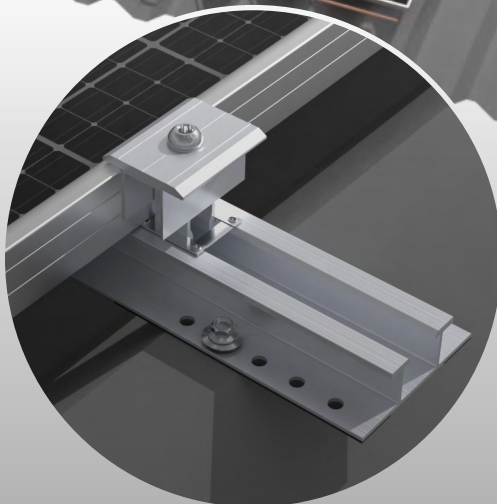
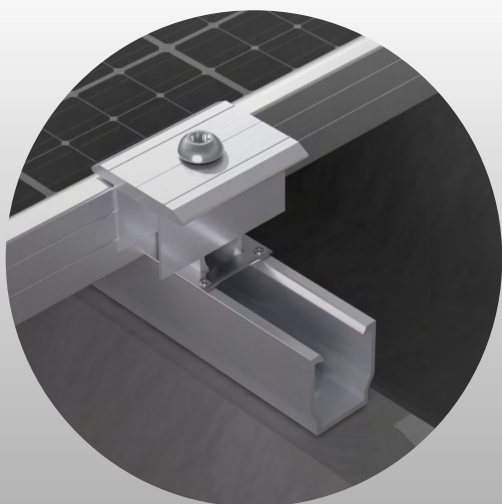
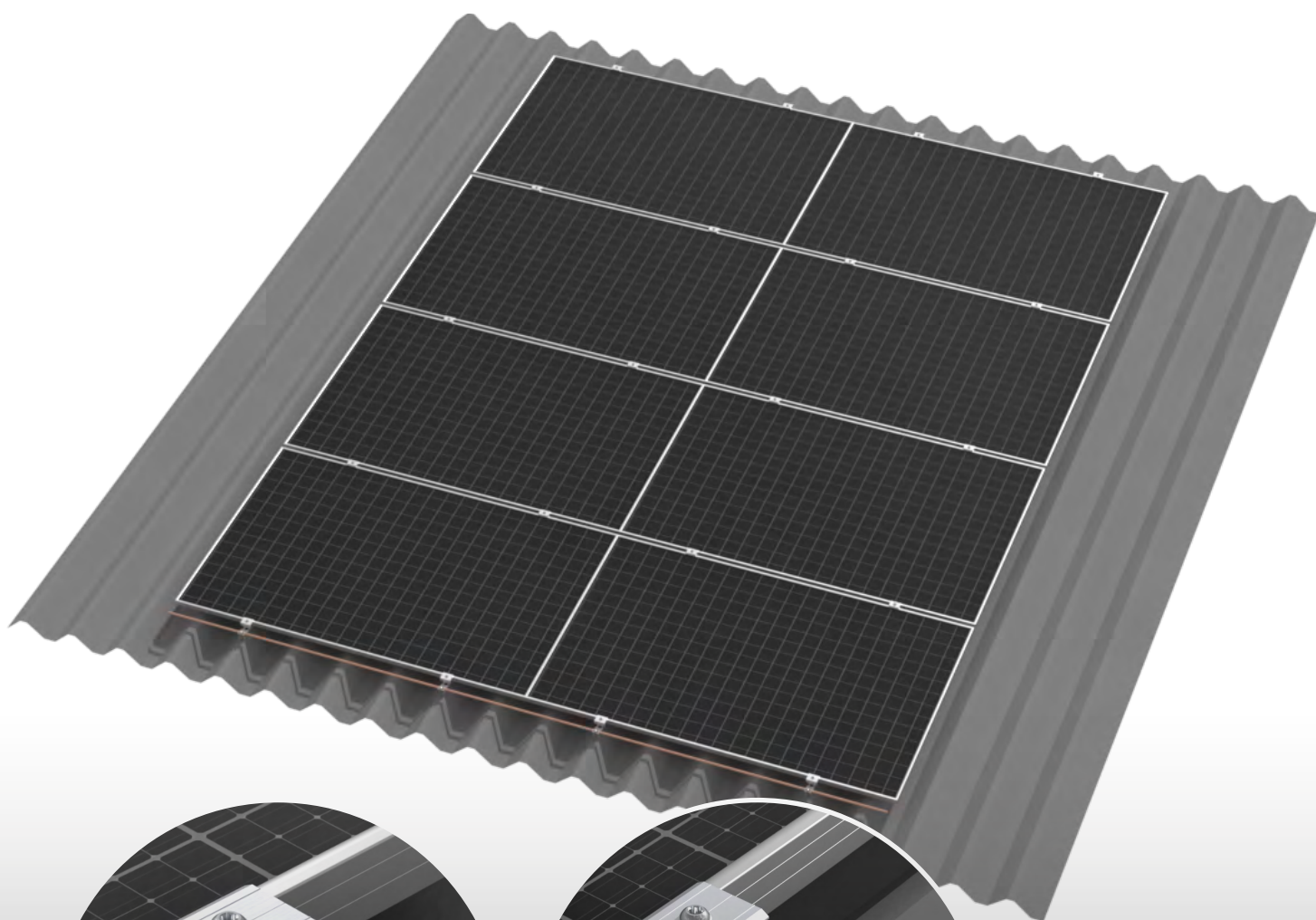


SolarRoof Pro 2.0

Mini-Rail Mounting on Trapezoidal Roof Installation Guide



Introduction

Clenergy PVezRack SolarRoof Pro 2.0, U Support, Mycro Rail and their H48 versions are standard solutions used for PV Module mounting on trapezoidal roofs. As rail-less solutions, these systems can be installed in portrait or landscape orientation. U Support and Mycro Rail can also be used with Toroda Rail.

This installation manual must be read carefully prior to carrying out any installation. The manual provides the following content:

- (1) a simple introduction of installation and
- (2) product installation specification.

List of contents

Introduction	01
Tools and Components	02
System Overview	03
Installation Instruction	06

Design Standards

- BS EN 1991-1-3-2003 Eurocode 1. Actions on structures
– Part 1-3: General actions - Snow loads
- BS EN 1991-1-4-2005 Eurocode 1. Actions on structures
– Part 1-4: General actions - Wind actions
- BS EN 1990-2002 Eurocode - Basis of structural design

Structural integrity of these systems will be compliant with the Eurocode standards when installed correctly. Make sure to comply with the relevant Occupational Health and Safety regulations when carrying any installation. Also, make sure to comply with other relevant State or Federal regulations.

Always check you are using the latest version of this Installation manual. To do so, contact your local distributor or contact Clenergy via the following email: tech.euuk@clenergy.com otherwise.

