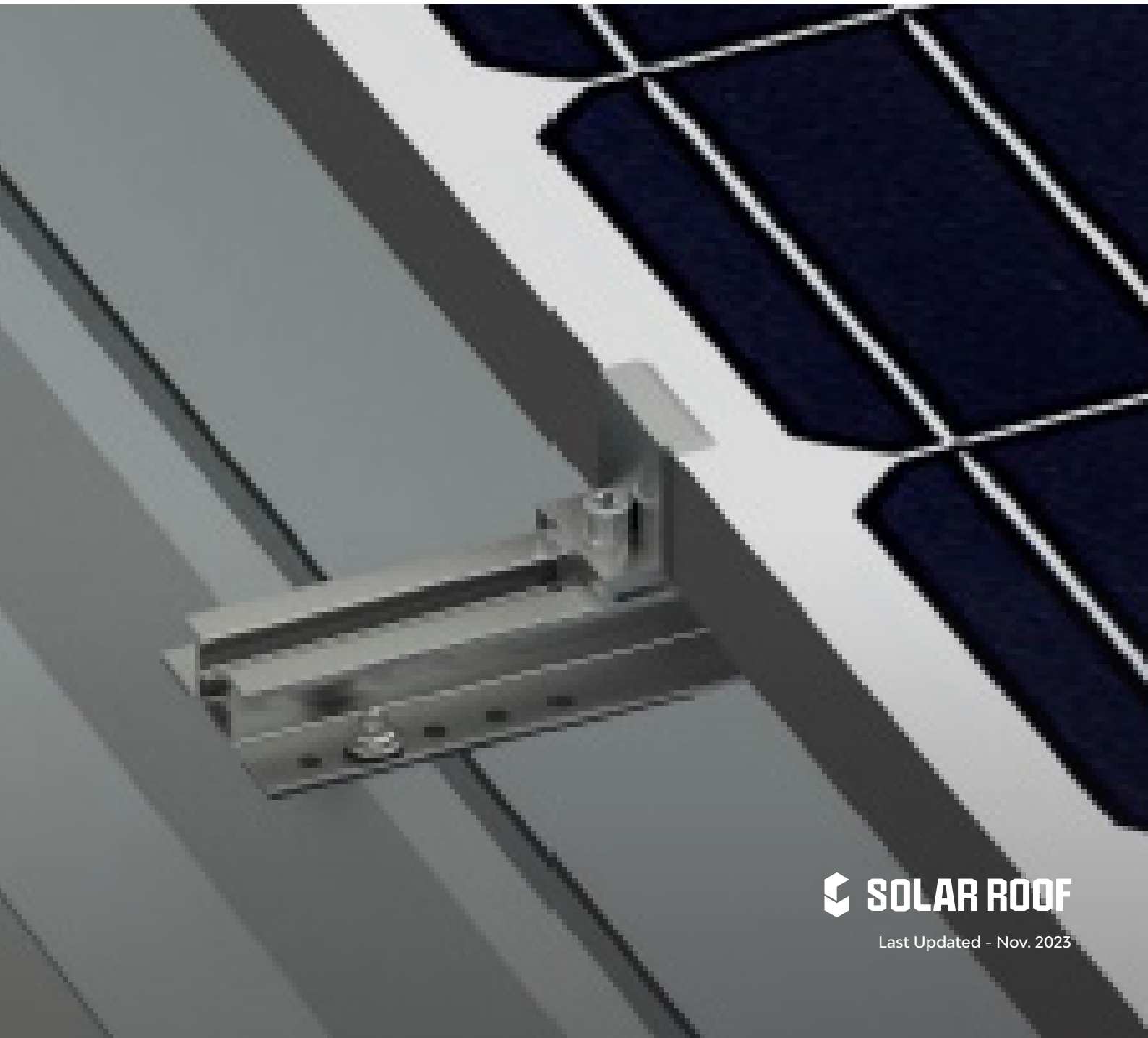
PV-ezRACK®

U Support and Mycro Rail

Code-Compliant Planning and Installation Guide V 6.0
Complying with AS/NZS 1170.2:2021



SOLAR ROOF

Last Updated - Nov. 2023

Introduction

Clenergy PV-ezRack SolarRoof Pro, U Support and Mycro Rail are widely used for PV Module mounting on tin roofs. With rail and rail-less solution, it can easily achieve PV modules landscape and portrait installation. Before system installation, please read the installation manual carefully.

