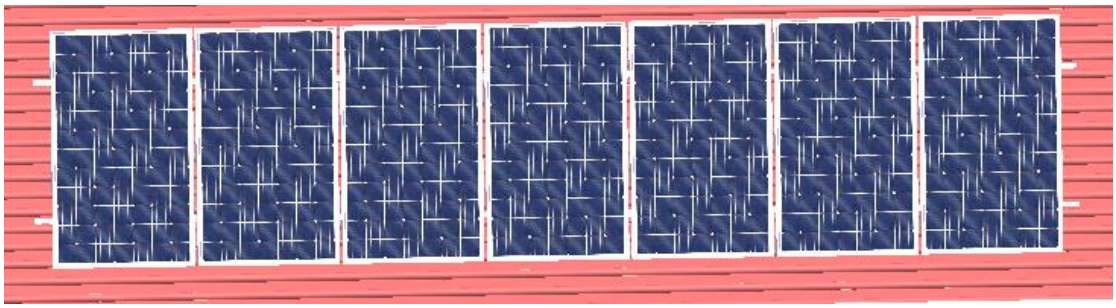
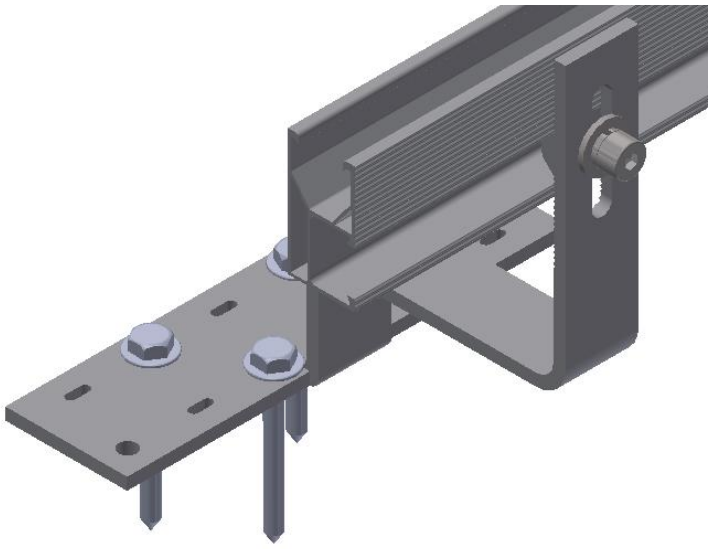
Xiamen Mibet New Energy Co., Ltd.

# MRac Tile Roof Installation Guide

## Standard Tile Hook





## Content

# 1. Product Introduction

MRac Roofon System is developed to fit all types of tiles in solar roof mounting projects. Fasteners are uniquely designed to realise easier and quicker installation with the use of simple tools.

Before the construction, please read our installation instructions carefully. This manual can provide you with different specifications for the construction of battery board.

Our company is fully based on the Australian AS/NZS1170.2 standard in the design of the product structure. When installing on roof, you must obey the local safety standards, and pay attention to the relevant regulations in your area. You can download the latest installation manual at our website www.mbt-energy.com.

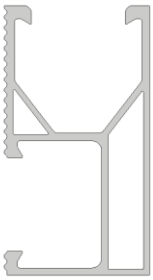
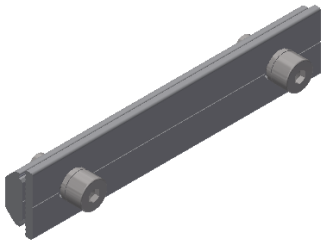
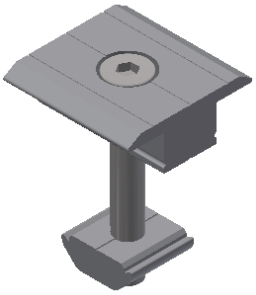
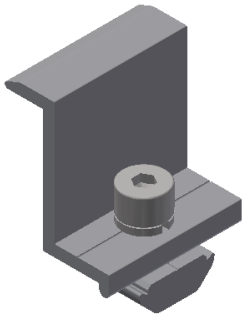
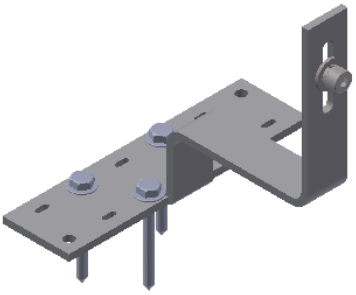
The installer is solely responsible for:

