

Model No.: CK-TR

# Tile Roof System Installation Manual

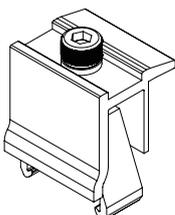
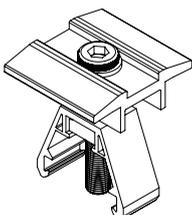
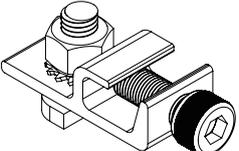
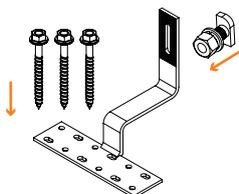
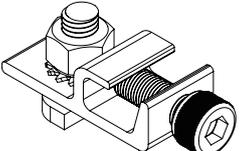
Version No.: CHIKO-20180614-V.01

## I. Installation Rule

Installation of the framing shall comply with relevant local government standards, manufacturer's specifications and good building practices. The roof which the panels to be installed shall comply with the relevant local government standards.

- Follow the risk management process prior to commencing work – including identify hazards, assess risks, eliminate or control them.
- Consult with those involved in the work.
- Develop safe work procedures for installing solar panels, using information from the risk management process, which would include reviewing the following information:
  - Provide appropriate information and training to those involved in performing the work.
  - Provide appropriate tools and personal protective equipment (PPE).
  - Ensure that a system is in place to prevent or arrest falls.
  - Ensure there are adequate first aid facilities.
  - Ensure all employees are aware of the emergency procedures.

## II. Installation Tools

 <p><input type="checkbox"/> Tape Measure</p>	 <p><input type="checkbox"/> Chalk Line</p>	 <p><input type="checkbox"/> Labor Protection Products</p>
 <p>End Clamp</p>  <p>Mid Clamp</p>  <p>Grounding Lug</p>	  <p><input type="checkbox"/> Allen Key</p>	
 <p>1# Hook</p>  <p>Grounding Lug</p>	  <p><input type="checkbox"/> Open-end Spanner</p>	

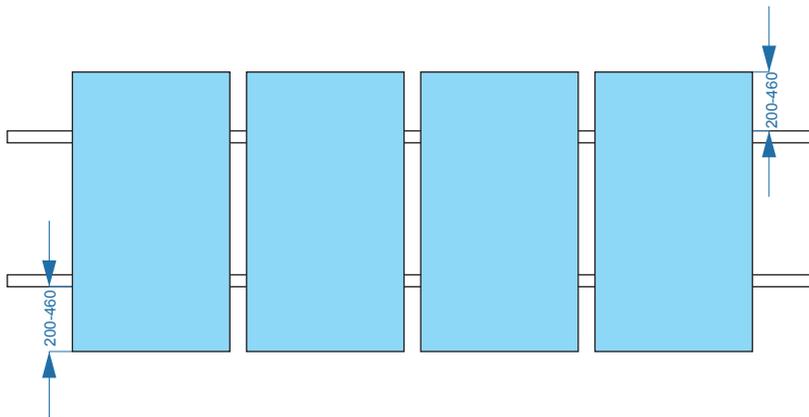
### III. NOTICE

This manual is for a non-integral module or panel, assembly to be mounted over a fire resistant roof covering rated for the application.

Re-inspect the installation in case of loose components, loose fasteners or any corrosion, the affected components should be replaced immediately.

1. Rail spacing's are as follows:

- When installing in portrait profile, rails should keep 200mm to 460mm from the module edge.



- The distance between Chiko 1# hooks on tile roof could be 800-1600mm.



2. Minimum design load for Chiko Tile Roof Mounting System:

- a) Downward Pressures - 10 psf allowable load.
- b) Upward Pressure - 5 psf allowable load.
- c) Down-Slope Load - 5 psf allowable load.

