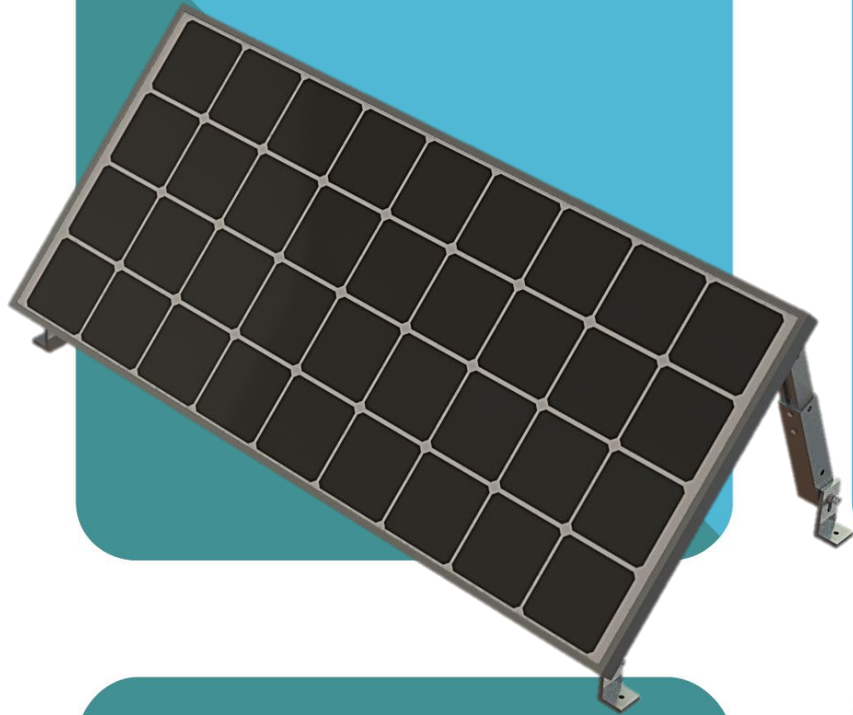


Renogy MTS-TM100

Flat Roof Tilt Mount



RENOGY
THE FUTURE OF CLEAN ENERGY

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Important Safety Instructions

Please save these instructions.

This manual contains important safety, installation, and operating instructions for the Renogy Pole Mount hardware system. The following symbols are used throughout the manual to indicate potentially dangerous conditions or important safety information.

 **WARNING:** Indicates a potentially dangerous condition. Use extreme caution when performing this task.

CAUTION: Indicates a critical procedure for safe and proper operation of the system.

NOTE: Indicates a procedure or function that is important to the safe and proper operation of the system.

General Safety Information

- Read all of the instructions and cautions in the manual before beginning the installation.
- Do **NOT** attach solar panel to mount until mount is securely fit
- Chance to strip nuts and bolts exists.
- Multiple people for installation is suggested.
- Do **NOT** substitute parts from other manufacture ring sources, doing so may void the warranty and/or result in an unstable system
- This system is **NOT** possess any compliance with residential structural codes and should not be used in place of a system that is, if so required by local regulations

Installer Responsibilities

- Installation compliance with any applicable codes which are in force at the installation site
- Installation compliance and compatibility with all system components and the environment including but not limited to roofing, system components, etc.
- Verification that all project information is accurate

WARNING: This equipment should be installed, adjusted, and serviced by qualified electrical maintenance personnel familiar with the construction and operation of the equipment and the hazards involved. Failure to observe this precaution may result in bodily injury. Protective gloves and safety glasses should be worn during installation.

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General Information

The Renogy Tilt Mount will support various mounting applications, especially in off-grid. It is suitable for most Renogy panels and can be mounted on any flat surface. This mount is designed to allow some adjustment of the panel's angle for optimum performance. The angle adjustability is dependent on the panels themselves, with bigger panel sizes decreasing angle adjustability.

