hex Flange Nut M8 to fasten all parts together.



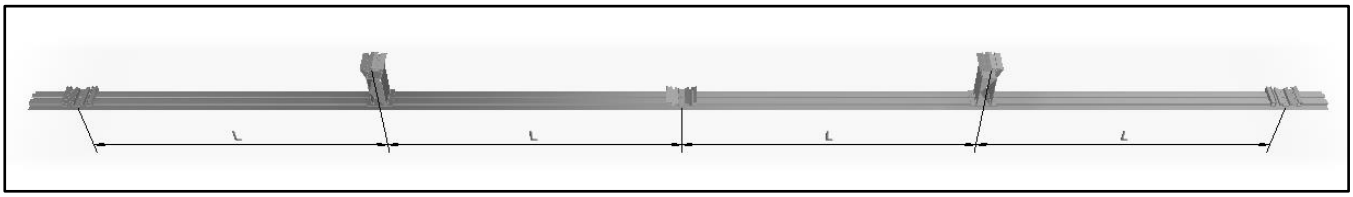
Step 4:
Repeat Steps 1-3 for every rear pole.

**Dimensions L = Panel Width + 58mm*



5. Mounting joint front poles on rails for Solfie E/W

Step 1:
Repeat Steps 1-3 of chapter 3 for every front pole.
Step 2:
Place the hammerhead screw in the canal of rail according to dimension L of chapter 4 and rotate to lock.
Step 3:
Place the front pole aligning its holes with the hammerhead screw.
Step 4:
Use Hex Flange Nut M8 to fasten all parts together.