The manual provides the following content:
(1) simple introduction of installation;
(2) product installation specification;

List of contents

The U Support and Mycro Rail parts, when installed in accordance with this guide, will be structurally sound and will meet the Eurocodes and VDI 6012 standards. During installation, and especially when working on the roof, please comply with the appropriate Occupational Health and Safety regulations. Please also pay attention to any other relevant State or Federal regulations. Please check that you are using the latest version of the Installation Manual, which you can do by contacting Clenergy Australia via email on sales@clenergy.com or contacting your local distributor.

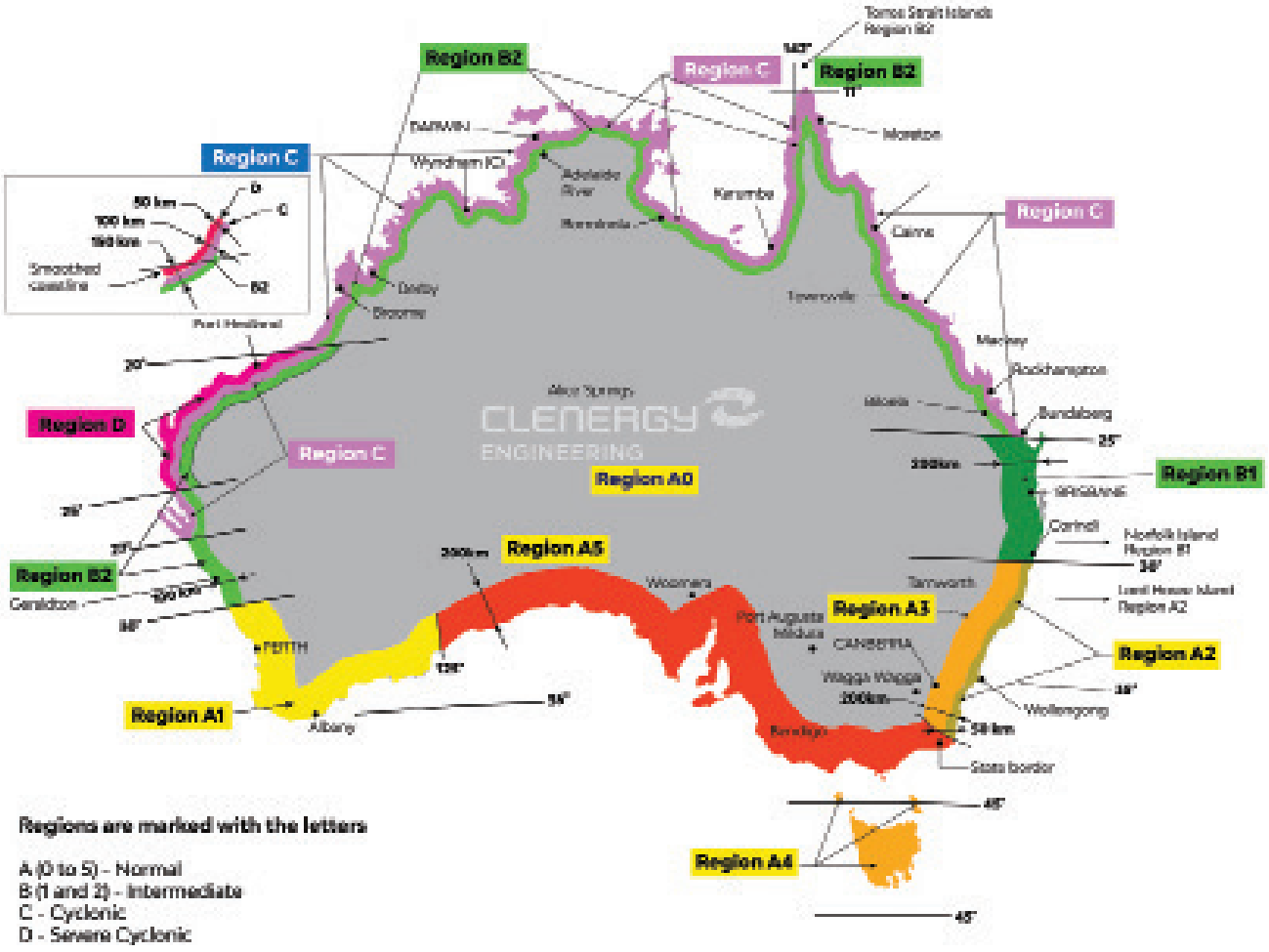
Product Warranty:
Please refer PVezRack® Product Warranty on our website.