- Complying with all applicable local or national building codes, including any that may supersede this manual;
- Ensuring that MRac and other products are appropriate for the particular installation and the installation environment;
- Ensure the roofs, rafters, connecting girders and other supporting structures can stably support a photovoltaic module. (These are considered to be roof mounting);
- Using only MRac parts and installers-supplied parted as specified by MRac (Substitution of parts may void the warranty);
- Ensure the wood screws have enough strength and shear force in installation;
- Maintain the integrity of the roof waterproof system;
- How to recycle: According to the local relative statute;
- How to disassemble: Countermove with installation;
- Ensure that there are no less than two professional workers in panel installation;
- Ensure the installation of relative electrical equipment is performance by professional electrician.

## 2. Installation Tools

- 6mm Inner hexagon spanner;
- Electrical tool (Solely used to fasten M6 hexagon self-drilling tapping screws and pan head screws with cross recessed);
- 9, 10, 17, 19 mm open spanner (solely used to fasten bolts that help hang solar panels);
- Angle grinder;
- Power line;
- If necessary, prepare small pieces of wood in case interfaces don't level with each other.

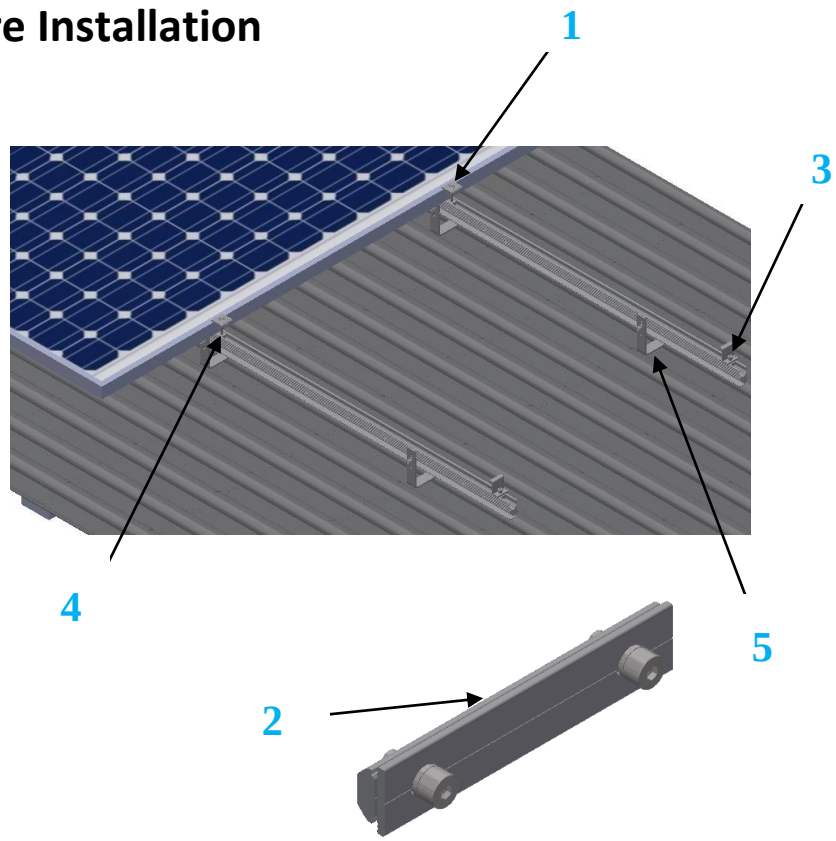
## 3. Components

| Components | | |
|---|---|---|
|  *MA Rail* |  *Splice for MA Rail* |  *Inter Clamp Kit (MA)* |
|  *End Clamp Kit (MA)* |  *Standard Tile Hook* | |

