

# Carport Installation Manual

M rail solution



**Xiamen BROAD New Energy Technology Co., Ltd.**

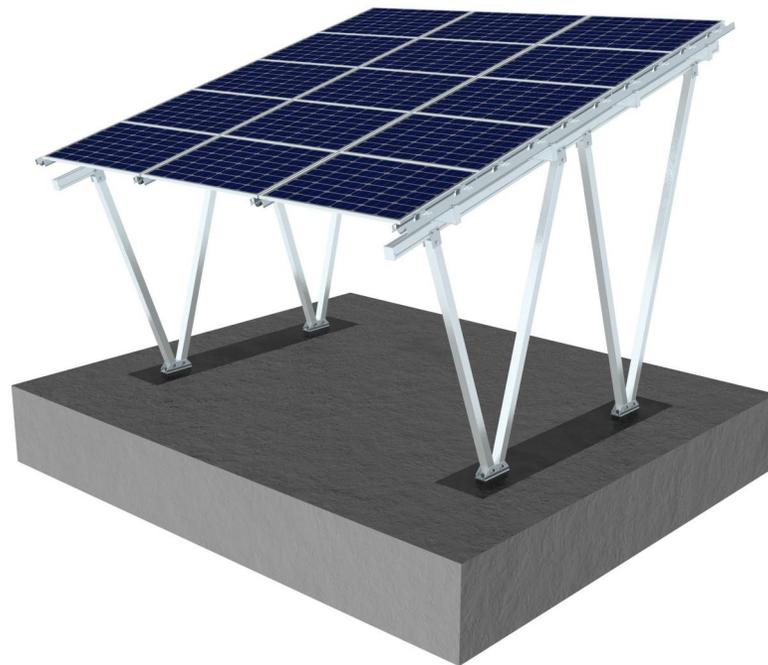
## 1. Product introduction

The system is a highly versatile and economical solar carport, suitable for medium and large commercial and residential projects. High-quality aluminum alloy or high strength steel and stainless steel fasteners design ensures a solid and reliable system. The system adopts a modular design, providing single parking spaces, double parking spaces, and rows of parking spaces to choose.

Before installing the carport, refer to the installation instructions.

### Rules for Installers:

- Comply with rules from all applicable local or national building code, ensuring BROAD applied for certain installation site and environment
- Please apply for accessory or installation tools you carried (BROAD WILL NOT TAKE RESPONSIBILITY FOR THOSE PARTS NOT PROVIDED BY OUR COMPANY WHILE IN PROCESS OF CONSTRUCTION );
- How to recycle; as per local law
- How to reload: same as installation steps;
- No less two professional solar panels installers must be on site
- Professional electricians finish installation of relevant electrical equipment
- To ensure the safety installation of photovoltaic matrix electrical components