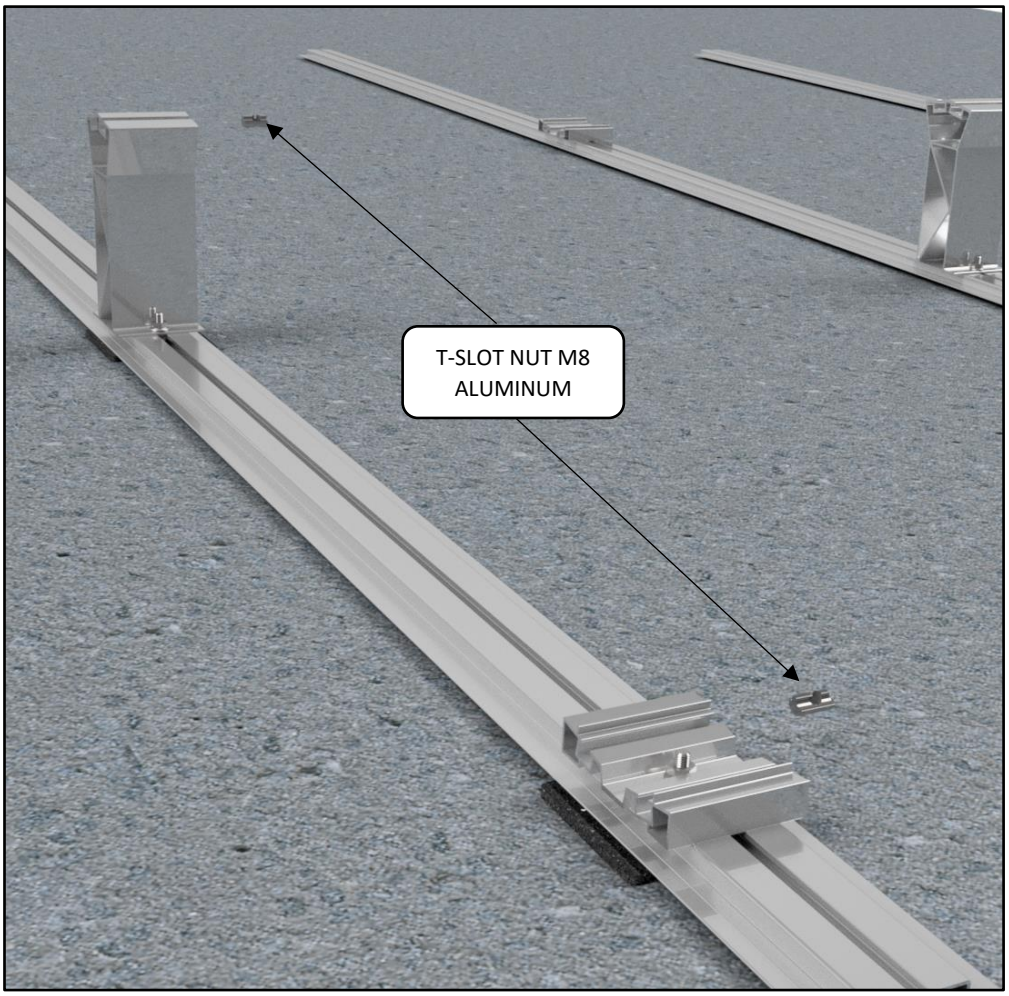
**Dimensions L = Panel Width + 53mm*

Step 5:
Repeat Steps 1-3 for every rear pole.

6. Insert T-slot nuts in pole canals

Step 1:

Insert one T-Slot Aluminum Nut M8 per canal of front and back poles.



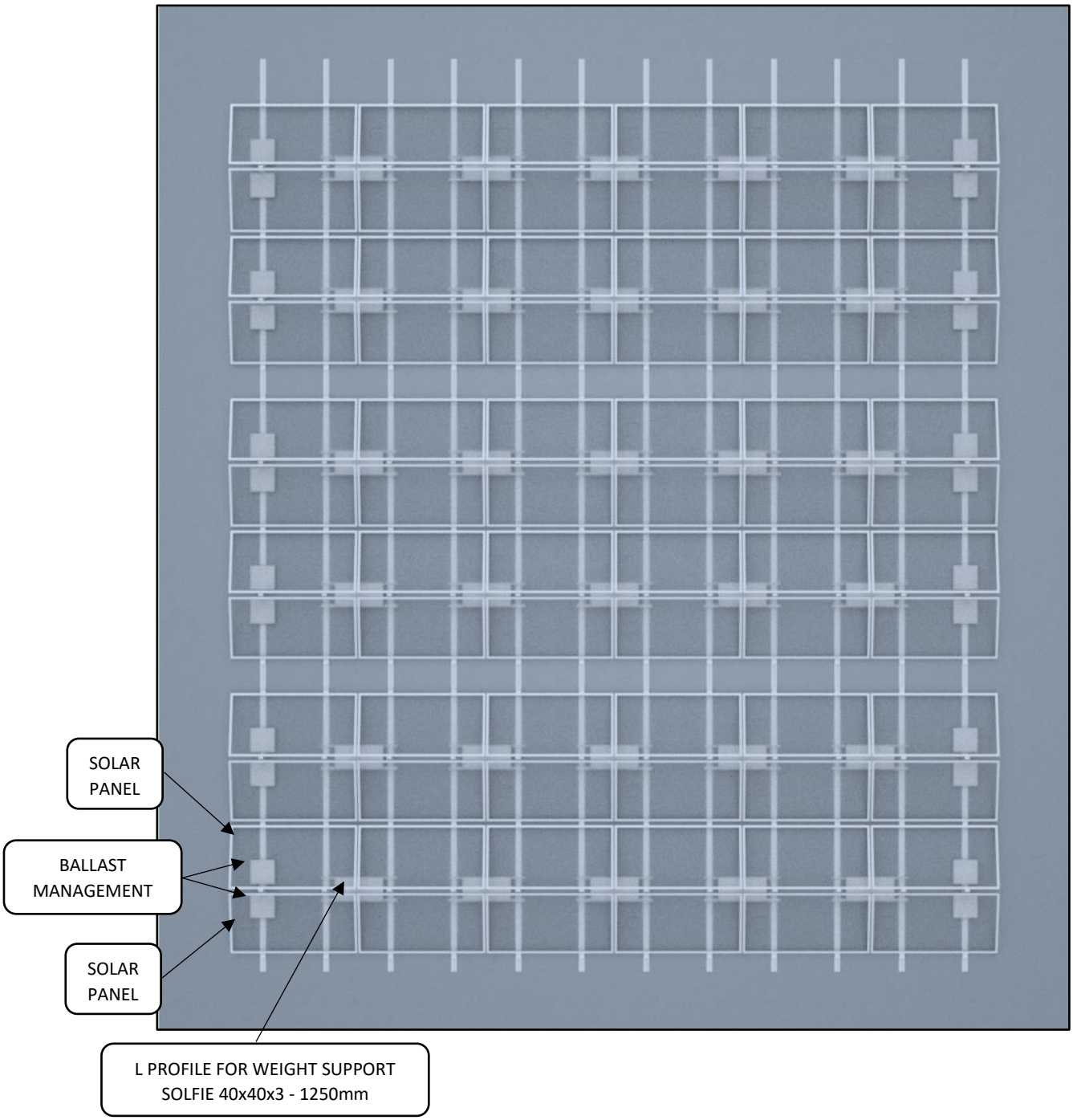
Step 2:

Repeat Steps 1 for every front and back pole.

