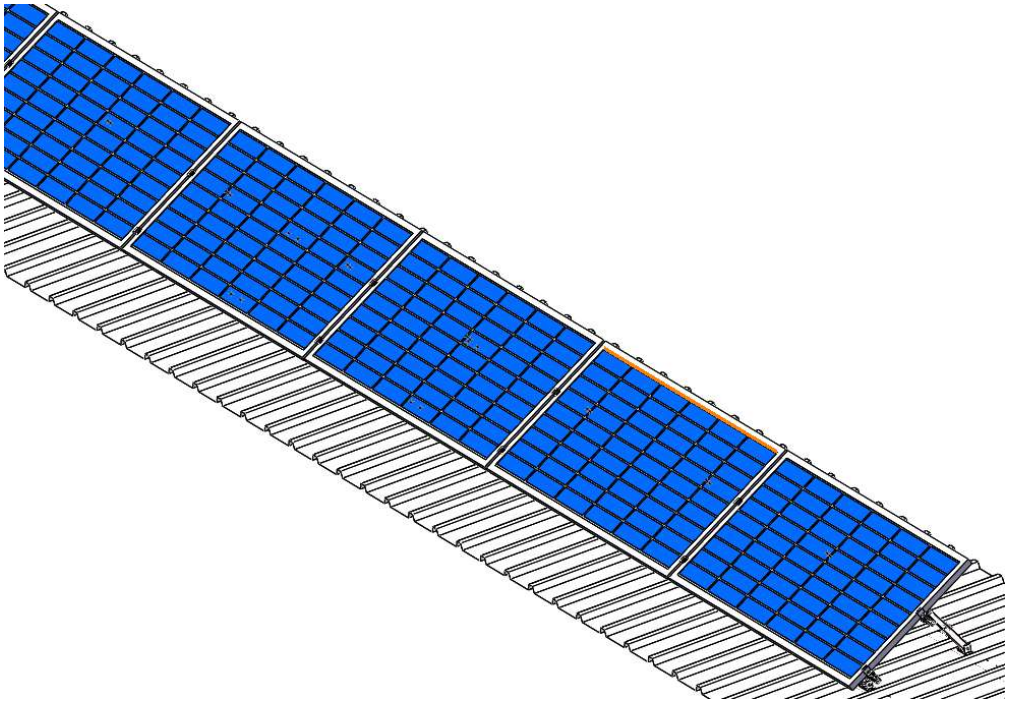
INSTALLATION
INSTRUCTION

Installation Manual

Solar Roof Adjustable Tilt System

ANTAI

AIuminum & AI Tech for Solar



Contents

I. Safety Notice

Thanks for using Antai solar mounting system products, please follow the installation manual during installation and maintenance.

●General notice

・Installation should be proceeded by professional workers, who will follow the installation manual.

・Please follow the local building standards and environmental protection regulations.

・Please follow the labor safety regulations.

・Please wear the safety gears. (especially helmet, boot, glove)

・Please make sure at least 2 installation workers on site in case of emergency.

・Please bring at least 1 set installation manual to the site.

■When installing at high place, please set up scaffolds to eliminate the risk of falling before proceeding. Please also use the gloves and safety belts.

■Do not modify Antai's products without permission to prevent accidents and malfunctions.

■Please pay attention to the sharp points of aluminum structures and be careful not to be injured.

■Please tighten all required bolts and screws.

■The wire might be damaged when it touches the profile section during electrical wiring work.

■Please do not use the broken, faulty or deformed products in case of danger.

Requirement

●Please use Antai designated mounting accessories for installation, and do not modify Antai's products in any cases.

● Please do not make strong impact on the profile, while aluminum profile is easy to be deformed and scratched.

●Please note this manual is only for the mounting structures.

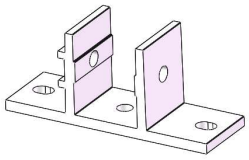
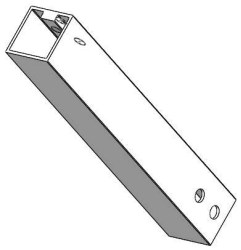
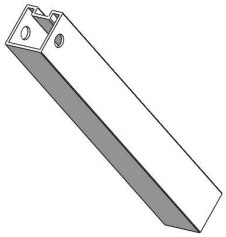
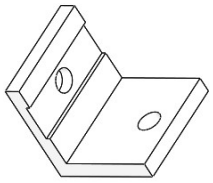
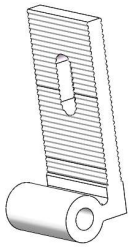
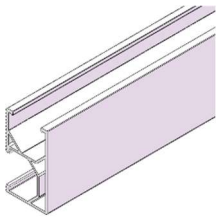
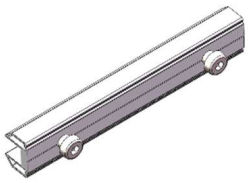
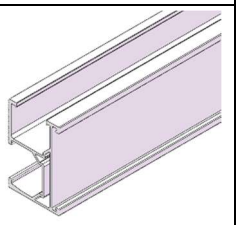
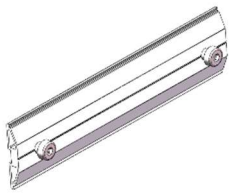
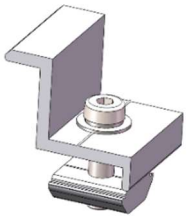
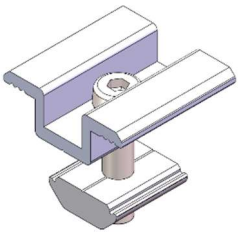
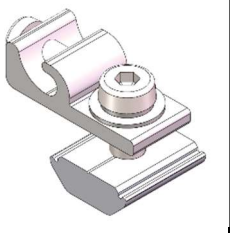
II. Introduction

Antai Adjustable tilt system is a solar mounting system applied to the roofs, lightweight materials and stable triangle shape structures can be used in various metal roofs and RC flat roofs. And adjustable tilt system could satisfy the clients' requirements for the adjustable setting degrees, and improve the project generation capacity. The stable and simple mounting structure saves the installation time and cost, which makes it an efficient roof solar mounting system.
Please read the installation manual carefully before installation.