## 2.Installation tools



Total station



Nylon wire



Electric tools



Socket wrench



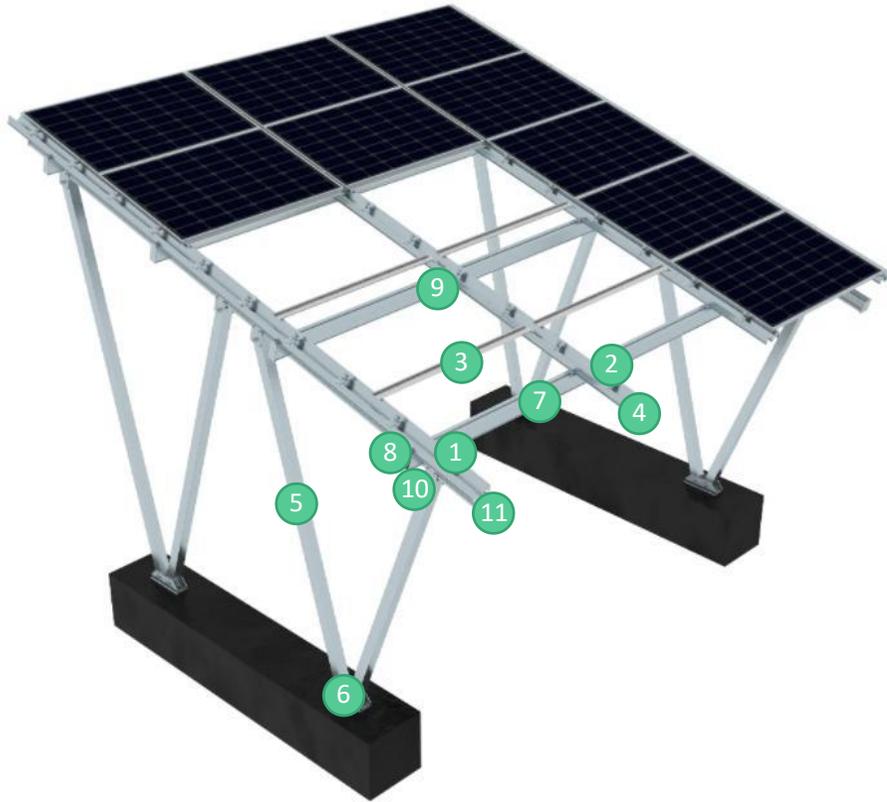
Tape measure

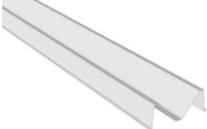


Mark Pen

Note: The tools shown in the picture are only used for the installation of bracket system (not included in the scope of supply). Please consult the system installer for the installation of electronic components.

## 3. Structure components



|   |   |   |   |
|---|---|---|---|
| 1.End Clamp   | 2.Mid Clamp<br>(with<br>grounding clip)   | 3.Groove  | 4.M rail  |
|    |    |    |    |
| 5.Main<br>support   | 6.Foundation  | 7.T155 rail   | 8.C40 Clamp   |
|    |    |    |    |
| 9.C100 Clamp  | 10.T155 rail<br>end cap   | 11.Stringer<br>end cap  | 12.Embedded<br>bolt   |
|  |  |  |  |

## 4. Notice for installing Stainless steel fasteners:

Stainless steel is significantly different from carbon steel due to its high ductility. Improper use of the bolt and nut will not be able to unscrew. In order to avoiding unscrew, please follow below aspects:

### 1.Reduce the friction coefficient:

- (1) Keep the thread clean (no ash, sand and other debris);
- (2) Apply wax or lubricant on the surface, when set up the roof mounting system. (such as grease,40# engine oil)

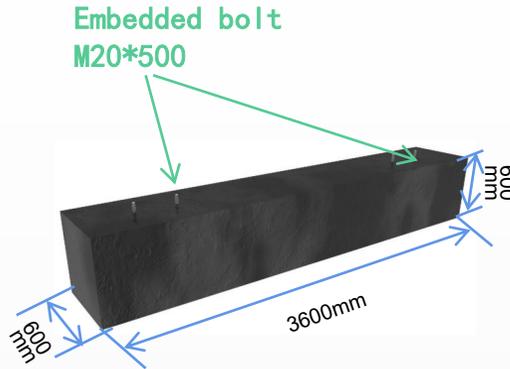
※ After all the components are adjusted in their proper positions, perform tightening operations. Repeated tightening and disassembly will cause defects.

### 2.Correct method of operation:

- (1) Be perpendicular to the axis of the threaded screw, do not tilt;
- (2) In the process of tightening, use even strength, do not exceed the prescribed torque value;
- (3) Use torque wrench or socket wrench as far as possible, avoid using adjustable wrench or electric wrench;
- (4) Avoid use under high temperature, when using, don't spin rapidly, avoid temperature rising rapidly then result in deadlocking (such as using electric wrench, etc)

## 5. Installation step

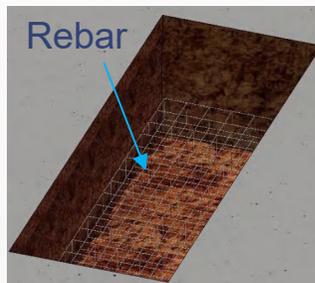
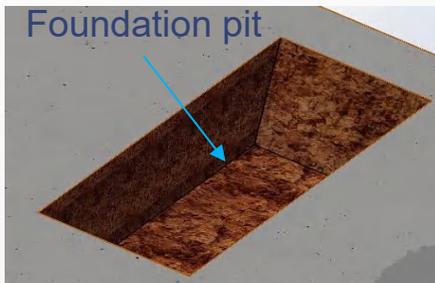
1



### a. Pouring concrete piers

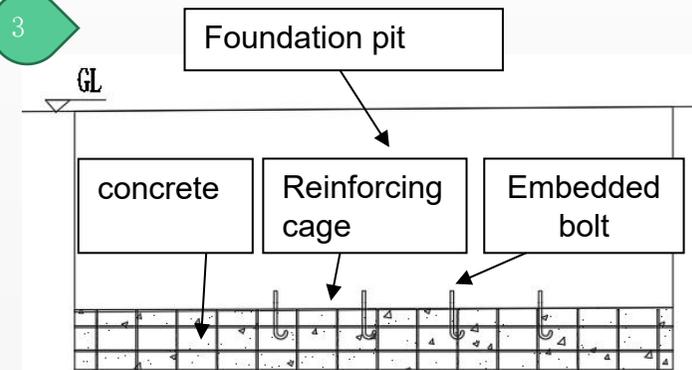
- (1) Prepare the necessary tools and products before installation.
- (2) Excavators are used to dig a pit of appropriate size at the position marked by the columns, and after tying a reinforcing cage with steel bars at the bottom of the pit, concrete containing sand and gravel is poured, and embedded bolts are pre-buried at the position marked by the engineering drawings. Leave it to dry completely before proceeding to the next step.