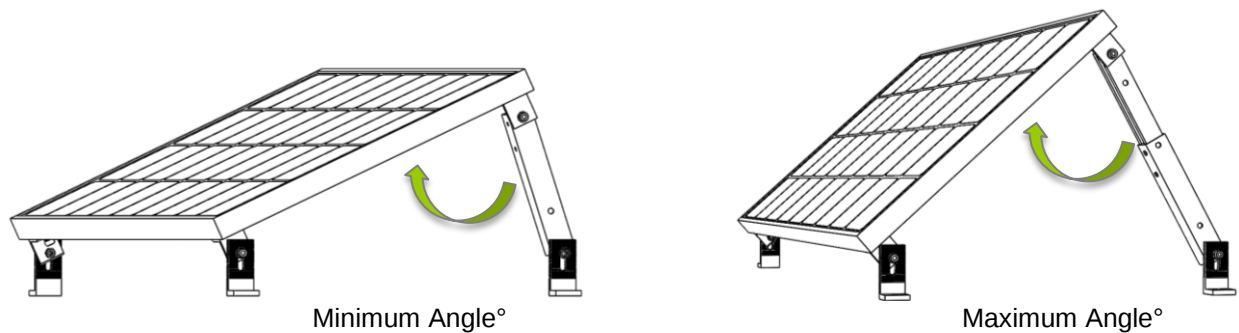
Key Features

- 5052-H32 aluminum construction
- Stainless steel fasteners
- High-tensile strength
- Corrosion Free
- Attractive brushed aluminum finish
- Precision hole positioning and alignment
- Easy, rapid assembly

Angle Adjustability

Note: The angles for the Renogy Tilt Mount are based off a landscape panel installation. As the solar panel size grows, the angle freedom minimizes.

Note: The following angles are a general framework based on extension bracket length. The minimum angles maximizes the extension bracket length while the maximum angles minimizes the extension bracket length.



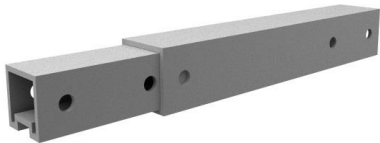
Panel Models	Minimum Angle°	Maximum Angle°	Degree Freedom
50W Mono	38	65	20
50W Poly	39	65	20
100W Mono	89	65	20
100W Poly	51	70	15
100-MB	36	64	28
150 Mono	64	77	13
250W Mono	64	76	12
250W Poly			
270W Poly			
300W Poly			

Compatibility

The following chart represents the Renogy Modules for which this Tilt Mount works for and is optimized for. Optimization of the module implies that there are more degrees of freedom tilting.

RENOGY Solar Module	Compatibility*
RNG-10D	INCOMPATIBLE
RNG-20D	INCOMPATIBLE
RNG-30D	INCOMPATIBLE
RNG-50D	OPTIMIZED
RNG-100D	OPTIMIZED
RNG-150D	WORKS
RNG-250D	WORKS
RNG-50P	OPTIMIZED
RNG-100P	OPTIMIZED
RNG-250P	WORKS
RNG-300P	WORKS

Identification of Components

Part	Part Name	Quantity
Extension Bracket		2
L-Bracket Foot		4
L-Joint		4
Cap Bolt-55mm		4
Cap Bolt-25mm		6

Nut		10
Spring Washer		10
Washer		20
4mm Hex Key		1

Installation

WARNING: The equipment should be installed, adjusted, and serviced by a qualified electrical maintenance personnel familiar with the construction and operation of the equipment and hazards involved. Failure to observe this precaution may result in bodily injury. Protective gloves and safety glasses should be worn during installation.

CAUTION: The stripping of the threads on the nuts and bolts is possible.

Recommended Tools (Not provided)

- Socket wrench
- Torque extension
- Box-Leveler
- Tape Measure
- 18mm wrench or socket for larger hex nut
- 13mm wrench or socket for smaller hex nut

The above tools and equipment are highly recommended to have available to assist with installation but are in no way a comprehensive list of tools that can ease installation. Installers feel free to substitute comparable equipment where appropriate.