III. Tools

			
8mm socket spanner	Electric Drill	Measure tape	Marker
			
Torque spanner	String	Adjustable spanner	Box spanner (M8)
			
Flat board			

IV. System components

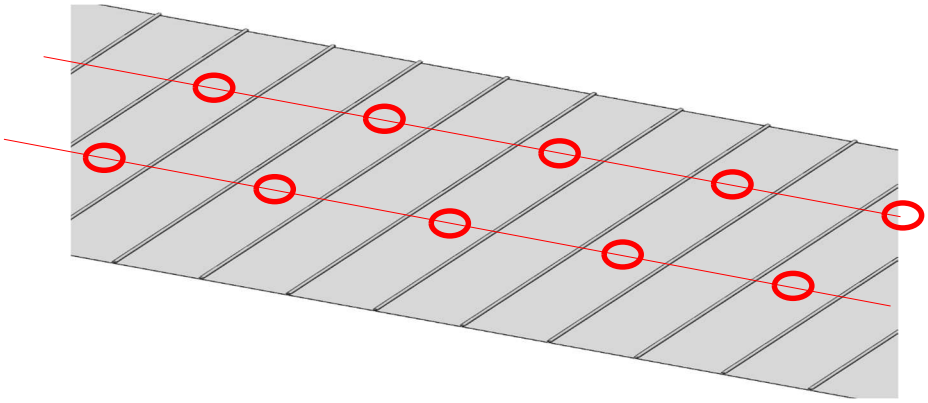
Components			
			
Base	Leg (Outer tube)	Leg (Inner tube)	Connector
			
Front leg connector	Rail 1	Rail splice 1	Rail 2
			
Rail splice 2	End clamp	Mid clamp	Grounding lug

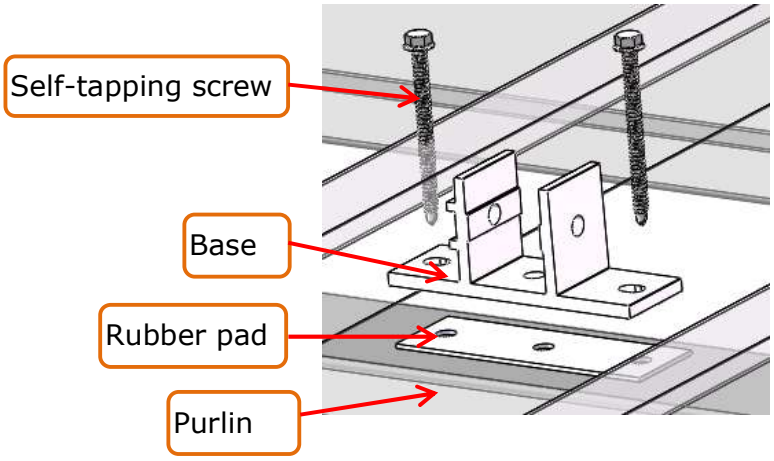
V. Installation manuals

5.1 Install bases

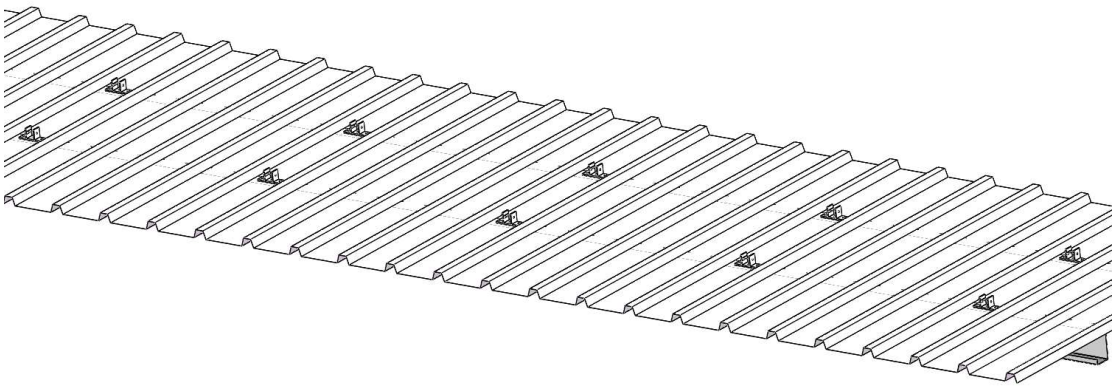
Determine the position of bases based on the shop drawing, and use the strings to make sure all marked positions are aligned. Then fix the bases on the corresponding positions by self-tapping screws:

5.1.1 Mark the position of bases on tin roof: make sure self-tapping screws can be fixed on the purlins, and align the positions by strings





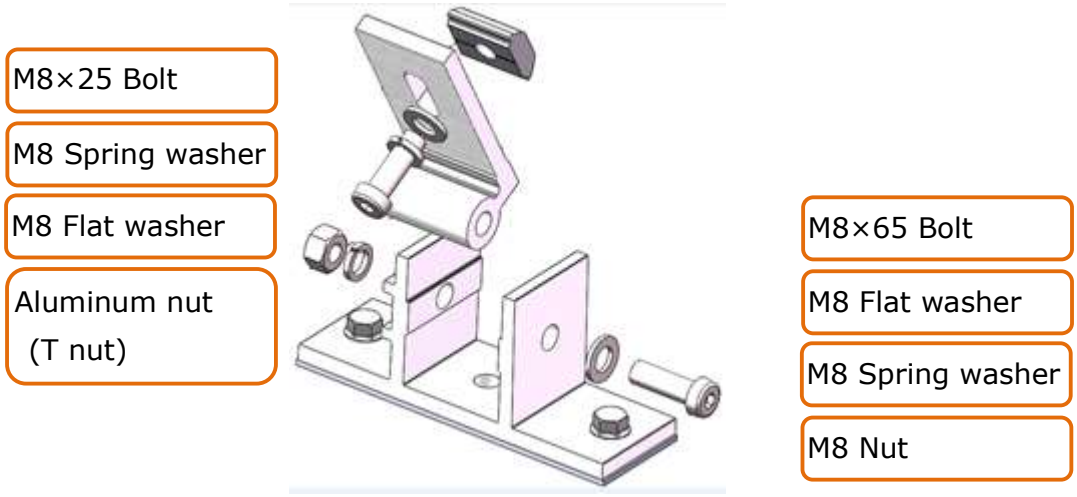
5.1.2 Completion of bases



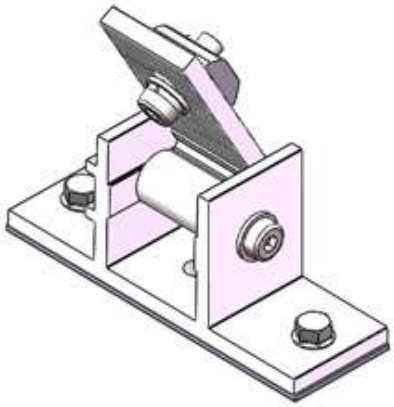
5.2 Assemble the front leg

Pre-assemble an adjustable connector to the front base, and keep the bolt a bit loose so that the connector can be rotated. At the same time, assemble the M8x25 bolt & aluminum nut to the connector for following rail installation.

