

# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## GS Al-Ground Mounting System Installation Guide



GS AL-Ground System is made of 100% aluminum for mounting on concrete strip foundations or ground screw. It is light and strong, graceful and smart.

In our AL-Ground System, the Beam is pre-assembled, the size of the leg and the B-Rail is plan and machined on factory to eliminate the weld and cut on installation site to save your install time and cost.

The installations please follow the procedures and precautions in these instructions carefully. And it must be complied with the local construction acts and the safety laws.

# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## 1. Introduction

### 1.1 Intended use

- Are intended to be used by individuals with sufficient technical skills for the task. Knowledge and use of hand tools, measuring devices and values is also required.
- Include various precautions in the forms of Notes, Cautions, and Warnings. These are to assist in the assembly process and/or to draw attention to the fact that certain assembly steps may be dangerous could cause serious personal injury and/or damage to components. Following the step-by-step procedures and these precautions should minimize the risk of any personal injury or damage to components making the installation not only safe but an efficient process.

### 1.2 Service life warranty

Grace Solar provides a warranty of 10 years for the service life of all materials used.

### 1.3 Safety

The following basic safety instructions and warning symbols form an essential part of this manual and are of fundamental importance when handling this product.

- Do not remove or disable any safety devices
- Comply with the relevant safety regulations.
- The presence of a second party who can provide help in the event of an accident is obligatory during the entire installation process.
- Keep a copy of this installation manual in the immediate vicinity of the system.

### 1.4 Responsibilities of the owner/operator

The system operator has the following safety-related responsibilities:

- To ensure that installation of the system is only carried out by individuals with specialist technical knowledge and basic knowledge of mechanical engineering.
- To ensure that those commissioned to perform the work can evaluate their assigned tasks and recognize possible risks.
- To ensure that those commissioned to perform the work are familiar with the system components.
- To ensure that the installation manual is available during installation. The installation manual is an integral part of the product.
- Ensure that the installation manual, and in particular the safety instructions, are read and understood by the relevant personnel before installation.
- Ensure that the permissible operation conditions are observed. Mounting systems is not liable for damage occurring when these conditions are not adhered to.
- Ensure the durability of all connections and the attachment of the system.
- Ensure that suitable lifting gear is used for installation.
- Ensure that only Mounting System components are used when parts need to be replaced. Otherwise any warranty claim is null and void