3. System Fire Class Rating: A

4. Max. Rated Current: 30A

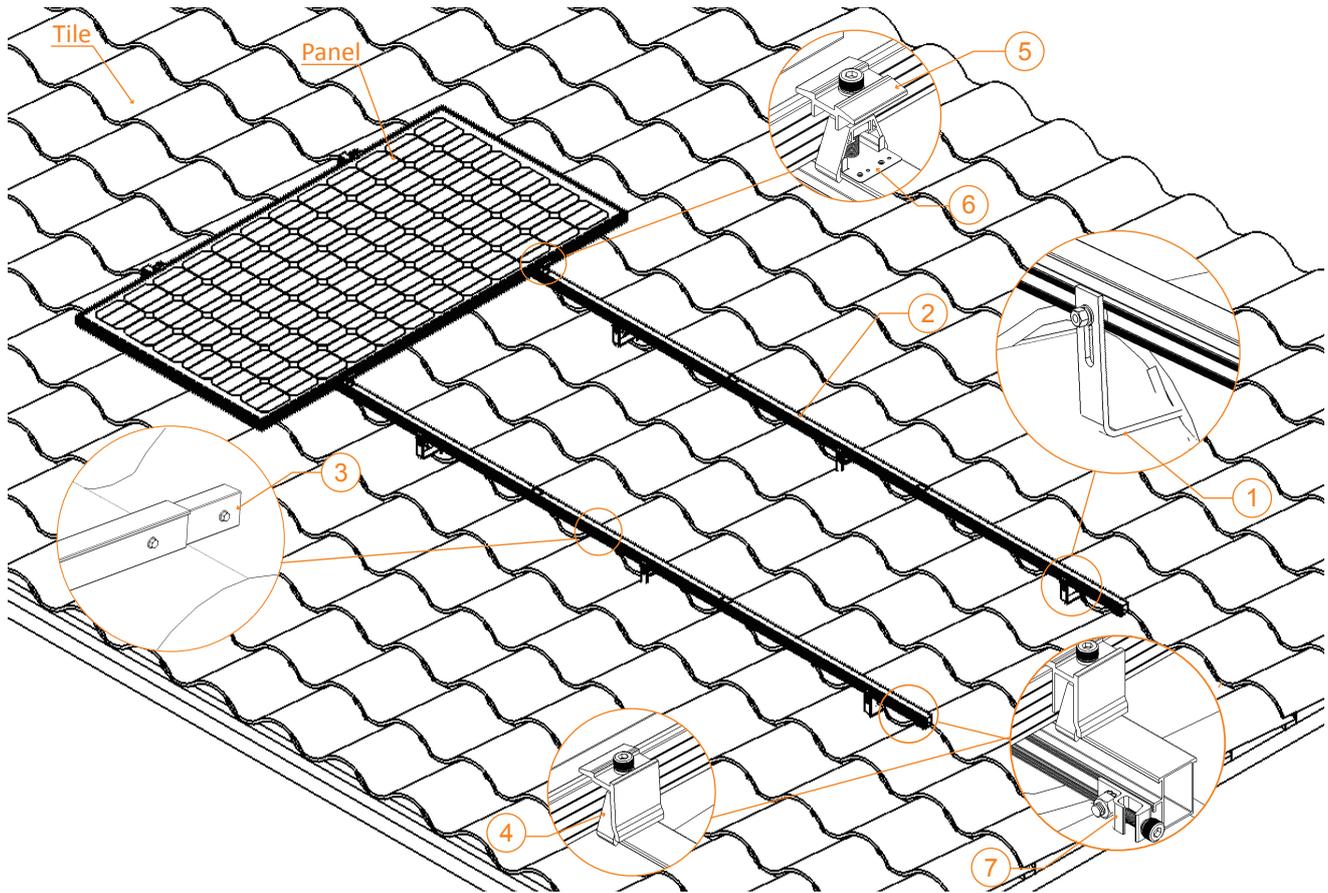
5. The test solar panel is UL Listed CHAN GZHOU TRINA SOLA R ENERGY CO., LTD: TSM-290PD14, TSM-295PD14, TSM-300PD14, TSM-305PD14, TSM-310PD14, TSM-315PD14, TSM-320PD14, TSM-325PD14, TSM-330PD14, module fire performance type 1

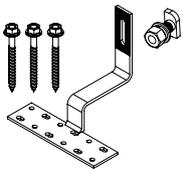
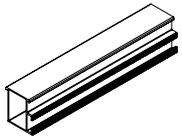
6. This racking system may be used on steep-sloped roofs with slopes greater than or equal to 2 in/ft. (167mm/m or 9.46°), and the installed PV module complying with UL 1703 only when the specific module has been evaluated for grounding or installed in compliance with the included instructions.

