GRIPRAC™
Simple solar installation

RESIDENTIAL INSTALLATION MANUAL

GRIPRAC

DISCLAIMER

This manual outlines the correct installation procedures and the essential standards needed to ensure product reliability. Warranty information can be found on the website. All installers are required to thoroughly review and fully understand these instructions before beginning installation. Any installation or use of this product that does not comply with these instructions or is not explicitly authorized will void all warranties, whether express or implied. Such misuse may result in product failure, property damage, or personal injury. GripRac assumes no responsibility for unauthorized use. To guarantee proper fit and functionality, use this product exclusively with other GripRac components.

It's the installer's responsibility to:

- Ensure the safe installation of all electrical aspects of the array. A licensed and bonded electrician or solar contractor should perform all electrical work.
- Routine maintenance of modules or panels must not involve breaking or disturbing the system's bonding path. All work must adhere to national, state, and local installation procedures and product and safety standards.
- Comply with all applicable local or national building and fire codes, including any that may supersede this manual.
- Ensure that all products are suitable for the installation, environment, and array under the site's loading conditions.
- Use only GripRac parts or parts recommended by GripRac; substituting parts may void any applicable warranty.
- Confirm the accuracy of the provided information, as the installer is responsible for any issues arising from inaccurate details.
- Prevent galvanic corrosion by ensuring that bare copper grounding wire does not come into contact with aluminum or zinc-plated steel components.
- During periodic inspections, re-tighten any loose components or fasteners immediately.
- Replace any components showing signs of corrosion or damage that compromise safety without delay. Provide an appropriate direct-to-earth grounding method per the latest edition of the National Electrical Code, including NEC 250: Grounding and Bonding, and NEC 690: Solar Photovoltaic Systems.
- Disconnect AC power before servicing or removing modules, AC modules, microinverters, or power optimizers.
- Consult the documentation of modules and any third-party manufacturers to ensure compatibility and compliance with warranty terms and conditions.
- Verify that the roof is in good condition before installing any GripRac components.

RATINGS

UL 2703 LISTED

#5018083

Conforms to UL STD 2703 Standard for Safety First Edition: Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic

Modules and Panels:

- The scope of Evaluation includes bonding, grounding, mechanical loading, and fire classification.
- Maximum Overcurrent Protective Device (OCPD) Rating: 40A.
- Maximum Module Size: 30.5 ft².
- Module Orientation: Portrait or Landscape.
- System Design Load Rating: 10 PSF downward, 5 PSF upward, 5 PSF lateral.
- Actual system structural capacity, including spans and cantilevers, is defined by PE-stamped certification letters.
- CAMO Specific Design Load Rating: 50 PSF downward, 50 PSF upward, 15 PSF lateral. Certified to CSA TIL No. A-40 Photovoltaic Module Racking Systems:
- Load Rating: 2400 PA [50 PSF].

Class A System Fire Rating Per UL 2703:

- Any Roof Slope with Module Types 1, 2, 3: Permitted on any roof slope with any module-to-roof gap, no perimeter guarding required.
- Module Types 4 and 5: Allowed on steep slope roofs (≥ 9.5°). Module-to-roof gap is permitted, but low-edge guarding (trim) is required.
- Class A-rated PV Systems: Can be installed on Class A, B, and C roofs without affecting the roof fire rating.

Class B System Fire Rating Per UL 2703:

- Module Types 4 and 5: Permitted on steep slope roofs (≥ 9.5°) with no perimeter guarding required.

Water Seal Ratings:

- Tested and evaluated with sealant.

UL 2703A Ratings:

- Conforms to UL SUBJECT 2703A
- Steep Slope Ratings: Applicable for asphalt shingle roofs with slopes 2:12 and up.
- Low Slope Ratings: Applicable for roll roofing (rolled comp) roofs with slopes 1:12 and up, and modified bitumen (Mod-Bit) roofs with slopes 1/4:12 and up.
- Installers must verify the roof slope before installing to ensure compatibility with applicable roof types.