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 PV-ezRack and other products are appropriate for the particular installation and the installation environment;
- Using only PV-ezRack parts and installer supplied parts as specified by PV-ezRack 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.

Planning

Determine the wind region of your installation site



Wind Regions – Australia

Wind regions are pre-defined for the whole of Australia by the Australian Standard 1170.2:2021. Comparing to 1170.2:2011, 2021 version has a lot of changes in wind regions.

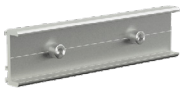
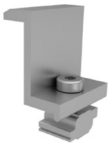
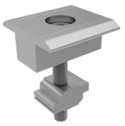
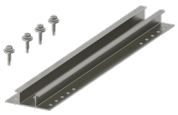
- Central Australia is now classified as Wind Region A0 and Terrain Classification 2 instead of Wind Region A4.
- Region A1, previously most of the South coast of Australia, now is divided into Regions A1 and A5.
- Tasmania is now Region A4.
- Region B has been divided into regions B1 and B2. This will affect installations in Northern NSW, Gold Coast, Brisbane, Sunshine Coast, and Gladstone.
- Region B1 was increased to include more inland cities around Brisbane. This will likely mean extra structural requirements such as extra rail for installs.

Tools and Components

Tools

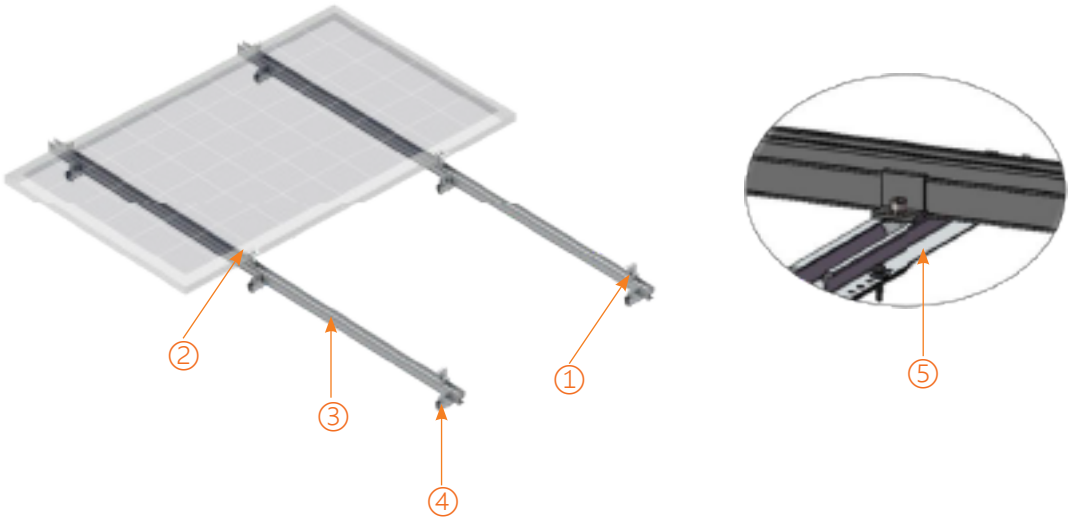
				
Screw Driver (for M8 Hexagon Socket Screw)	**Torque Spanner**	**Spanner**	**5m Tape**	**String & Marker Pen**