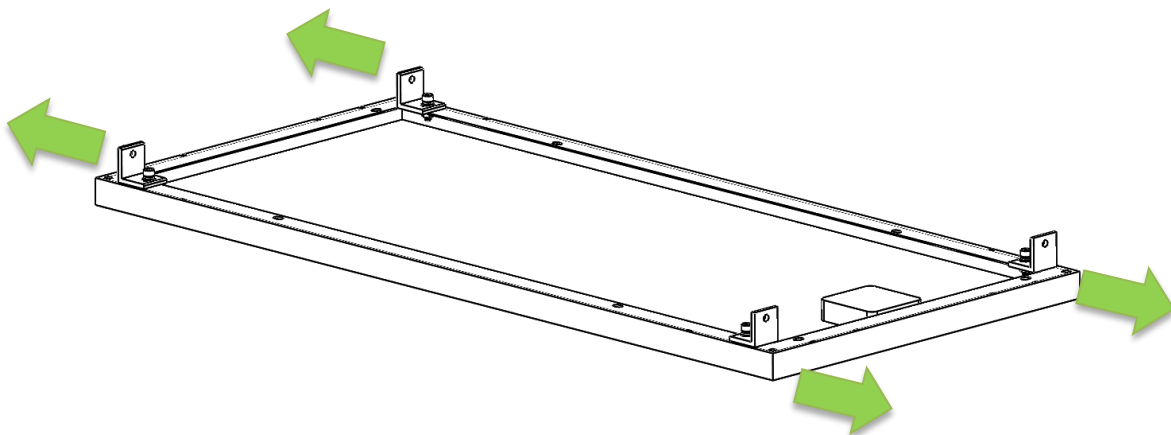
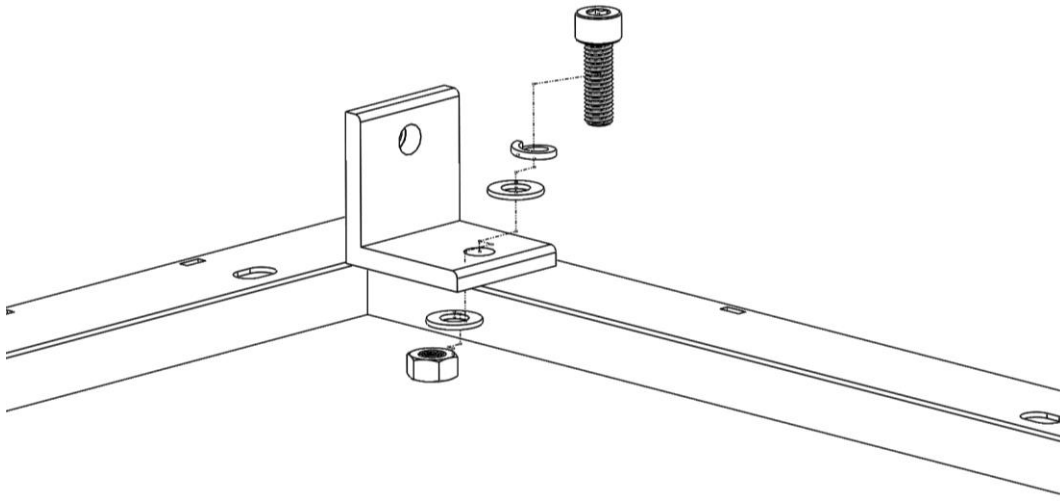
Fasten L-Joint to Back of Solar Panel

Note: All Cap Head Bolts must have a Spring Washer and Washer before feeding through a hole. A washer will also be placed after the hole before the nut.

- A. Place panel face down to expose mounting holes.

- B. Slide spring washer through the threads of the 25mm Cap Bolt and then slide washer so that both make contact with the 25mm Cap Bolt's underside.
- C. Flush L-Joint to the back of the panel as shown in the pictures.
- D. Align 25mm Cap Bolt with spring washer and washer through the L-Joint base hole. Follow up by adding a washer after the hole and then use a nut to tighten into place.
- E. Repeat for all 4 L-Joints. Refer to the picture for correct orientation of the L-Joints. Note that the back of the L-Joints face away from the panels longitudinal center.