The installer is solely responsible for:

- Complying with all applicable local or national building codes, including any updates that may supersede this manual;
- Ensuring that PVezRack and other products are appropriate for the particular installation and the installation environment;
- Using only PVezRack parts and installer supplied parts as specified by PVezRack project plan (substitution of parts may void the warranty and invalidate the letter of certification);
- During installation, ensure that the self-tapping screws and metal screw have sufficient strength and shear force;
- Keep the roof waterproof system intact;
- Recycling: Recycle according to the local relative statute;
- Removal: Reverse installation process;
- Ensuring that there are no less than two professionals working on panel installation;
- Ensuring the installation of related electrical equipment is performed by licensed electricians;
- Ensuring that the roof, its rafters/purlins, connections, and other structural support members can support the array under building live load conditions;
- Ensuring that screws to fix interfaces have adequate pull-out strength and shear capacities as installed;
- Maintaining the waterproof integrity of the roof, including selection of appropriate flashing;
- Verifying the compatibility of the installation considering preventing electrochemical corrosion between dissimilar metals. This may occur between structures and the building and also between structures, fasteners and PV modules.

Tools and Components

Tools

				
Screw Driver (for M8 Torx Screw and bolt)	Torque Spanner	Tape	String & Marker Pen	Spanner

Components

				
EC-M28-46/L50 EC-M28-46/L50/BA End Clamp 28-46mm with M module	IC-M28-46/L50 IC-M28-46/L50/BA Inter Clamp 28-46mm, with M module	ER-S-U/120 U Support	ER-R-MC/380 Mycro Rail, 380mm	ER-S-U/M/250/H48 U Support H48
				
ER-R-MC/M/380/H48 Mycro Rail H48, 380mm	ER-R-SRPII/TO/40 Toroda Rail 40	ER-SP-SRPII/TO/40 Splice for Toroda Rail 40, L200mm	ER-RC-TO/BW Rail Clamp Set for Toroda -rail	EZ-CAP-TO/40/G Cap for Toroda Rail 40
				
EZ-GL-TO Grounding Lug for Toroda Rail	GC-DT Grounding Clip			

System Overview

With Mycro Rail



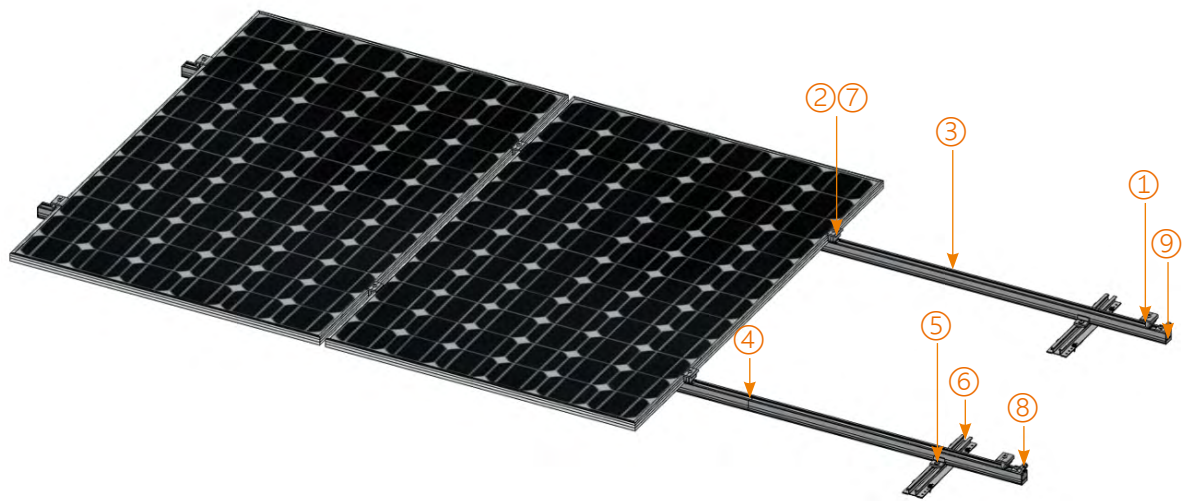
- ① End Clamp ② Inter Clamp ③ Mycro Rail / Mycro Rail H48 ④ Grounding Clip ⑤ Grounding Lug

With U Support



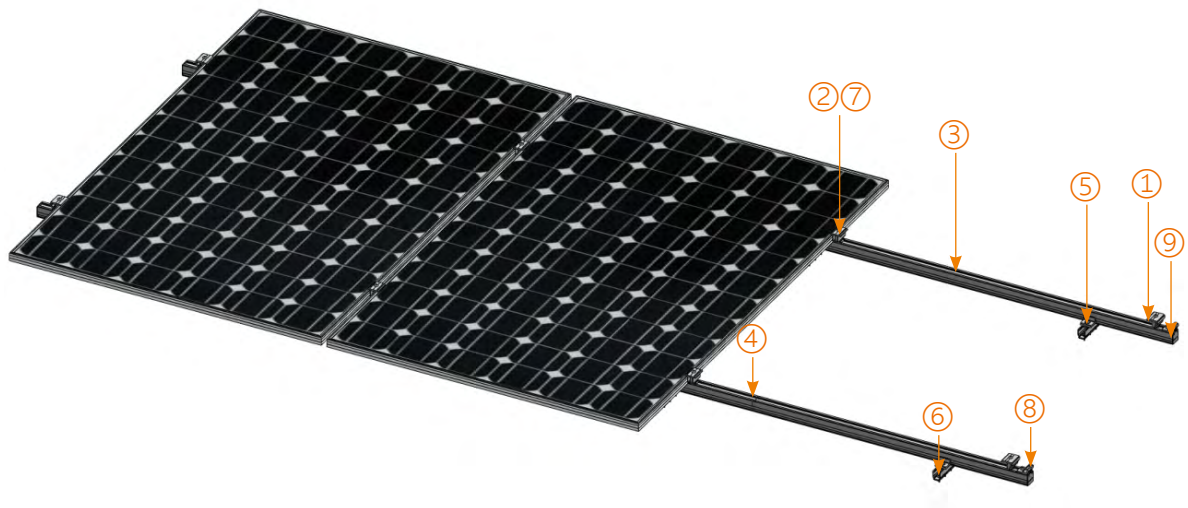
- ① End Clamp ② Inter Clamp ③ U Support/ U Support H48 ④ Grounding Clip ⑤ Grounding Lug

With Mycro Rail and Toroda Rail



- ① End Clamp ② Inter Clamp ③ Toroda Rail ④ Splice for Toroda Rail ⑤ Rail Clamp
- ⑥ Mycro Rail / Mycro Rail H48 ⑦ Grounding Clip ⑧ Grounding Lug ⑨ Cap for Toroda Rail

With U Support and Toroda Rail



- ① End Clamp ② Inter Clamp ③ Toroda Rail ④ Splice for Toroda Rail ⑤ Rail Clamp
- ⑥ U Support / U Support H48 ⑦ Grounding Clip ⑧ Grounding Lug ⑨ Cap for Toroda Rail

Precautions during Stainless Steel Fastener Installation

Improper operation may lead to deadlock of Nuts and Bolts. The steps below should be applied to stainless steel nut and bolt assembly to reduce this risk.