Components

				
ER-R-ECO ECO-Rail	**ER-SP-ECO** Splice for ECO-Rail	**ER-EC-ST** End Clamp	**ER-IC-ST** Inter Clamp	**C-U/30/46** Universal Clamp
				
CRC-R/ECO-ZBW Cross Connector Clamp of ECO-Rail with Z-module	**ER-S-U/120** U Support	**ER-R-MC/380** Mycro Rail, 380mm		

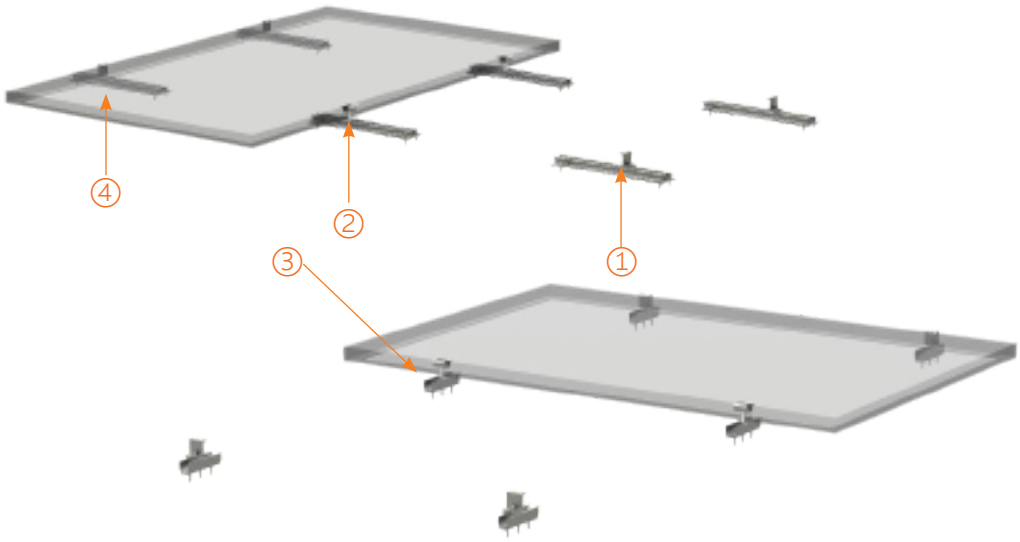
System Overview

With rail



1. End Clamp 2. Inter Clamp 3. ECO Rail 4. U Support, 120mm 5. Mycro rail, 380mm

Without rail



1. End Clamp 2. Inter Clamp 3. U Support, 120mm 4. Mycro rail, 380mm

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
(4) In some cases, fasteners could be seized over time. As an option, if want to avoid galling or seizing of thread, apply lubricant (grease or 40# engine oil) to fasteners prior to tightening.

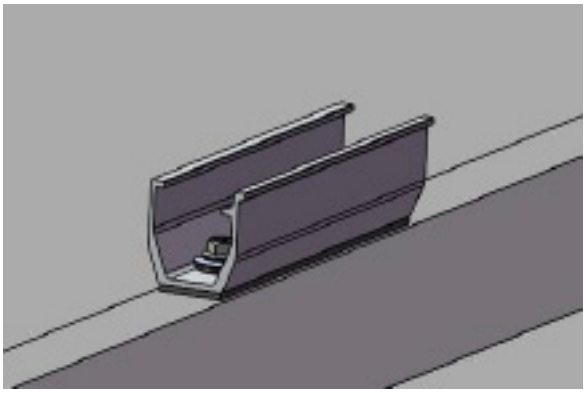
Safe Torques:
Please refer to safe torques defined in this guide as shown in Installation Instructions. In case power tools are required, Clenergy recommends the use of low speed only. High speed and impact drivers increase the risk of bolt galling (deadlock) If deadlock occurs and you need to cut fasteners, please 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 Installation