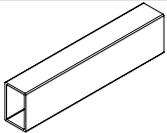
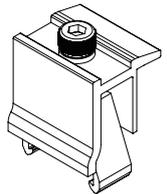
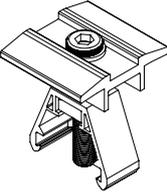
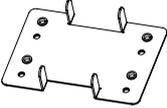
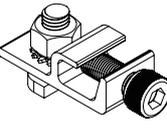
7. The CK -TR System is intended to be mounted to a roof using the components listed in the manual.

If any component is added or changed, it may affect the UL listing or the System Fire Class rating.

IV. Components



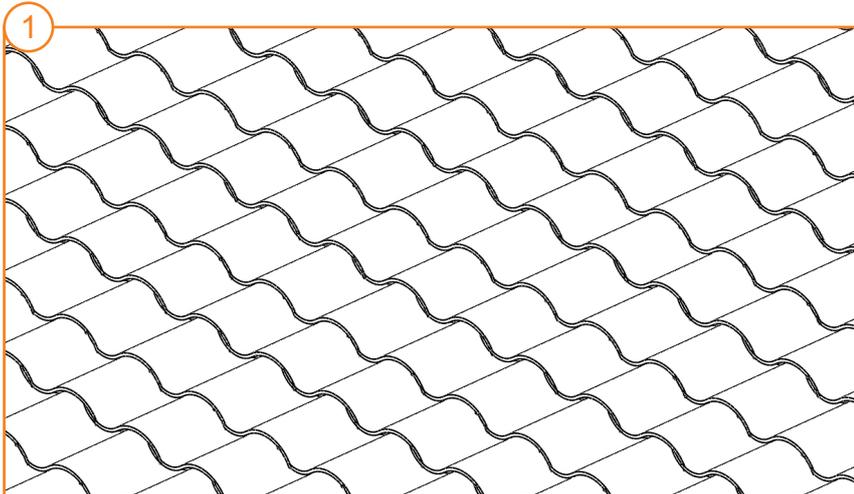
No.	Item No.	Item Name	Picture	Part No.	Part Name	Part Qty
1	CK-FTH-01	01# Hook		1.1	SS304 01# hook	1
				1.2	SS304 T4 bolt M8*25	1
				1.5	SS304 Flange nut DIN6923 M8	1
				1.6	Q235 wooden screw $\phi$ 6.3*65	3
2	CK-FT-43R	43# Rail		CHIKO Solar AL6005-T5 43-rail length: 4200mm; 3200mm 2100mm; 1600mm		1

3	CK-FT-SKA	Rail Splice Kit		3.1	AL 6005-T5 rail splice	1
				3.2	SUS304 self tapping bolts $\phi 4.2 \times 16$	2
4	CK-FTE-40	End Clamp		4.1	AL6005-T5 end clamp for 40mm	1
				4.2	AL6005-T5 058 nut	1
				4.3	SS304 inner hex bolt M8*35	1
				4.4	SS304 spring washer M8	1
				4.5	SS304 Square nut DIN557 M8	1
5	CK-FTM-40	Mid Clamp		5.1	AL6005-T5 mid clamp	1
				5.2	AL6005-T5 058 nut	1
				5.3	SS304 spring washer M8	1
				5.4	SS304 Square nut DIN557 M8	1
				5.5	SS304 inner hex bolt M8*35	1
6	CK-IS-116	Grounding Clip		6.1	SS304 grounding clip	1
7	CK-GTC-R2	Grounding Lug		7.1	Grounding lug - lug 8.0	1
				7.2	SS304 inner hex bolts and nut M8*20	1
				7.3	SS304 T4 bolt M8*25	1
				7.4	SS304 star washer	1
				7.5	SS304 hex nut M8	1
				7.6	SS304 spring washer M8	1