General installation instructions:

- (1) Apply force to fasteners in the direction of thread
- (2) Apply force uniformly, to maintain the required torque
- (3) Professional tools and tool belts are recommended

Safe Torques:

Please refer to safe torques defined in this guide as shown in Installation Instructions. In case power tools are required, Clenergy recommends the use of low speed only. High speed and impact drivers increase the risk of bolt galling (deadlock). If deadlock occurs and you need to cut fasteners, make sure that there is no load on the fastener before you cut it. Avoid damaging the anodized or galvanized surfaces.

Installation Instructions

U Support & U Support H48 Installation

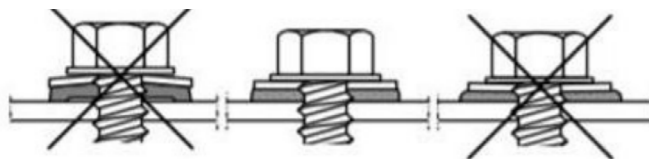
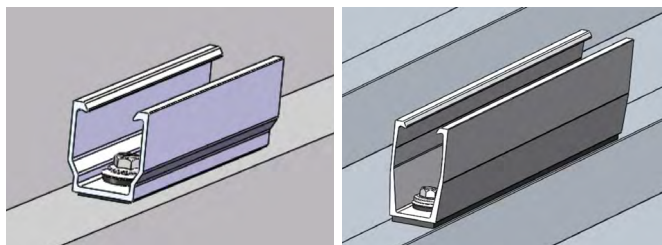
Option 01: PV panel installed directly on U Support / U Support H48

Note:

U Support H48 and U Support follow identical installation steps. All subsequent guidance demonstrates the process using U Support.

According to your plan, mark the position of the U Support on the trapezoidal roof with a Marker Pen and String. Place the U Support on the marked position, as shown in the figures on the right. Fix the U Support onto the rib of the trapezoidal metal sheet with Self-drilling screws.

One U Support with 3 Self-drilling screws (Pay attention to deformation of the gasket as shown in the figures on the right).



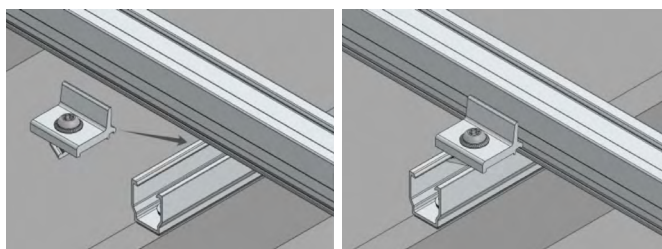
PV panel installed on Toroda Rail

Option 02: PV panel installed on Toroda Rail

Use the same step from Option 01 to fix the U Support to the ribs of the trapezoidal metal sheet.

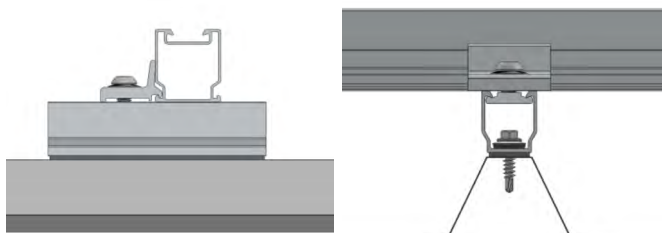
Put the Toroda Rail on the U Support. Use rail clamp to fix the Toroda Rail to U Support. One clamp is sufficient for hold rail as shown in right figures.

Note: The recommended torque for Rail Clamp is 14 N·m.

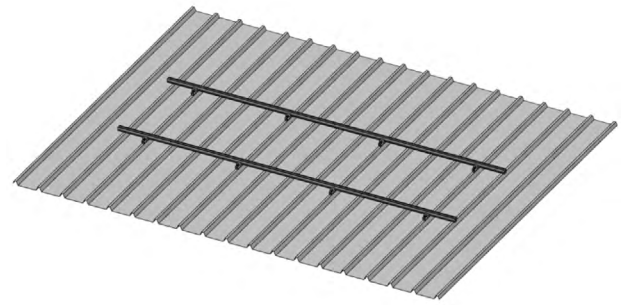


U Support

U Support H48



To connect several rails together, slide half of the splice into the rear side of the rail, until it's stuck and fixed by the Connection Clip. Then slide the next rail into the splice and get it fixed

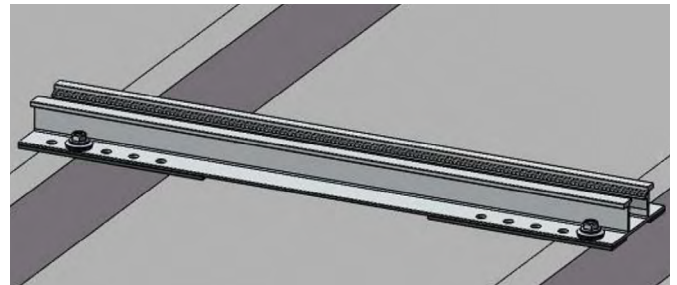


Mycro Rail & Mycro Rail H48 Installation

Option 01: PV panel installed directly on Mycro Rail / Mycro Rail H48

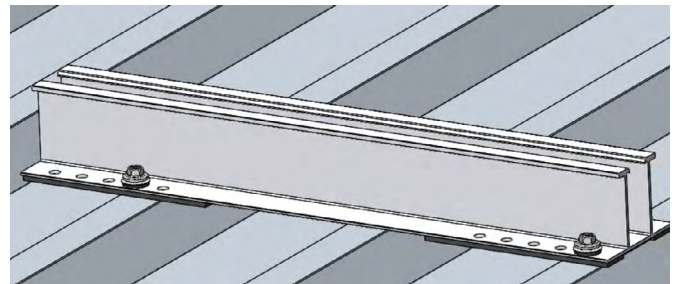
Note:

Mycro Rail and Mycro Rail H48 follow identical installation steps. All subsequent guidance demonstrates the process using Mycro Rail.

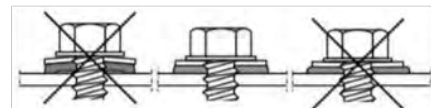


Mycro Rail

Use the same step from Option 01 to fix the Mycro Rail to the ribs of the trapezoidal metal sheet as the figures shown on the right.



