EJOT® Aluminum Roof Hook
Installation Manual
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The mounting solution for PV installations on tile roofs. Special design for direct installation of any 2-rail system without L-Feet, which works with all major mounting systems. Height adjustable support/fixation area. Very light cast aluminum product.

Characteristics:
- Complete Kit including Fasteners and additional sealing features
- Secure installation on the rafters
- No predrilling needed
- Fast and cost-effective solar panel installation
- Base plate allows offset fastener positioning to avoid splitting of the wood grain
- Specifically adapted for superior sealing in combination with tile roofs using a batten system
- Additional sealing feature avoids water penetration between underlayment and baseplate
- Aluminum diecast product
- Amazingly light weight
- Superior load bearing capacity
- Extremely stiff to minimize bending under load and the risk of tile cracking

Installation tools
Angular grinder
Cordless screwdriver
Installation Manual

Installation

1. Mounting position
Define the installation positions of the roof hooks.

2. Remove the roof tiles
Slide up or remove the roof tiles as needed.

3. Roof hook to be positioned above the rafters
Always position the Roof Hook above the roof rafter.
- With a wood batten /counter batten system the rafters are located underneath the counter battens
- Having a wood batten roof system, you might use an electronic stud finder to locate the rafter underneath the boards

4. Roof hook position on the tile
The Roof Hooks should be positioned in the middle of the valley of the underlying tile.

5. Clearance
Make sure that the lever of the hook is not contacting the underlying tile at all. A clearance of at least 3/16” between all parts of the hook to the tile should be maintained. In case the actual clearance is not sufficient, underlay baseplate with matching spacer boards.

Allowable load capacities
(Safety factor 1.9 included):
- Downforce: 303 lbs
- Uplift: 303 lbs
- Shear: 348 lbs
6. Correct fastener length
Prior to securing the roof hook make sure that the fasteners penetrate the rafter by at least 1” (if using the 8mm (5/16”) fastener penetration should be at least 1-1/4”).

In case spacer boards have been used for shimming or additional construction elements like battens and/or sheathing boards are used, the total thickness of all included elements has to be added to the minimum intrusion depth to define the correct fastener.

7. No predrilling necessary
While using flat head fasteners provided from EJOT, predrilling is not necessary as long as the fastener diameter is smaller than 5/16” or the installation will take place in spruce, pine tree or fir tree.

8. Two fasteners/Roof Hook
It is mandatory to use two fasteners/Roof Hook

9. Avoid splitting wood
Make sure to install the fasteners as much in the center of the rafter/counter batten as possible. To avoid splitting of the wood, the fasteners need to be positioned offset to each other in different wood grains. The holes in the bottom plate of the roof hooks are positioned accordingly.

For information about the required distances of the fasteners to the edges, please refer to the technical information at the end of this installation manual.

10. Cut out tiles
In case the installed roof hook collides with the tiles, remove the interference as needed.

11. Done!
Re-install the removed tiles and check for possible cracks or damages prior proceeding the installation process. The Roof Hook is now prepared for installation of the profile.

Further information:
It is the installer’s responsibility to ensure, that the amount and positioning of roof hooks, as well as the selected fasteners are appropriate for the given construction, loads and installations.
**Improved sealing:**
When using roof hooks in combination with a roof batten system, water might be able to penetrate between the contact surface of the roof hook and the underlayment. For improvement, the EJOT aluminum Roof Hook is set up with a special sealing device for protection against water intrusion in this critical area.
HECO-TOPIX® Flat head screws

Specifically suited for installations in solid wood (i.e. spruce, pine tree and fir tree)

Characteristics
- Mainly suited for static loads
- Stainless steel A2
- Minimal intrusion depth in the rafter: 4 x thread diameter \(d_1\)

Approval
- Z-9.1-453
- Drive
  - T25/T40

**Technical data**

**Lowest characteristic Fastener Tensile Strength [Lb]**

<table>
<thead>
<tr>
<th>Fastener</th>
<th>(d_1) [mm]</th>
<th>Lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat plate head screw T25 x L</td>
<td>6.0</td>
<td>1776</td>
</tr>
<tr>
<td>Flat plate head screw T40 x L</td>
<td>8.0</td>
<td>3147</td>
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</table>

**Characteristic Fastener Breaking Torque [ft lbs]**

<table>
<thead>
<tr>
<th>Fastener</th>
<th>(d_1) [mm]</th>
<th>ft lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat plate head screw T25 x L</td>
<td>6.0</td>
<td>6.19</td>
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<tr>
<td>Flat plate head screw T40 x L</td>
<td>8.0</td>
<td>13.27</td>
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</tbody>
</table>

**Allowable Pullout Load [Lb]**
(Spruce, vertical to surface)

<table>
<thead>
<tr>
<th>Fastener</th>
<th>(d_1) [mm]</th>
<th>Lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat plate head screw T25 x L</td>
<td>6.0</td>
<td>741</td>
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<tr>
<td>Flat plate head screw T40 x L</td>
<td>8.0</td>
<td>1124</td>
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</table>

**Characteristic Yield Moment [ft lbs]**

<table>
<thead>
<tr>
<th>Fastener</th>
<th>(d_1) [mm]</th>
<th>ft lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat plate head screw T25 x L</td>
<td>6.0</td>
<td>5.8</td>
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<tr>
<td>Flat plate head screw T40 x L</td>
<td>8.0</td>
<td>12.5</td>
</tr>
</tbody>
</table>

**Edge distances**

- Fastener \(d_1 = 15/64''\)
  - \(a\), \(b\) values:
    - \(min. 15 \times d_1\)
    - \(5 \times d_1\)
    - \(\geq 25 \times d_1\)
    - \(3 \times d_1\)

- Fastener \(d_1 = 5/16''\)
  - \(a\), \(b\) values:
    - \(min. 15 \times d_1\)
    - \(5 \times d_1\)
    - \(\geq 25 \times d_1\)
    - \(3 \times d_1\)

**Sample calculation**

- Flat plate head screw T25 x L
  - \(d_1\) [mm], \(a\) [mm], \(b\) [mm]
    - \(15/64''\) min. \(3.543''\) \(1.811''\)
    - \(15/64''\) \(\geq 5.906''\) \(0.709''\)

- Flat plate head screw T40 x L
  - \(d_1\) [mm], \(a\) [mm], \(b\) [mm]
    - \(5/16''\) min. \(4.724''\) \(1.575''\)
    - \(5/16''\) \(\geq 7.874''\) \(0.945''\)