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1 Tile on-roof mounting system (Al-40 series) installation

1.1 Overview

Module: CHSM6610P-250W(40mm)
Arrangement: 1*4
Tilt angle: follow the roof-top

A: Aluminum rail
   Used for installing module
B: End clamp/Middle clamp
Used for fixing module

C: Roof hook
Used for connecting aluminium rail and roof rafter

1.2 Drawing
1.3 Components

(1) Roof hook

(2) End clamp

(3) Middle clamp

(4) Aluminum rail

(5) M8x90 T-splice bar

(6) M8*25 T-head bolt+flange nut

(7) Wood screw
1.4 Installation steps

(1) Fix the roof hook to the roof rafter with M8 wood screw

(2) Place the roof hook on the roof as the picture below, the distance between front and back is 1020mm, and between right and left is 1400mm

(3) Put the aluminum rail on the roof hook

Put the T-head bolt in the notch of the aluminum rail and through the hole of the roof hook, then fix it securely with flange nut
(4) Connecting the two aluminum rail with T-splice bar and M8*10 inner flange bolt

(5) Put the module on the aluminum rail and fixed with end clamp and middle clamp
(6) Installation of clamp: put the T-head bolt in the notch of the aluminum rail with M8 inner flange bolt connected and fixed securely

![Diagram showing end and middle clamp fixing](image)

(7) Installing all the modules as 3.6 till complete.
2 Corrugated metal sheet roof mounting system (Al-40 series) installation

2.1 Overview

Module: CHSM6610P-250W(40mm)
Arrangement: 1*4
Tilt angle: follow the roof-top

A: Aluminum rail
   Used for installing module

B: End clamp/Middle clamp
   Used for fixing module

C: M10X200 hanger bolt + EPDM
   Used for connecting aluminum rail and metal roof
2.2 Drawing

![Drawing Image]

2.3 Components

(1) M10X200 hanger bolt + EPDM

(2) End clamp
2.4 Installation steps

(1) Fixing the M10X200 hanger bolt+EPDM on the upper part of the metal roof which area planed to install the module, and check whether the flange nut is screwed securely

(2) Place the hanger bolt on the roof as the picture below, the distance between front and back is 1020mm, and between right and left is 1000mm
(3) Put the aluminum rail on the M10X200 hanger bolt + EPDM

Put the T-head bolt in the notch of the aluminum rail and through the hole of the hanger bolt, then fix it securely with a flange nut.

(4) Connecting the two aluminum rails with T-splice bar and M8*10 inner flange bolt.
(5) Put the module on the aluminum rail and fixed with end clamp and middle clamp

(4) Installation of clamp: put the T-head bolt in the notch of the aluminum rail with M8 inner flange bolt connected and fixed securely

(5) Installing all the modules as 3.6 till complete.
3 Aluminum 56 mounting system installation

Components List

<table>
<thead>
<tr>
<th>Model name</th>
<th>Roof Hook 01</th>
<th>Rails</th>
<th>Splice</th>
<th>End Clamp</th>
<th>Mid Clamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture</td>
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<td>Material</td>
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<td>AL 6063-T5</td>
<td>AL 6063-T5</td>
<td>AL 6063-T5</td>
<td>AL 6063-T5</td>
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</tbody>
</table>

Installation Steps

Determine the position of the roof hooks according to your design.

L1: Distance between rails is 0.6x panel length.
L2: Distance between roof hooks, no longer than 1200mm. L2<1200mm
(Distance between L feet, no longer than 600mm)
1. Remove the roof tiles at the marked positions or simply lift them up slightly

2. Insert the roof hook to the wooden beam. Fix the roof hooks with screws

3 Maintenance

The roof hook must not press against the roof tile. Place it flat. If necessary, shim the roof hook with wood.

Wrong !
Correct !
If necessary, use an angle grinder or hammer to cut a concavity in the tile that covers the roof hook at the point where the roof hook comes through. (Caution! Must not use fixed roof hook as a ladder, as this extreme point load could damage the tile below.

Installation of the rails on roof hooks. Your rails consist of different length, always begin with the shortest piece. Install the rails on the roof hooks loosely at first, using T-screw.
Installation of Clamps

Installation of the splice to connect multiple rails together. Slide the splice on the rear side of the pre-assembled rails. Fasten the first bolt firmly. Then slide the next rail into the splice. When comes together, fasten the other bolt. The connection is finished. An expansion gap at the rail joints is suggested. Leave a gap about a finger width.

1. 2. 3. 4. 5. 6.

Place the first module of the bottom row. Slide the end clamp tightly against the module and fasten it. Install the end clamp and mid clamps.
The rail should leave a space of 25mm-30mm

Clamp Installation

- Tilt
- In
- Align
- Lock
Slide the next module against the installed module. Fasten the mid clamp. Install other modules and clamps in this way. Keep module even.

Finished
4 After-sale service warranty

1 Installation guide and training service
   (1) Provide installation guide to the customers.
   (2) For project <3MW, Astronergy offers technical consultation and training by phone, Email, video clips etc.
   (3) For 3MW~10MW project, free training at Hangzhou for 2 days.
   (4) For project >10MW, free training at Hangzhou for 2 days, 5-10 days consultation and guidance on site where the project is located is also available, Astronergy bares the traveling expenses.

2 Repair and replacement
   Astronergy will offer free placement for the productions with defects or discrepancies in condition that the items expressed in the “Product warranty” declared by Astronergy are all satisfied.
   (1) Astronergy will offer free placement and bear the cost of freight. (2) Astronergy will, upon getting reasonable advance notice from Buyer, pay for the cost related to the productions with defects, including the cost of reconnaisance to inspect the condition of defects on site, repairing and replacement works, and materials test etc.
   (3) If Astronergy fails to repair or collect and replace any rejected goods as and when requested by Buyer in accordance with “Product warranty”, Buyer may, upon reasonable advance notice to Astronergy, itself or through third parties, repair or replace such rejected goods, and Astronergy shall reimburse Buyer the actual costs of such repair.
   (4) If the products are out of the period of warranty, customer should pay for the repairing and replacement service that Astronergy will offer.

3 Maintenance
   Astronergy has no responsibility to offer maintenance service. In special cases, Astronergy and buyer can discuss about the maintenance service and making relative items in contract.

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