## V. Hook Spacing Table

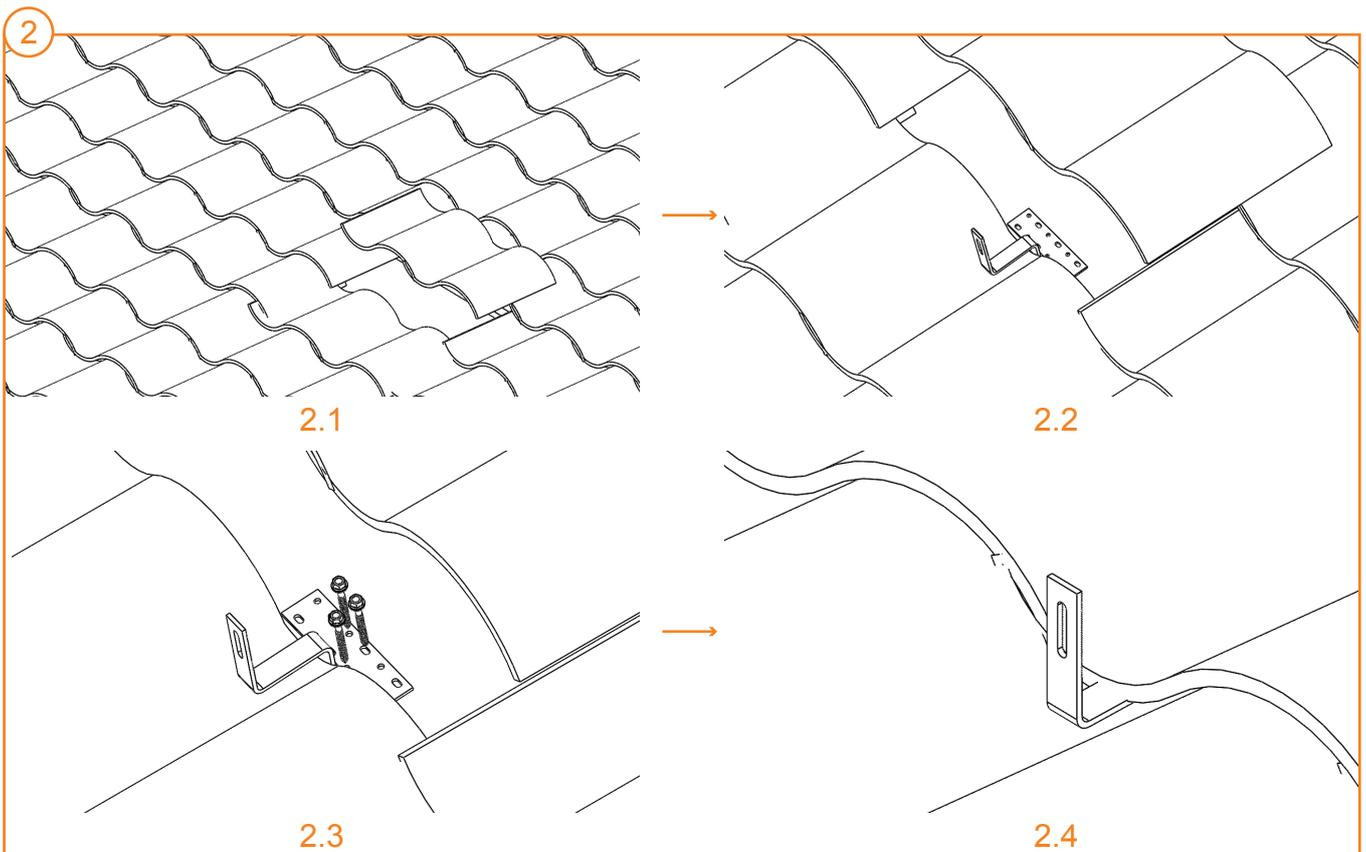
No.	Item No.	Description	Hook Qty	Spacing
1	CK-43R-4200	Chiko AL 43# rail -4200mm	3 PCS	1600mm
2	CK-43R-3200	Chiko AL 43# rail -3200mm	3 PCS	1400mm
3	CK-43R-2100	Chiko AL 43# rail -2100mm	2 PCS	1600mm
4	CK-43R-1200	Chiko AL 43# rail -1200mm	2 PCS	1000mm