2



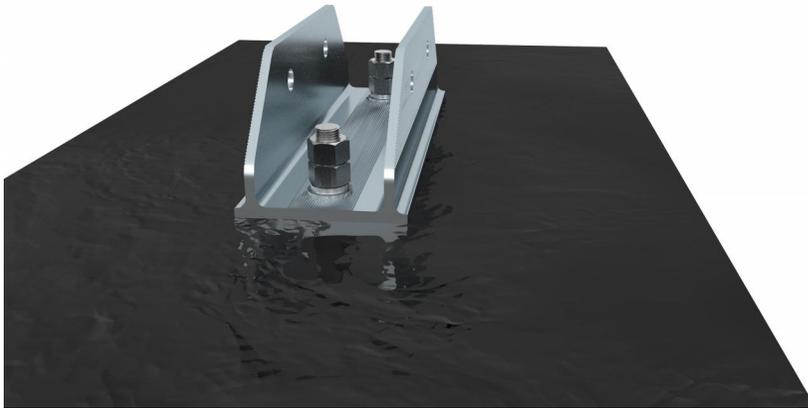
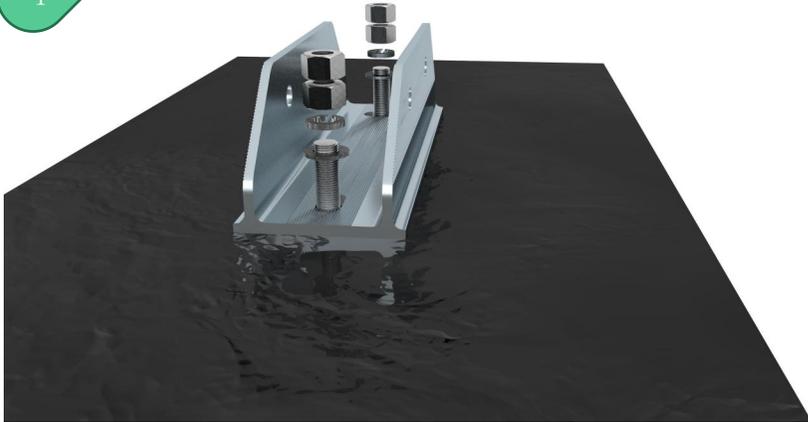
Reinforcing Steel Schematic

3



Schematic diagram of foundation pit fabrication

4

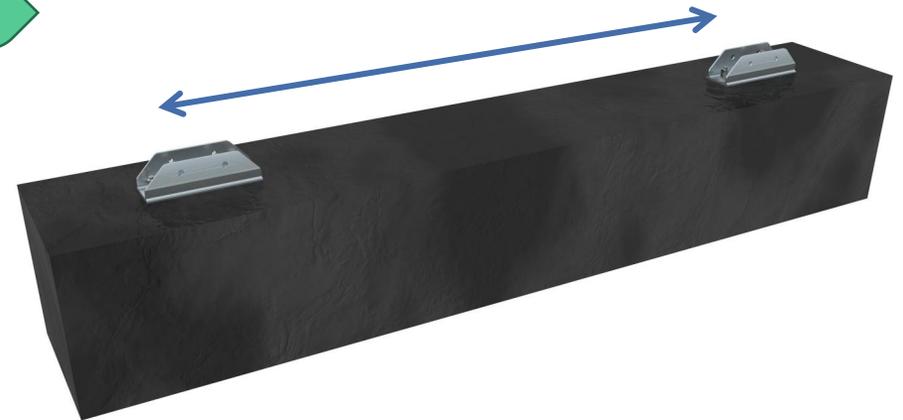


## b. Install the foundation

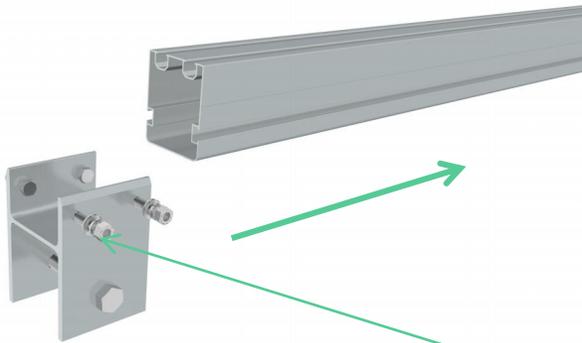
(1) Place the carport foundation on the pre-embedded bolts and pre-lock the nuts, position the carport foundation with a wire and then adjust the carport foundation to ensure that it is aligned both vertically and horizontally.