7. Mounting L profile on rail

Final position for L profile and ballast management

Top view



Step 1:

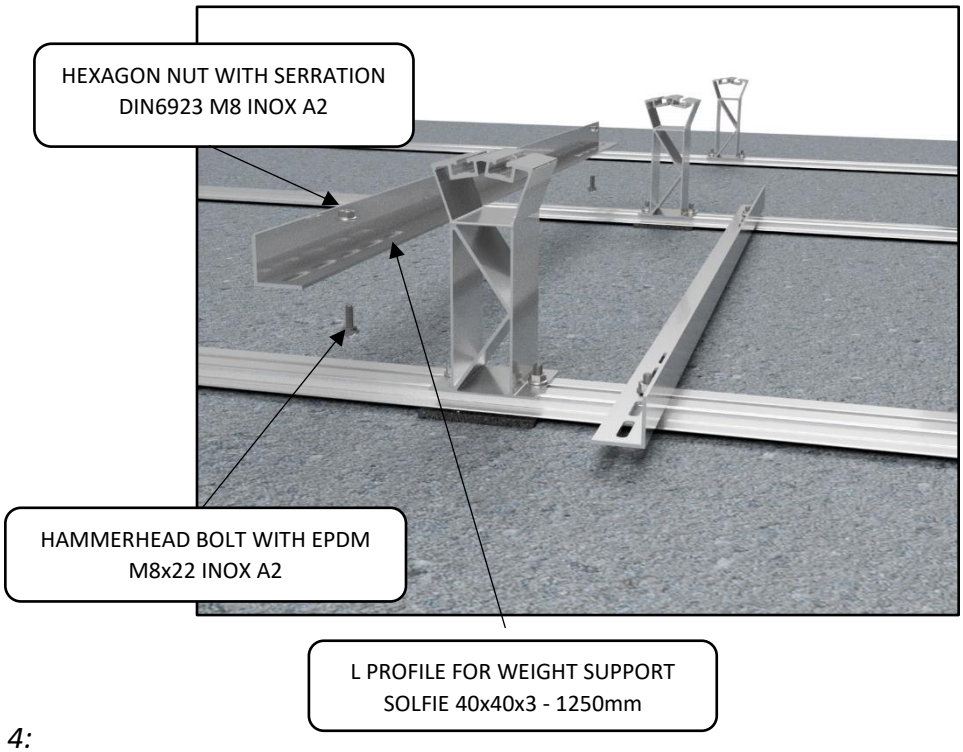
Place the hammerhead bolt in the canal of rail and rotate to lock.

Step 2:

Place L profile 40x40x3 vertically on the rails.

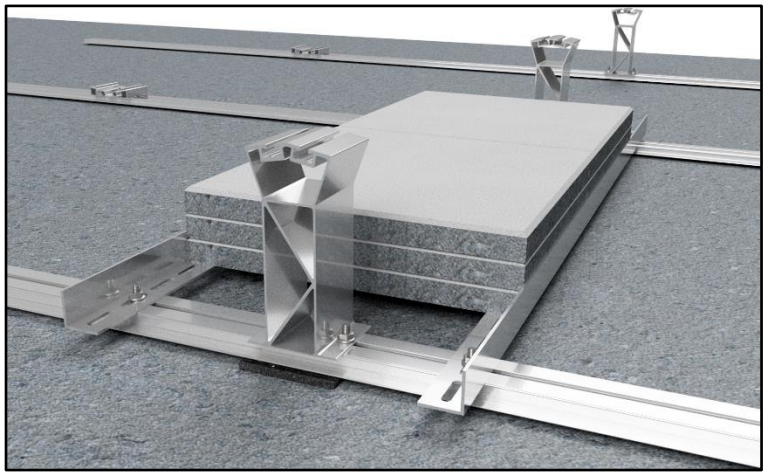
Step 3:

Use Hex Flange Nut M8 to fasten all parts together.