Mycro Rail H48



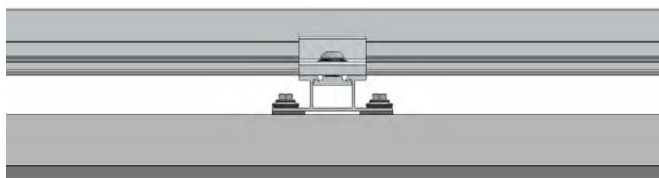
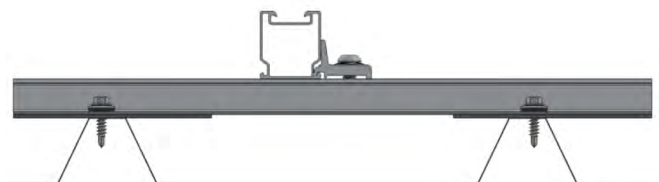
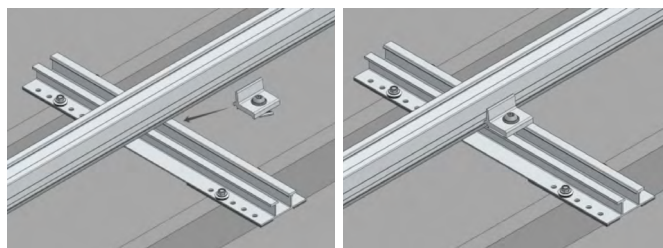
Option 02: PV panel installed on Toroda Rail

Use the same step from Option 01 to fix the Mycro Rail to the ribs of the trapezoidal metal sheet.

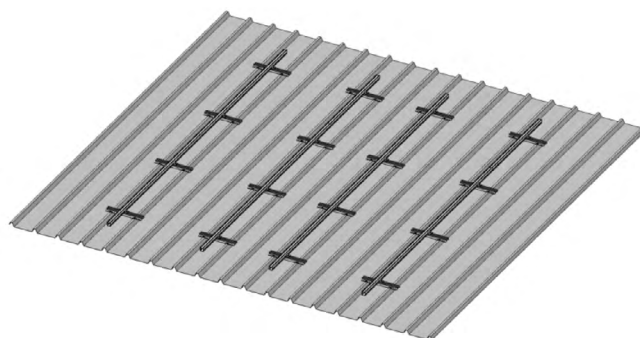
Put the Toroda Rail on the Mycro Rail. Use rail clamp to fix the Toroda Rail to Mycro Rail. The rail clamp must be used in the correct way as the figures shown on the right.

One clamp is sufficient for hold rail as shown in right figures.

Note: The recommended torque for Rail Clamp is 14 N·m.

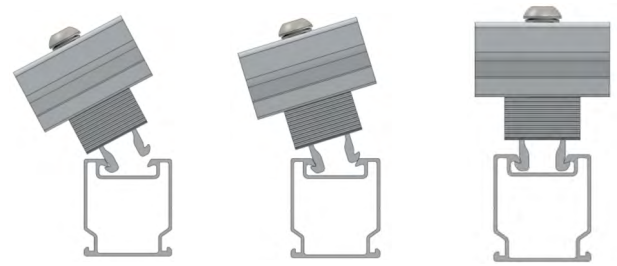


To connect several rails together, slide half of the splice into the rear side of the rail, until it's stuck and fixed by the Connection Clip. Then slide the next rail into the splice and get it fixed.



Inter Clamp and End Clamp Installatio

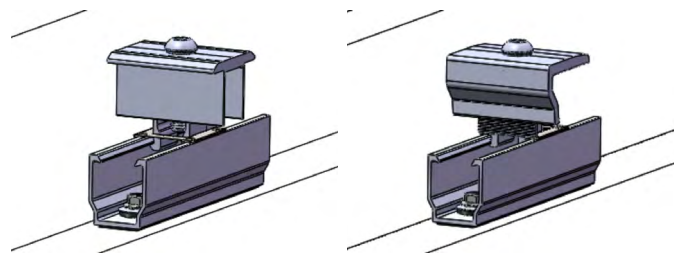
Click the M-module of the clamps into the top channel of U Support, Mycro Rail or Toroda Rail as shown in the right figures.



Incline

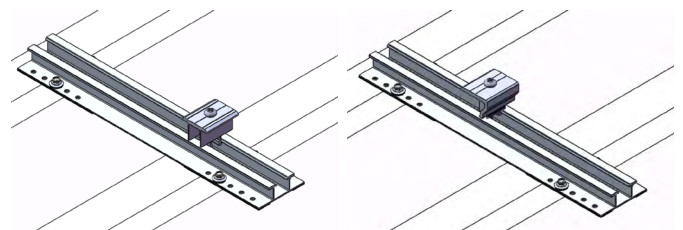
Click in

Press down



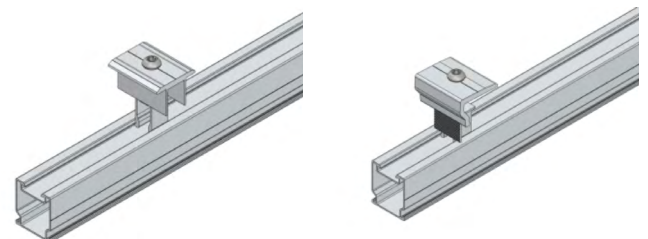
Inter Clamp (U Support)

End Clamp (U Support)



Inter Clamp (Mycro Rail)

End Clamp (Mycro Rail)



Inter Clamp (Toroda Rail)

End Clamp (Toroda Rail)

PV Module Installation

Place PV Modules on supports or rails, fix with end clamps and inter clamps.

Place the first PV Module on the U support or Mycro Rail according to your plan, and fix it in place using End Clamps with Grounding Clips, then fasten lightly using Torx L-key as shown in the right figures.

When the Toroda Rails are used, fix the PV Modules using End Clamps.

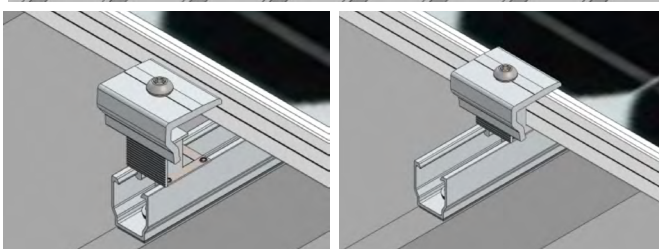
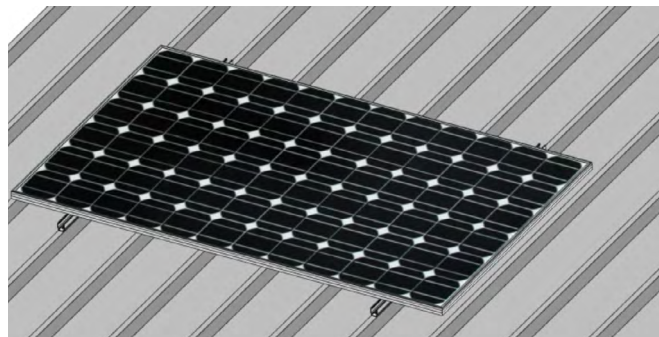
Notes:

The distance L from end clamp to the end of the rail shall be over 10mm.

