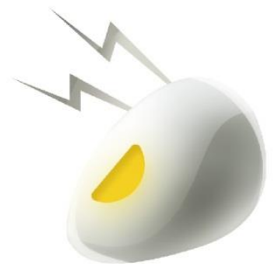
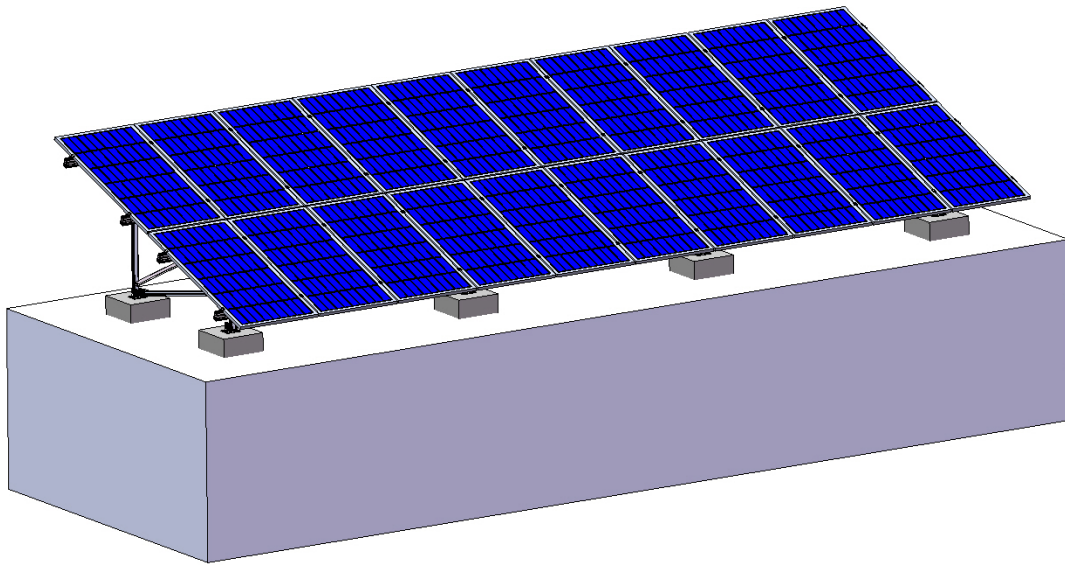


# INSTALLATION INSTRUCTION

## Aluminum Ground Mounting – Portrait Concrete Foundation



**ANTAI**  
Aluminum & AI Tech for Solar



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## I. Safety Precautions

Thank you for purchasing Antai mounting structure. Please check the manual carefully before installation, operation and maintenance.

### ● General Notes

- The installation is limited to those who have professional experience and can carry out construction according to the specified items.
- Please abide by the local national or local building regulations and environmental protection regulations.
- Please comply with the regulations on the prevention of industrial accidents and the relevant regulations of the insurance union.
- Please wear safety clothes. (Especially protective helmets, work boots and gloves)
- There must be at least 2 operators during installation to prevent accidents.
- Please always prepare at least one installation instruction when installing.

■ When working at heights, please set up scaffolds and carry out construction after eliminating the danger of falling. Please use gloves and safety belts.

■ To avoid accidents or malfunctions, please do not arbitrarily change the product style.

■ Please pay attention to the profile section and sharp parts, and avoid collision and injury during construction.

■ Please pay attention to tightening the bolts, nuts, self-tapping screws, etc. of each part, and pay great attention to whether they are locked.

■ When working on electrical wiring works, please pay attention not to touch the profile section, which may damage the wiring.

■ Please do not use damaged, faulty, or deformed products in case injury or accident happens.

### Request


- Please use the accessories designated by our company for construction parts, and do not arbitrarily transform or change the products.
- Please avoid hitting strongly on the profile as aluminum profile is easy to deform or scratch.
- This information is related to the installation of the system. Please consider the characteristics of the structure during the construction of the foundation, modules, inverters, and electrical wiring.

## II. Product Introduction

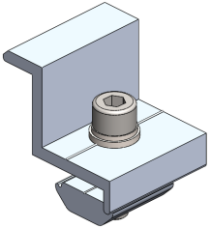
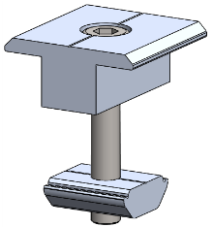
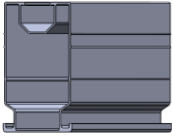
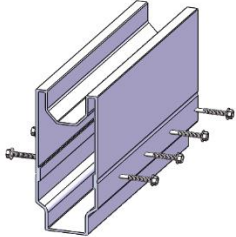
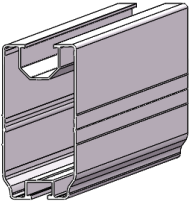
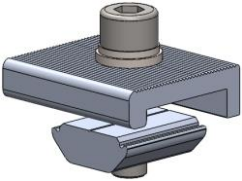
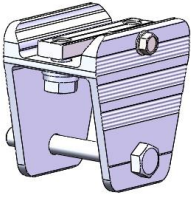
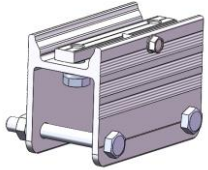
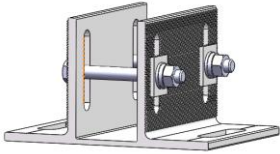
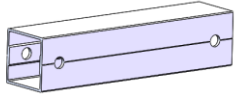
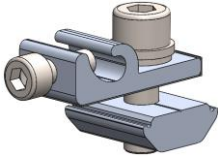
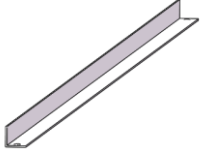
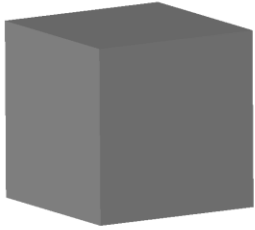
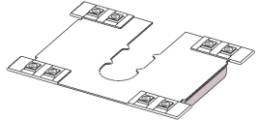
Antai aluminum ground mounting system is a new highly pre-assembled PV system. The preassembly of main support beam is more convenient for the installation. The highly pre-assembled feature, high quality and small quantity of all components, saving user's installation time and cost a lot, is a high-efficiency solar mounting system solution on both level land and small mountain.

Please read the manual carefully before installation!

## III. Installation Tools & Equipment

			
6mm Allen Key	Electric Drill	Tape Measure	Markers
			
Torque Spanner	String	Adjustable Wrench	Level
			
Socket Spanner (M10/M12)			

## IV. Components

Main Components List			
			
End Clamp	Mid Clamp	Rail	Rail Splice
			
Beam	Rail Clamp	U85 Connector	U85 Connector
			
Base	Pole	Grounding Lug	Angle Aluminum
			
Concrete Foundation			Earthing Clip

## V. Installation Instruction

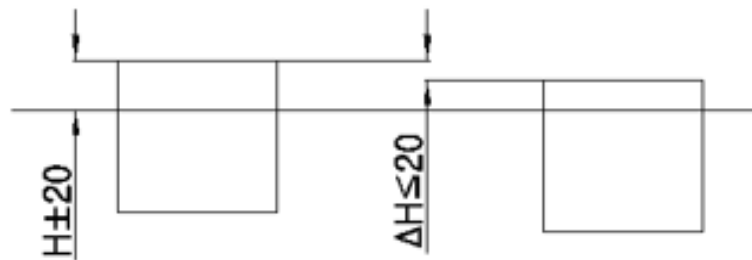
### 1. Concrete Location

Before installation, tools and components should be prepared in advance. Mark the location of each concrete according to drawing. Pre-bury the anchor bolts in the concrete. The distance among bolts is the same as the distance between two holes of base. There are two types of concrete: square concrete and cylindrical concrete. Square concrete is shown below.

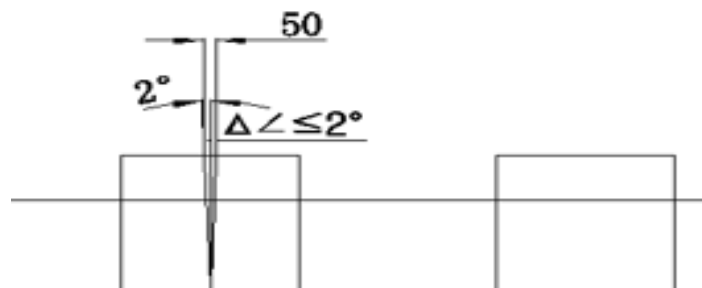
#### 1.1 Concrete Placement Tolerance

##### 1.1.1 Tolerance for Vertical Direction

- a. Tolerance for Height:  $\Delta H \leq 20\text{mm}$ .

