



# ***Ground Mount Installation***

## ***Guide***

**Commercial | Residential | Industrial | Institutional**

## ***Product Certifications***

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***WEEB-KSR***

***WEEB-M-KR***

***CL501TN***

These products are tested to UL 467, CAN/CSA-C22.2 No.41 US/Can safety standards for safety grounding and bonding equipment.



**Intertek**  
4004188





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## ***Disclaimer***

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Kinetic Solar Racking and Mounting does not install any component of its racking and mounting systems and therefore will not have any duty or responsibility for safe and proper installation of its racking systems including job site safety standards and procedures. Installation of each system and project including Occupational Safety and Health Administration (OSHA) supervision, safety programs, injury, loss or death to any or all persons, property and work located on the job project site is the responsibility of the installer and/or the contractor or developer.



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## ***General Notes***

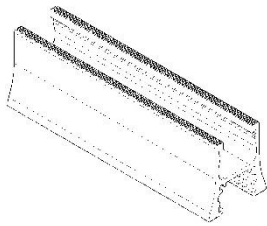
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- **If using cross bracing, review the appendix at the end of this guide before proceeding with installation.**
- Drawings in this installation manual are examples and are NOT specific to your order.
- Kinetic racking systems are NOT anodized unless stated otherwise.
- Placement of rails and clamps are governed by Landscape (horizontal) or Portrait (vertical) module orientation.
- Upon receiving the order, it is the customer's responsibility to ensure delivery of all necessary parts
- All fasteners (1/2" Drive) are designed to be fastened to 12 ft/lbs unless specified
- If using concrete, low alkali concrete is required due to contact with aluminum

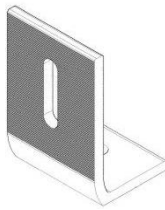
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## ***Main components***

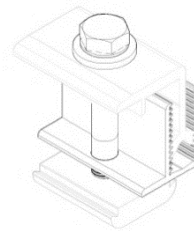
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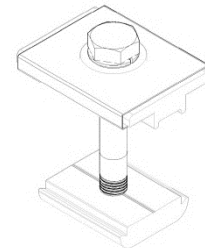
**Hippo Rail**



**L-Bracket**



**End Clamp**



**Mid-Clamp**

- **One of the following**
  - Swaged Tubes
  - Welded Base Plates (feet)
- **Y-Joints** – Attach to the rear legs to provide support to middle of structure.
- **T-Joints** – Attach perpendicular tubes together
- **U-Brackets** – Attach hippo rails to horizontal tubes
- **Hippo Rails** – Hold the End and Mid Clamps for the solar panels.
- **End Clamps** - Attach the panels to the rails.
- **Mid Clamps** – Attach the panels to the rails.
- **Solar Panels** - [Sold Separately]

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***Tools required***

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Measuring Tape

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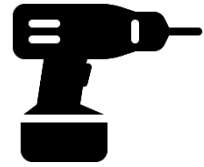
Chalk /String Line

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Drill

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21/64" Drill Bit

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1/2" Drive Wrench/Socket

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## ***Mounting Procedure***

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### ***Step 1: Construct Base***

#### ***1A. Attach base***

##### ***If using welded base plates (feet)***

1. Place the welded base plates in position at the front and back of the array. Drive bolts into place, do not fully tighten

##### ***If using swaged tubes***

1. Insert swaged end of tube into desired location (refer to engineering drawing)
2. Pour concrete around tube
3. Keep firmly in place at desired height until concrete has set



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**1B. Erect Structure**

1. Place a Y-joint at the base of each of the rear tubes so that it is facing upwards toward the front
2. Place a T-joint on the top end of each front and rear tube.
3. Insert horizontal tubes through openings of top and bottom T-joints
  - If more than 1 horizontal tube is required, fasten them together by installing a sleeve connector
    - i. Insert both ends into connector, aligning the center of the connector with the center of the gap between the pipes
    - ii. Drill a  $21/64$ " hole in the tube at each of the locations on the connector
    - iii. Fasten using bolts
4. Bolt horizontal tubes into place, taking care to make sure everything is level.