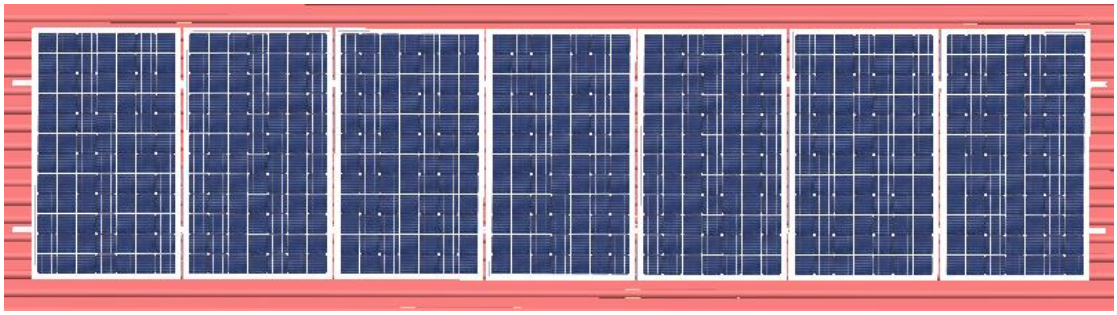
# 4. Preparation before Installation

## 4.1 Components

1. *MA Rail*
2. *Splice for MA Rail*
3. *End Clamp Kit (MA)*
4. *Inter Clamp Kit (MA)*
5. *Standard Tile Hook*



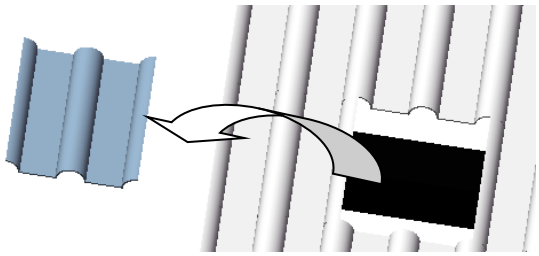
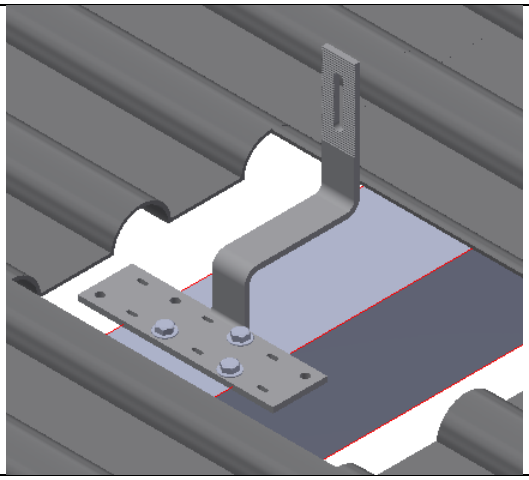
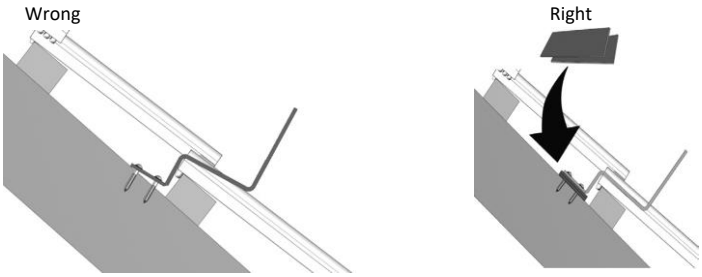

## 4.2 Planning the Installation Area

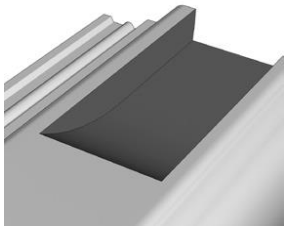
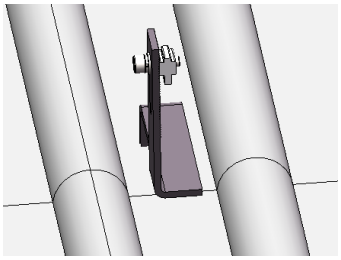
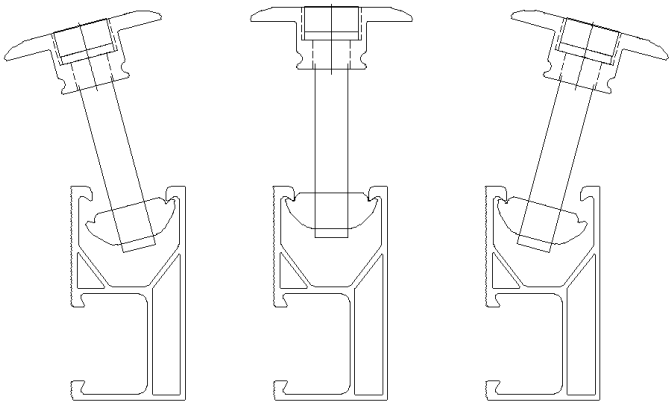