# AI-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com

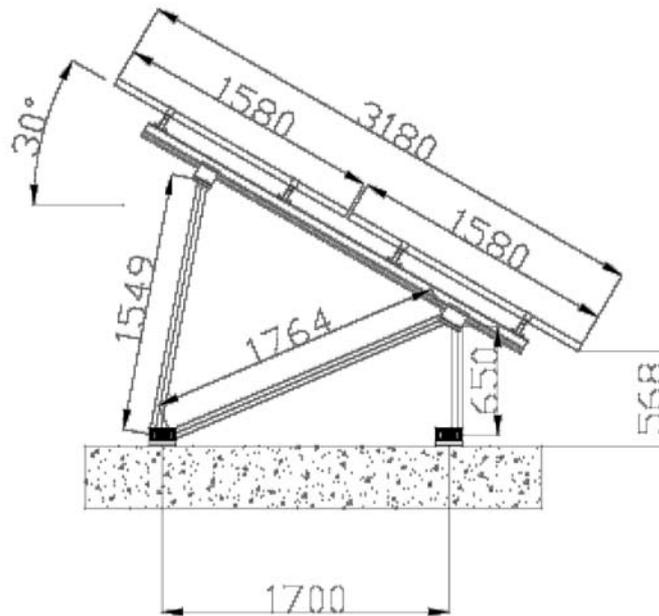


## 2. Planning

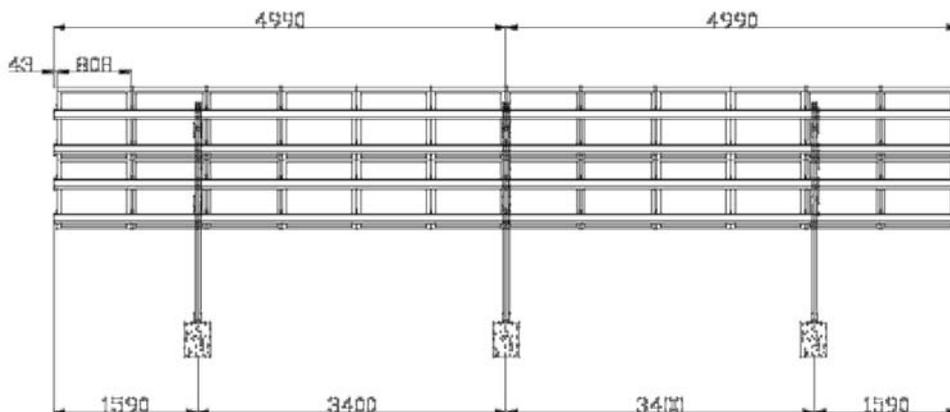
### 2.1 Layout Drawing

A general layout drawing is made of every system before delivery. This drawings show the accordant admeasurements and the position of every components and also the type of the connectors.

**Example 1:** when the module size is 1580x808x46mm, the array configure is 2x12, which placed portrait. The tilt angle is 30deg. The wind speed is up to 45m/s. The planning drawing could be as shown as below.



Side View



Back View

# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## 2.2 Foundation Planning

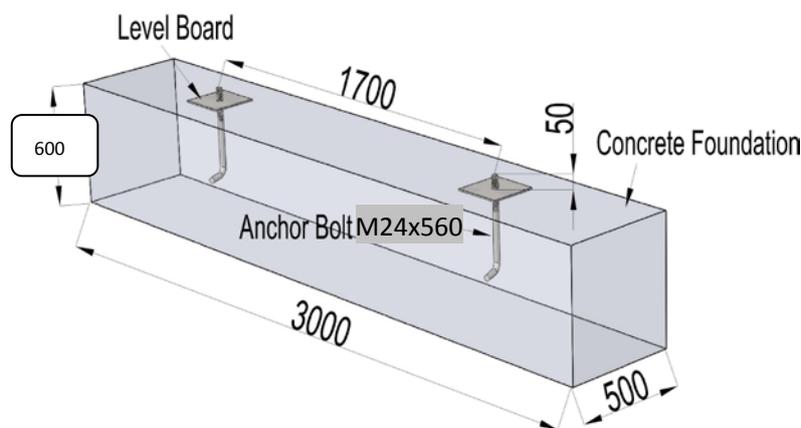
There are two solutions for the Al-Ground System, please see the detail information below and choice the best for your actual requirement.

### 2.2.1 Concrete Foundation with Pre-buried Bolt:

The concrete foundation is application for the most soil condition. Please consult with the local engineer to decide the size and the type of the foundation.

For the **Example 1**, if the ground is steady enough, the size and the type can be as shown as below.

This foundation is recommend to consult with the local supplier to do it, which is not provide by Grace Solar.



### 2.2.2 Ground Screw:

Ground Screw with flange can be connected with our AL-Ground System. It can be quick installed by the specialized equipment. Please choice the specification of the Ground Screw with the actual condition of the ground. It is recommend to consult a soil engineer to check it. (please see our product: Ground Screw)



# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## 2.3 Installation Tools

Allen Key 6mm



Coach Wrench  
( for M10~M12 Hex Bolts)



torque Wrench



Power Tool



Power Tool Bit For Hex Bolt M10  
and M12



Drill Bit for Power Tool (5mm)