## VI. Installation Steps



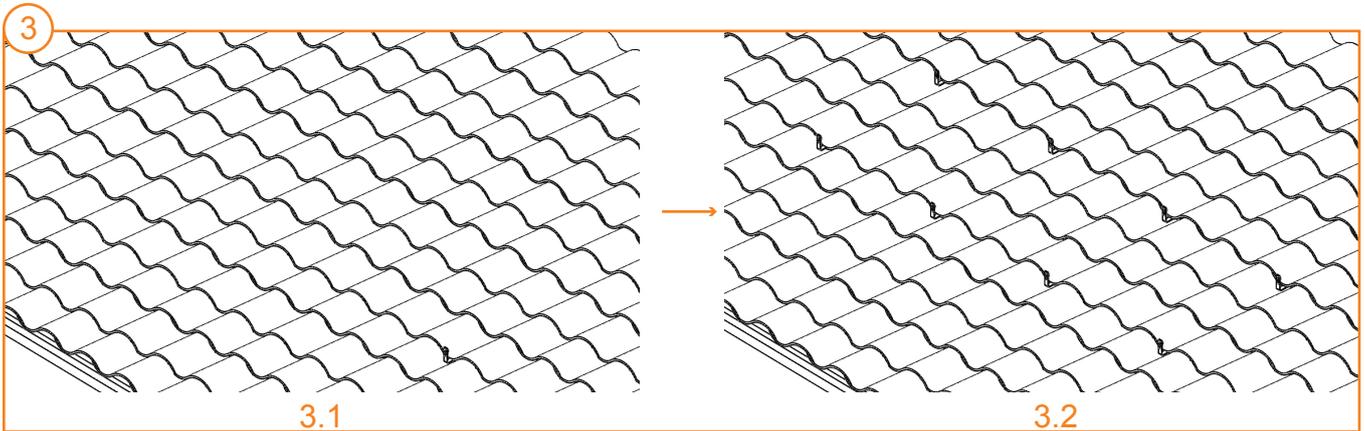
Use a chalk line to mark the roof.