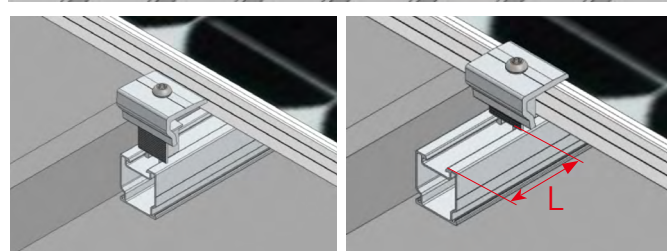
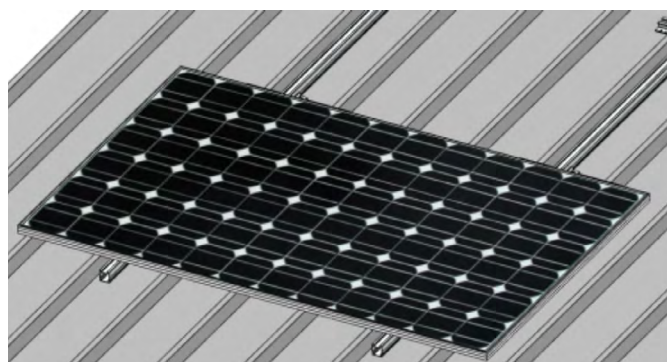
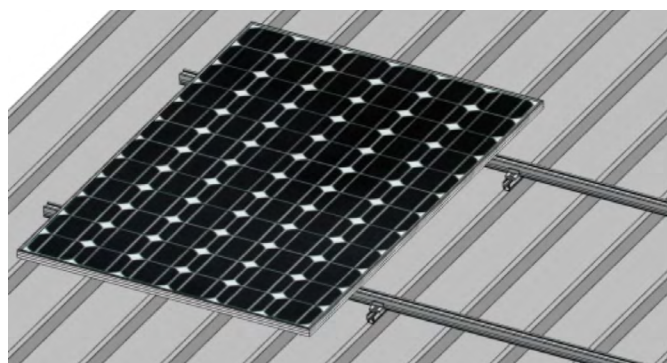
When need to install the Grounding Lug, The distance L shall be over 45mm.

The recommended torque for End Clamp is 14 N·m.

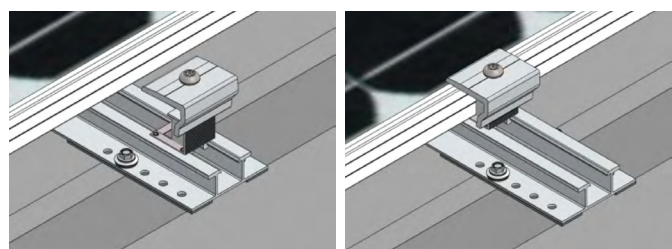
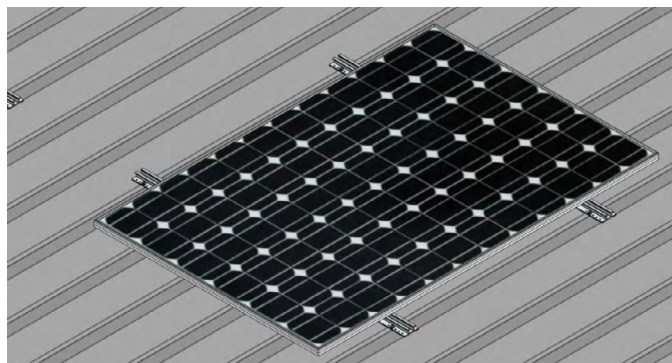
U support:



Toroda Rail:

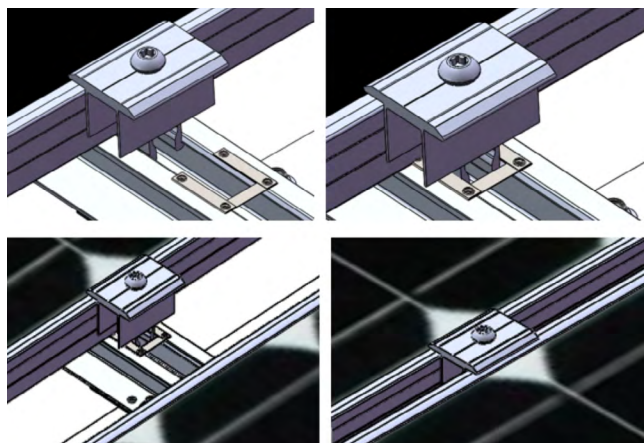


Mycro Rail:



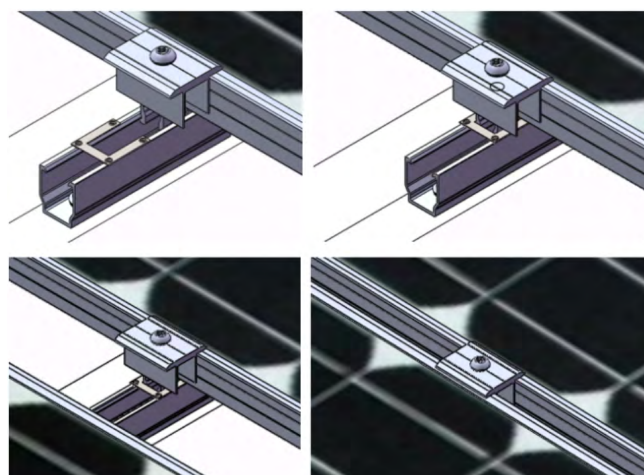
Click the Inter Clamp into the U support, Mycro Rail or Toroda Rails. And affix it to the side face of PV-Module.

Slightly lift the PV Module and slide Inter Clamps and Grounding Clips into position. The teeth on Grounding Clip will automatically align when the Inter Clamp is properly installed as shown in the right figures.



Mycro Rail

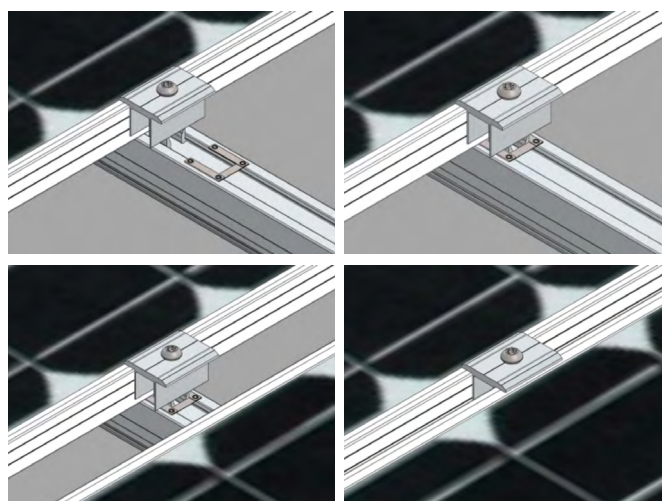
Loosely place the next framed PV Module into the other side of the Inter Clamp and Grounding Clip as shown in the right figures.