Conforms to UL STD 1565 and Certified to CSA C22.2 #18.5-13 Positioning Devices - Wire Clip:

- Any roofing manufacturer-approved sealant is allowed.
- Applicable for steep roof slopes 2:12 and above.
- Operating Temperature Range: -35°C to 90°C.
- Maximum Load: 10 lbs.
- For outdoor use.

Structural Certification:

- Designed and certified for compliance with the International Building Code and ASCE/SEI-7.

MARKINGS

ATTACHMENTS

PRE-INSTALLATION TOOLS REQUIRED

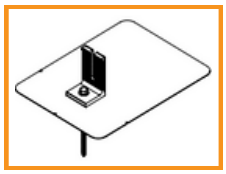
- ☐ Cordless Drill (non-impact)
- ☐ Impact Driver (for lag bolts)
- ☐ Torque Wrench (0-300 in-lbs)
- ☐ 7/16” Socket
- ☐ 1/2" Socket
- ☐ 9/16" Socket
- ☐ 7/32" Drill Bit
- ☐ 3/8" Socket
- ☐ 1/8" Drill Bit
- ☐ 1/4" Drill Bit
- ☐ T30 Bit
- ☐ Channel Lock Pliers
- ☐ #3 Phillips Bit
- ☐ 3/16" Hex Bit

BONDING HARDWARe TORQUE VALUES

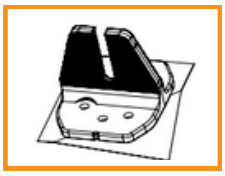
Please refer to each attachment's individual section for full details on all torque values and instructions.

- ☐ 3/8" Bonding Hardware Nuts (7/16" Socket): 300 in-lbs
- ☐ All Tile Hook Carriage Bolts (7/16" Socket): 132 in-lbs
- ☐ Flat Tile Hook Carriage Bolts (7/16" Socket): 132 in-lbs
- ☐ Flat Roof Attachment Nuts (9/16” Socket): 250 in-lbs
- ☐ Lynx Set Screw (3/16" Hex Drive): 150 in-lbs
- ☐ Lynx Flange Nut (1/2" Socket): 150 in-lbs