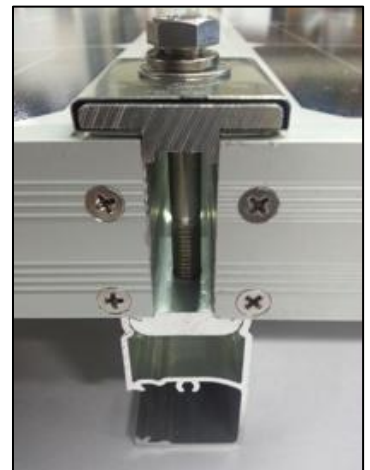
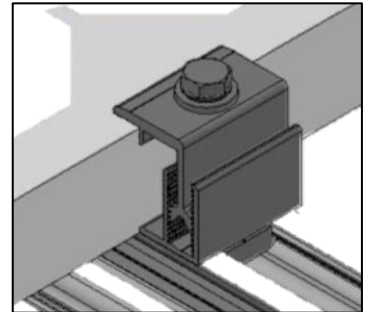
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5. Install the hippo rails (large side down) onto the horizontal tubes (spanning between front and rear tubes) using the U-brackets.
6. Panel spacing is 1/2"
7. Refer to the panel manufacturers specifications to determine rail spacing
8. Bolt the shorter tubes to Y-joints
  - Do not bolt the Y-joint to the rear leg
9. Insert the remaining T-joints onto the remaining horizontal tubes.
10. Attach this tube to the bottom of the hippo rail using U-brackets in the middle of the span. Do not fully tighten.
11. Slide the Y-joints and tubes up the rail and into the T-joints.
12. Once everything is properly aligned, bolt into place
13. Tighten all bolts to ensure proper fastening

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***Step 2: Mounting Solar Panels***

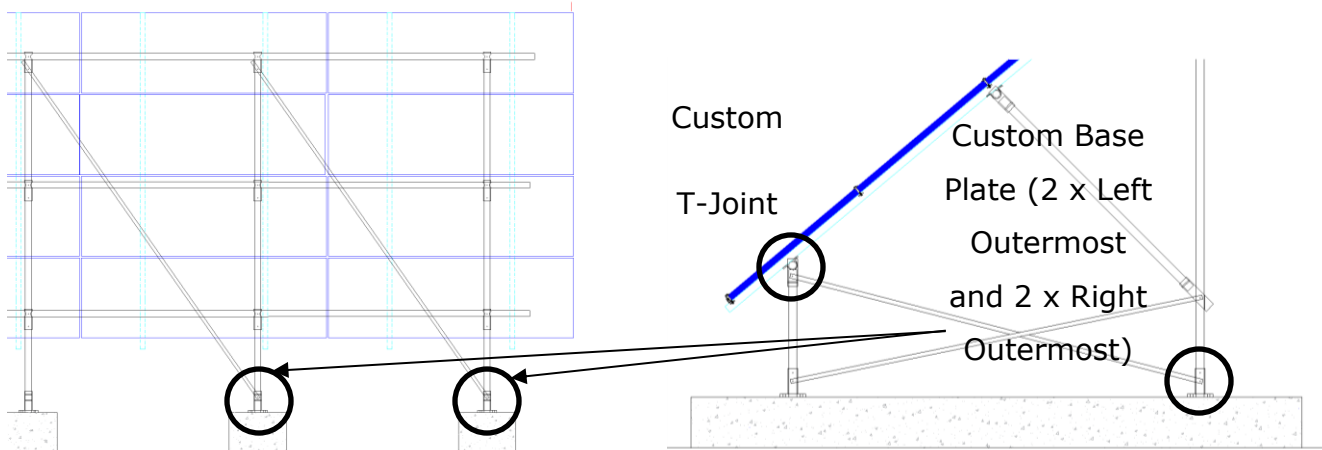
1. Attach the End Clamp to the rail by angling the nut into the channel.
2. Tighten the clamp when it is flush with the module.
3. After the module is in place, insert the Mid Clamp into the rail by tilting nut.
4. Tighten the clamp and ensure the first module is square in order to establish your reference. This is very important as it sets the rest of the modules up.
5. Ensure that 1<sup>st</sup> row of panels is square before continuing as it will affect the whole installation.