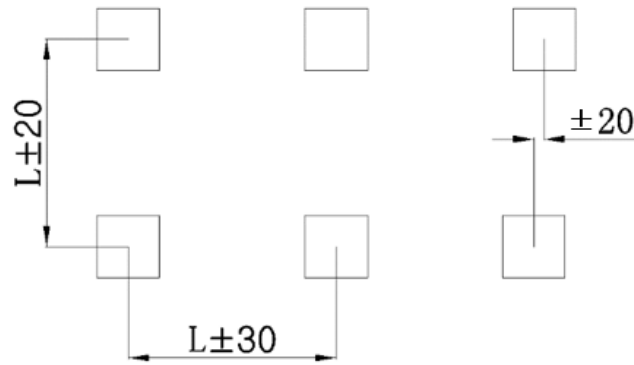


- b. Concrete tilt tolerance: tilt angle  $\leq 2^\circ$ , horizontal distance  $\leq 50\text{mm}$



### 1.1.2 Tolerance for Horizontal Direction

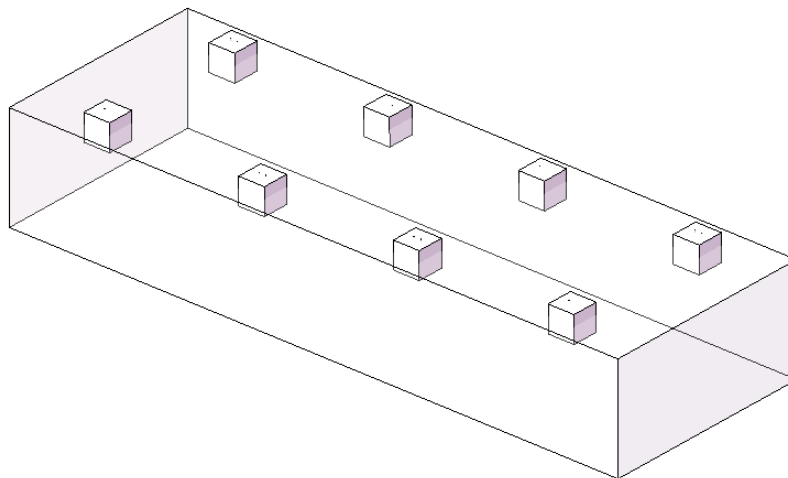
When the east-west direction is flat: the tolerance in the east-west direction is  $\leq 30\text{mm}$ , and in the north-south direction is  $\leq 20\text{mm}$ . The distance tolerance from left to right in the north-south direction of the concrete  $\leq 20\text{mm}$ .



#### Summary of Concrete Placement Tolerance

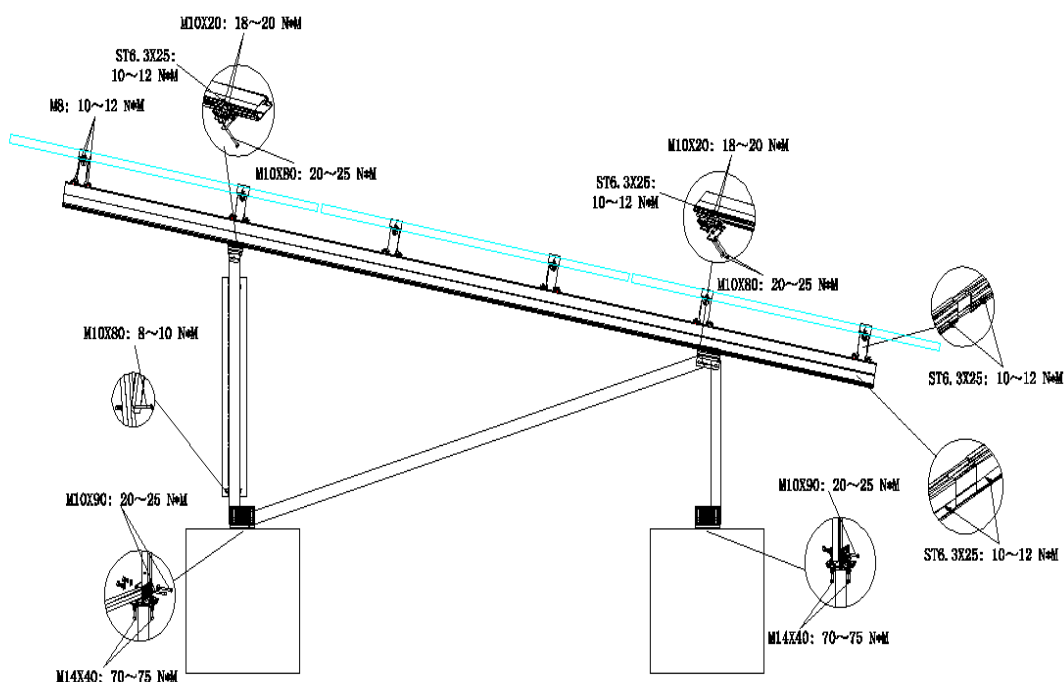
- Please adjust the position of the concrete according to the following dimensional tolerances.
- East-west direction: within  $\pm 30\text{mm}$
- North-south direction: within  $\pm 20\text{mm}$
- Height tolerance of north-south concrete: within  $\pm 20\text{mm}$
- Vertical displacement tolerance of concrete: deflection angle within  $\pm 2^\circ$ , and deflection within  $50\text{mm}$

### 1.2 Place the concrete according to the drawing. (Prepare the drawing in advance)



*Concrete Placement (Flat Ground)*

## 2. Installation of Bolt



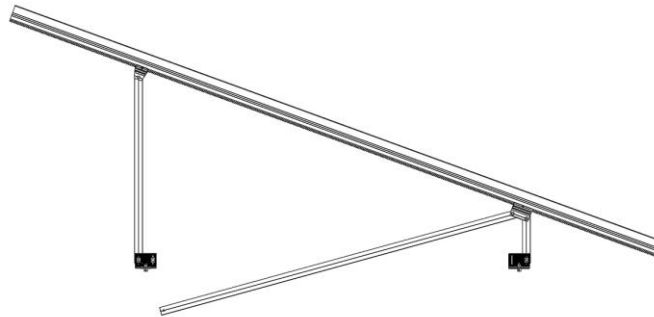
### Notes

- The pre-assembled bolts of the mounting structure are not completely locked, which is convenient for adjustment during on-site installation. They need to be tightened again after installation.
- When installing, visually lock the bolts until the spring washer becomes flat.
- When installing, the self-tapping screw should be locked until there is no gap between the transparent plastic washer and the tapping screw head, and also no gap between the tapping screw head and the profile.