5.2.1 Pre-assemble an adjustable connector to the front base, and keep the bolt a bit loose so that the connector can be rotated.



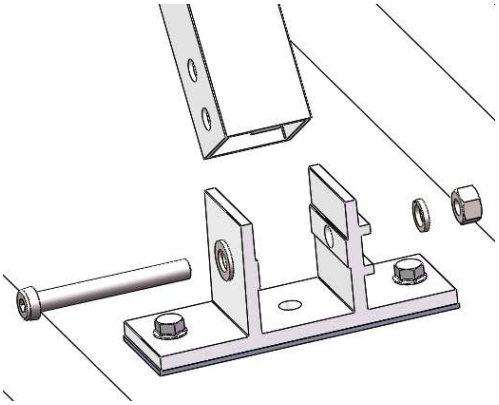
5.2.2 Assemble the M8x25 bolt & aluminum nut to the connector for following rail installation



5.3 Install the adjustable rear leg

Fix an outer tube to the set rear base and keep the bolt a bit loose so that the outer tube could be rotated. Fix the connector to the inner tube, install the inner tube into the outer tube and tighten the bolts.

5.3.1 Fix an outer tube to the set rear base and keep the bolt a bit loose so that the outer tube could be rotated



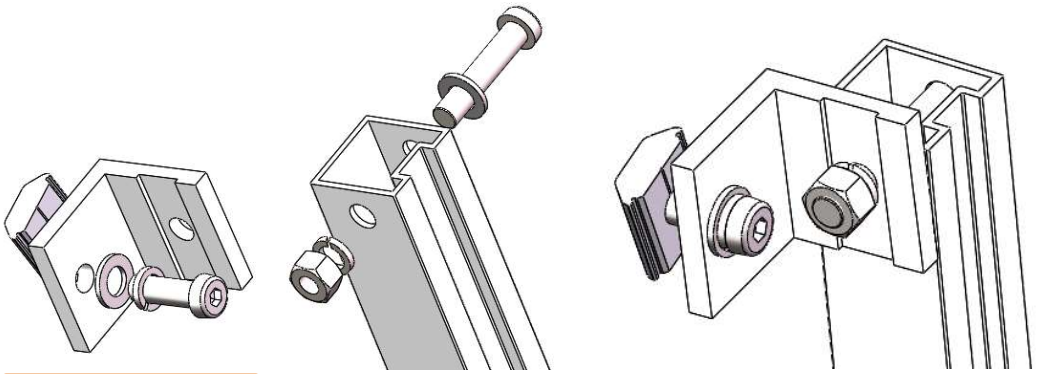
M8×65 Bolt

M8 Flat washer

M8 Spring washer

M8 Nut

5.3.2 Install connector to the inner tube, and M8x25 bolt & aluminum nut to the connector.



M8×25 Bolt

M8 Spring washer

M8 Flat washer

Aluminum nut (T nut)