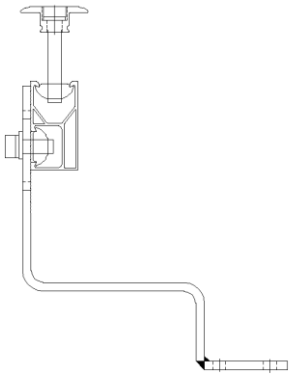
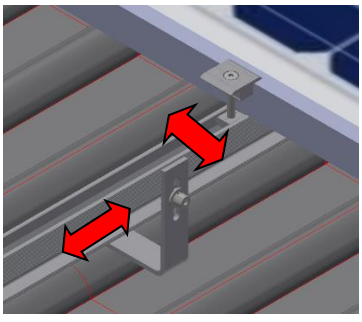
1. The layout of solar panels is according to the plan diagram.
2. The spacing between solar panels: 20 mm
3. Horizontal spacing between Standard Tile Hooks: 750 mm
4. Vertical spacing between Standard Tile Hooks≈1/2 or 3/4 of panel length.

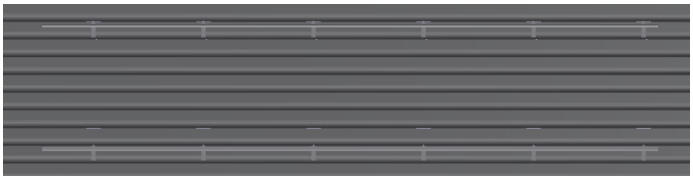
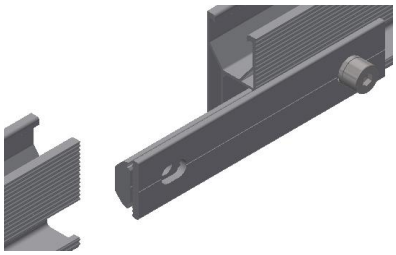
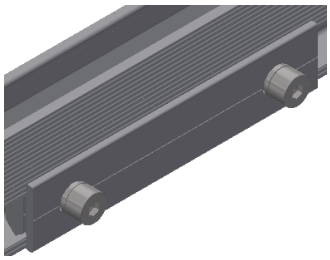
Notes:
Spacing between panels should be adjusted narrower when system is exposed in wind, placed on roof edge or in the corner