Tape Measure



Rope



Wood Hammer



Bolt Sleeve 36 for M24 Bolt



# Al-Ground Mounting System



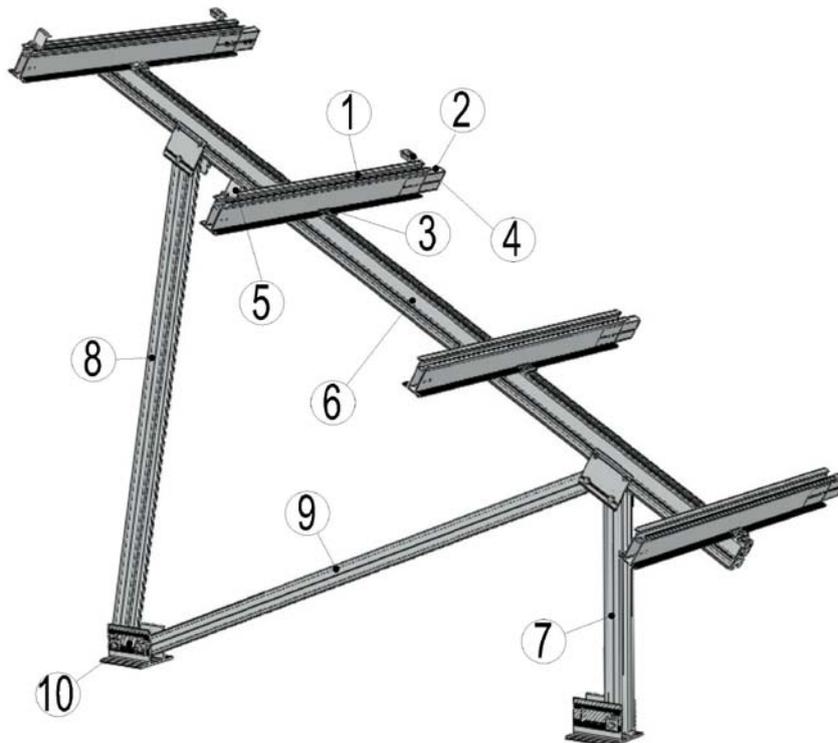
XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## 2.5 System overview



The system overview shows all system parts..

Item	Code	Description	Spec
1	GS-BR-4990	B-Rail 4990	4990 mm
2	GS-BR-SP	B-Rail Splice	200 mm
3	GS-BR-C60	B-Rail Clamp	60 mm
4	GS-IC-F46	Inter Clamp Kit	46 mm
5	GS-EC-F46	End Clamp Kit	46 mm
6	GS-AG-BA-2600	Assembly of Support Beam	2600 mm
7	GS-AG-T-700	Front Leg, Tube	700 mm
8	GS-AG-T-1600	Back Leg, Tube	1600 mm
9	GS-AG-T-1814	Brace, Tube	1814 mm
10	GS-AG-B-01	Bottom Base 1#	160 mm

# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## 2.5 Components

### 2.5.1 Aluminum Parts

		
<p>B-Rail</p>	<p>B-Rail Splice</p>	<p>B-Rail Clamp</p>
		
<p>Inter Clamp Kit</p>	<p>End Clamp Kit</p>	<p>AG Bottom Cap</p>
		
<p>Front Leg &amp; Back Leg &amp; Brace (Difference Length)</p>		
		
<p>Assembly of Beam</p>		

# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## 3. Installation Steps

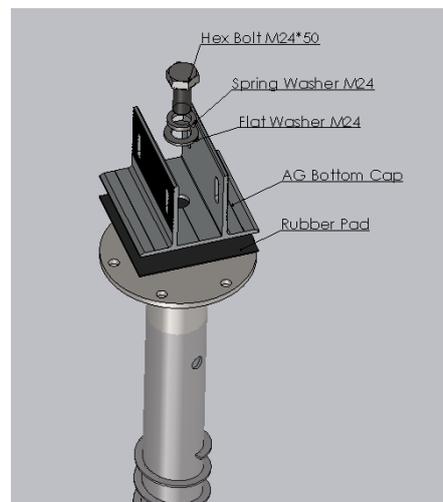
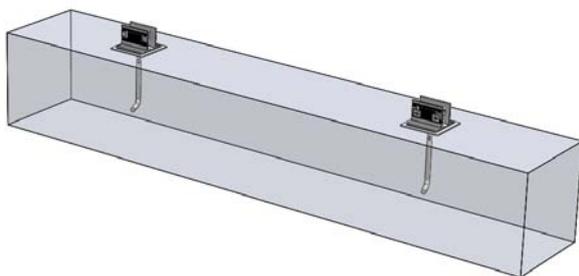
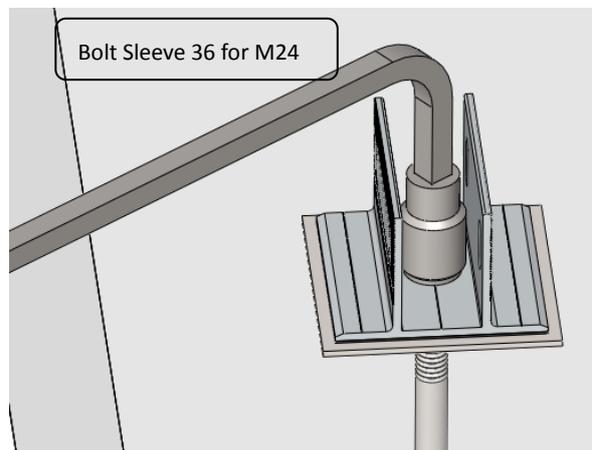
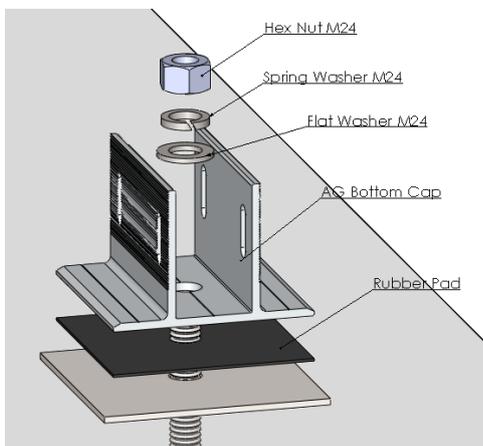
### CAUTION:

Install care while working around the structure during assembly;

There could be components that create hazards or obstruct free moment causing serious bodily injury; many at head/eye level. Move slowly and with care around the work area.

### Step 1: Mount the AG Bottom Cap on the Foundation

- a. Choice and finish the Foundation comply with the *Chapter 2*
- b. Connect the AG Bottom Cap on the Foundation.