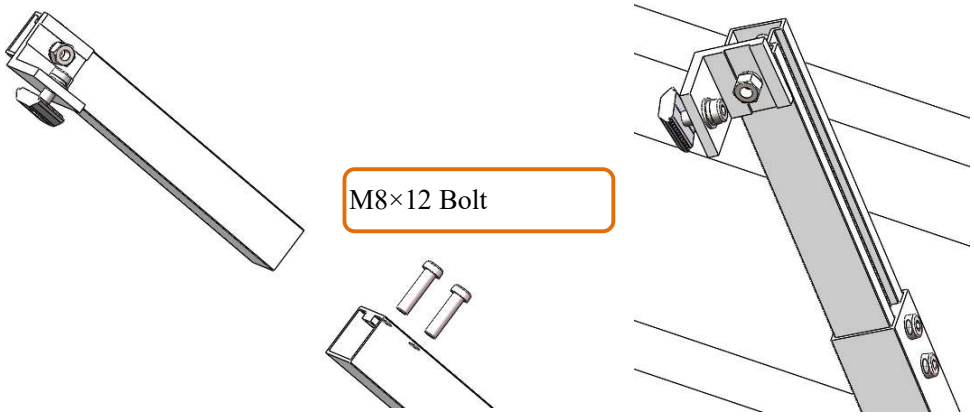
M8×50 Bolt

M8 Flat washer

M8 Spring washer

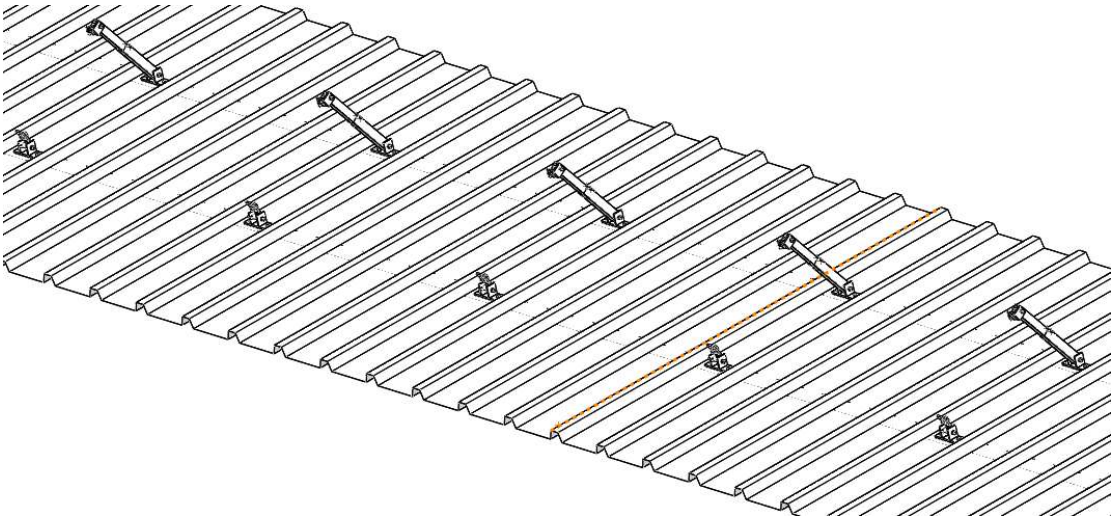
M8 Nut

5.3.3 Fix the assembled inner tube into the outer tube and fasten the bolts but keep them a bit loose.



M8×12 Bolt

5.3.4 Follow the above steps to install the rest tilt legs.



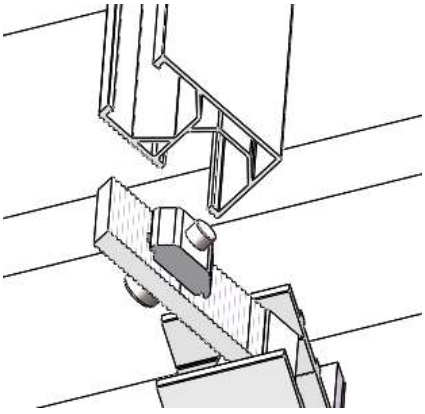
5.4 Install the rail

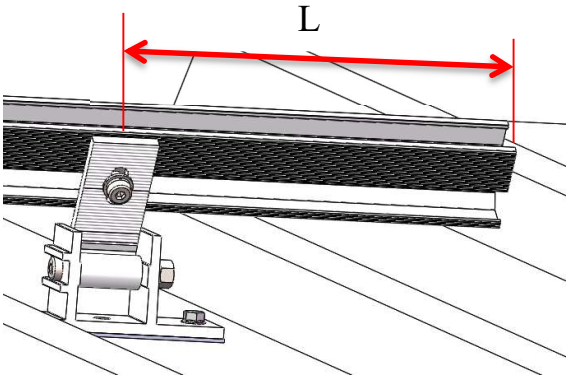
Take a corresponding length rail according to the shop drawing and fix the aluminum nut of front leg to the rail side channel.

Then take another corresponding length rail and fix the aluminum nut of rear leg to the rail side channel.

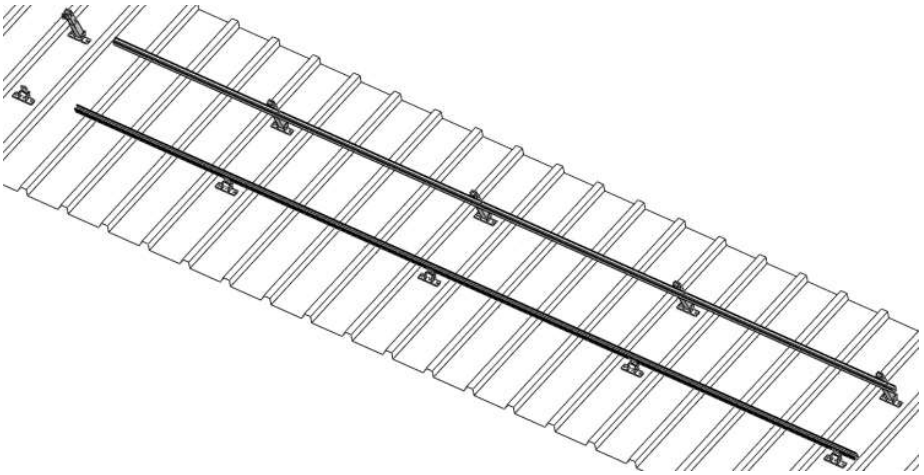
Thirdly, take a flat board as an auxiliary installation tool, and put it across the above mentioned 2pcs rails, then rotate the front leg & rear leg to make the auxiliary board placed flatly on the 2pcs rails' surface. Also adjust the length of inner tube to the required setting angle. Lastly, fasten the all bolts.

5.4.1 Take a rail according to drawing, and slide the aluminum nut (ANTAI T nut) of front leg to the rail side channel, then fasten the bolt.