Refer to picture 4&5:

5



6



Allen bolts M12\*30



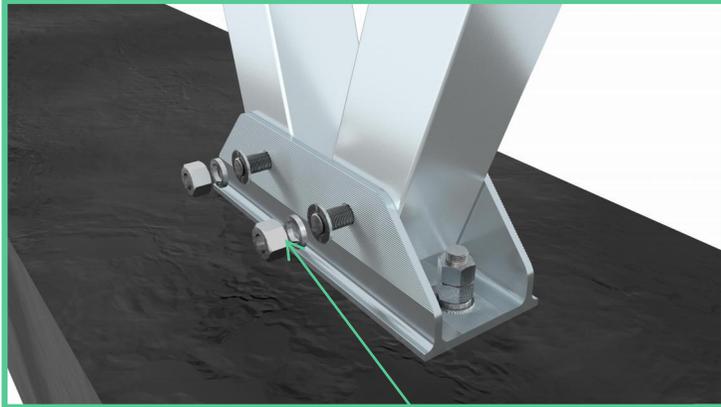
7



## c. Install the stringer

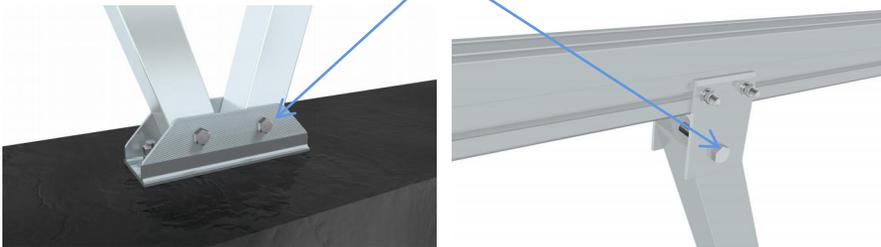
(1) The connector is pre-installed on the stringer according to the drawing and then lock the M12\*30 bolt assembly. Refer to picture 6.

Note: Pre-assembled connector of stringers can be adjusted on site



Allen bolt M20\*150

**Bolts need to be locked in the same direction!**



(2) Lock the pre-assembled carport W-bracket with the pre-installed carport foundation on the concrete foundation with M20\*150 bolts, this step requires the cooperation of 3-4 people.

Remarks: The locking direction of M20\*150 bolts for carport base should be the same as that of M20\*150 bolts for 100\*100 square tube. As shown in figure 8:

8

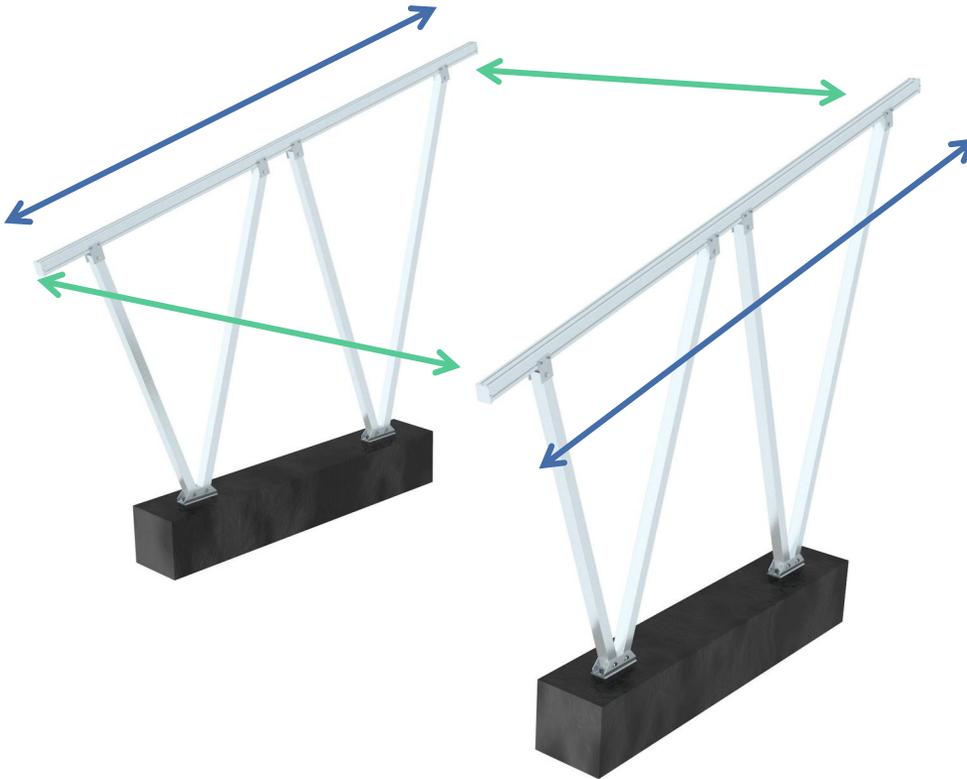


(3) Repeat the above steps to install the carport bracket on the concrete foundation as per the drawings, as shown in Figure 9.