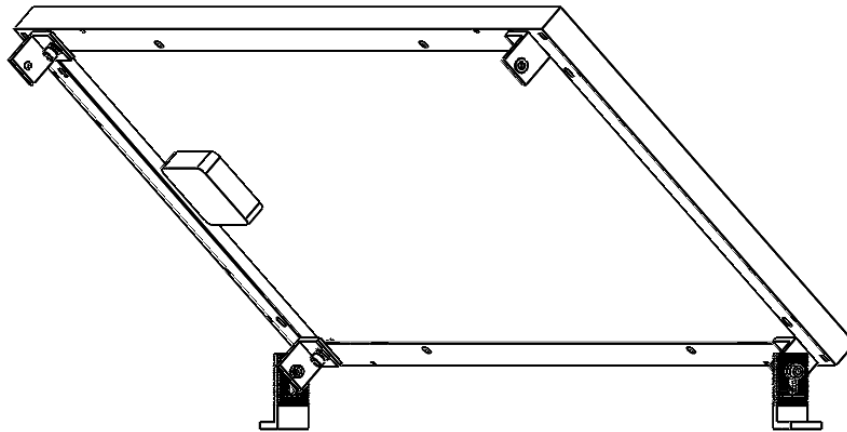
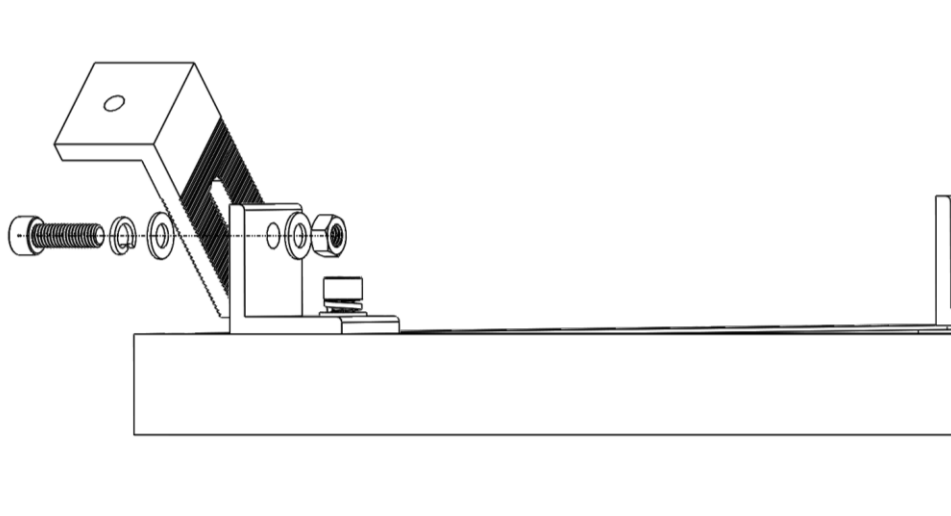
Note: The back of the L-Joints face away from the panel's longitudinal center.