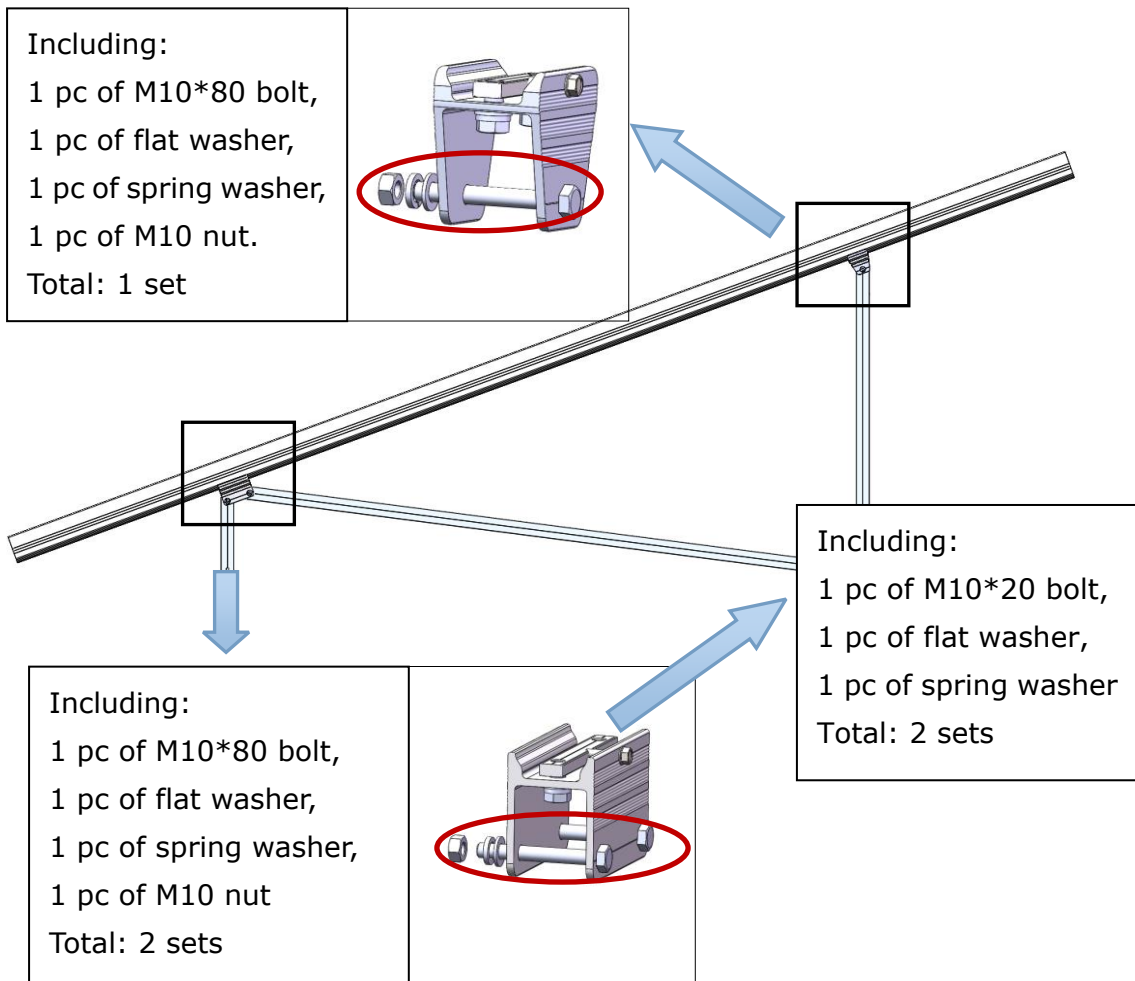


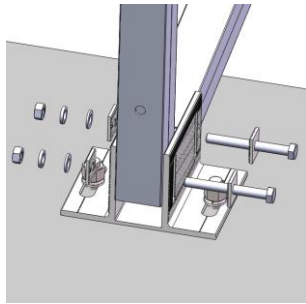
### 3. Installation of Pre-assembled Beam

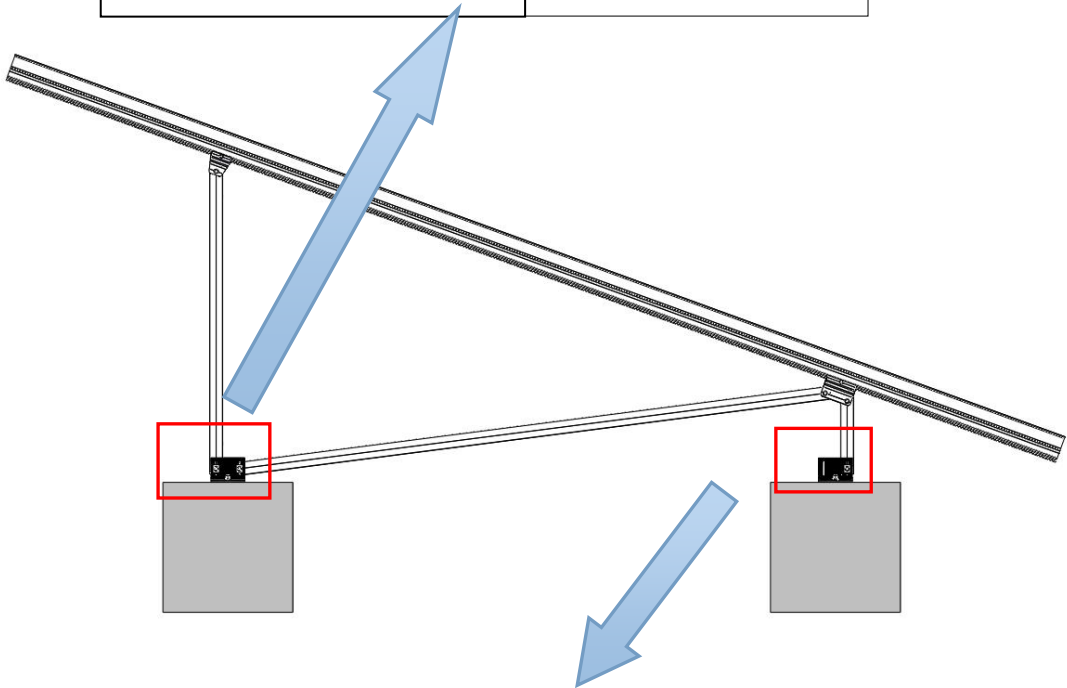
3.1 Unfold the pre-assembly beam, connect the beam and pole to the U base respectively.

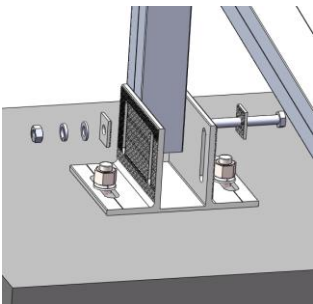


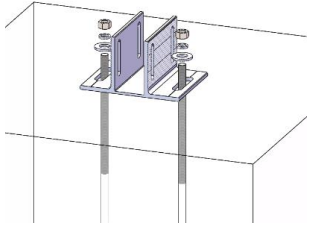
3.2 Install the beam according to the instruction.