# AI-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

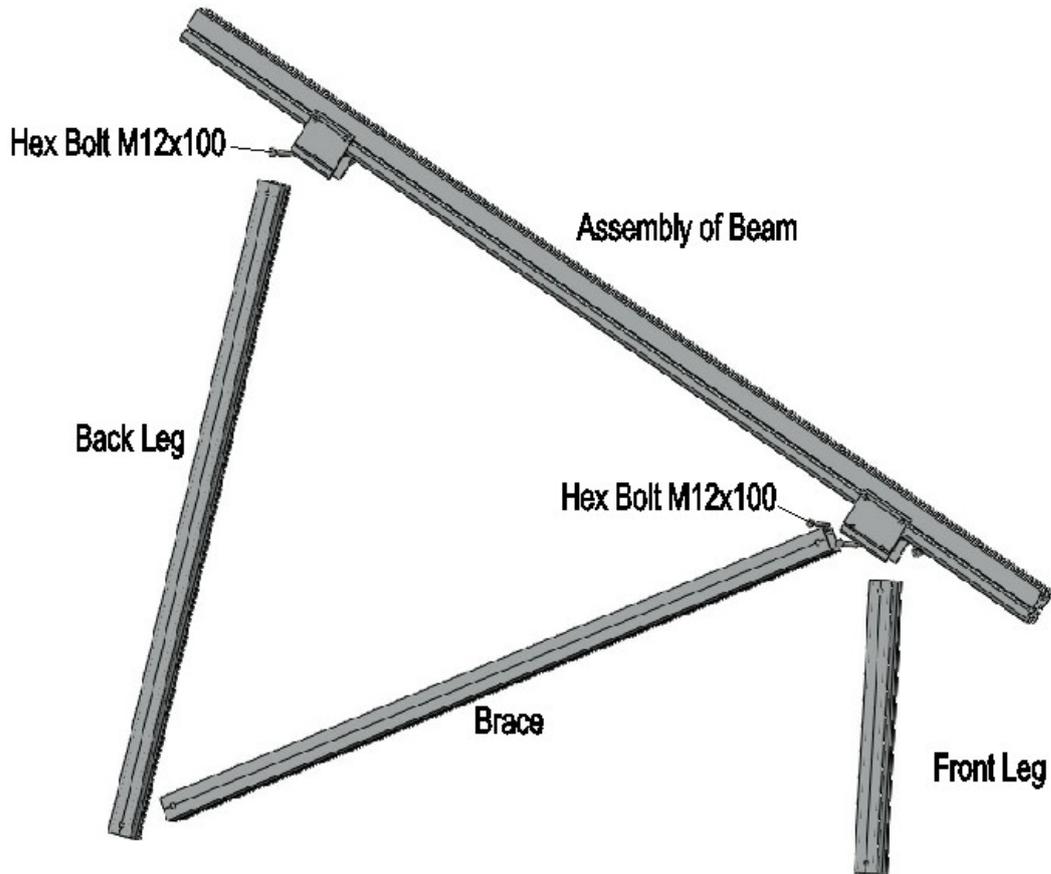
Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## Step 2: Assembly with the Beam and the Legs

Connect the Front leg, Rear Leg and the Brace with the Beam to be the Assembly of Support by Hex Bolt M12x100mm, just slight fasten for the next step;



# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

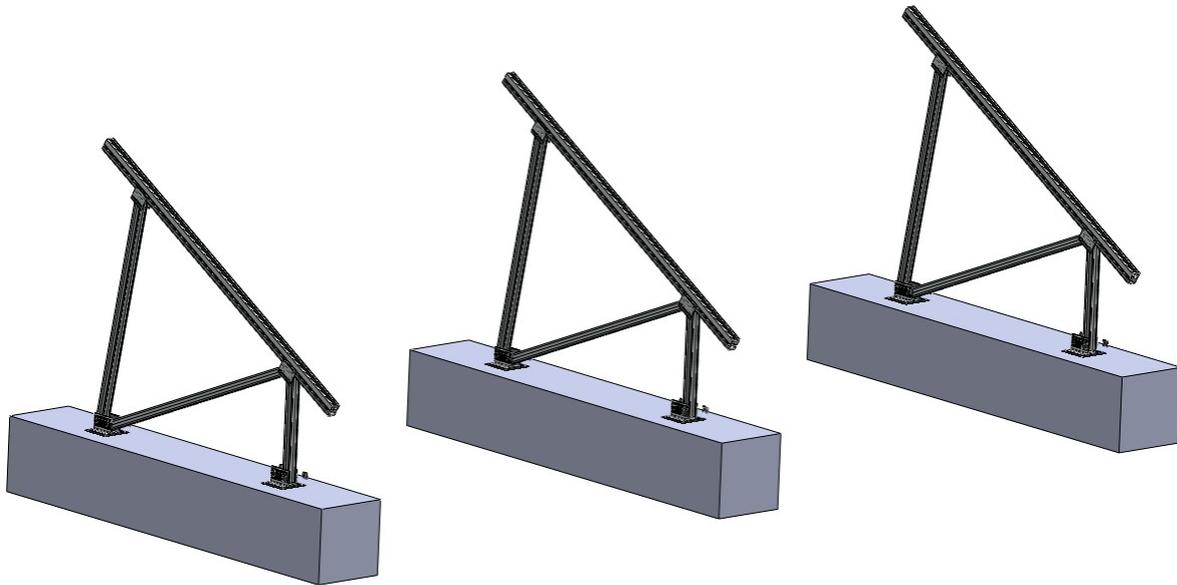
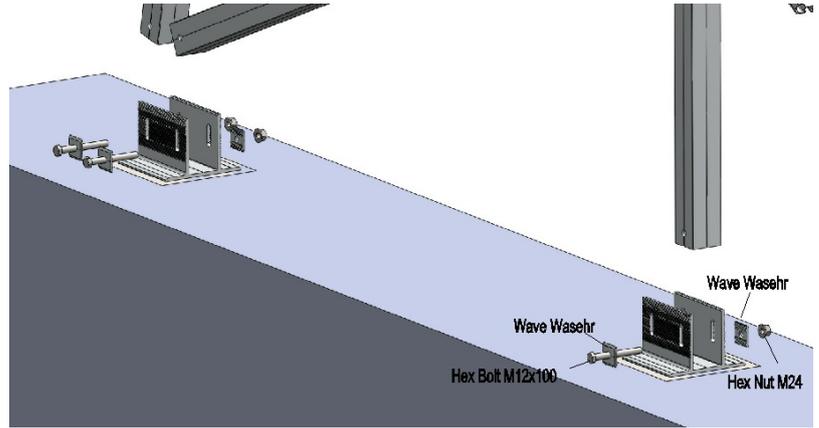
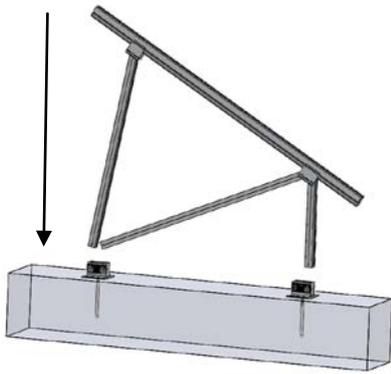
Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## Step 3: Install the Assembly of Support with the Bottom Cap

- a. Insert the leg and brace into the AG Bottom Cap;
- b. Adjust the height of the bolts to make sure the support is same.



Note: you can release the Socket Head Bolt M8x20 to adjust the space of the top and bottom bracket.

# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

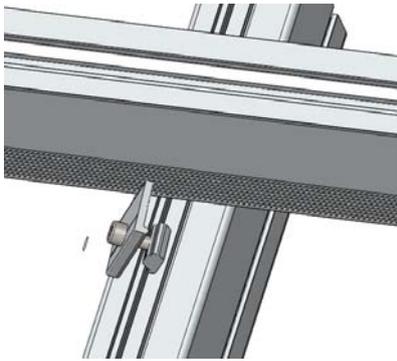
Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com