9

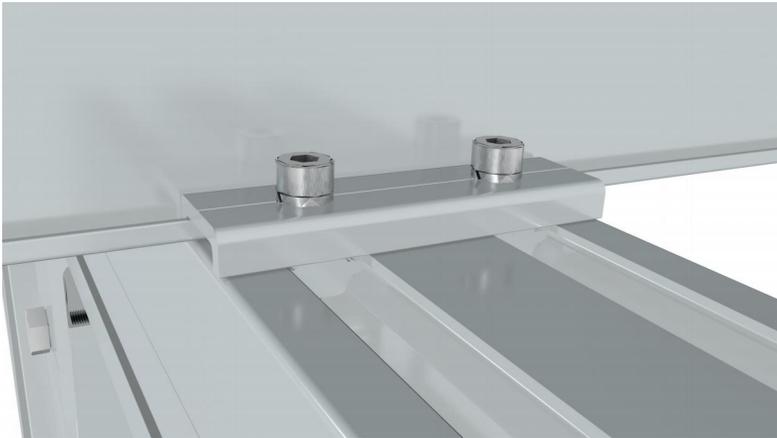
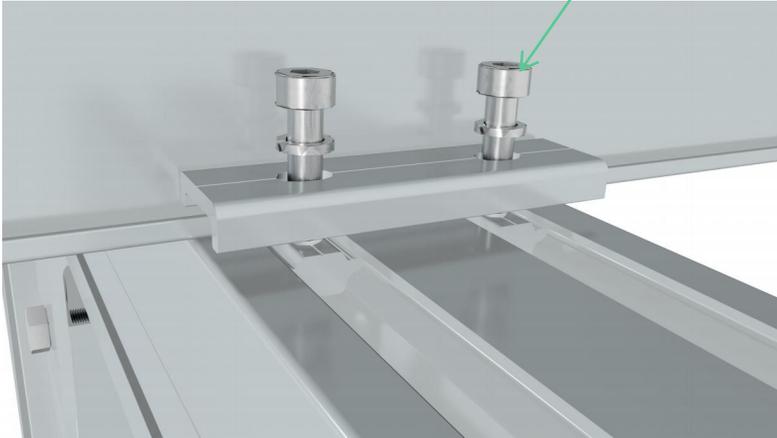
**NOTE: Re-check to make sure all fasteners are tightened.**

**NOTE: Align the top of the stringer and the edge of the base of each pre-assembled support. All pre-assembled supports are aligned horizontally and vertically.**



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Hexagon socket head bolts M8\*30



## d. Install the T155 rail

(1) Using C100 Clamp to fixed the T155 rail on the stringer.

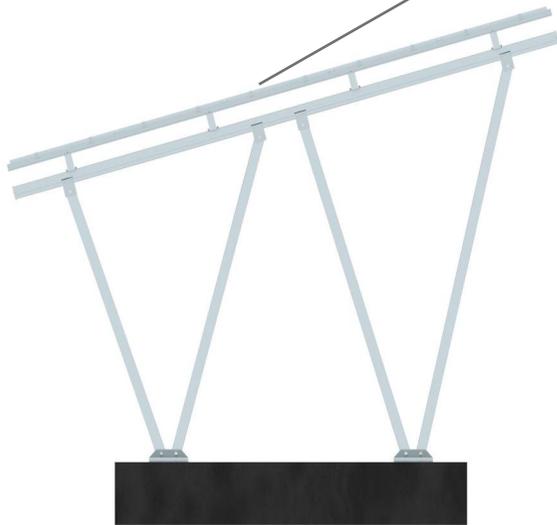
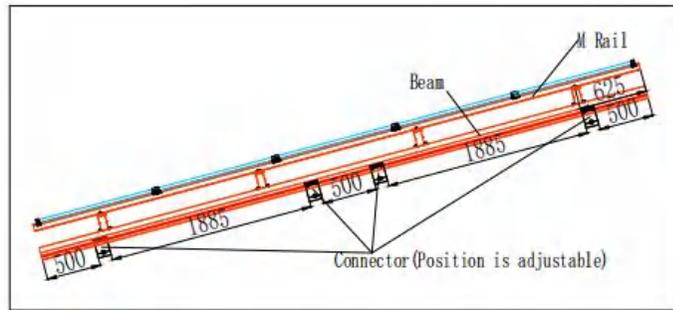
(as shown in Figure 10)