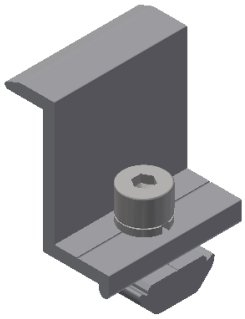
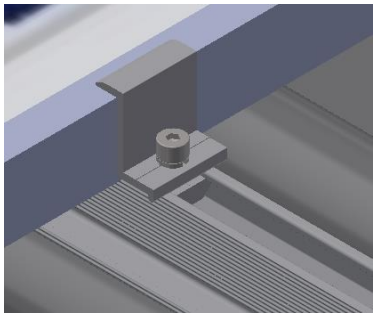
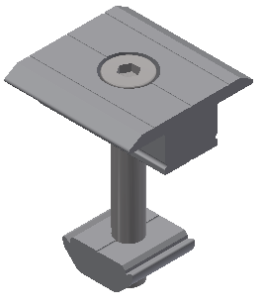
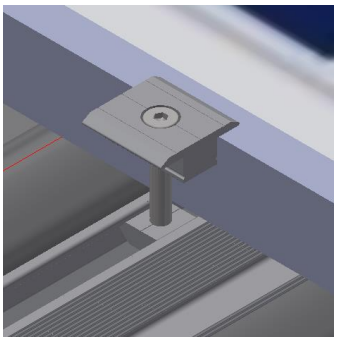
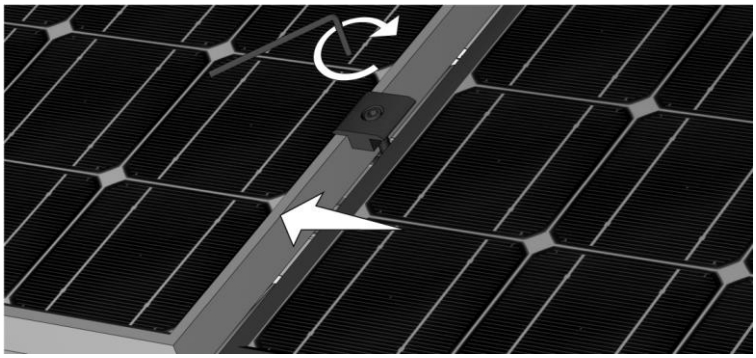
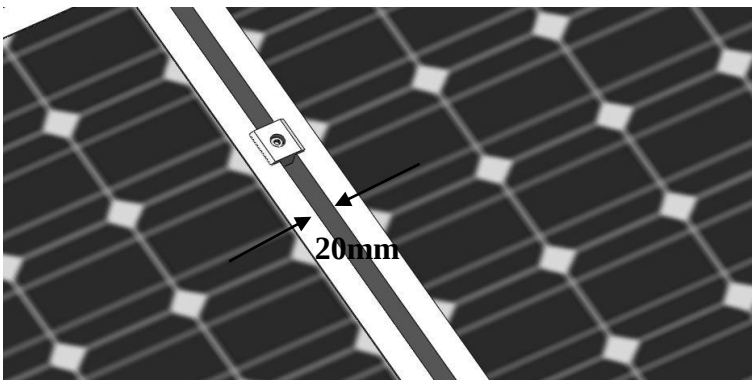
# 5. Installation Guide

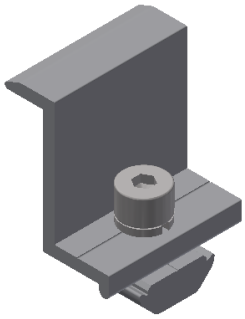
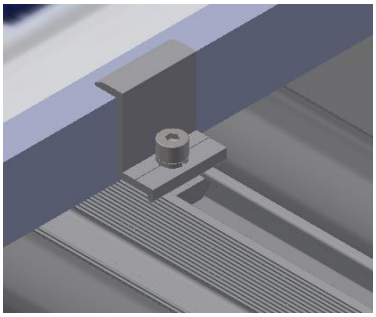
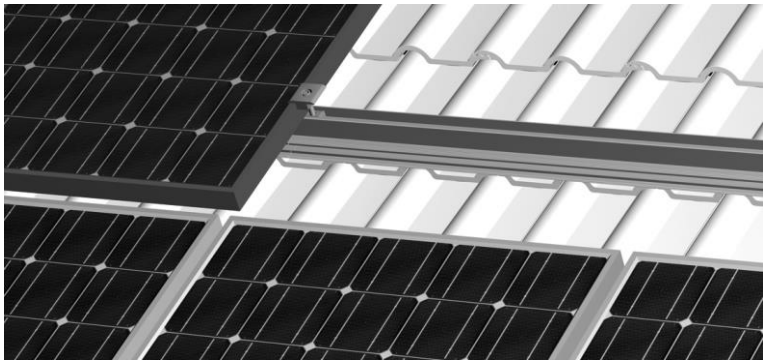
| 5.1 Installation of Standard Tile Hook | |
|---|---|
| 5.1.1. Decide the installation direction of tile hook as planned. Remove the tiles in planned position.<br><br>CAUTION: lift with care. |  |
| 5.1.2. Fix the tile hook onto the wooden beam with three M6*80 wood screws. |  |
| 5.1.3. Tile hook are not allowed to be pressed onto the tile. Please use small piece of wood to pad the tile hook on bottom if necessary. |  |