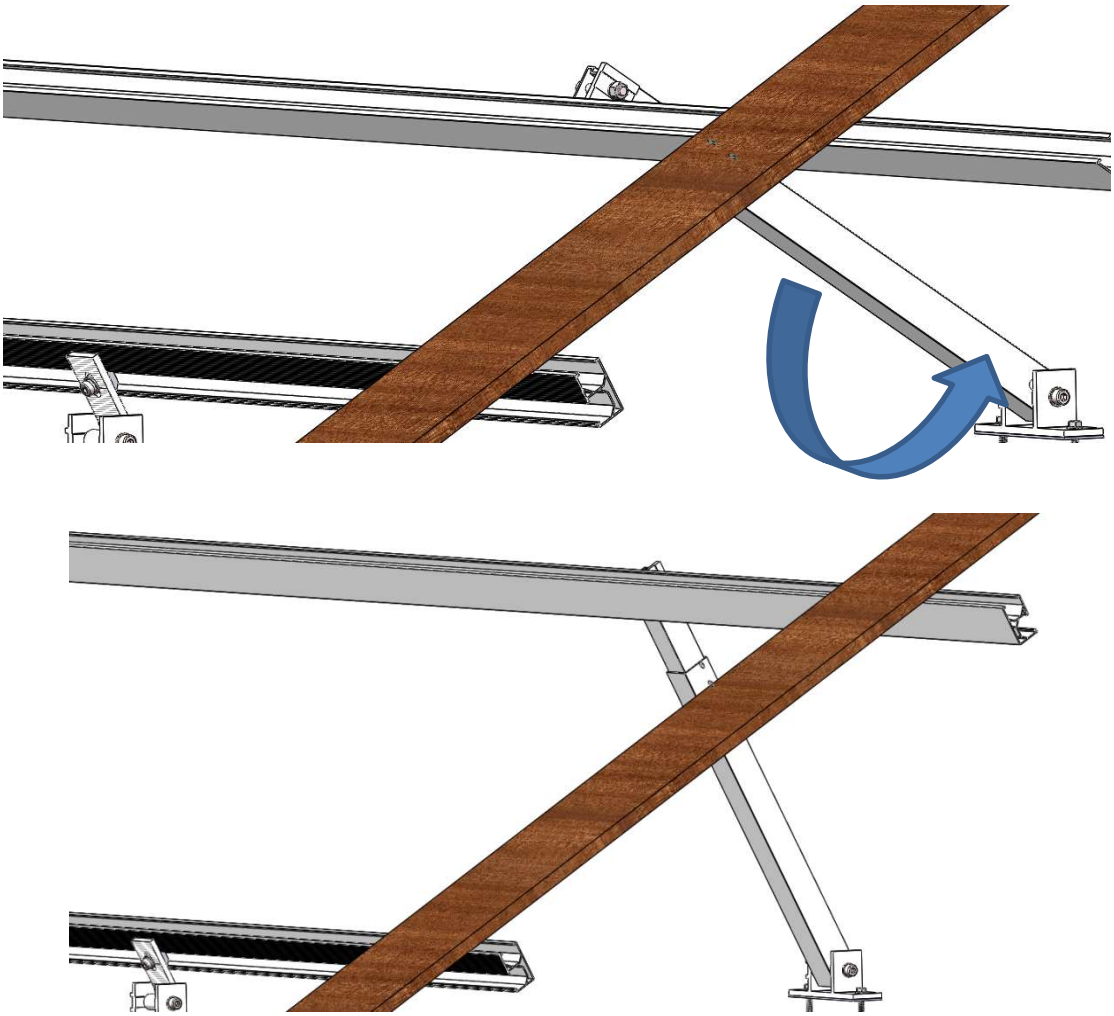




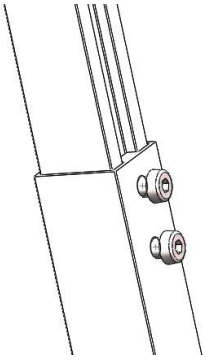
5.4.2 Take another rail according to the drawing, and fix the aluminum nut (T nut) of rear leg to the rail side channel, then fasten the bolt.

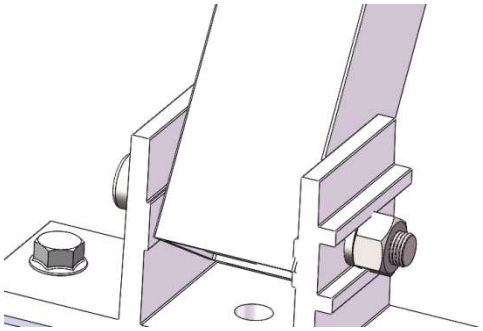


5.4.3 Place the flat board across the 2 rails, rotate the front & rear leg to make the board placed flatly and adjust the length of inner tube to the required setting angle. Then fasten all bolts.

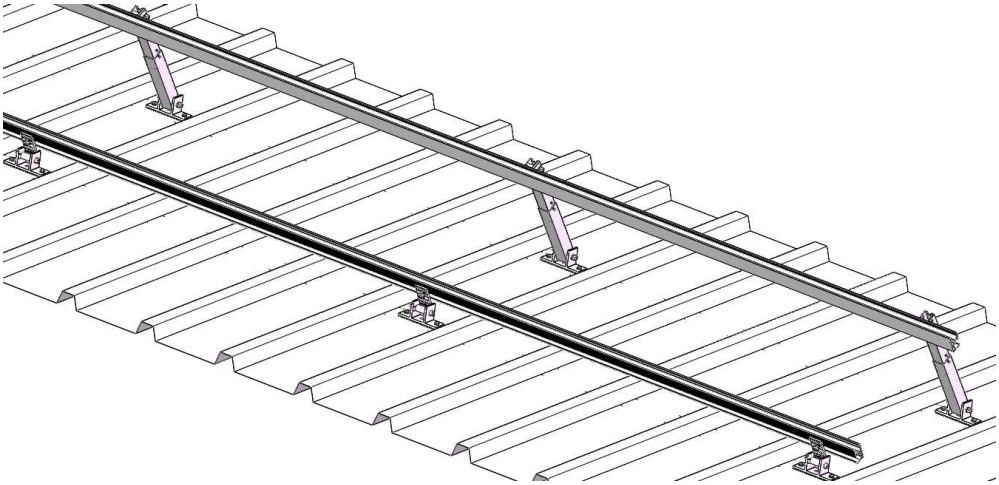


Fasten the bolts between inner tube and outer tube, connectors, bases.

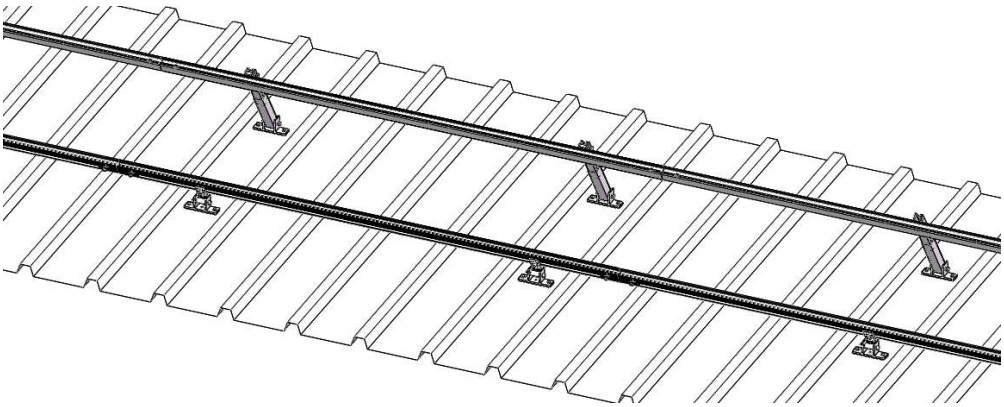




5.4.4 Install the rest legs and adjust the setting angles following above steps.



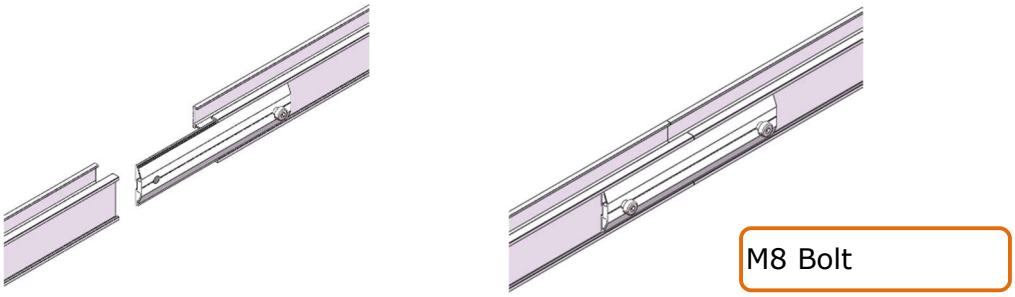
5.4.5 Install the rest rails following above steps.