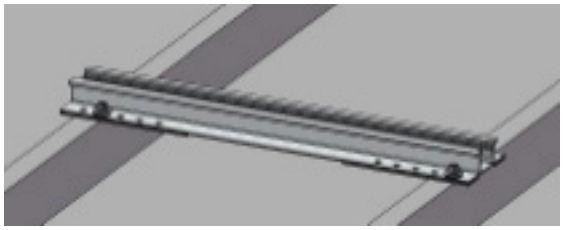
According to your plan, mark the position of the U Support on the tin roof with a Marker Pen and String. Place the U Support on the marked position, as shown in the figures on the right. Fix the U Support onto the rib of the trapezoidal metal sheet with Self-drilling screws.

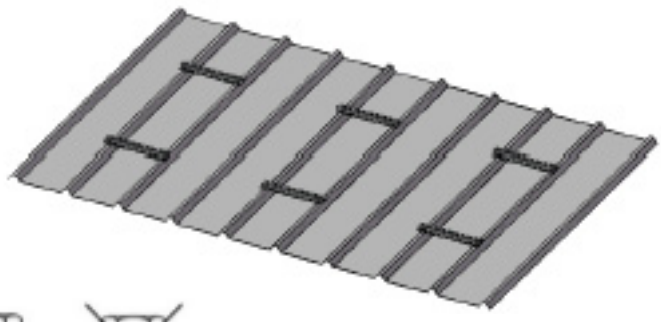
One U Support with 3 Self-drilling screws (Pay attention to deformation of the gasket as shown in the figure on the right).



Mycro Rail Installation

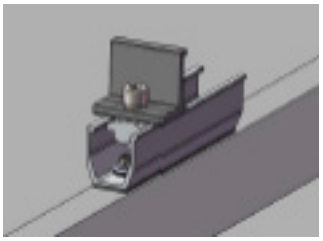
Use the same step in 4.2.1 to fix the Mycro Rail to the ribs of the trapezoidal metal sheet as shown in the figure on the right.

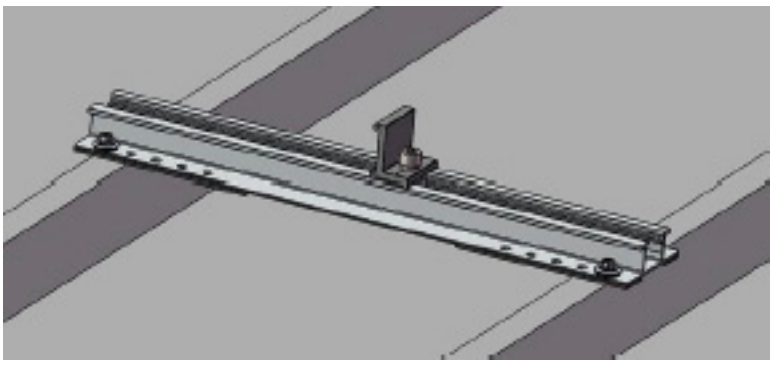




Cross Connector Clamp of ECO-Rail Installation

When using Cross Connector Clamp of ECO-Rail, fix the Cross Connector Clamp of ECO-Rail on the Z module channel of U support or Mycro Rail. Fasten the bolt of the Cross Connector Clamp slightly before installing the ECO - Rail.





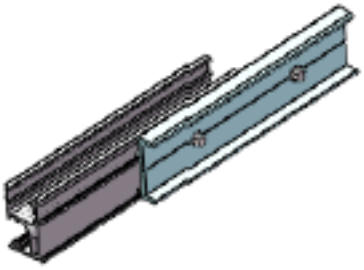
Rail Installation

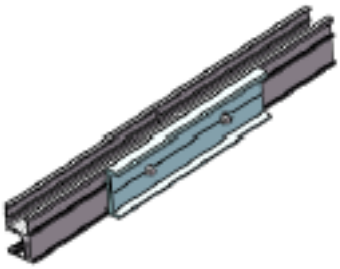
To connect several rails together, slide half of the splice into the rear side of the rail. Fasten the first M8 Bolt using an Allen key, and slide the next rail into the splice. Tighten the second M8 Bolt using an Allen key.