Attach L-Joint to L-Bracket Foot

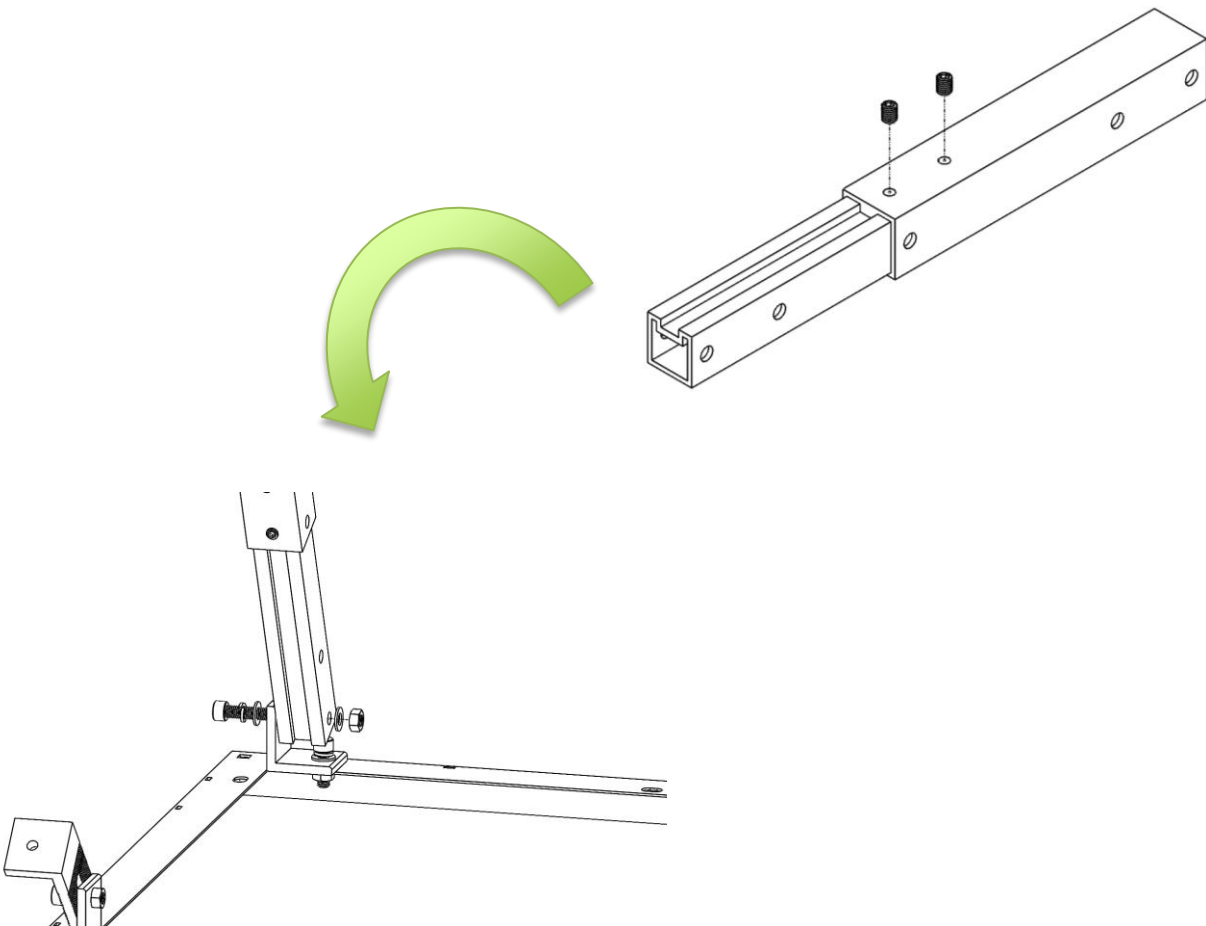
Note: The mounting angle demonstrated in the image is to serve as a guide for users and their individual assemblies.