U Support

Important Notes:

- To fix the Grounding Clip properly, ensure the frames of PV Modules are completely pressed against the Inter Clamp and Grounding Clip. Visually check that Grounding Clips are positioned properly.
- Grounding Clips are intended for SINGLE USE ONLY!
- Only fasten the bolts down when the position of PV Module is finalized. (Only slightly tighten bolts to keep PV Modules in place prior to the final check)



Toroda Rail

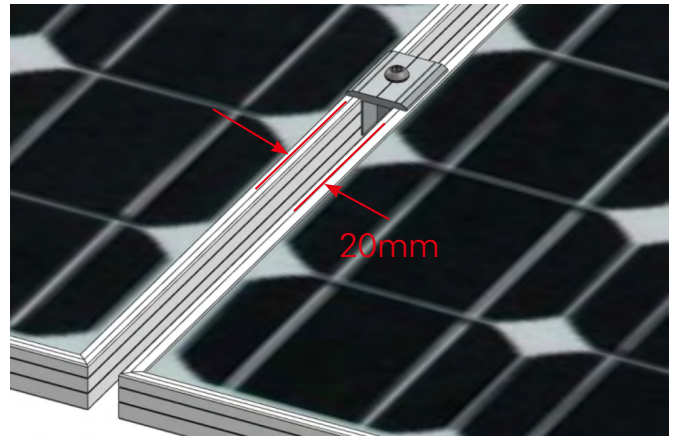
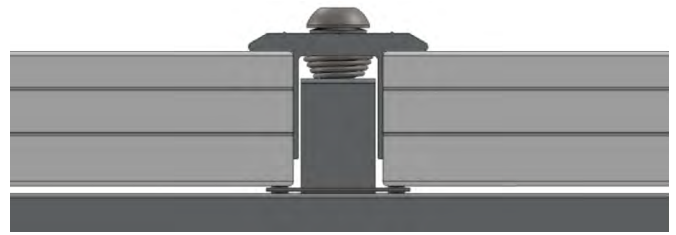
Maintain 20mm vertical gap and 20mm horizontal gap between the two adjacent rows of PV Modules.
You can use two Inter Clamps to separate two PV Modules.

Double check if all PV Modules are fixed properly.

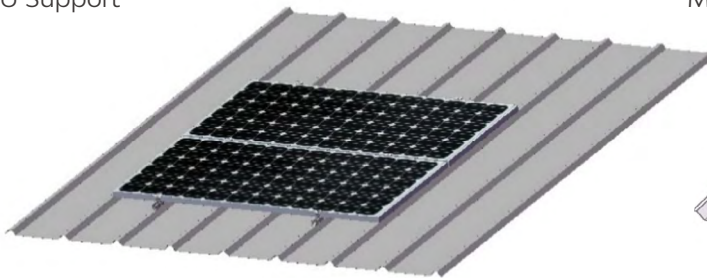
Fasten all the screws tightly.
The recommended torque is 14 N·m.

Repeat above steps to install the rest PV-Modules.

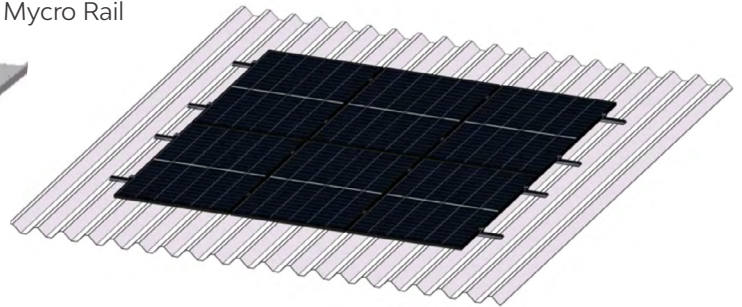
PV module installation is completed as shown in the right figures.