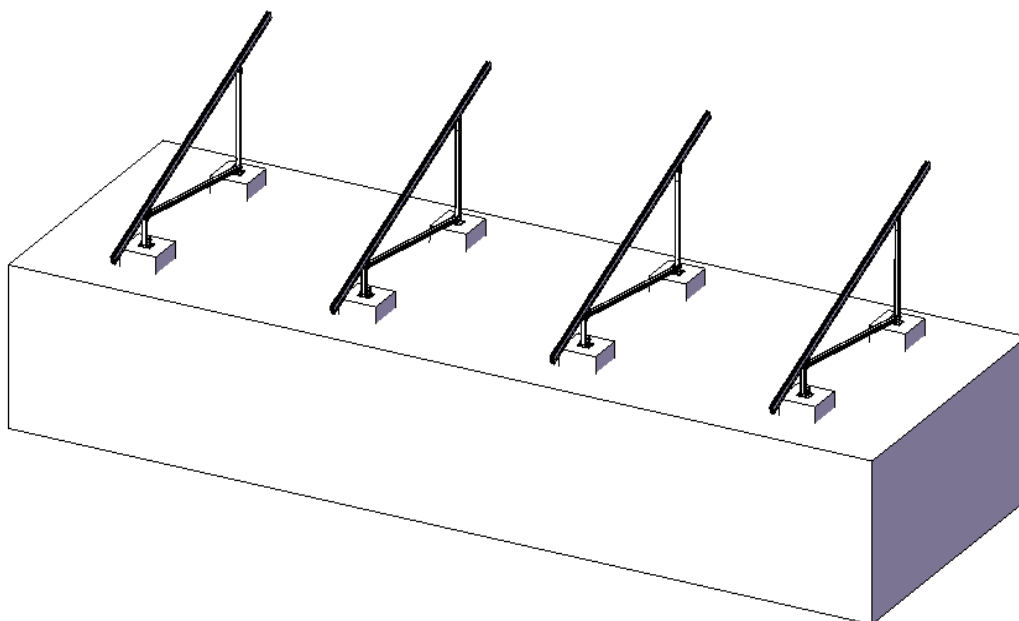
<p>Including:</p> <ul style="list-style-type: none"> <li>1 pc of M10*90bolt,</li> <li>1 pc of flat washer,</li> <li>1 pc of spring washer,</li> <li>1 pc of M10 nut,</li> <li>2 pcs of corrugated gasket</li> </ul> <p>Total: 2 sets</p>	
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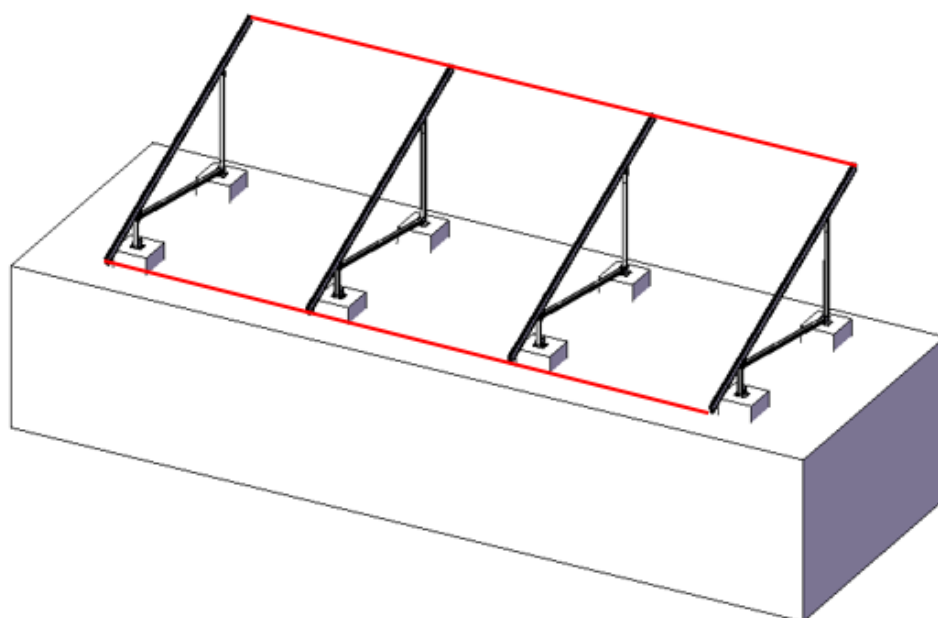
<p>Including:</p> <ul style="list-style-type: none"> <li>1 pc of M10*90 bolt,</li> <li>1 pc of flat washer,</li> <li>1 pc of spring washer,</li> <li>1 pc of M10 nut,</li> <li>2 pc of corrugated gasket</li> </ul> <p>Total: 2 sets</p>	
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<p>Including:</p> <ul style="list-style-type: none"> <li>1 pc of M12*300 L-Type anchor bolt,</li> <li>1 pc of M12 flat washer,</li> <li>1 pc of M12 spring washer,</li> <li>1 pc of M12 nut</li> </ul> <p>Total: 2 sets</p>	
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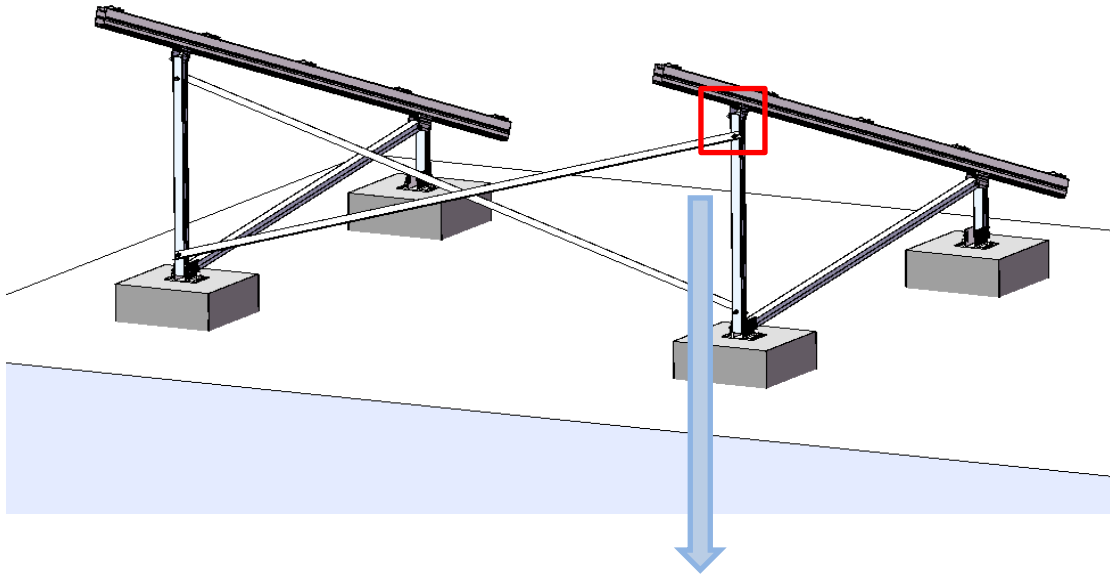
3.3 Install the legs according to the drawing.



3.4 Make adjustment so that the upper surface of the beams is on the same plane, which will ensure the smooth installation of rails.

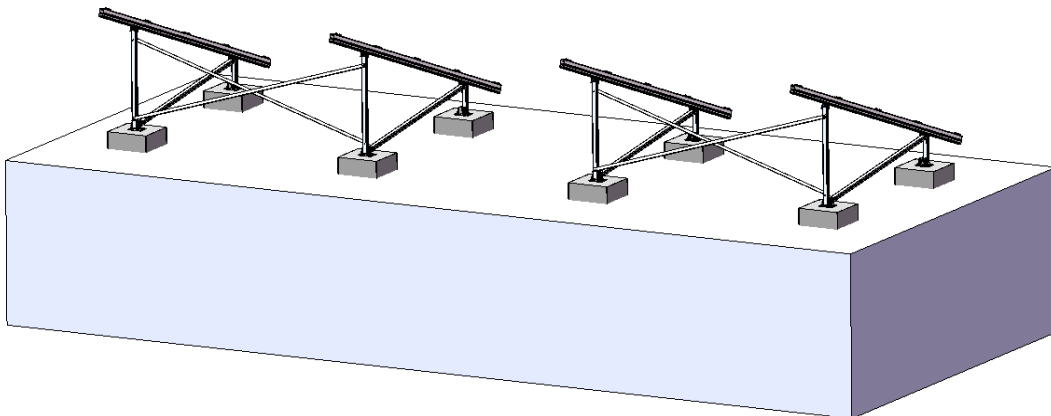
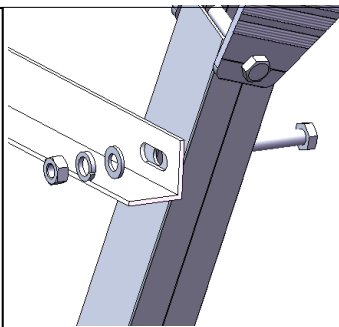


## 4. Installation of Angle Aluminum



Including:

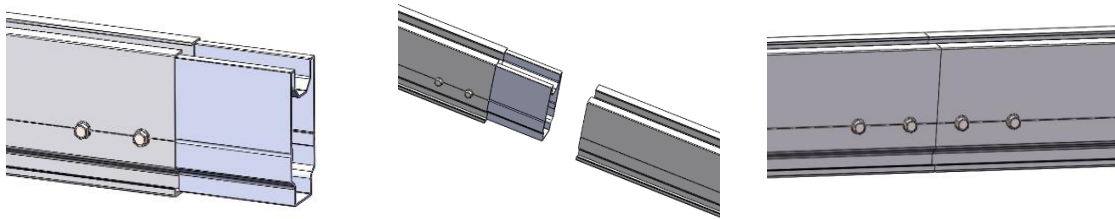
- 1 pc of M10\*80 bolt,
- 1 pc of flat washer,
- 1 pc of spring washer,
- 1 pc of M10 nut



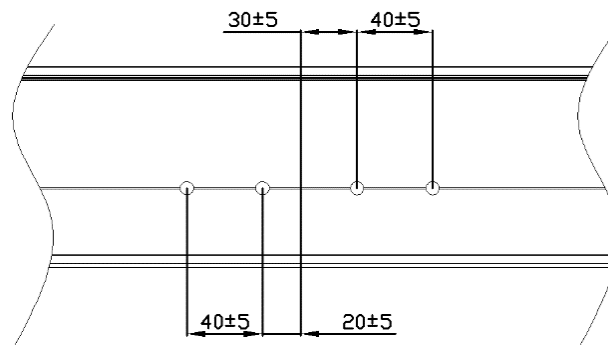
## 5. Installation of Rail

5.1. The installation of rail splice (Please refer to the instruction below when the rail needs to be extended).

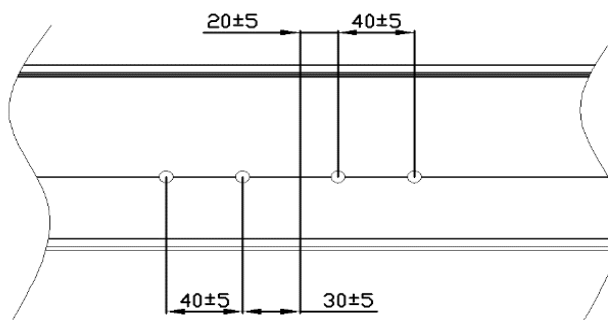
Insert rail splice into one rail, side fastening with 2 self-drilling screws, then inserted into the second rail, side fastening with 2 self-drilling screws. Please take notice that these two rails need to be aligned with each other.