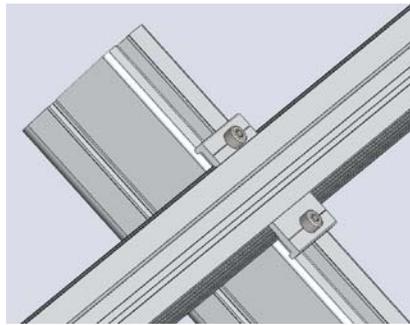


## Step 4: Install the B-Rail on the Beam

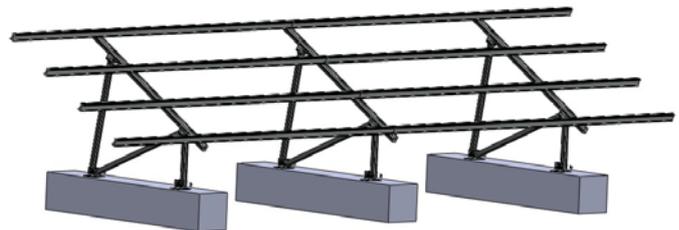
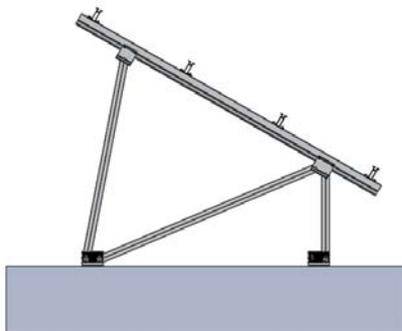
- a. Clamp the B-Rail both side by the B-Rail Clamp. Place the B-Rail comply with the planning.



Tile in the B-Rail Clamp

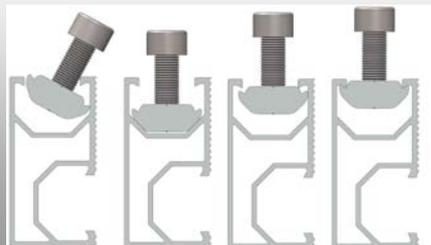


Clamp the B-Rail Both Side



Easy Installation for Tilt-in Module:

Four Step to put the Tilt-in Module into Rail easily;



# Al-Ground Mounting System



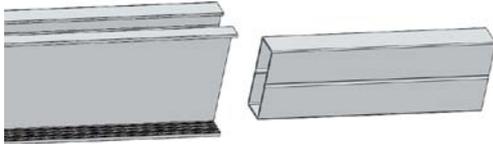
XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

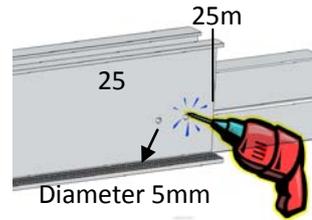
Fax: 0086-592-5732132  
Mail: info@gracesolar.com



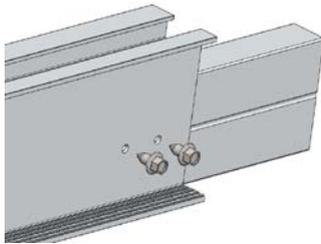
- b. Connection of two B-Rails. At first, insert half of the B-Rail into one of the B-Rail. Drill two 5mm holes, and fixed by two self-drill screw st6.3x25. Secondly, insert the other B-Rail into the other end of splice. Finally, drill two 5mm holes and fixed by the self drill screw too.