Step 4:

Place concrete plates into the L profiles.

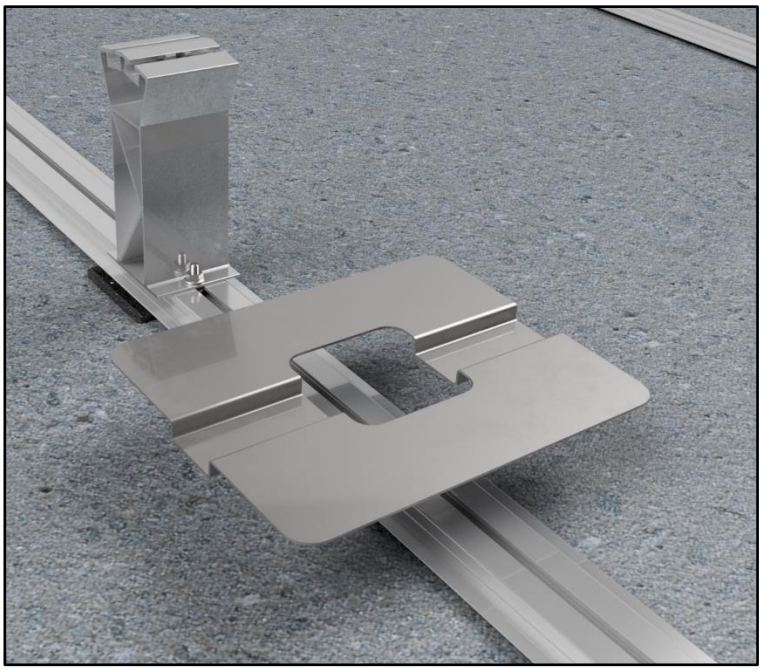


Step 5:

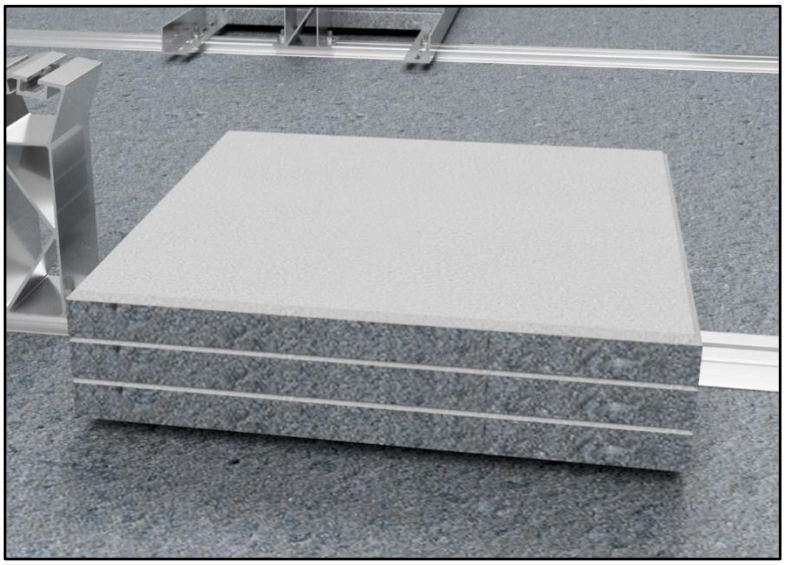
Repeat Steps 1-4 for every L profiles.

8. Mounting ballast management

Step 1:
Place ballast management on the rail.



Step 2:
Place concrete plates on the ballast management.

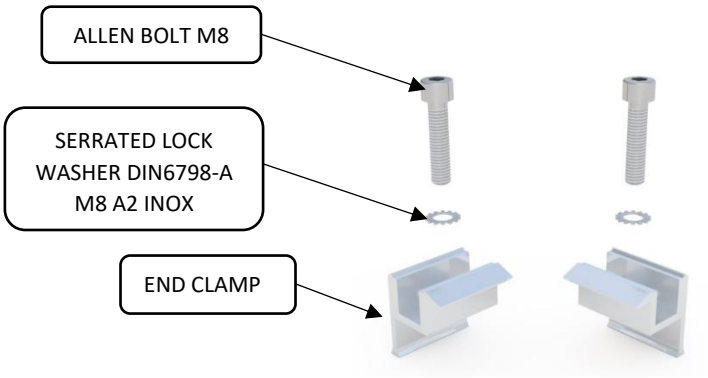


Step 3:
Repeat Steps 1-2 for every angle.