### Installation of Chiko 1# Hook



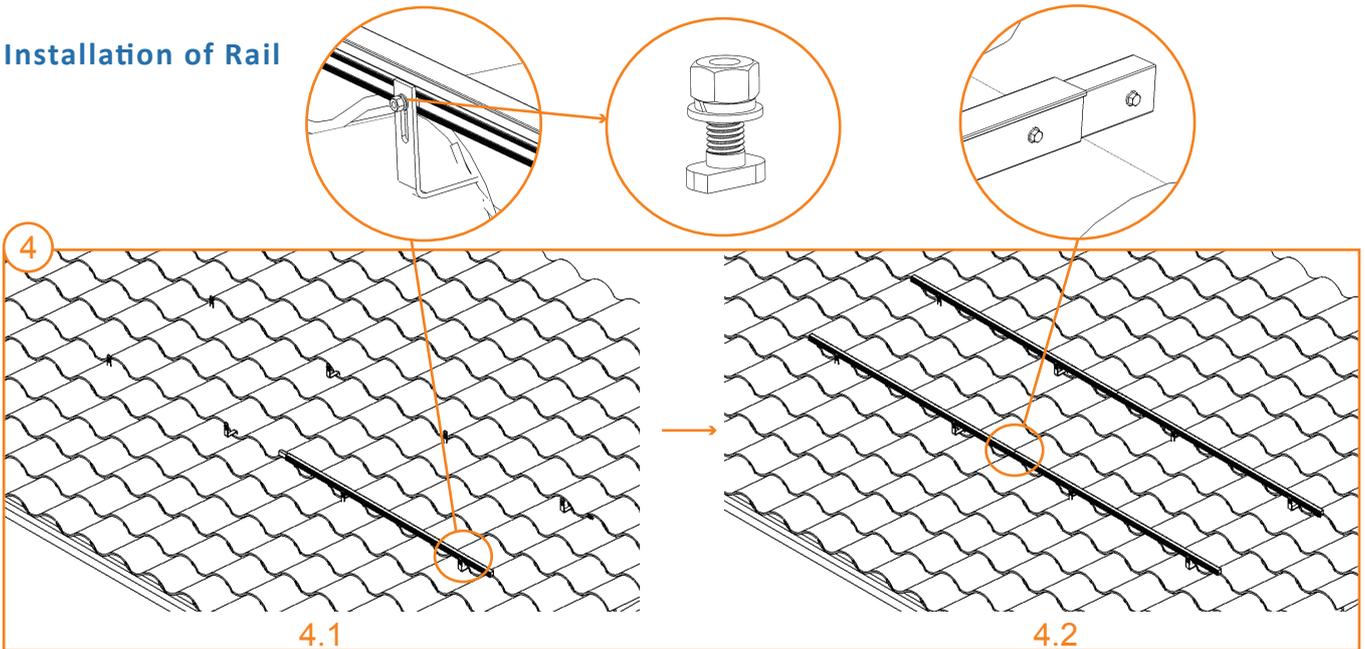
Remove the tile where you are installing the 1# hook by gently pulling and pushing the tile. Place the 1# hook on top of the rafter where it will be installed, then fasten it with three wooden screws M8\*90, finally return the tile to its original position.

M8 Torque: 15~20N·m



Install all the 1# hooks according to step 2.

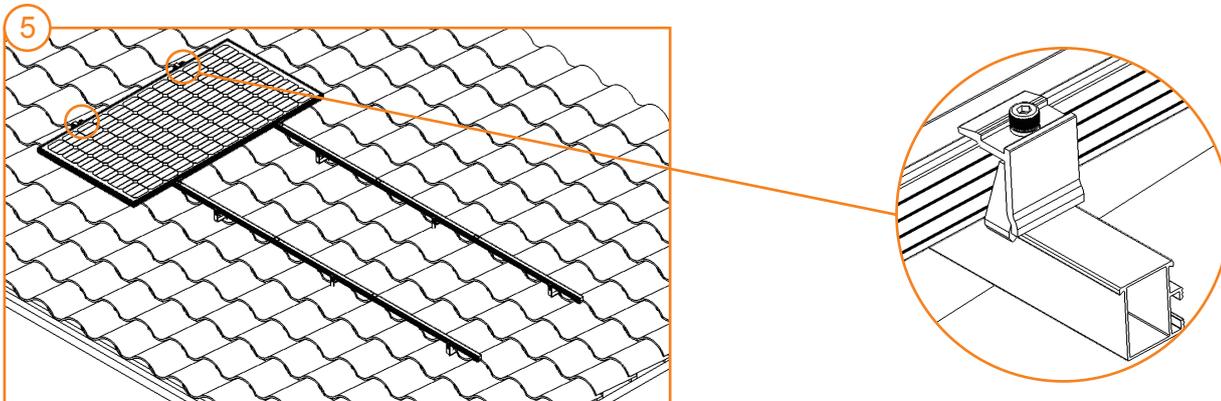
**Installation of Rail**



Connect the rail to the 1# hooks with the T-bolt M8\*28 and nut. Fasten to secure. Use the rail splice kit to connect the two rails with the two  $\phi 4.2 \times 12$  self tapping bolts.