Note: where the self-tapping screws should be staggered shows below



(Front View)

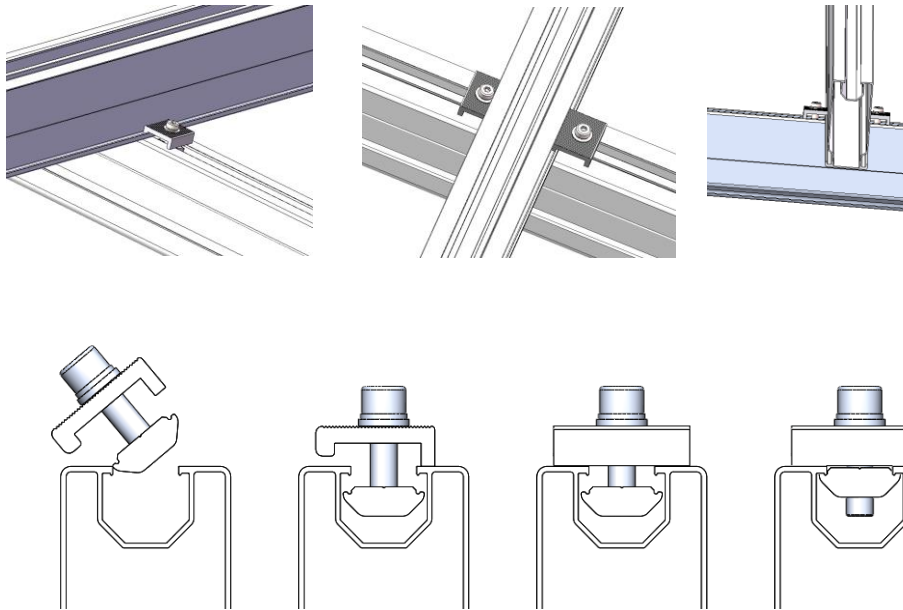


(Back View)

### Notes

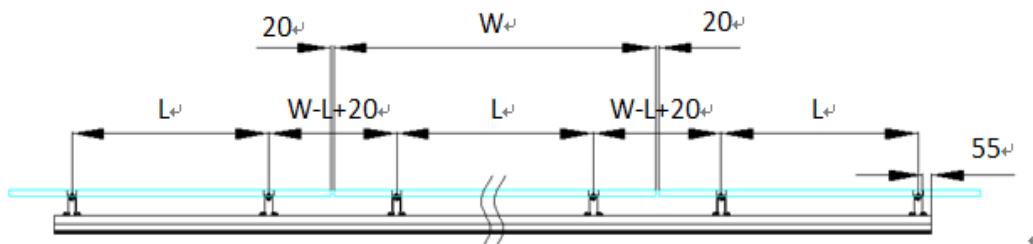
To avoid interference collision of self-screw on each side, please stagger the installation position of screws on two sides.

5.2. Use rail clamp to fix the rail on beam (one clamp on each side).



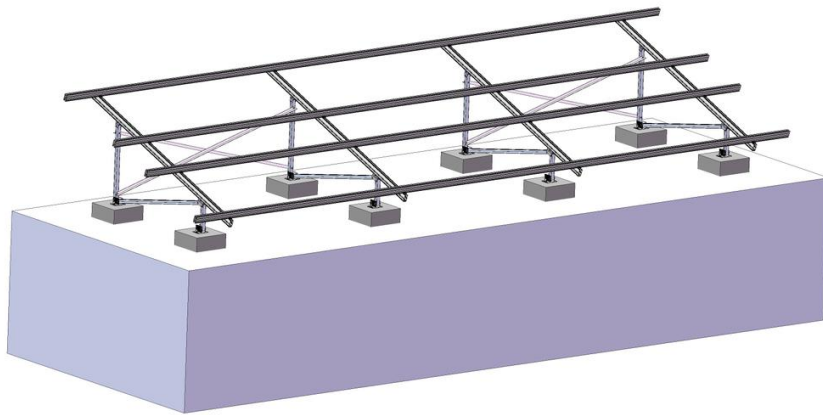
*Rail Clamp Installation Diagram (Note Nut Direction)*

5.3. According to the above principles, combine with the size requirements of the drawings, install them in sequence. And make sure to tighten all the bolts of each model.



*Diagram of Rail Installation Space (W refers to the width of module)*

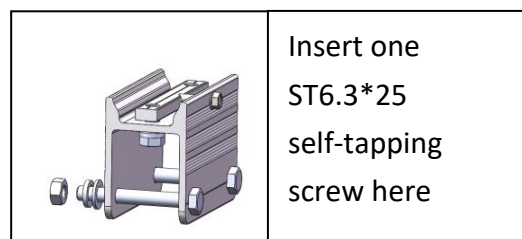
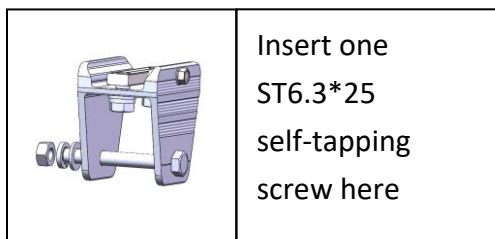
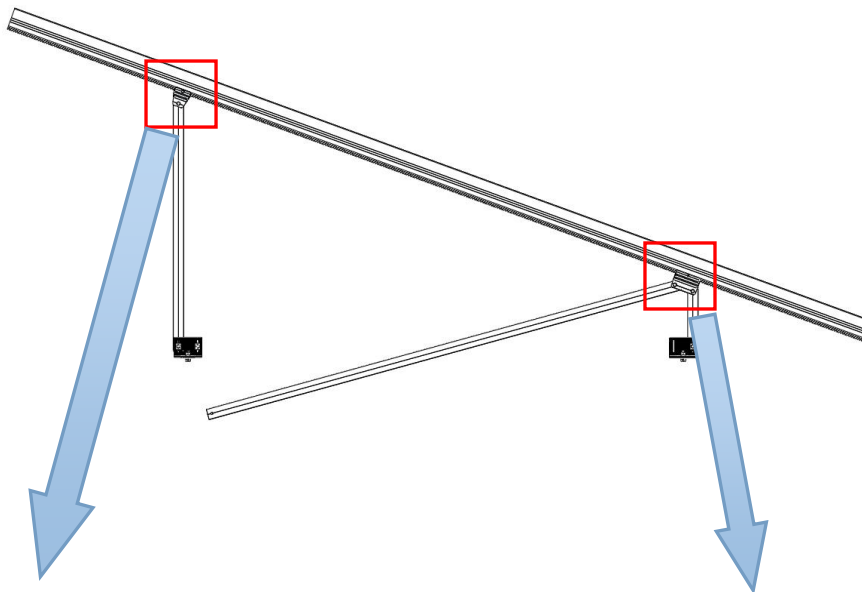
Repeat the above steps and assemble the rails according to the drawing. Make sure all the bolts are tightened. (Refer to the drawing for spacing of beams).



*Rail Installation Completion Diagram*

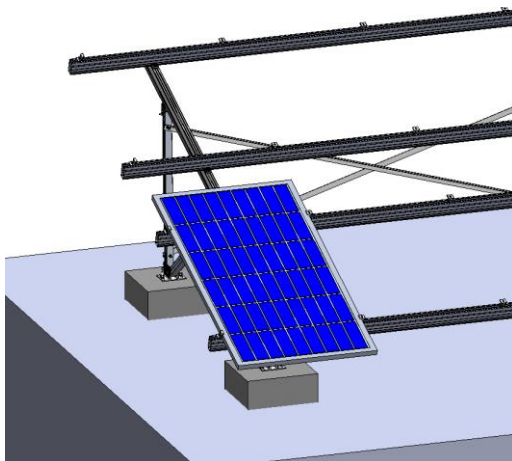
## 6. Installation of Self-tapping Screw on Connector

After the whole mounting structure is assembled, a self-tapping screw is inserted into the joint to reduce the risk of sliding between the connector and the beam, so as to ensure the safety of the structure. The effect is shown in the figure below.