9. Mounting panel on pole

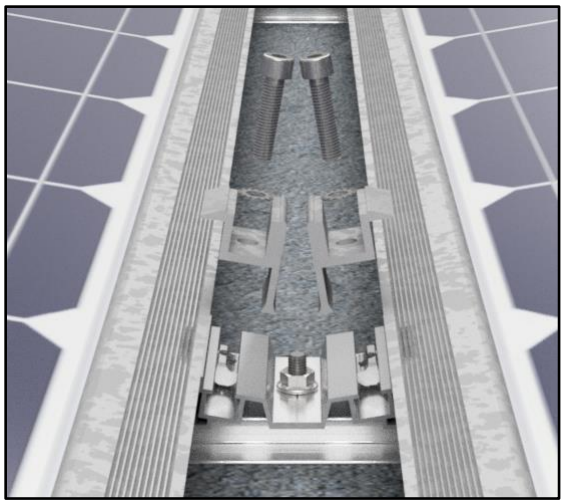
Step 1:

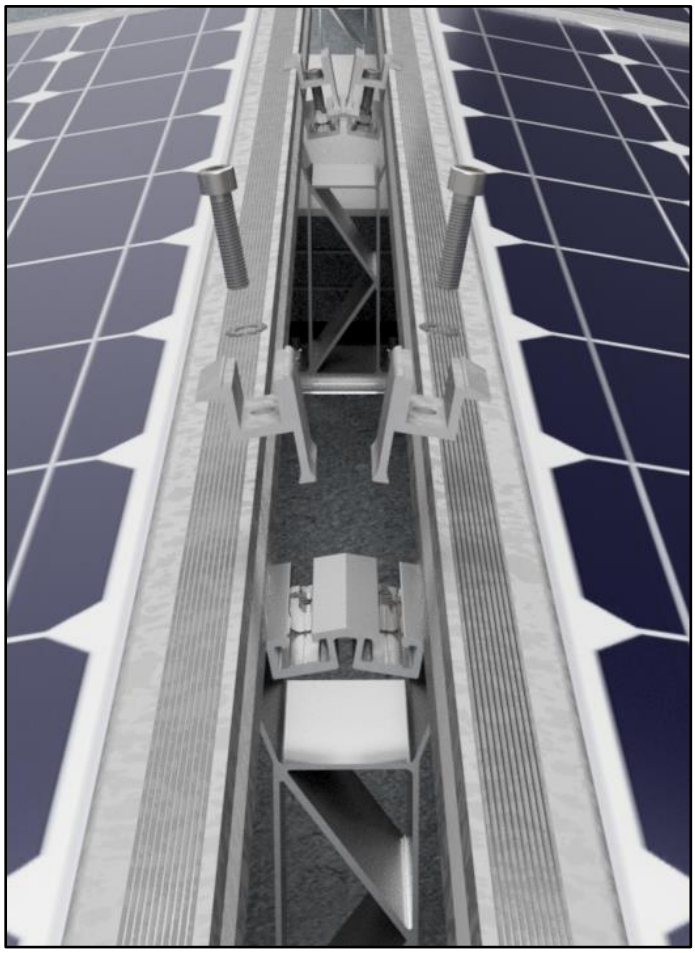
Use End clamp, Allen bolt M8 x 'Length', Serrated lock washer M8 to mount the edge panels on the poles.



Step 2:

Use End clamp, Allen bolt M8X 'Length', Grover M8 to mount the panels on the front and back poles.





Step 3:

Repeat Steps 1-2 for every front and back poles.