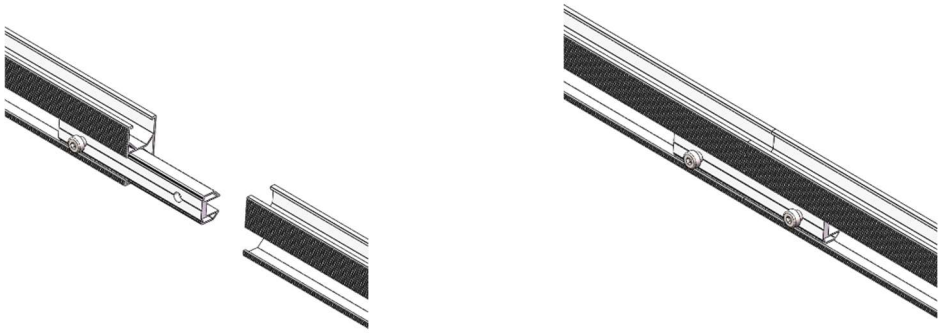
5.5 Install the rail splice

Please skip this step if the rail is long enough.

5.5.1 Inert the half of rail splice to the side channel of the first rail and tighten the one bolt, then insert the other half rail splice to the second rail and tighten the other bolt.

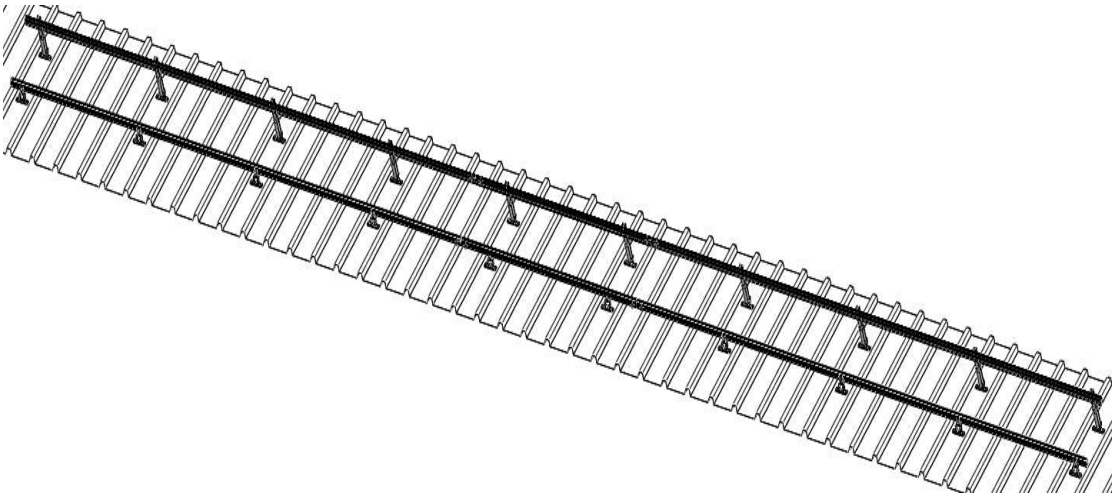


RAIL MODEL: TYN53, CG019, TYN28



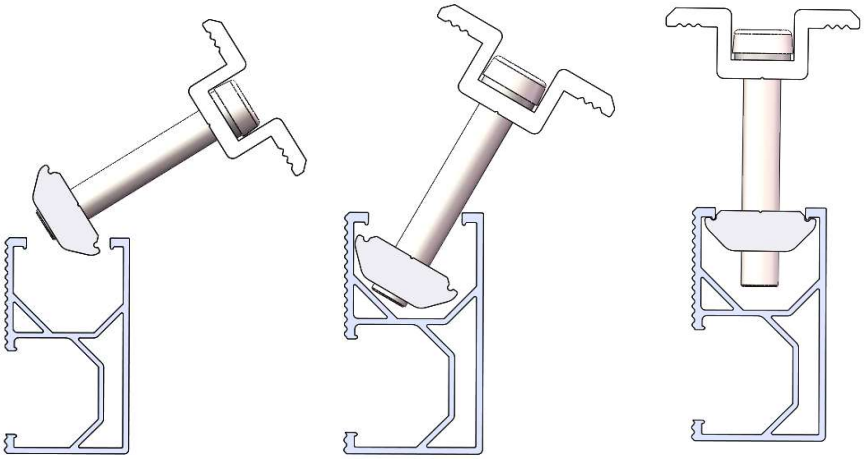
Rail model: CG010, TYN305, TYN355

5.5.2 Completion of installation:

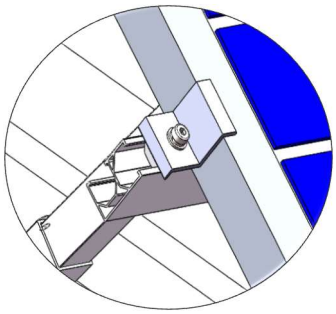


5.6 Install the solar panels

Place the solar panels on the rail follow the shop drawing, and use the module clamps to fix the panels.
Please install the module clamp follow the below picture: Firstly, tilt the T nut into the rail channel, then tilt the clamp to be vertical to the rail and fasten the bolt.



5.6.1 Place the first panel on the rails and adjust the position based on the shop drawing, and fix the end clamps on one side of panel.