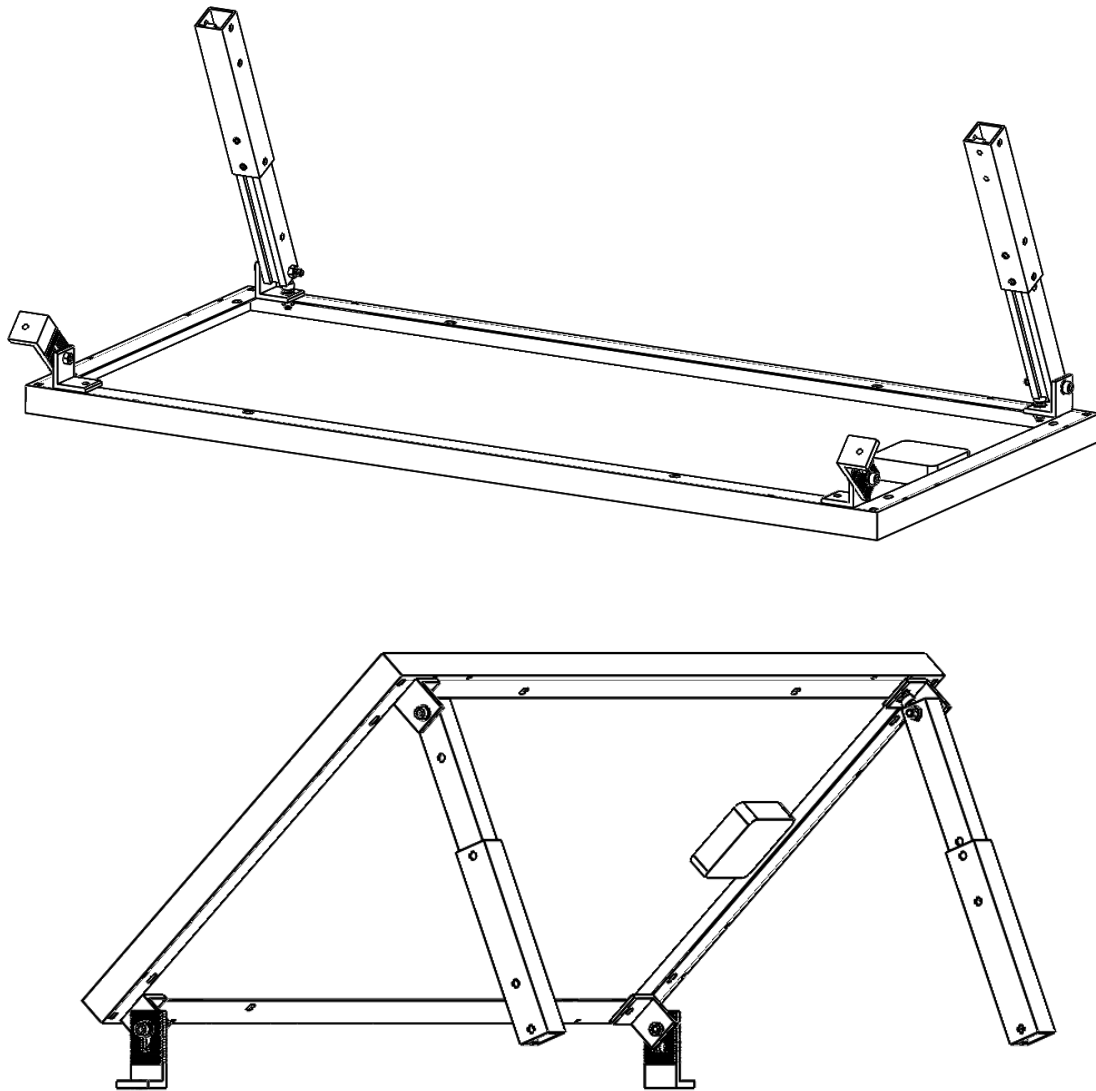
- A. Flush the L-Bracket Foot onto the L-Joints. Note that the bottom of the L-Bracket Foot should face outward of the L-Joint. Also note that the 2 L-Bracket Foots will be on the same side longitudinally as seen in the image.
- B. Slide spring washer through the threads of the 25mm Cap Bolt and then slide washer so that both make contact with the 25mm Cap Bolt's underside.
- C. Adjust the panel to a desired angle for mounting
- D. Feed the washer and nut into the 25mm Cap Bolt



Attach Extension Bracket to L-Joint

- A. Extend the Extension Bracket to a desired length.
- B. Keep the extension bracket in place by using a 4mm hex key (included) to tighten the small threads down.
- C. Orient the Extension Bracket to be mated with the inside of the L-Joint. The T-slot on the L bracket should be facing the inside of the panel.
- D. Slide spring washer through the threads of the 55mm Cap Bolt and then slide washer so that both make contact with the 55mm Cap Bolt's underside.
- E. Insert 55mm Cap Bolt through the L-Foot and Extension Bracket and use another washer then nut; tighten accordingly
- F. Repeat for other side.