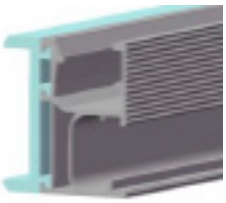
Splice provides the electrical connection between the 2 rails through the pressure bolts. This eliminates the need of using 2 earthing lugs.

Recommended torque is 10 ~12 Nm.

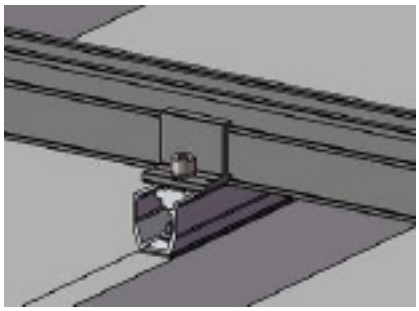
If the rails consist of different lengths, always begin with the shortest piece.

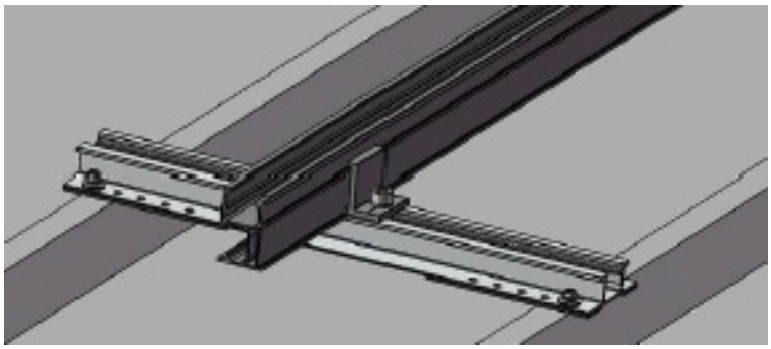






Place the ECO-Rail on the U support or Mycro Rail, uplift the Rail Clamp and click it into the side channels of the ECO-Rail as shown in the right figures. Fasten the Rail Clamp within 16-20 N.m torque after the Rail is positioned properly.



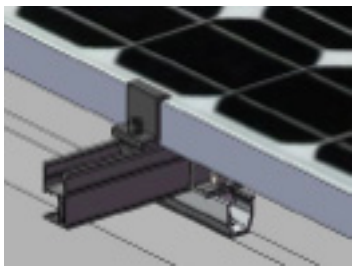


PV Module Installation:
Please refer PVezRack® Product Warranty for PV modules clamps and grounding lugs installations.

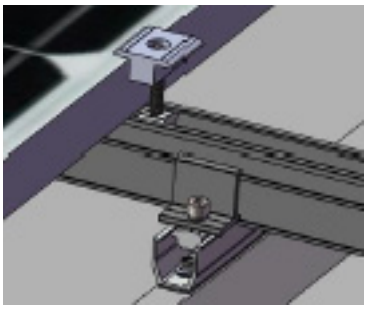
Notes:
The recommend torque for Universal Clamp as End Clamp is 13~14 N·m. The recommend torque for Universal Clamps as Inter Clamp is 16~20 N·m.

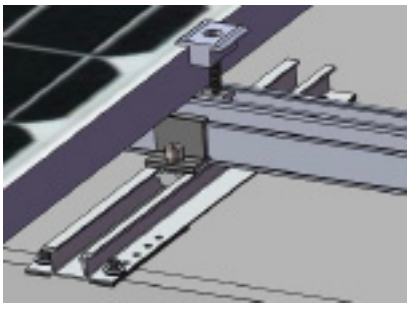
With rail

Place the first PV Module on the Rail according to your plan, and fix it in place using the End Clamps. Then fasten lightly with the Allen Key as shown in the figure on the right.