M8 Recommended torque range:

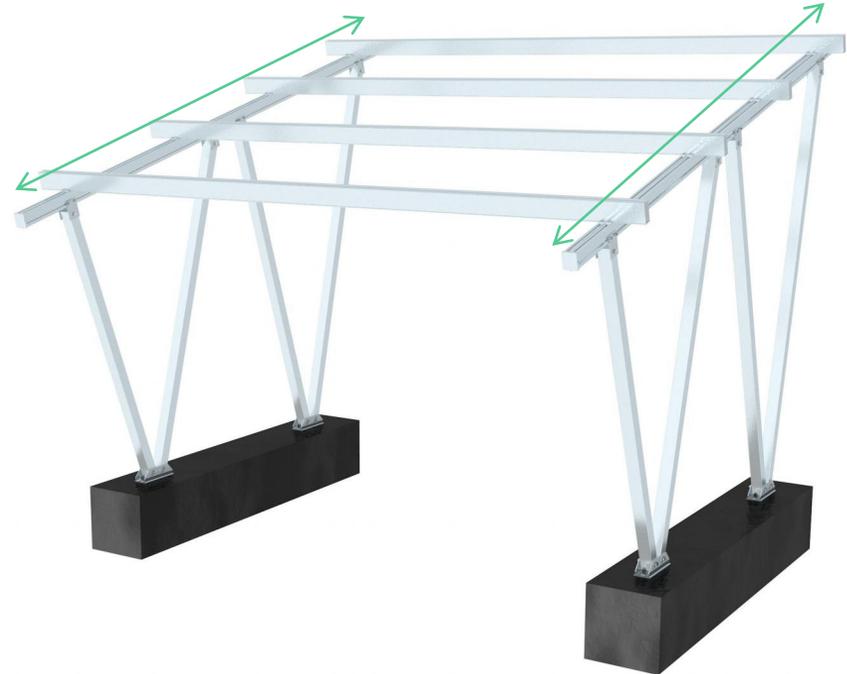
20-25N•M



11

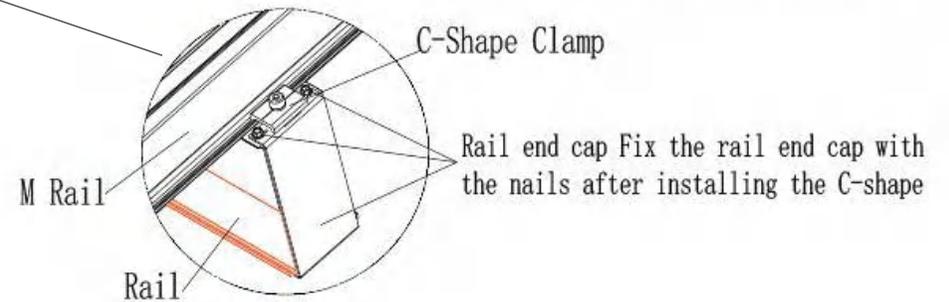
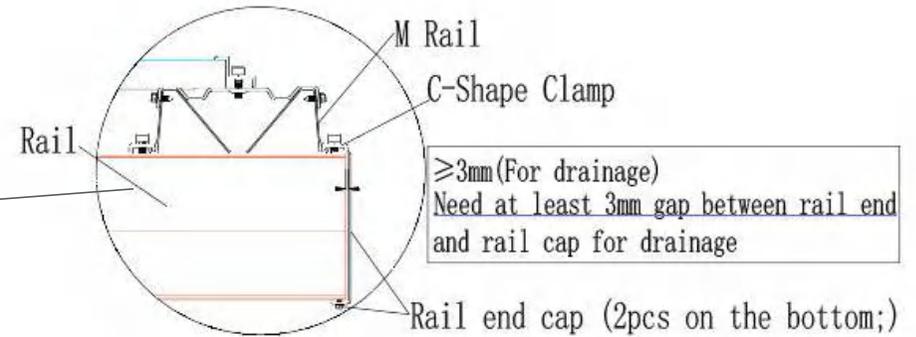