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**Appendix A – Installing Cross Bracing**

If required in your location cross bracing may be provided. If this is the case you will receive a number of rectangular pieces that are cut to length and have a hole pre-drilled in one end. The accompanying hardware is the 3" hex bolt along with a flat washer and flange nut.



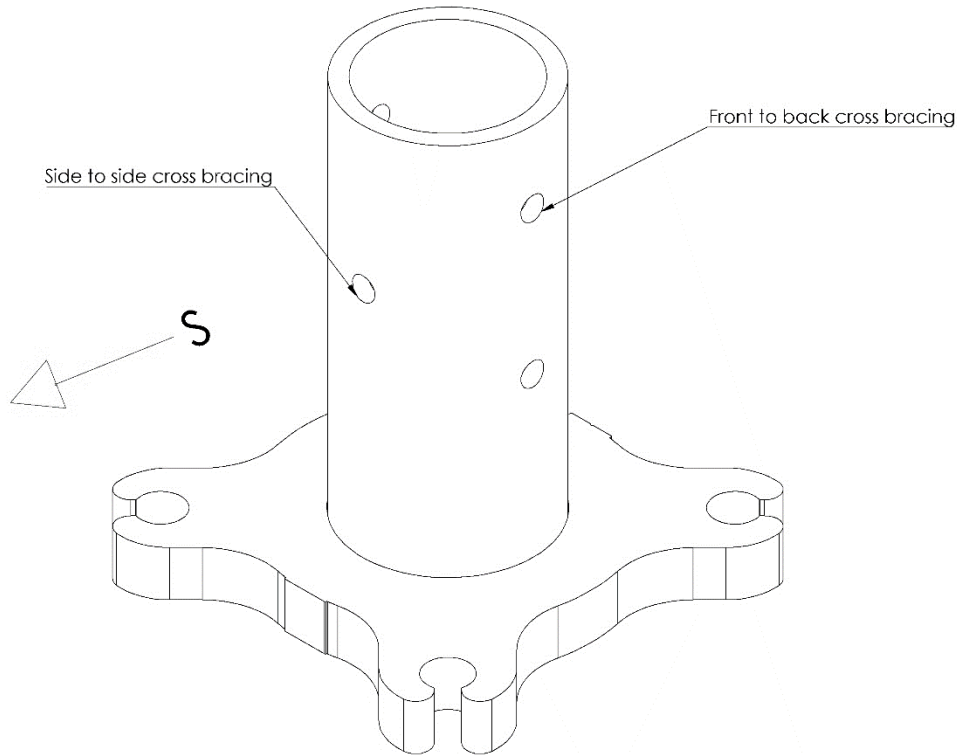
**Longer Bars (Side to Side)**

(Right Outermost Shown)

**Shorter Bars (Front to Back)**

1. For the side to side bracing ensure that the custom base feet are installed on the rear outermost two feet. The side of the base plate with the single hole should be aligned with the front-back direction of the ground mount.

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2. For the front to back bracing, ensure that the custom t-joints are installed on all front legs and that base plates are installed so that the side with two holes runs parallel to the long side of the panels.
3. To install the cross bracing, ensure that the correct hardware is being used. On every connection involving bracing, a 3" Bolt with flat washer (on side of bolt head) and flange nut should be used. When installing ground mount, take care to use this hardware initially in order to save time at the end.

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4. To install each piece of bracing, attach the predrilled end to one of the attachment points. Drill the other end of the bracing so that it is in line with the other attachment point.
  - a. In situations where there are two options for an attachment point, either may be used so long as there is a minimum of ½” from the end of the bar to the edge of the hole