## 7. Installation of Module

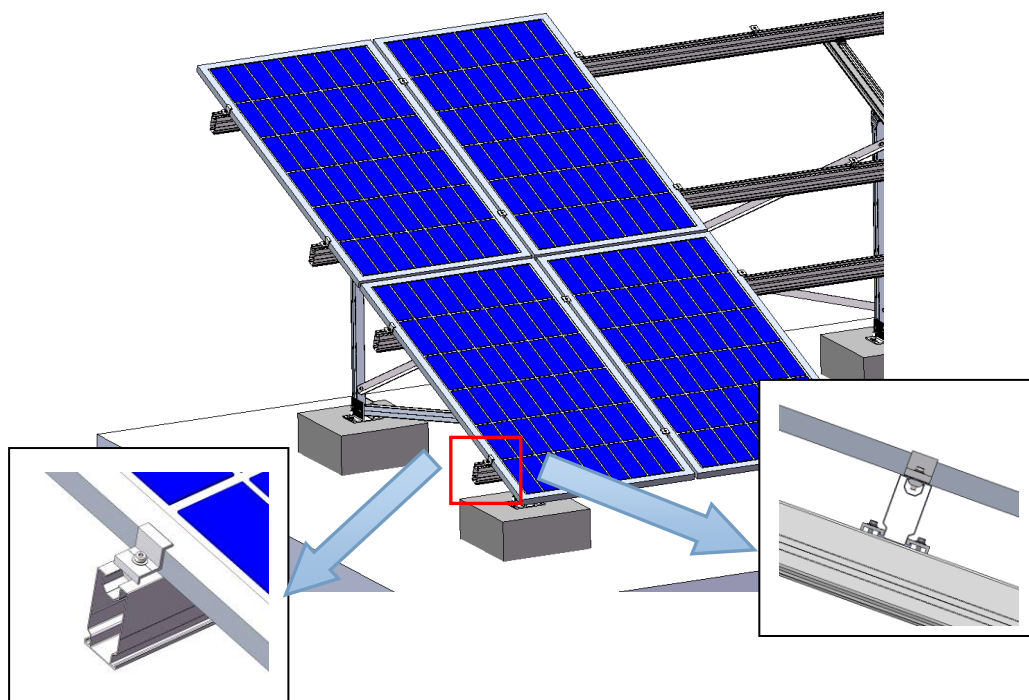
7.1. Modules are recommended to be installed from the bottom to the top, from the left to the right, and leave 50mm space at the end of rail to install grounding lug.



7.2. Fix the modules on the rails with mid clamps and end clamps.

### A. Installation of End Clamp

Move the T module block to the end of the bolt, and then place the T module into the rail slot.



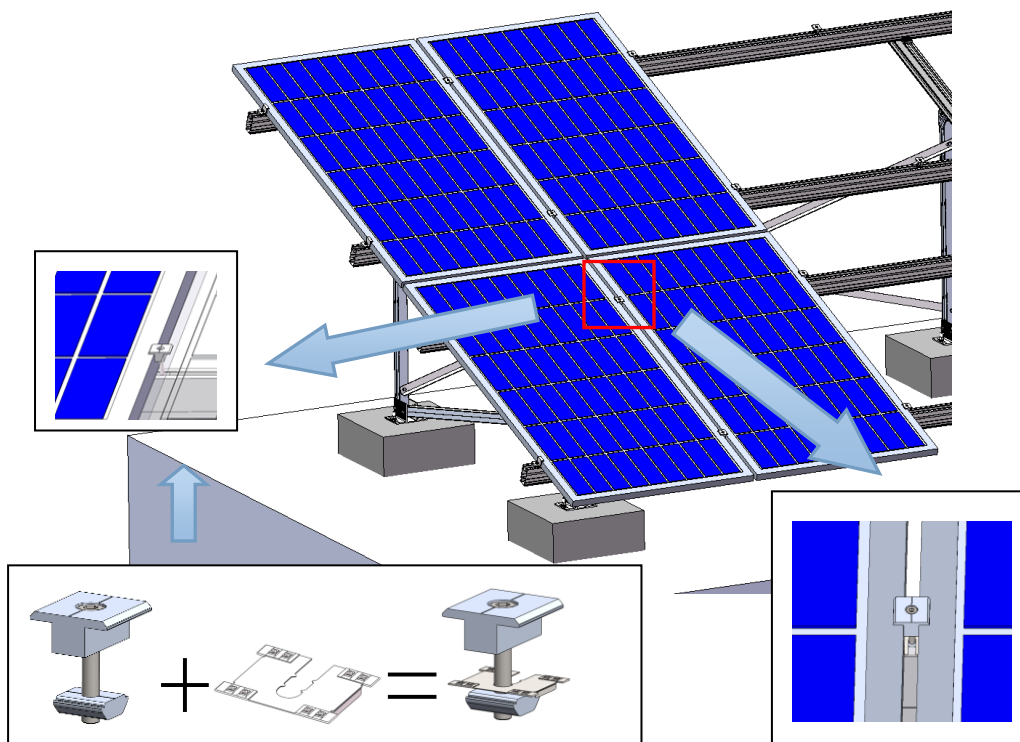
Move the end clamp to the specified position and pre-tighten the bolts.



### B. Installation of Mid Clamp and Earthing Clip

(If no earthing clip is required, please skip this step)

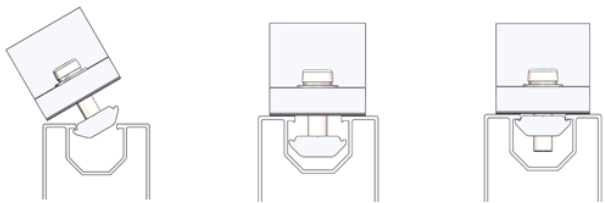
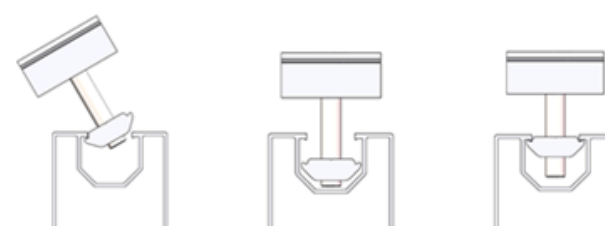
Move the T module to the end of bolt, and insert the T module into the rail slot.



Move the mid clamp to the specified position and pre-tighten the bolts.

### C. Tighten all end clamps and mid clamps after adjusting all the positions.

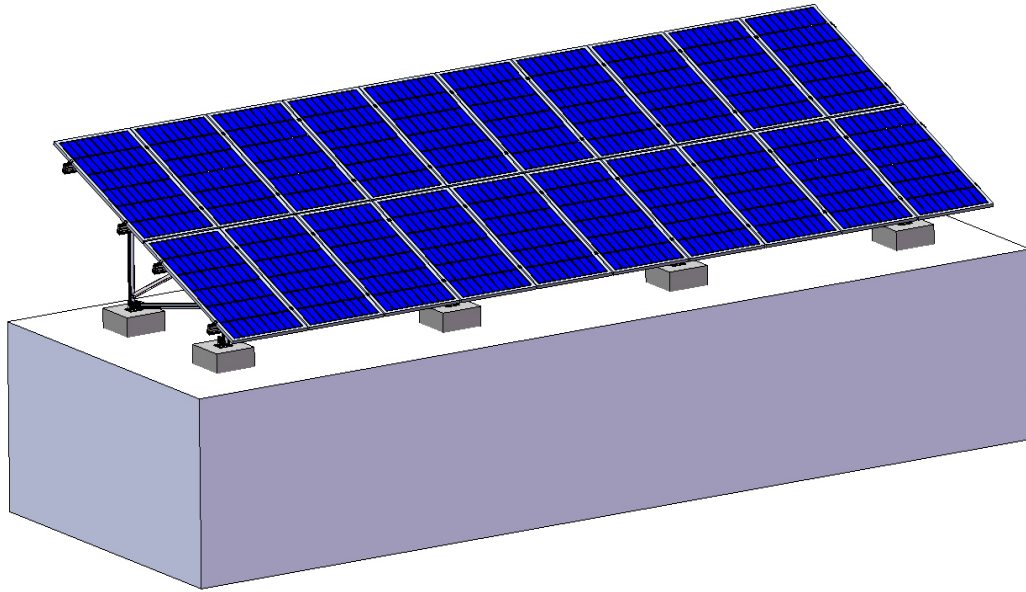
Note: the spacing between modules and rails should not be too large (the allowed spacing  $\leq 3\text{mm}$ )

Installation Instruction of Clamps (End & Middle)	
End Clamp	
Mid Clamp	

Repeat the above steps and assemble the clamps according to the drawing.