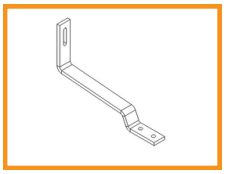
COMPONENTS



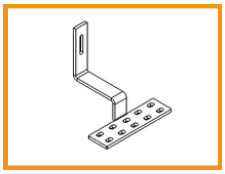
Venus



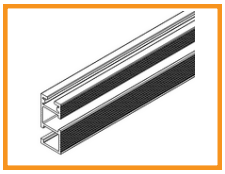
QuickGrip



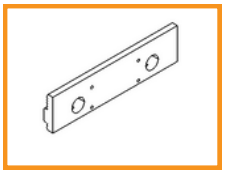
Flat Tile



Spanish Tile

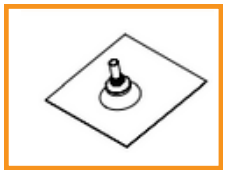


Rail

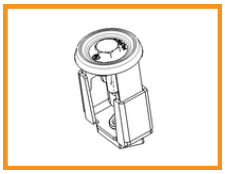


Splice Bar

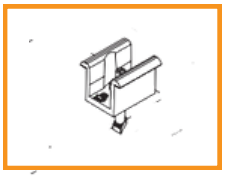
FLAT TILE



High Rise Flashing



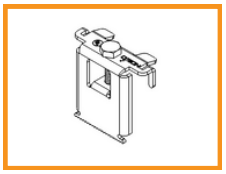
Universal Clamp



UniRack Mid Clamp

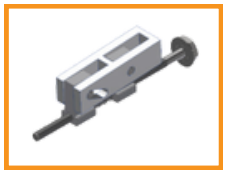
SPANISH TILE

Spanish Tile Vertical



Spanish Tile Horizontal

Iron Ridge UFO



UniRack End Clamp

COMPONENTS

PRE-INSTALLATION TOOLS REQUIRED

- ☐ Cordless Drill (non-impact)
- ☐ Impact Driver (for lag bolts)
- ☐ Torque Wrench (0-300 in-lbs)
- ☐ 7/16” Socket
- ☐ 1/2" Socket
- ☐ 9/16" Socket
- ☐ 7/32" Drill bit
- ☐ 1/8" Drill bit
- ☐ 1/4" Drill bit
- ☐ T30 Torx Bit
- ☐ Channel Lock Pliers
- ☐ #3 Phillips Bit
- ☐ Paddle Bit

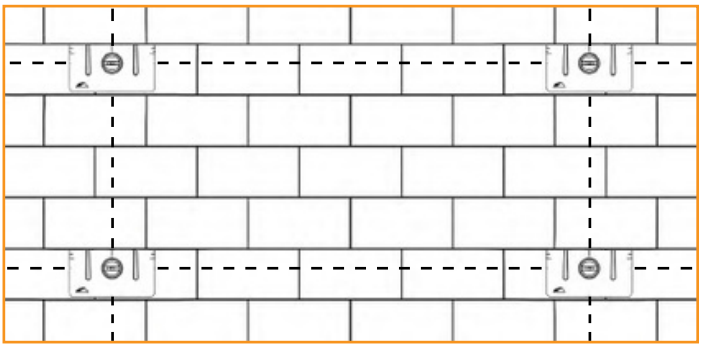
BONDING HARDWARE TORQUE VALUES

Please refer to each attachment's individual section for full details on all torque values and instructions.

- ☐ Universal End Clamp (7/16" Socket): 80 in-lbs
- ☐ Grounding End Clamp (7/16" Socket): 80 in-lbs
- ☐ Grounding Mid Clamp (7/16" Socket): 80 in-lbs
- ☐ Frameless End - Mid Clamp (7/16" Socket): 80 in-lbs
- ☐ Rail Grounding Lug Nut (7/16" Socket): 80 in-lbs
- ☐ Splice Bar Nuts (7/16" Socket): 300 in-lbs
- ☐ Microinverter Kit Nuts (7/16" Socket): 80 in-lbs
- ☐ Rail Connection to Roof Nut (7/16" Socket): 80 in-lbs

1. PLACE ATTACHMENTS

The standard installation procedure for GripRac attachments involves locating a rafter, drilling a pilot hole, and securing the attachment. For installation instructions specific to composition roof attachments, see page 10. For tile roof attachments, refer to page 12, and for low-slope roof attachments, see page 14. When utilizing approved third-party attachments, please follow the manufacturer's installation guidelines.



2. PLACE RAILS

A. CONNECT SPLICES

Use the BOSS (Bonded Structural Splice) to connect multiple sections of GripRac Rails as needed.

B. PREPARE HARDWARE

Insert square-headed bolts into the side-facing rail slot. Space the bolts to match the spacing of the attachments. Tape the rail ends to prevent bolts from sliding out during movement. If using T-bolts, bring the hardware to the roof and proceed with installation.

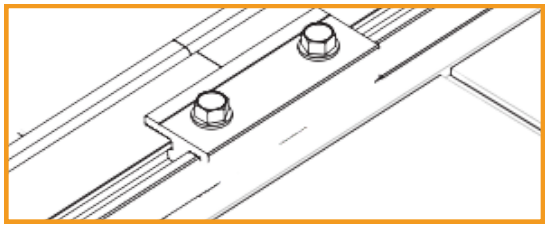
C. ATTACH RAILS

Position the rail with hardware onto the roof attachment. Adjust the rail to the desired height and torque to 300 in-lbs.