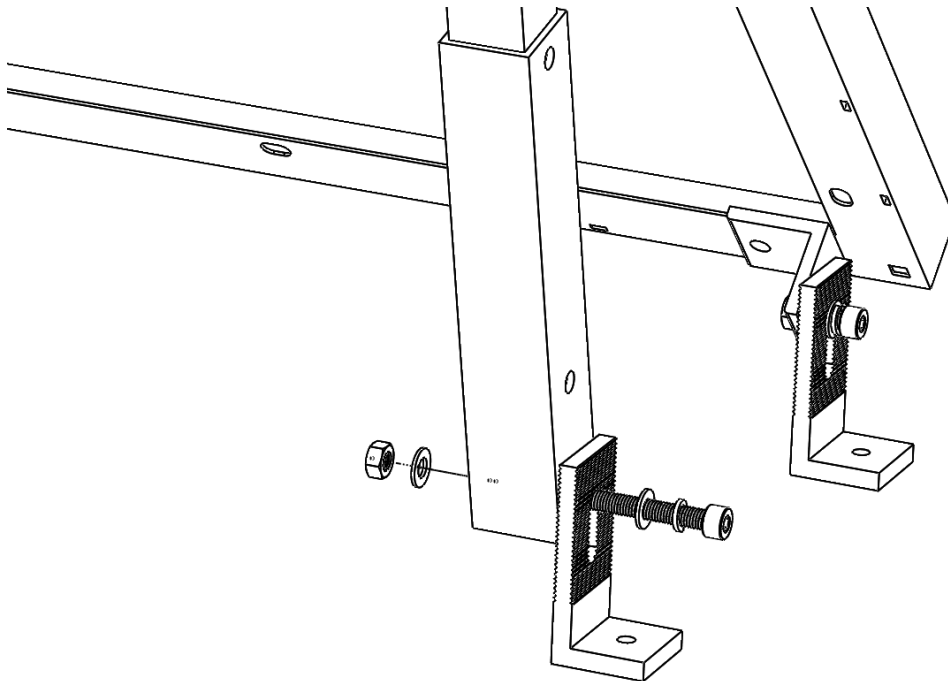
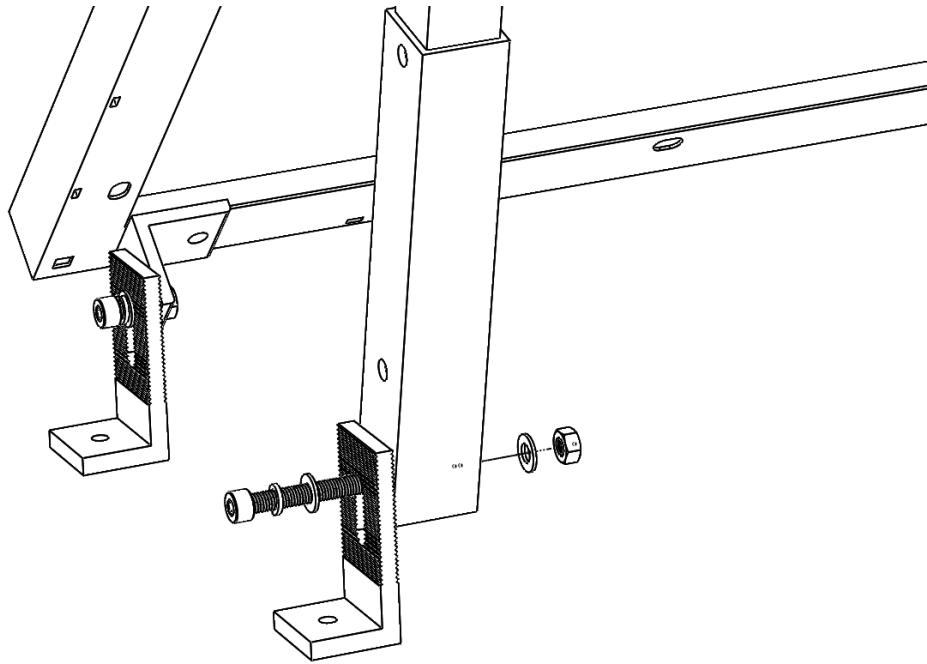




Attach L-Bracket Foot to Extension Bracket

Note: The mounting angle of the Extension bracket relative to the L-Joint can change based on user needs.

- A. Orient the L-Foot so that it facing outwards of the Extension Bracket.
- B. Slide spring washer through the threads of the 55mm Cap Bolt and then slide washer so that both make contact with the 55mm Cap Bolt's underside.
- C. Insert 55mm Cap Bolt through the L-Foot and Extension Bracket and use another washer then nut; tighten accordingly
- D. Repeat for the other side.



Mounting Recommendations

Note: The following information is intended to be a basic guide to give the user a basic approach to mounting. A proper roof-mounting guide should be consulted prior to beginning any installation.