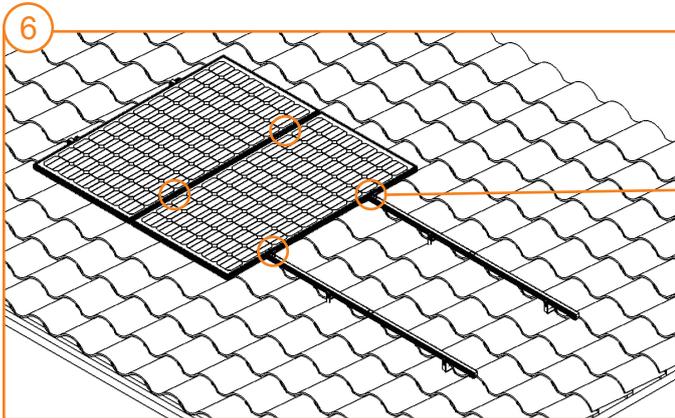
M8 Torque: 15~20N·m

**Installation of End and Mid Clamps**



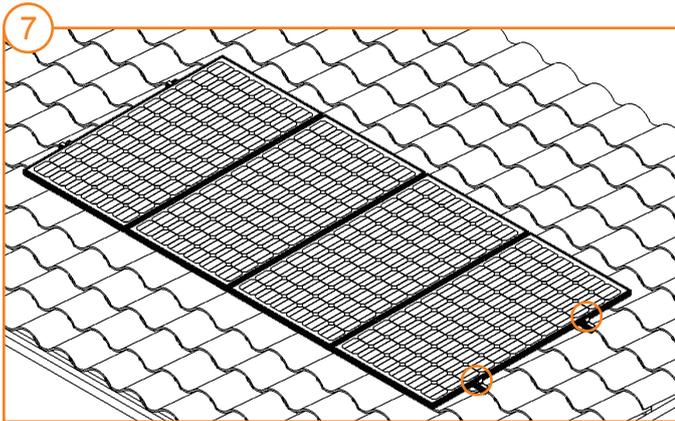
Put the first PV module on the two parallel rails ,fasten the end clamp with inner hex bolts M8 to secure one side of the panel .then slot two mid clamp on the rail.

M8 Torque: 15~20N·m



Put the second panel on the rail, fasten the mid clamps with inner hex bolts M8 at all locations where two panels meet .

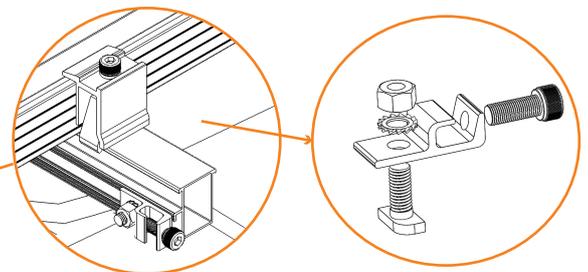
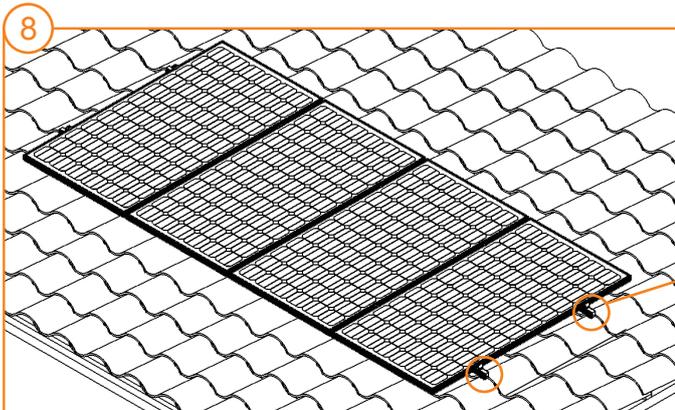
*M8 Torque: 15~20N·m*



Install all the panels and fasten end clamps at the end of each array.

*M8 Torque: 15~20N·m*

## Installation of Grounding lug



Install a grounding lug onto each rail line edge with an T4 bolt M8\*25 and a stainless steel nut, then connect 8.4mm<sup>2</sup> (greater than or equal to 8AWG) copper wire through all the grounding lugs (fixed by M8\*20 inner hex bolt), finally connect a copper wire to the ground. The grounding lug has grounding function when fastened tight to the rail and copper grounding wire.

*M8 Torque: 15~20N·m*

# WORLD LEADING

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## MANUFACTURE



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