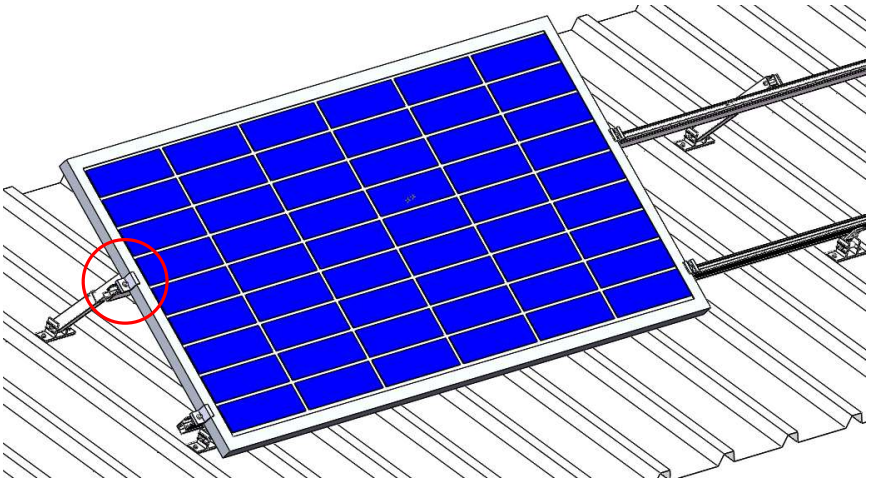


M8 Bolt

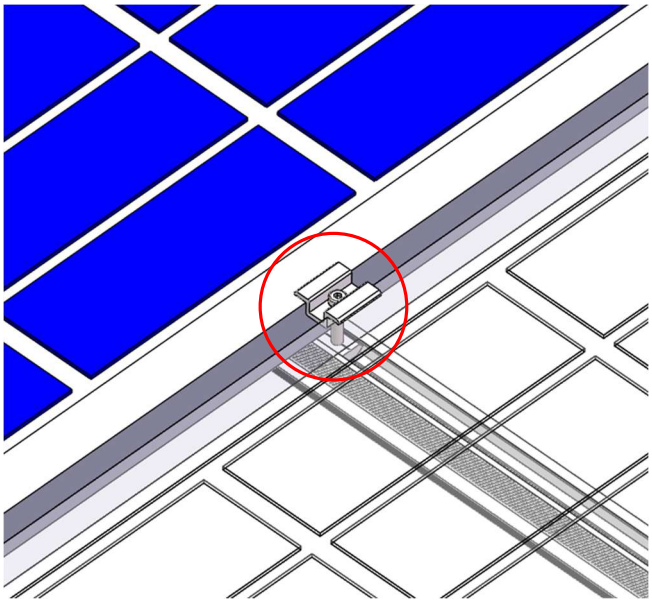
M8 Flat washer

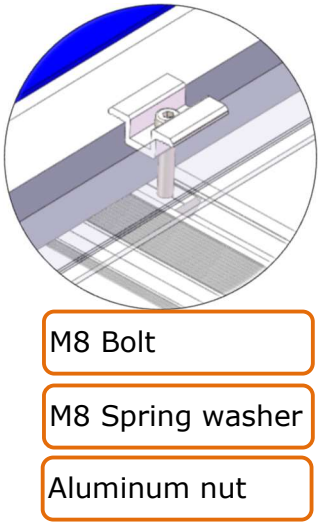
M8 Spring washer

Aluminum nut

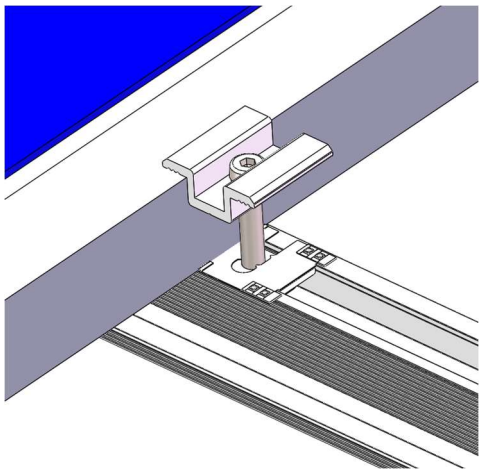


5.6.2 Tighten the bolts of end clamps, then place the second panel on the rails according to the shop drawing. And fix mid clamps between panels and tighten the bolts.

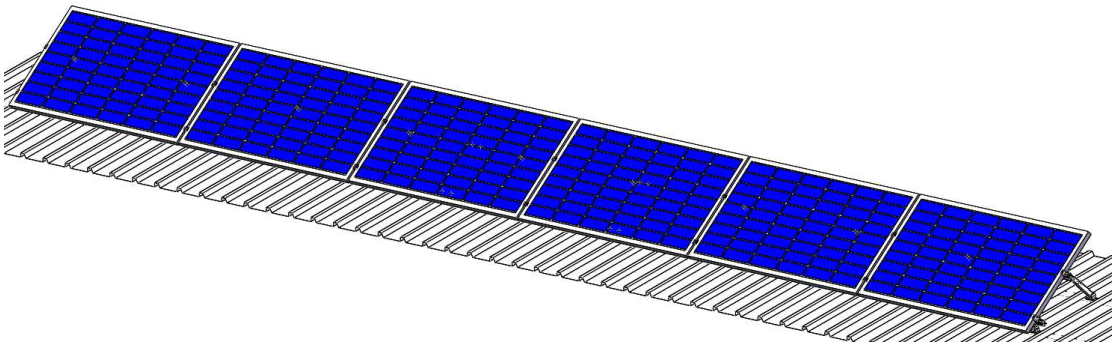




5.6.3 If the earthing clips are required, please inert the earthing clip to the bolt of mid clamp, and place the earthing clip between the panel and rail. Also please make sure the frames of 2 panels clip the pins of earthing clip, and then tighten the bolt of mid clamp.