➢ The rail can be oriented either upslope or downslope on the roof.
➢ When using attachments with extended slots, ensure the Rail is not installed lower than the top of the L-Foot to prevent module damage.

3. INSTALLING SPLICE BARS

Step 1: Prepare for Installation
Ensure that GripRac splice bars are required for your installation. Only use them for flush installations or systems with low-profile tilt legs. Verify that each rail is supported by at least one footing on both sides of the splice.



Step 2: Position the Rails
Align the rails to be joined, leaving a gap of up to 3/16" between them. Ensure that the rails are straight and level before proceeding.

Step 3: Insert the Splice Bar
Slide the T-feature of the splice bar into the T-slot of the first rail. Repeat the process for the second rail, centering the splice bar between both rails.

Step 4: Secure the Splice Connection
Insert the bolts and tighten each one until the bolt head is flush against the splice bar. Use a torque wrench to torque the bolts to 10 ft-lbs. Ensure that the bonding hardware penetrates the opposite side of the rail and that the assembly torque is achieved.

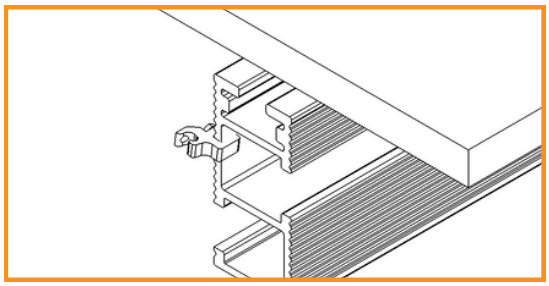
Step 5: Placement Guidelines
Do not place T-bolts closer than 1 inch from the end of the rail, even when using a splice. Double-check all connections to ensure a secure and stable installation.

3. INSTALLING LUGS

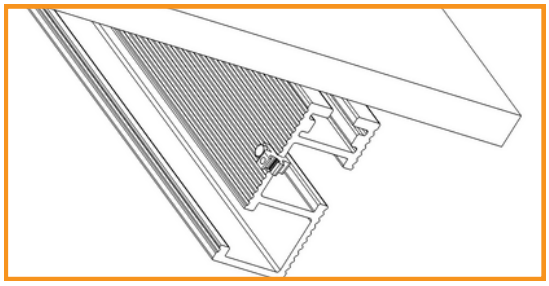
GROUNDING LUGS

Only one Grounding Lug (Rail or Module) is required per continuous subarray, regardless of its size

Grounding Lugs are designed for use with one solid or stranded copper conductor, sized 10-4 AWG.

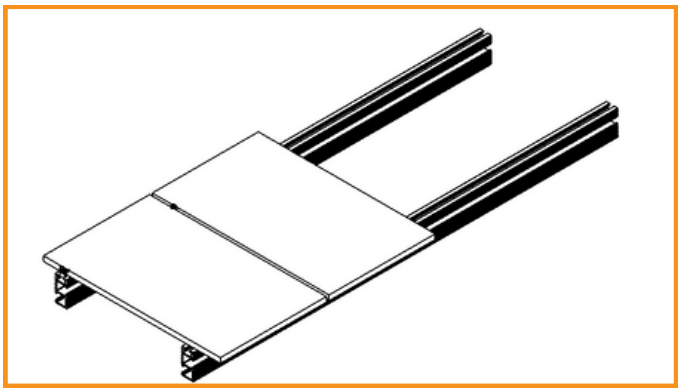


Rail Grounding Lug
Insert the T-bolt into the top rail slot and tighten the hex nut to 80 in-lbs. Install a minimum 10 AWG solid or stranded copper grounding wire and torque the terminal screw to 20 in-lbs.