| 5.1 Installation of Standard Tile Hook | |
|---|---|
| 5.1.4. Cut off tile parts that get in the way of tile hook with angle grinder or hammer if necessary. This move is also required for curved tiles. |    |
| 5.1.5 CAUTION!<br>Do not use tile hooks as ladders because extreme forces caused would damage the tiles underneath. |  |
| 5.1.6 For conveniently using MA tilt-in nut, please ensure that the teeth of the hexagon socket head bolt do not pass through the hole bottom of the MA nut. Position the MA nut in the groove of the rail and gently screw in the bolt for 2 to 3 turns. At this point, the bolt can still slide freely in the Rail. Slide the bolt to the final position to fix the inter |  |

| 5.1 Installation of Standard Tile Hook | |
|---|---|
| clamp, end clamp or tile hook, then lock the bolt tightly.<br>(Recommended torque force: 8 N·m) | |
| 5.1.7 For rails with different lengths, start from the shortest one. Fix rails onto the tile hook with M8 hexagon socket head bolt, flat washer, spring washer and MA nut. (Do not fasten the bolts too tight in advance, with 2 to 3 screw threads left.) Please refer to the picture on the right. |  |
| 5.1.8 Taking advantage of that tile hook, MA nut or hexagon socket head bolt are loosely connected, rails can be adjusted in vertical and horizontal directions. Please refer to the picture on the right. |  |

| 5.2 Installation of Rail | |
|---|---|
| 5.2.1 Position each rail by a rope and pre-fix it to tile hook. Then lock all the bolts tightly with inner hexagon spanner. (Recommended torque force: 8N·m） |  |
| 5.2.2 Installation of Splice for MA Rail<br>Before installing MA Rail to the tile hook, please confirm the length of rail. If it is not long enough, use Splice for MA Rail to connect two rails. Connecting rails upon tile hook is not recommended. As shown in the right pictures, slid one end of the splice into the rail, fix it tightly with M8*20 bolt. Then fix the other end. |   |

| 5.3 Installation of solar panels | |
|---|---|
| 5.3.1 According to the plan, place the PV Panel on the rail, slip the End Clamp Kit to tightly stick on the solar panel, and lock the bolt tightly. (Recommended torque force:8N·m) |   |
| 5.3.2 Place the Inter Clamp into the rail and tightly stick on the edge of solar module. Then pre-lock the bolt (Bolt down around 2 to 3 screw threads). |   |
| 5.3.3 Then slide another solar panel to close to one side of the previously installed solar panel and lock the Inter Clamp tightly. (Recommended torque force:8N·m)<br>Please note that the anti-skid protection device should fall in the middle of the slot of the lowest rail. |    |

| 5.3 Installation of solar panels | |
|---|---|
| 5.3.4 Place the last solar panel of each row on the rail and fix with End Clamp. (Recommended torque force:8N·m) |   |
| 5.3.5 Slide the first solar panel in the next row to right position from top to bottom. Because of the illumination, the solar panel better keep a certain spacing from bottom row. The Inter Clamp can be used as a separator to keep the vertical and horizontal spacing of solar panels consistent. Repeat above steps and finish the installation. |  |

**10 Year Limited Product Warranty, 5 Year After Sales Service**

Mibet (Xiamen) New Energy Co., Ltd. warrants to the original purchaser of products that the Product with Oxidation treatment on surface shall be free from shedding and cracks for a period of 5 years. Additionally, Mibet (Xiamen) New Energy Co., Ltd. provides 10 years of quality assurance.

The Finish Warranty does not apply to any foreign residue deposited on the finish. All installations in corrosive atmospheric conditions are excluded. The Finish Warranty is VOID if the practices specified by AAMA 609 & 610-02 –"Cleaning and Maintenance for Architecturally Finished Aluminum" (www.aamanet.org) are not followed by Purchaser. This Warranty does not cover damage to the Product that occurs during its shipment, storage, or installation.

This Warranty shall be VOID if installation of the Product is not performed in accordance with Mibet's written installation instructions, or if the Product has been modified, repaired, or reworked in a manner not previously authorized by Mibet IN WRITING, or if the Product is installed in an environment for which it was not designed. Mibet shall not be liable for consequential, contingent or incidental damages arising out of the use of the Product by Purchaser under any circumstances.

Manufacturers of related items, such as PV modules and flashings, may provide written warranties of their own. Mibet's limited Warranty covers only its Product, and not any related items.