INSTALLATION MANUAL

Single pile double support
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I、Product Introduction

Antai Pile-driven Ground Mounting System is a new highly pre-assembled PV system, suitable for large scale flat land or Small Mountain. The special-designed trapezoidal rail is not only very convenient for installation, but also improves the stability of the whole system. Especially in large-scale projects, the highly pre-assembled, high quality and small quantity of all components will greatly save time and cost of installation, thus decrease the whole construction period.

Please read the instruction carefully before start construction.

II、Installation Tools & Equipment

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6mm Inner Hexagon Spanner</td>
<td></td>
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<tr>
<td>Electric Drill</td>
<td></td>
</tr>
<tr>
<td>Tape Measure</td>
<td></td>
</tr>
<tr>
<td>Thin Marker</td>
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<tr>
<td>Torque Spanner</td>
<td></td>
</tr>
<tr>
<td>String</td>
<td></td>
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<tr>
<td>Adjustable Wrench</td>
<td></td>
</tr>
<tr>
<td>Socket Spanner (M10/M14)</td>
<td></td>
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<tr>
<td>Total Station (or similar)</td>
<td></td>
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<tr>
<td>Hydraulic Pile Driver</td>
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</tbody>
</table>

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## III. Components

<table>
<thead>
<tr>
<th>Main Component List</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="End Clamp" /></td>
</tr>
<tr>
<td><img src="image" alt="Rail Clamp" /></td>
</tr>
<tr>
<td><img src="image" alt="Pre-assemble support(Double)" /></td>
</tr>
<tr>
<td><img src="image" alt="Rear joiner" /></td>
</tr>
</tbody>
</table>
IV、Installation Instruction

1. U shape pile Installation

Please prepare all required tools and products before start installation, mark the every U shape pile site according to the construction drawing.

Make sure rear array would not covered by the shadow of the front array.

\[
L = H \times \alpha \quad (\alpha = \text{Regional coefficient})
\]

\[
H = H_1 - H_2
\]

- \( H_1 \): Front array ground clearance from module top to ground
- \( H_2 \): Rear array ground clearance from module button to ground.

Note: Pls. make sure U shape pile in the same row are in the same line.
Also the top line of U shape pile is parallel with slope.
The angle between top line of U shape pile and horizontal plane is set angle.
Direction of pile should be the same.
U shape vertical error diagram

Horizontal piling schematic diagram (High west, Low east)

\[ \Theta = \text{atan}(\sin\Theta'1 \times \tan\Theta'2) \]

\(\Theta'1\) : Module Installation angle

\(\Theta'2\) : The ground slope angle

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Use the Total Station to fix the position of every U shape pile in accordance with construction drawing. When driving the piles, all piles in the same row must be kept in the same line and same height. Besides, the mouth orientation of all piles should also be the same. During this process, Fixing Frame can be used to make sure the precision.
2. Pre-assembly Supporting Racking Installation

2.1. Unfold the pre-assembled support, fix the structure on the post, locking with bolts.
Use M10x110 screw fix pile and rear jointer
Use M10x85 screw fix jointer and bracing

Use M12x120 screw, 2x Serration washer and 1x shaft fix pile and joiner fix pile and rear jointer

Use M10x90 screw fix pile and A connector
Use M10x85 fix Joiner and bracing

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2.2. Install the pre-assembled structures successively by the same way, and keep all structures in the same height.
3. Rail Mounting

3.1. Rail Joiner Installation

Extend the rails. (Do it when the rail isn't long enough. Otherwise, skip this step.)

Insert rail splice into one rail, side fastening with 2 self-drilling screws, then inserted into the second rail, side fastening with 2 self-drilling screws.

Note: Self screws should be staggered when installation.
3.2. Use rail clamp to fix the heavy rail into beam (one side with one clamp.)

![Rail Clamp Installation diagram](image)

3.3 Mounting them with the above theory and drawing, ensure every bolt is locked.
4. Module Installation

In order to keep the modules flush, starting installation from the side of rail with the up and down to the other side of rail, can leave 50mm space in top to install grounding lug.

Use end clamp to fix on the edge of module, mid clamp to fix two modules.
Grounding clip installation like below.

Locking the mid clamp and end clamp bolts.
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Follow above steps install all components.
5. **Grounding Lug Installation** (Skip this step without using Antai’s grounding lug)

5.1 Install grounding lug in the end of the rail.

5.2 Wired each grounding lug for grounded.
6. Finish installation

Front View

Rear View

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Right view

Top View

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V、Notice

6.1. Size attention for engineering installation
All the dimensions involved in engineering installation should be in line with the construction drawing. The installation instructions shall be only used for explaining the products installation method.

6.2. Attention for stainless steel fasteners installation
Because of the good ductility for stainless steel, the fasteners have big difference with carbon steel one in nature. If use in improper way, it will result in bolt and nut being "locked" which commonly known as "seizure". Prevention of lock basically has the following the basic prevention ways from locked.

6.2.1. Reducing the friction coefficient:
(1) Ensure that the screw thread surface is clean (no contrast, clutter);
(2) Recommend that installation surface use water wax or add lubricant on surface during installation. (Such as butter, 40 # engine oil);

6.2.2. The correct method of operation:
(1) Must be perpendicular to the axis of the screw thread when screwing, can never be tilt.
(2) In the process of tightening, the strength need to be balanced, tightening torque shall not exceed the prescribed safety torque value;
(3) Choose torque wrench or socket wrench as far as possible, avoid using adjustable wrench or electric wrench.
(4) Do not use it when the temperature is high; do not use it with high speed spin; avoid to be locked by rapid rise of temperature. (Such as electric wrench, etc.)