4. SECURING MODULES

A. Secure the First Module
Position the first module on the rails, ensuring it is at least 1” from the rail ends. Secure the module to the rail using the GripRac Endlamps, ensuring the clamp is properly hooked over the top of the module. Tighten to 80 in-lbs. Verify that the rails are square before placing modules. Hold the clamps in place while tightening to prevent rotation.



B. Secure the Following Modules
Insert a GripRac Endlamps into each rail, positioning it flush against the first module. Slide the next module into place, ensuring it fits snugly against the GripRac Endlamps. Tighten to 80 in-lbs. Repeat this process for each subsequent module. When reinstalling a GripRac Endlamps, adjust the modules by at least 1/16" to ensure the GripRac Endlamps contacts a fresh section of the module frame. Make sure the T-bolt fully engages with the rail channel before re-torquing the GripRac Endlamps.

C. Secure the Last Module
Place the final module on the rails, maintaining a minimum 1” clearance from the rail ends. Attach GripRac Endlamps. Secure the module to the rail. Tighten to 80 in-lbs.

➢ Hold the clamps in place while tightening to prevent rotation.
➢ Repeat these steps for each additional row of modules.

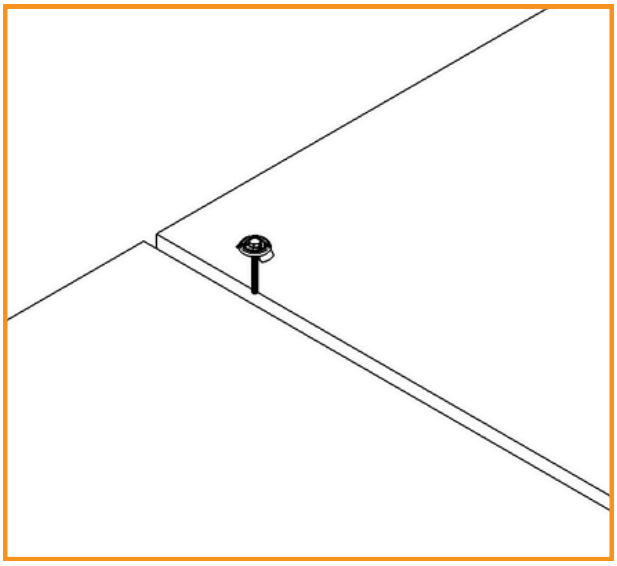
4. SECURING MODULES

4.1. INSTALLING GRIPRAC GROUNDING MID CLAMP

Step 1: Prepare for Installation

1. Ensure that the GripRac MidClamp assembly is ready, with the T-bolt pre-installed for module installation.

2. Position the midclamp assembly near the intended module placement point on the rail.



Step 2: Position the MidClamp

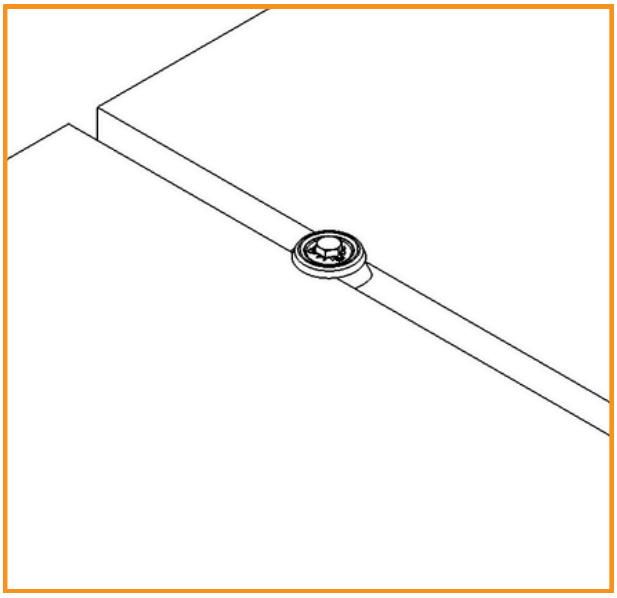
1. Rotate the midclamp assembly and slide it along the rail.