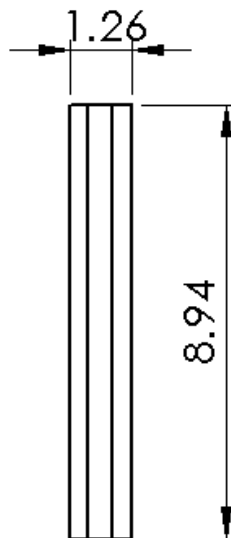
There are various fastening techniques, but some of the most common situations call for the use of a lag bolt. This method is common when mounting panels onto a roof with a wood or asphalt surface. The following is a basic approach and should be taken as such.

1. Find a desired mounting location
2. Drill 4 holes where the holes on the L-Bracket Feet line up. A power drill with a sufficient drill bit should be utilized in this process.
3. After the hole has been drilled, silicone sealant should be administered to the hole in order to prevent leaks.
4. Use a power drill with socket extension to drill the lag bolt into the hole.
5. Drill until sufficient load is applied.

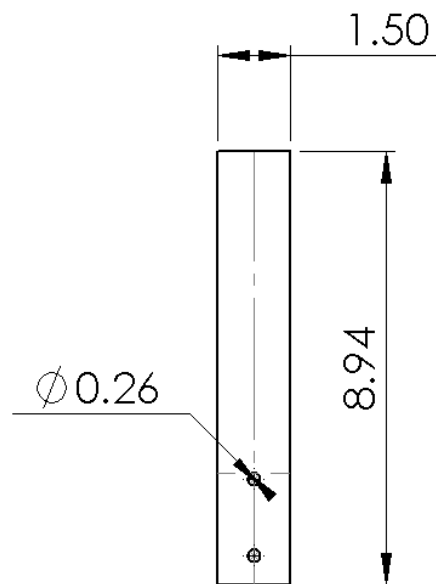
Dimensions

Note: The following drawings utilize inches as their dimension units.

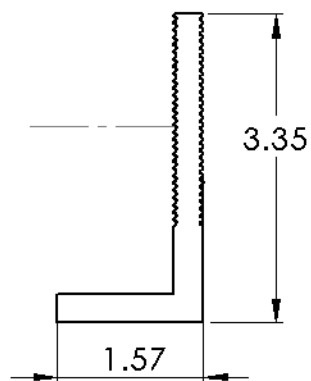
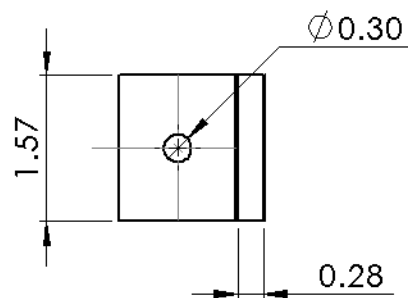
Inner Extension Bracket



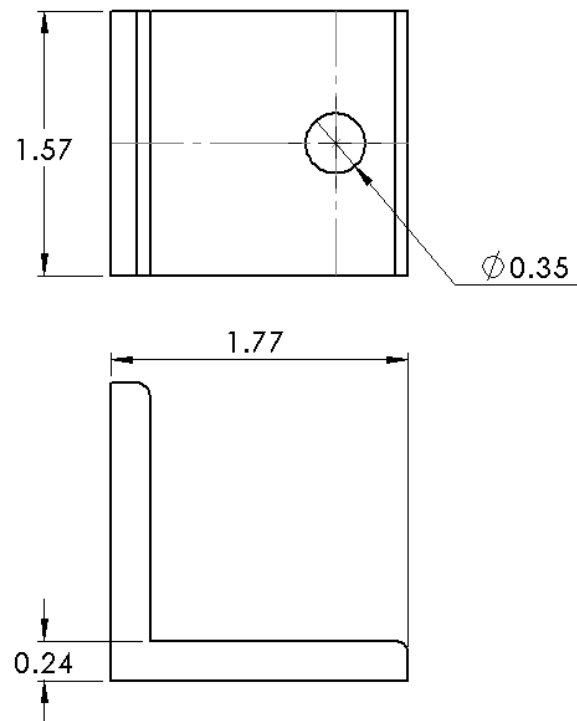
Outer Extension Bracket



L-Foot



L-Joint





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