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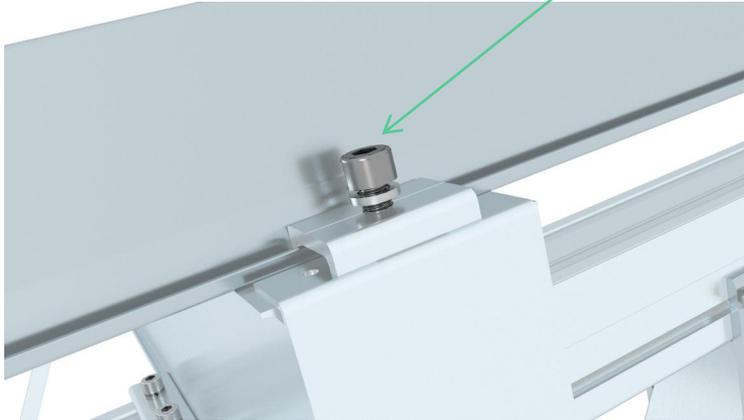
- (2) Install the rails in sequence according to the drawing dimensions.
- (3) Repeat the above steps for the remaining rails, making sure all the rails are aligned when the installation is complete.

## e. Install T155 rail end cap

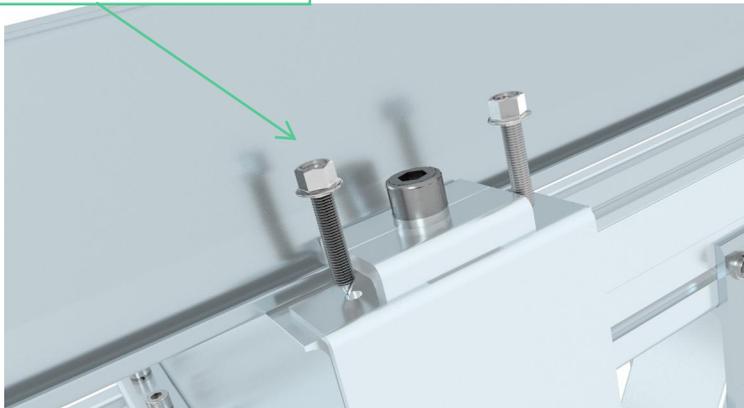


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Hexagon socket head bolts M8\*30



ST4.8X25 self-tapping screw



Note: The self-tapping nail fixing position needs to be adjusted accordingly to the site installation.

## f. Install the M rail

(1) Put the M rail on the T155 rail, using C40 clamp with M8\*30 bolts to fixed it.

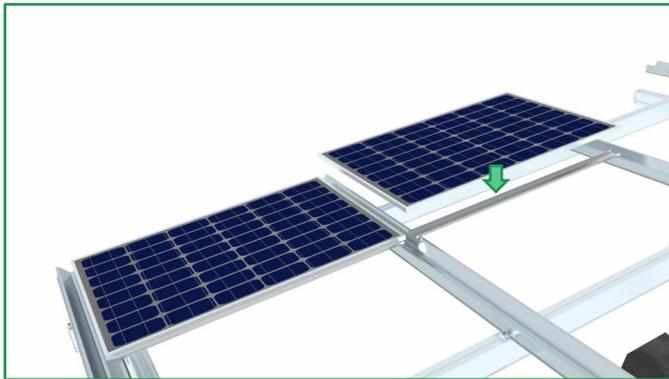
(2) After installing the M rail, using ST4.8\*25 self-tapping screw to fixed the end cap on the rail.