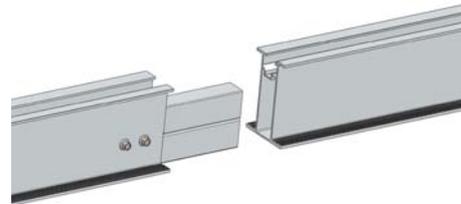
Insert the Splice



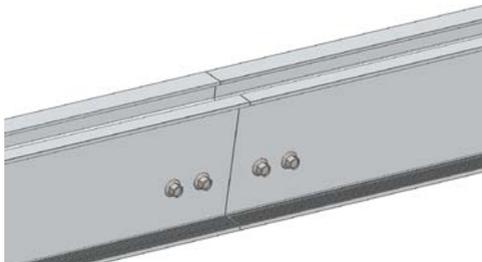
Dill two holes 5mm with space 25mm



Fixed by two self-drill screw st6.3



Insert the other Rail



Fixed the other B-Rail by the Self-drill Screw

# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

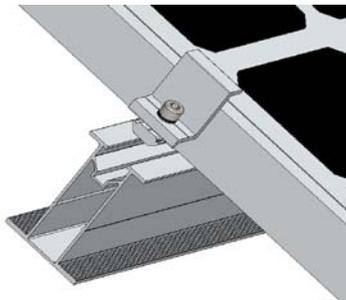
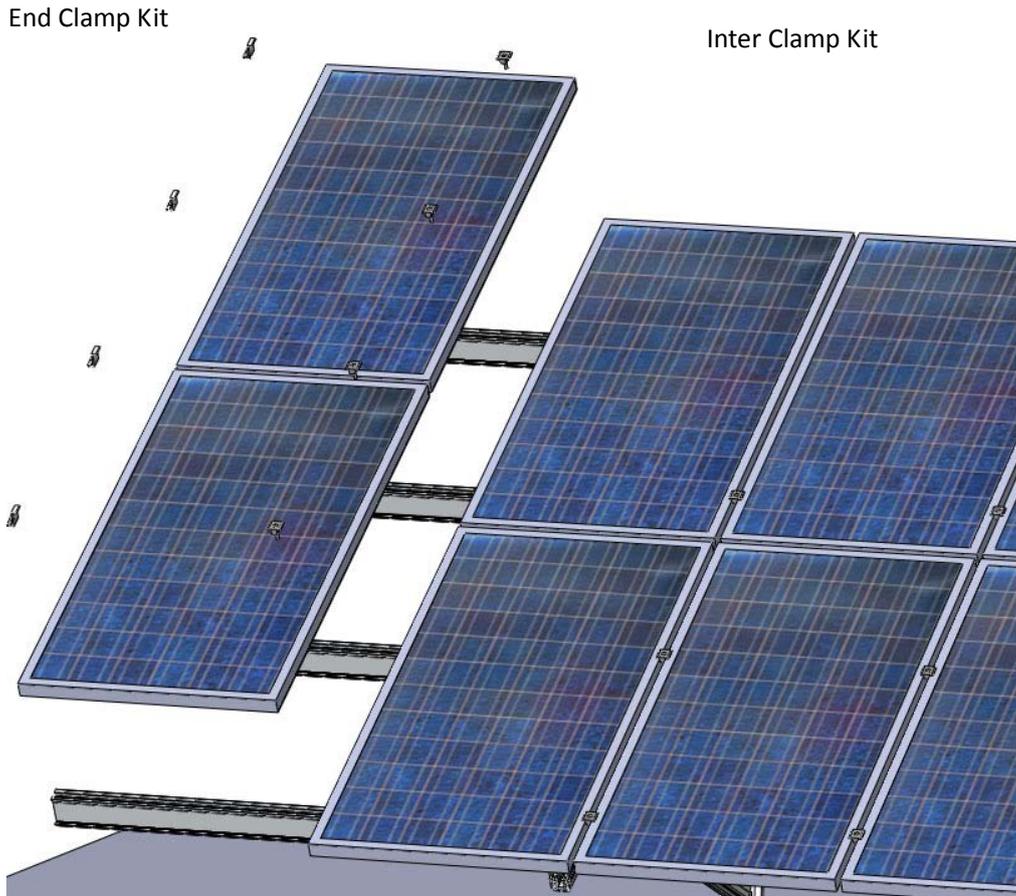
Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com

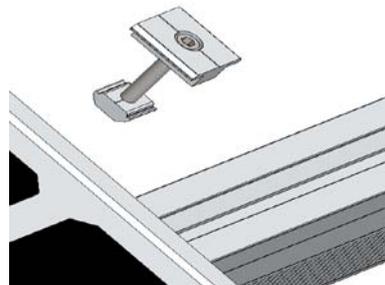


## Step 5: Install the Solar Panels

- a. Install the Solar Panels from one side to the other side.
- b. On the end, fix the solar panels by the End Clamp Kit
- c. Between two panels, fix by the Inter Clamp.



End Clamp Kit



Inter Clamp Kit

# Al-Ground Mounting System



XIAMEN GRACE SOLAR TECHNOLOGY CO., LTD.

Phone: 0086-592-5239037  
Web: www.gracesolar.com

Fax: 0086-592-5732132  
Mail: info@gracesolar.com



## Step 6: Finish

Check the structure and retighten the all bolts.