2. Align the clamp against the module frame, ensuring proper contact.

Step 3: Secure the Module

1. Confirm that the modules are tight against the clamps with no gaps before tightening.

2. Tighten the nut to 11 ft-lbs, but do not fully secure until the next module is in place.



Step 4: Verify Proper Installation

1. Ensure the bolt is perpendicular to the rail.

2. Check that the T-bolt position indicator is also perpendicular to the rail before finalizing the installation.

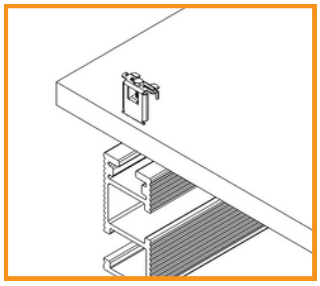
4. SECURING MODULES

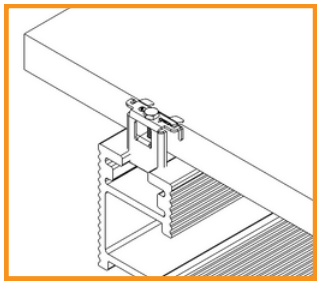
4.1. INSTALLING GRIPRAC GROUNDING ENDCLAMP

Step 1: Position the First Module

1. Place the first module onto the rails, ensuring it is positioned at least 1” from the rail ends.

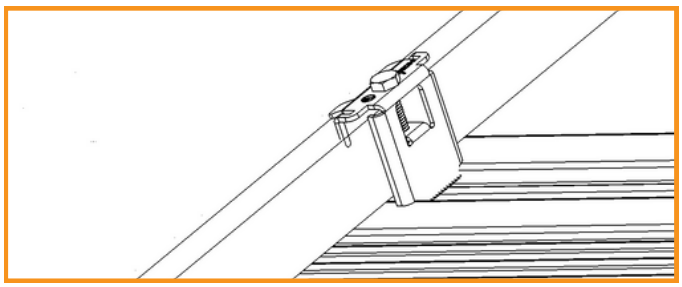
2. Confirm that the rails are square before proceeding with module installation.





Step 2: Attach Griprac Grounding Endclamp

1. Ensure that the clamp is hooked securely over the top of the module.



Step 3: Secure the Module

1. Fasten the module to the rail using the Griprac grounding end clamp

2. Hold the clamps firmly in place while tightening to prevent any rotation.

Step 4: Final Torque & Verification

1. Torque the fasteners to 80 in-lbs for a secure connection.

2. Double-check that the module is securely fastened and properly aligned before continuing with the next module installation.

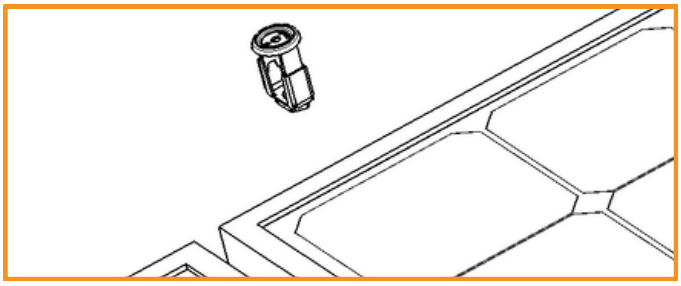
4. SECURING MODULES

4.1. INSTALLING GRIPRAC UNIVERSAL CLAMP

Step 1: Preparation

1. Make sure the GripRac Universal Clamp assembly is ready, with the T-bolt already installed for securing the module.

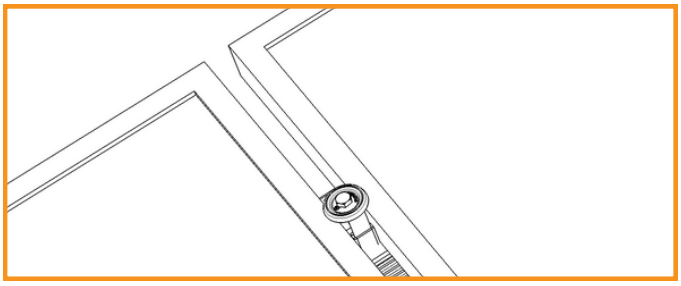
2. Position the midclamp assembly close to where the module will be mounted on the rail.