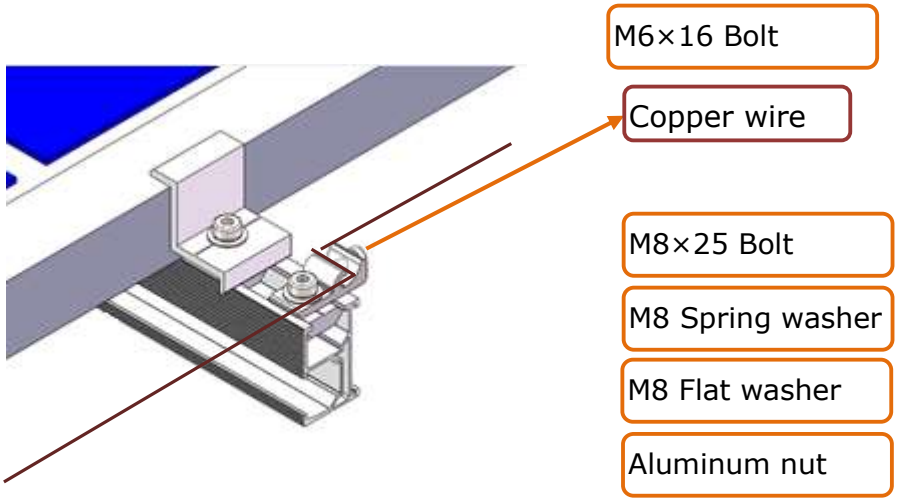


5.6.4 Install the rest solar panels following above steps, and fix the end clamps on the other edge of panel array.

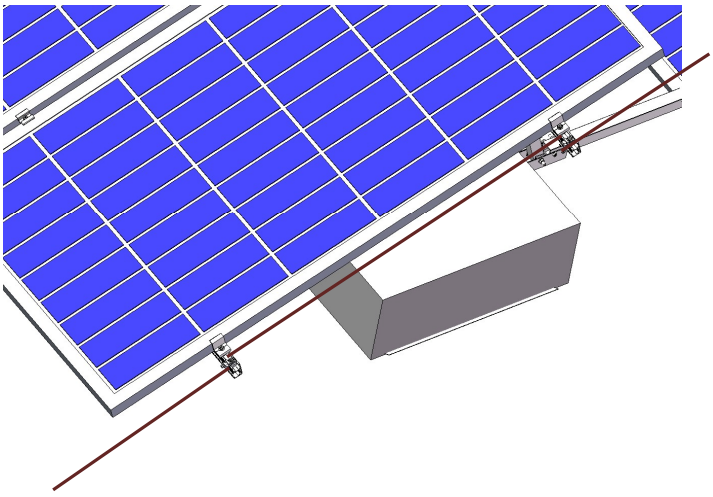


5.7 Install the grounding lug（Skip this step if not necessary）

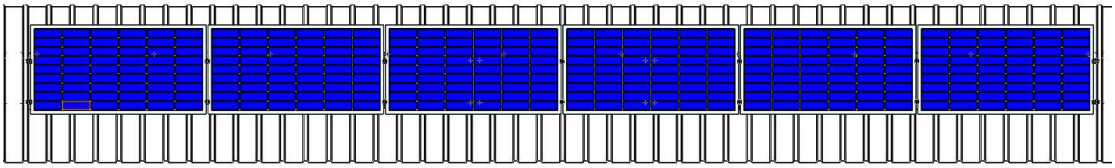
5.7.1 Install the grounding lug on the one side of rail channel



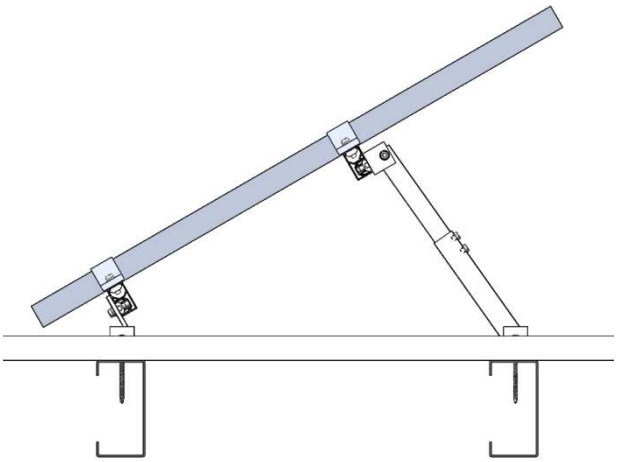
5.7.2 Connect each panel arrays by the copper wire through grounding lugs and tighten the M6x16 bolt.



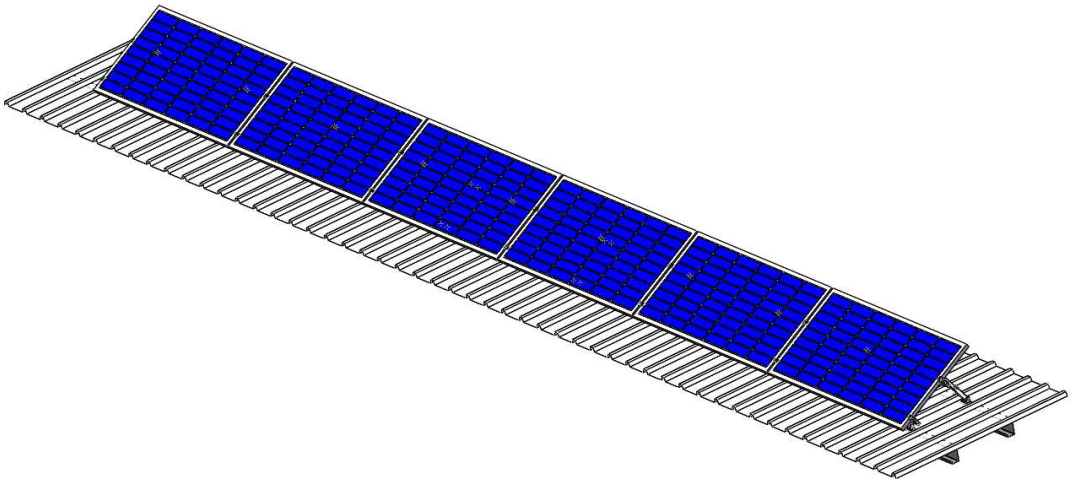
5.8 Views after installation



Top view



Side view



General view

VI. Notice

6.1 Engineering Installation Dimensions Notes

All dimension should be based on the specific shop drawing. This installation manual is for the purpose of describing the installation method of the product only.

6.2 Installation of Stainless-Steel Fasteners notes

Because stainless steel has good ductility which is essentially different from carbon steel; improper use of stainless steel will lead to bolts and nuts cannot be screwed. That is to say, "deadlock" is commonly known as "seizure ". The prevention of lock-up mainly includes the following aspects:

2.1 Reduction of friction coefficient

(1) Make sure the thread surface is clean (e.g. free of sand and sundries);

(2) It is recommended that the surface be coated with water wax or lubricant (such as butter and 40 # oil) during installation.

2.2 The Correct Installation:

(1) The thread must be rotated perpendicular to the axis of the thread, do not tilt;

(2) In the process of tightening, the force must be uniform and the tightening moment must not exceed the prescribed safe torque value.

(3) Choose torque wrench or socket spanner as far as possible, avoid using movable wrench or electric wrench; use electric wrench also try to lower the speed.

(4) Avoid using under high temperature, do not rotate quickly when using, avoid deadlock caused by the rapid rise of temperature; (e.g. using electric wrench, etc.)

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