M8 Recommended torque range:  
20-25N•M

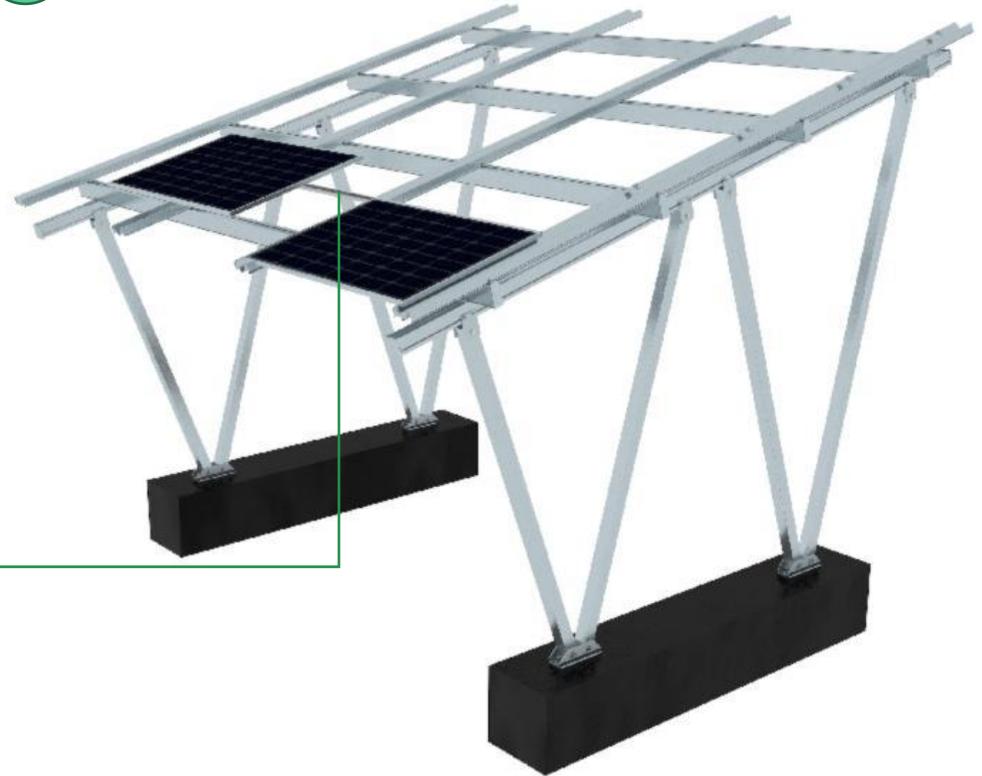


## g. Install the gutter

- (1) Place the gutter between panels on the long side according to the drawing.
- (2) After confirming the mounting position according to the drawings, fix the panels with the end clamp and the middle clamp.



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## h. Install the panel

(1) Install the mid and end clamp in the order of the figure on the right.(Refer to 16.)

M8 recommended torque: 15-20 N•M

(2) Install the panel from the left side, adjust the vertical size at the horizontal position of the panel, make sure that the horizontal and vertical panels are on the same line, then fix the panel with mid clamp and end clamp.  
(Refer to 17)

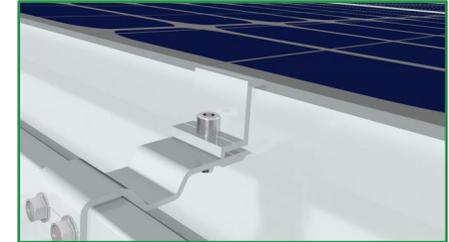
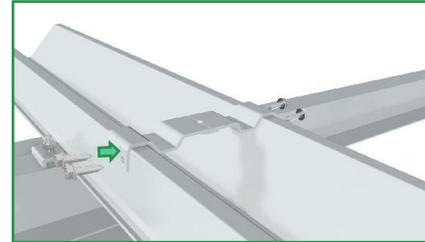
(3) Installation complete (Refer to 18.)

16



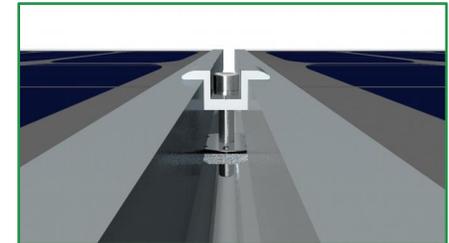
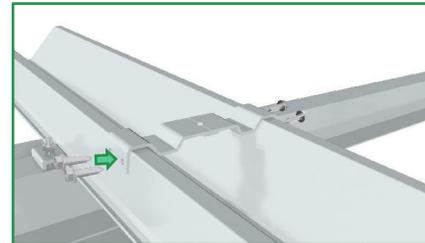
17

End clamp

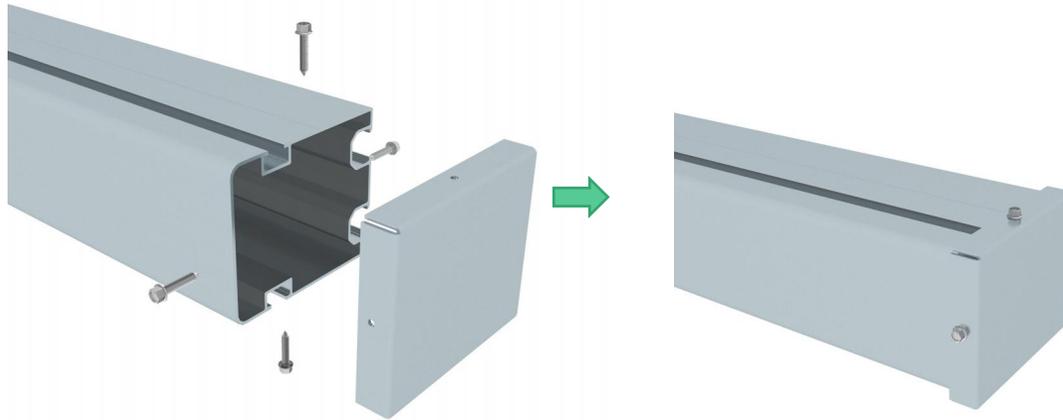


18

Mid clamp



**While installing the mid clamp, lock the grounding clip together using bolts.**



**Stringer end cap**

i. Install the stringer end cap

Install the stringer end cap.

(See figure on the left)