### Notes

About the assemble position for clamps, pls comply with the regulations by module manufacturer.

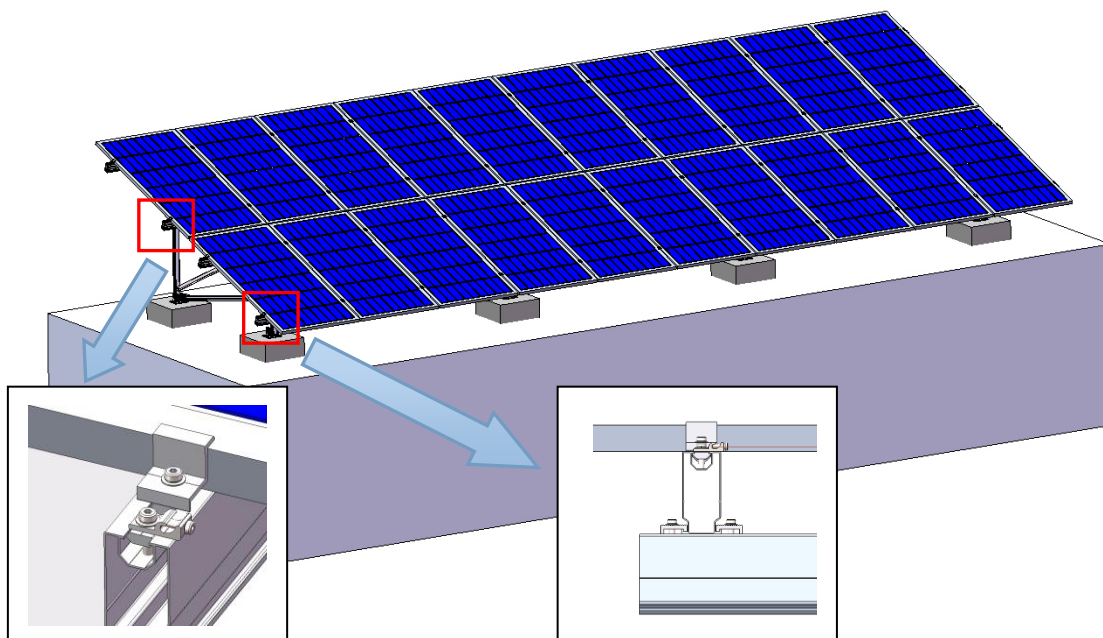


*Module Installation Completion*

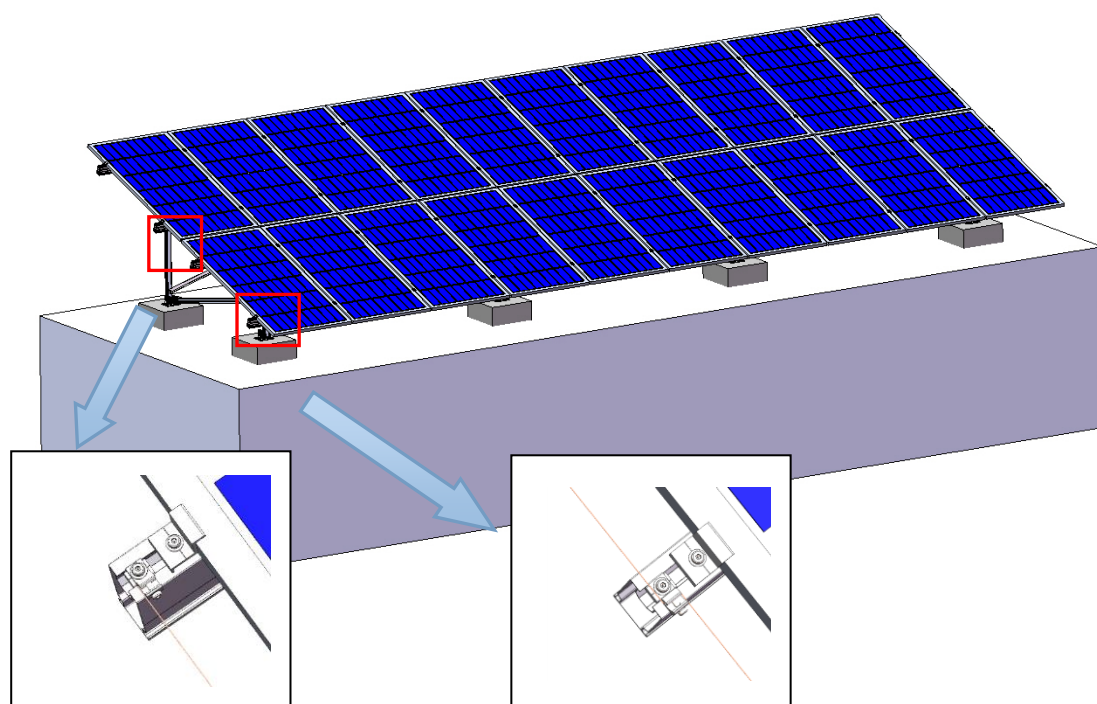
## 8. Installation of Grounding Lug

(Skip this step if the ground lug is not required)