D. MAINTENANCE

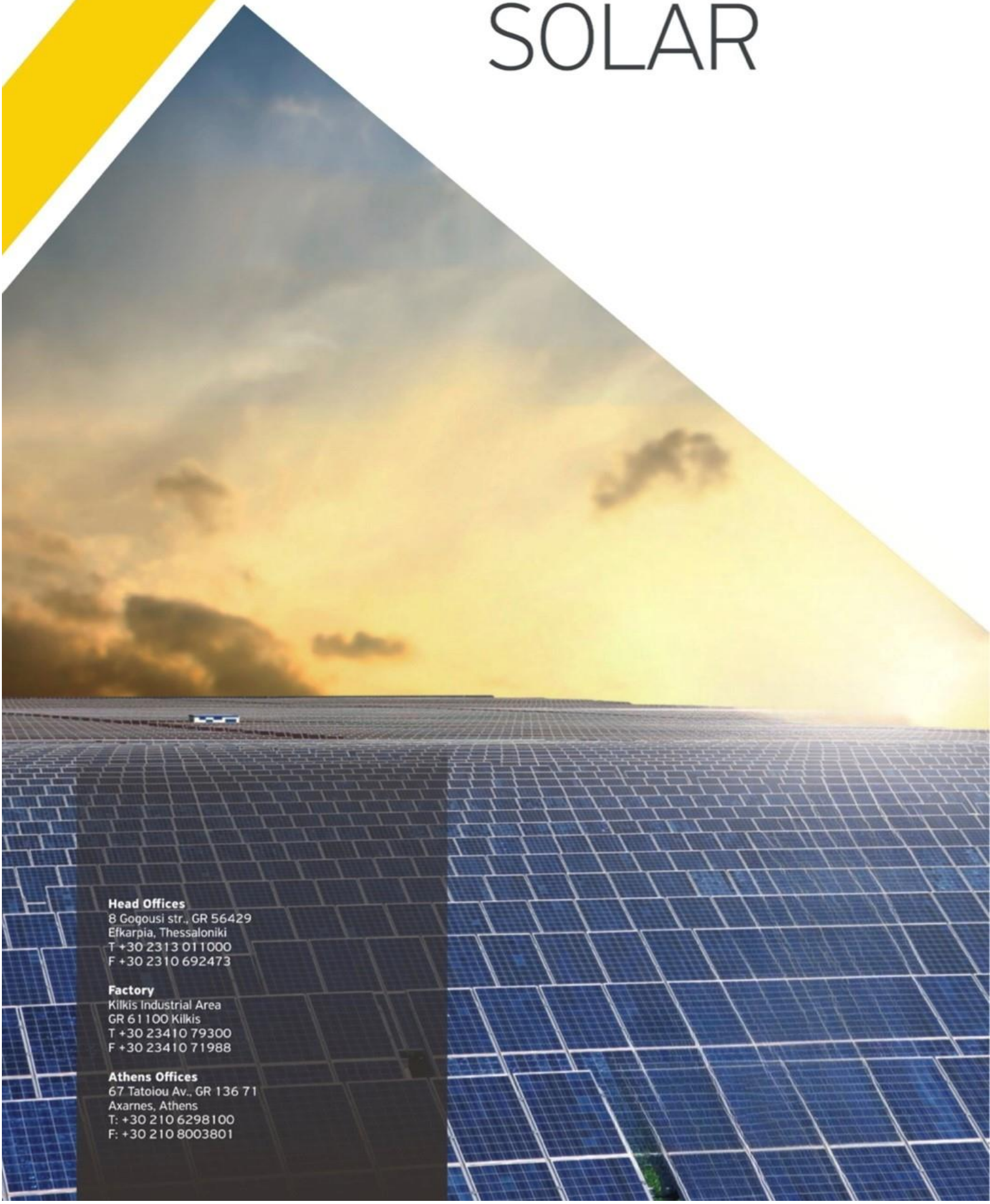
The PV mounting structures of ALUMIL S.A are designed in accordance with the European Standards (Eurocode 1, 3, 9) and do not require any special attention. ALUMIL also offers certified aluminum PV mounting structures made from durable aluminum alloy (Al 6005T6).

However, regular maintenance is recommended to maintain the high quality and longevity of the structures.

During site inspections, it is advisable to pay close attention to areas such as joints and holes. Specifically, the following checks are recommended:

- *Inspect bolted joints annually and replace them if bolt corrosion is detected.*
- *Periodically check the torque of bolted joints (every 1-2 years).*
- *Verify the torque on panel clamps every 6-9 months or after severe weather conditions to ensure the installation and torque settings remain accurate. Torque specifications can be found in the installation manual.*
- *Inspect aluminum and plastic components for any deformations and replace any deformed parts as needed (every 2 years).*
- *For locations close to sea level (<150m), it is important to clean the structures with water (no pressure) to prevent salt corrosion (annually).*
- *If snow accumulates, the panels must be cleared within 2 days of being fully covered to avoid freezing. Remove the snow without allowing it to freeze.*

Alumil SOLAR



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