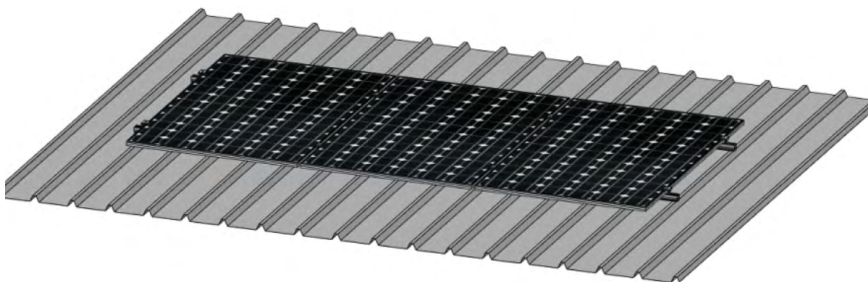
U Support



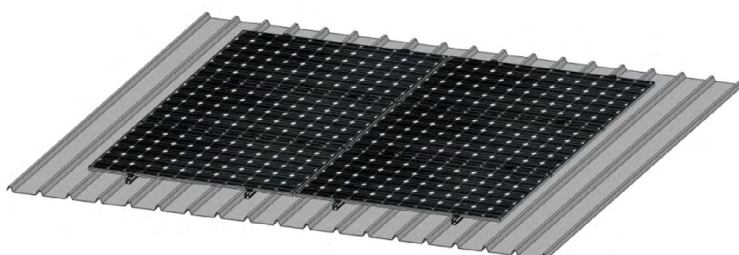
Mycro Rail



U Support and Toroda Rail



Mycro Rail and Toroda Rail



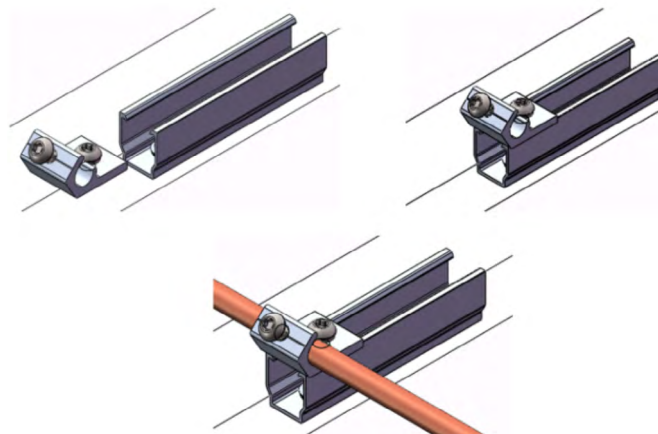
Grounding System

Grounding Lug installation

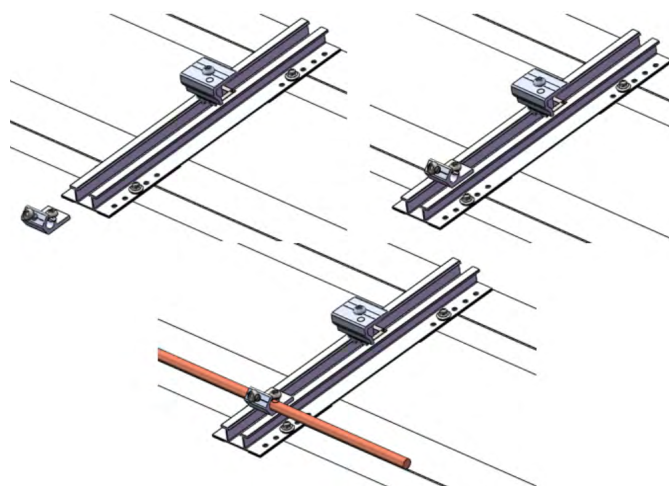
Slide the W module into the top channel of rail, and fasten the M8 Torx screw tightly with recommended torque of 14N.m.

Insert the wire into the grounding lug and fasten the M8 Torx screw tightly with recommended torque of 8N.m as shown in the right figures.

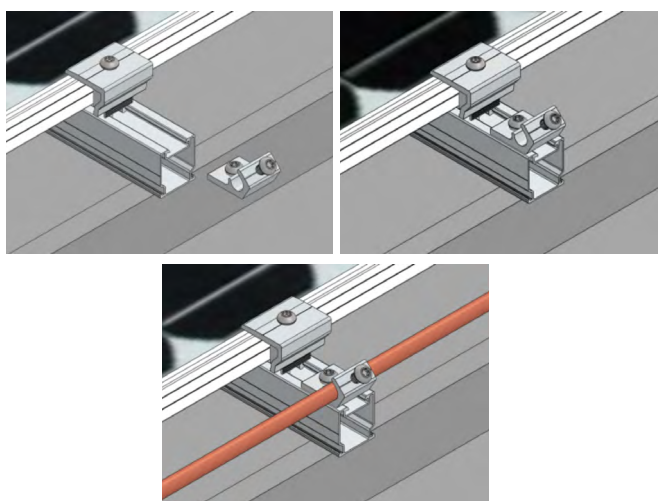
U Support



Mycro Rail

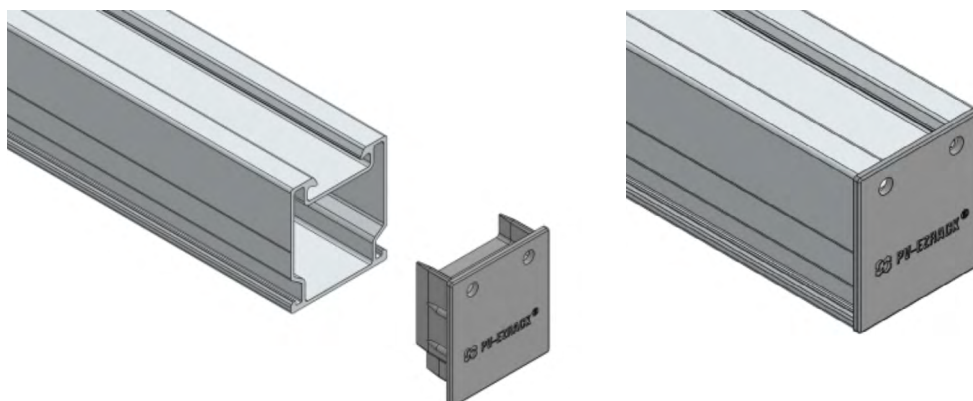


Toroda Rail



Rail Cap Installation

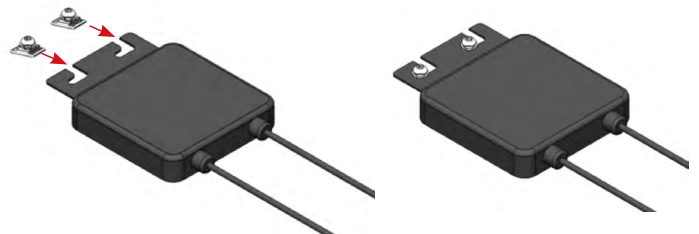
For Toroda Rail, install the rail caps as shown in the following figures.



Micro-inverter Installation

Micro-inverter Installed on U Support H48 & Mycro Rail H48

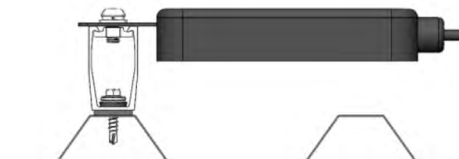
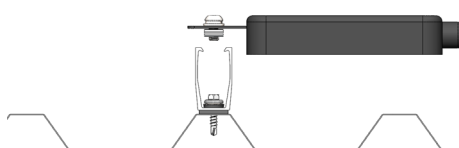
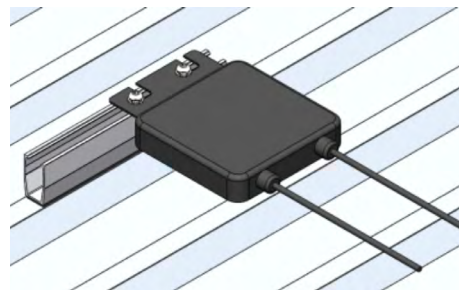
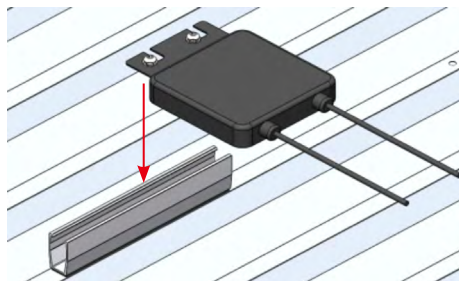
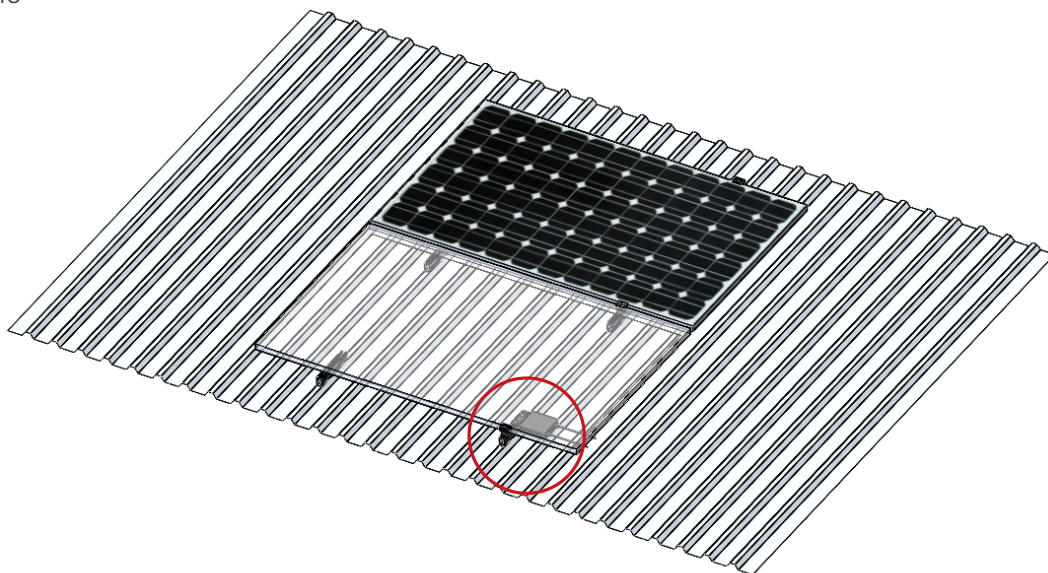
Insert two M8 screws with diamond module into the slots of the Micro-inverter as shown in the right figures.