### 8.1 Install grounding lug at the end of rail.

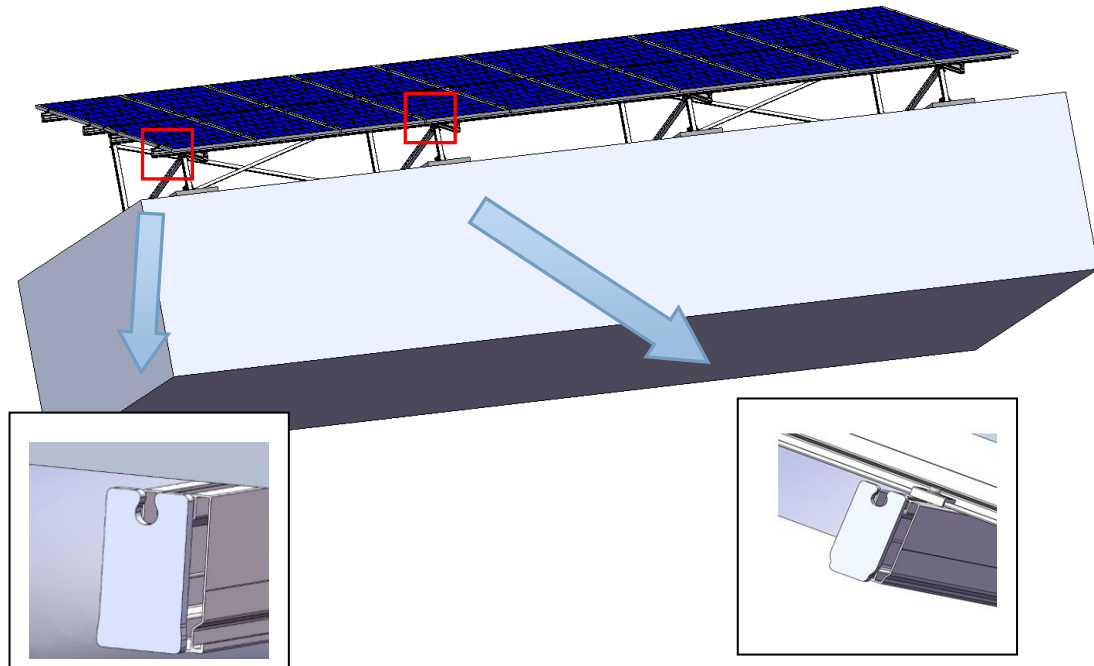


### 8.2 Wired each grounding lug for grounding. (wires need to be prepared by user)



## 9. Installation of End Cap (beam cap and rail cap)

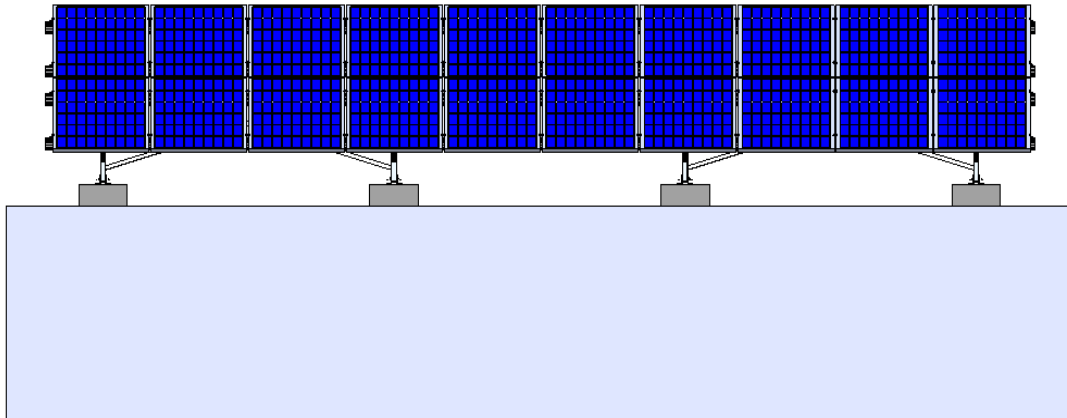
(Skip this step if the cap is not required)



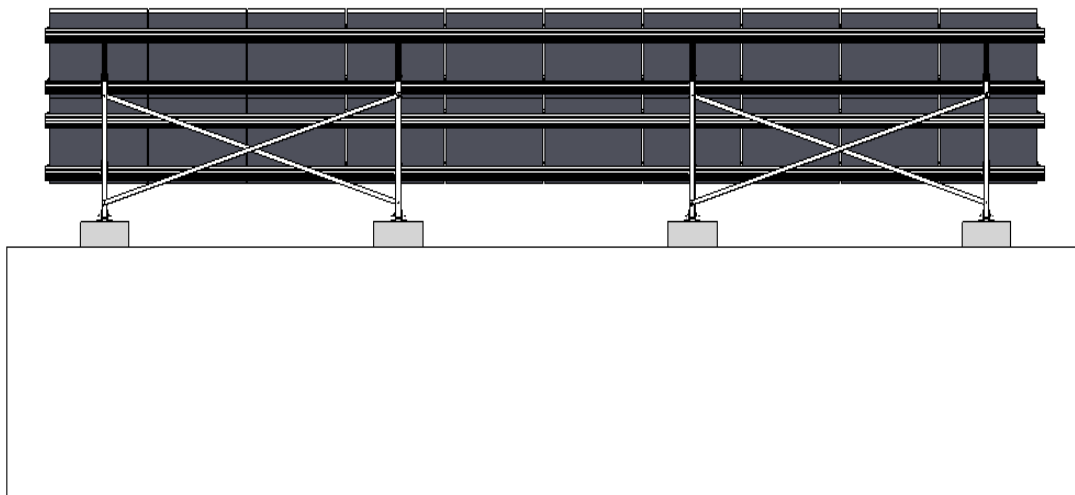
Please notice that cap's model number is different in different cases.

Caps are used to prevent workers from getting hurt and beautify the appearance of structure. So please understand that some caps may fall off due to outside environment (thermal expansion and cold contraction).

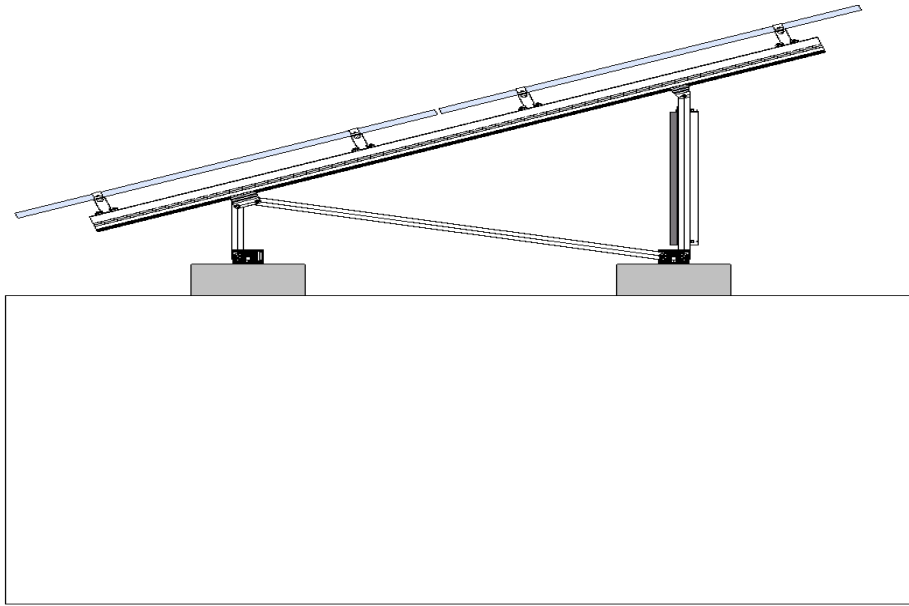
## 10. Each View of Complete Installation



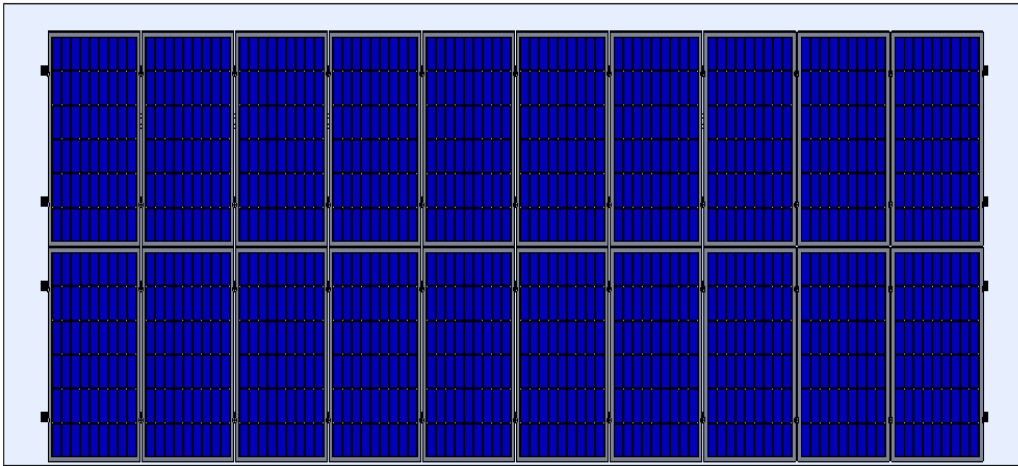
*Front View*



*Back View*



*Side View*



*Top View*

## VI. Notice

### 1. Notes for Construction Dimension

The specific dimensions of all installations involved are subject to the construction drawings. This installation instruction is only for the description of the product installation method.

### 2. Notes for Stainless Steel Fasteners

Because of the good ductility for stainless steel, the fasteners have big difference with carbon steel one in nature. If use in improper way, it will result in bolt and nut being "locked", which commonly known as "seizure". Prevention from lock basically has the following ways:

#### 2.1 Reduce the Friction Coefficient

- (1) Ensure that the bolt thread surface is clean and tidy (no dust, grit, etc.);
- (2) It is recommended to use yellow wax or lubricant during installation (such as lubricating grease, 40# engine oil, which are prepared by users).

#### 2.2 Correct Operation Method

- (1) The bolt must be perpendicular to the axis of the thread, and not inclined (Do not tighten Obliquely);
- (2) In the process of tightening, the strength needs to be balanced, tightening torque shall not exceed the prescribed safety torque value;
- (3) Choose torque wrench or socket wrench as far as possible, avoid using adjustable wrench or electric wrench. Lower the rotating speed while have to use electric wrenches;
- (4) Avoid using electric wrenches etc. under high temperature conditions, do not rotate fast when using, to avoid rapid rise in temperature and cause "seizure".

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Siming District, Xiamen, China

**Production Base Add**

Guanshan Industrial Park  
Changtai County, Zhangzhou, China

**Website**

[www.antisolar.com](http://www.antisolar.com)