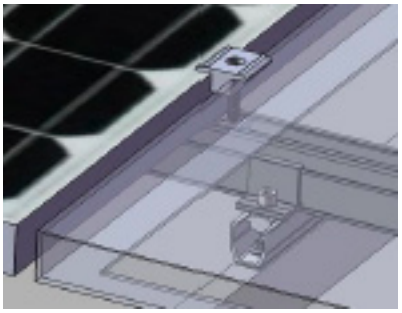
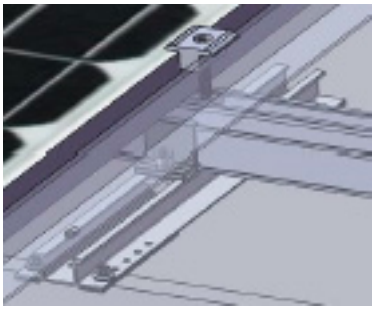
Click the Inter Clamp into the Rail and affix it to the side face of PV-Module. Don't fasten the bolt to make the installation of second PV Module easier.





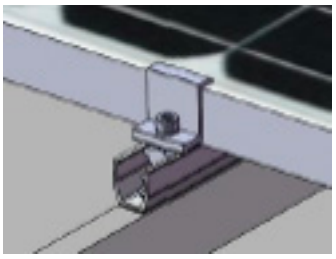
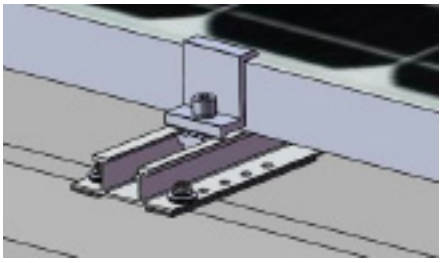
Loosely place the next framed PV Module into the other side of the Inter Clamp and as shown in Figures on the right.

Recommend torque of M8 bolt is 16~20N.m

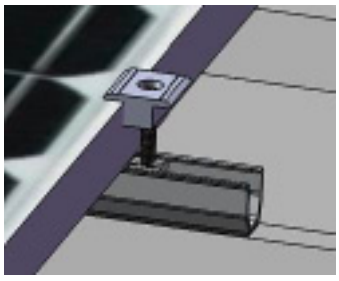
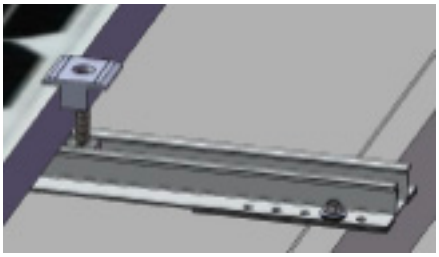
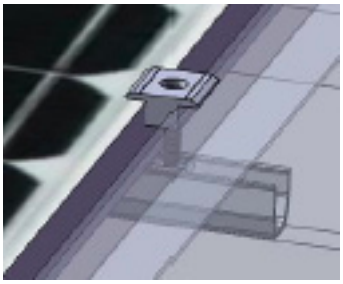



Without Rail

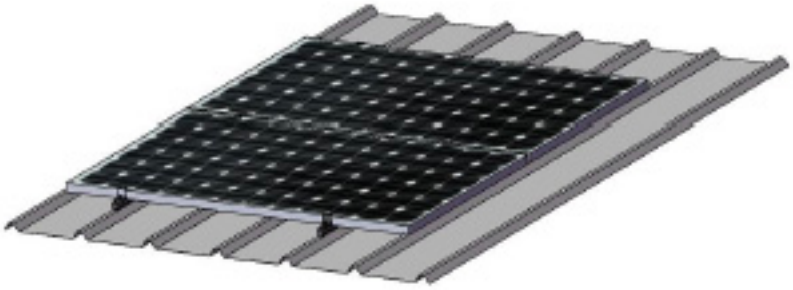
Place the first PV Module on the U support or Mycro Rail according to your plan, and fix it in place using the End Clamps. Then fasten lightly with the Allen Key as shown in the figure on the right.

Repeat steps
4.5.1.2 and 4.5.1.3 to install the Inter clamp PV Module onto U support or Mycro Rail.


Repeat above steps to install the rest PV-Modules.



U Support

Mycro Rail

PV-ezRACK®

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