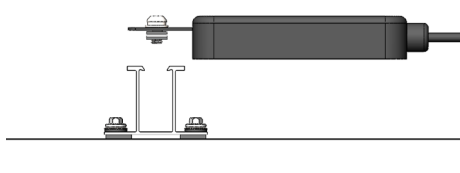
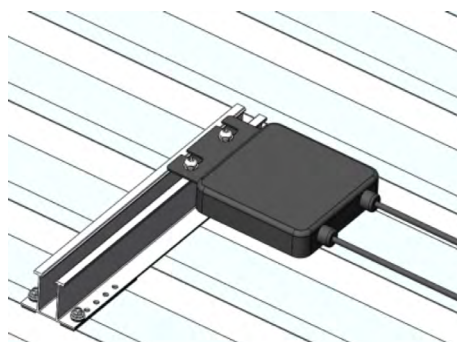
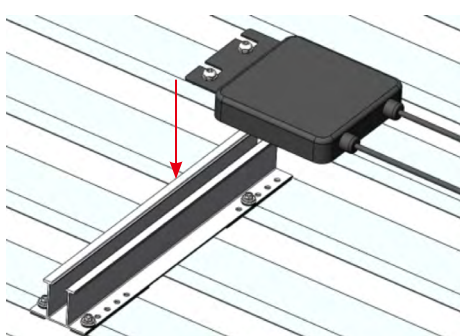
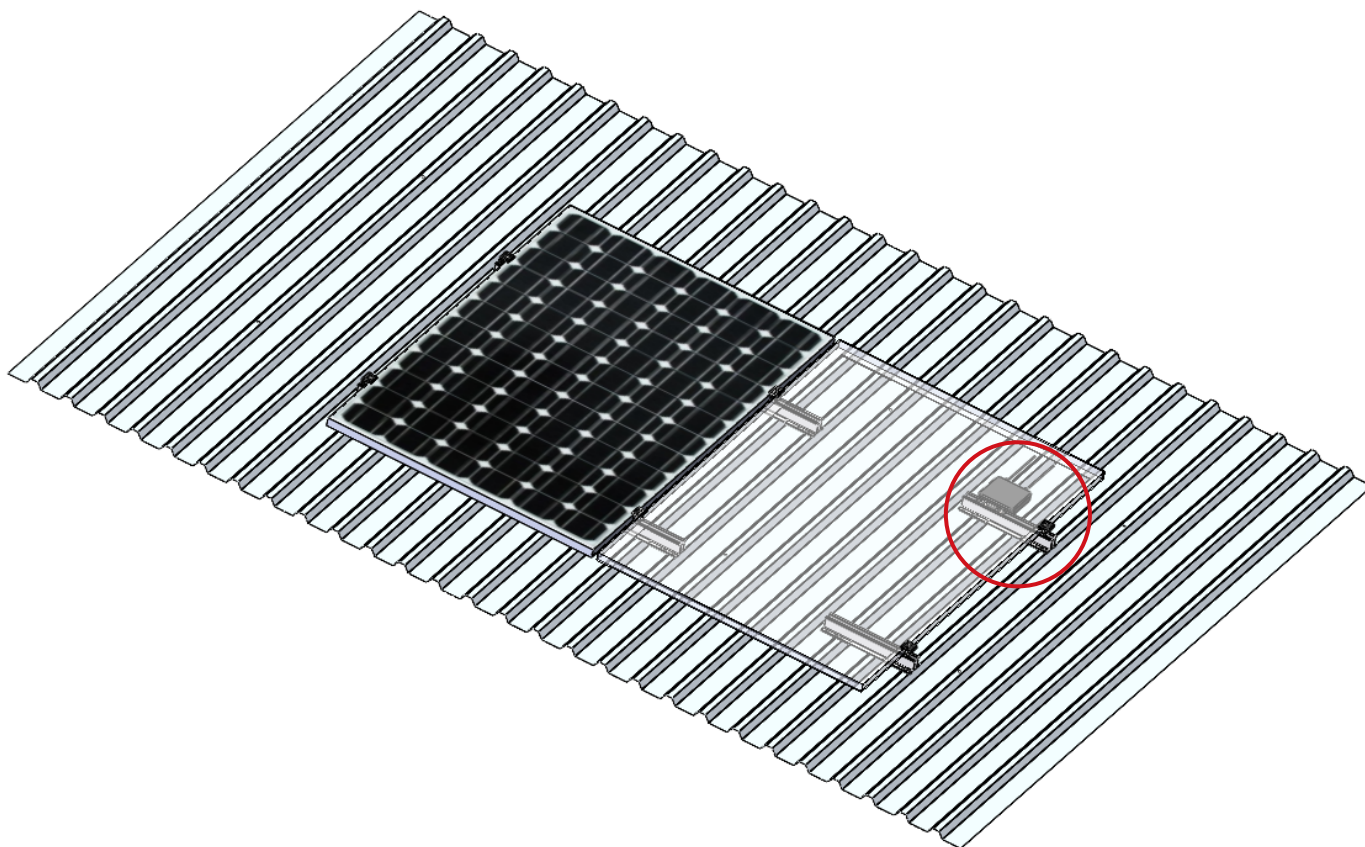
Install the micro-inverter together with the diamond module into the U Support H48/Mycro Rail H48, then fasten the M8 Torx screw tightly with recommended torque of 10N.m as shown in the following figures.

Ensure the diamond-shaped clip is firmly locked to the top, and the micro-inverter is installed stably without looseness.

U Support H48



Mycro Rail H48





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