Step 2: Positioning the GripRac Universal Clamp

1. Rotate the Universal Clamp assembly and slide it along the rail to the correct location.

2. Adjust the clamp so that it sits firmly against the module frame for a secure fit.



Step 3: Securing the Module

1. Ensure that the module is flush against the clamps without any gaps before tightening.

2. Partially tighten the nut to 11 ft-lbs, but leave final tightening until the next module is positioned.

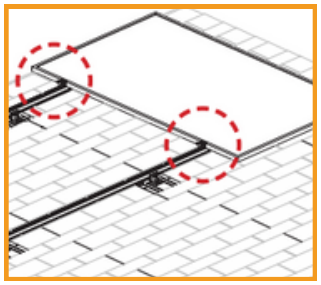
Step 4: Final Verification

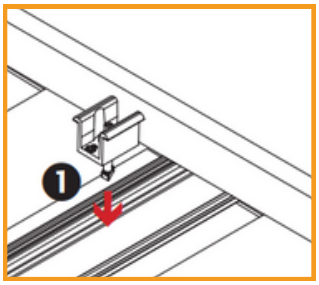
1. Confirm that the bolt is positioned perpendicular to the rail.

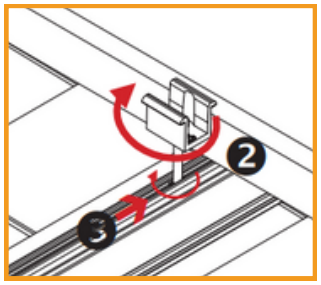
2. Check that the T-bolt position indicator is also aligned perpendicular to the rail before completing the installation.

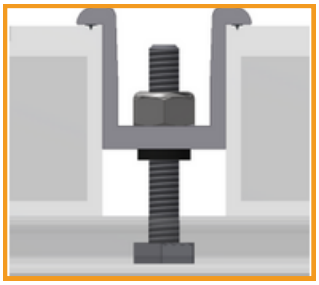
4. SECURING MODULES

4.1. INSTALLING UNIRAC MID CLAMP









Step 1: Preparation

1. Make sure the Unirac MidClamp assembly is ready, with the T-bolt already installed for securing the module.

2. Position the midclamp assembly close to where the module will be mounted on the rail.

Step 2: Positioning the MidClamp

1. Rotate the midclamp assembly and slide it along the rail to the correct location.

2. Adjust the clamp so that it sits firmly against the module frame for a secure fit.

Step 3: Securing the Module

1. Ensure that the module is flush against the clamps without any gaps before tightening.

2. Partially tighten the nut to 11 ft-lbs, but leave final tightening until the next module is positioned.

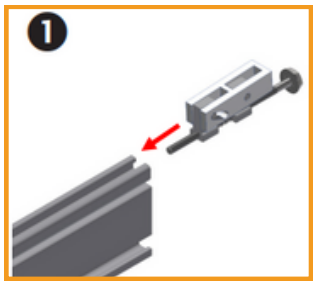
Step 4: Final Verification

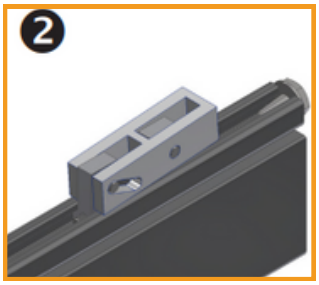
1. Confirm that the bolt is positioned perpendicular to the rail.

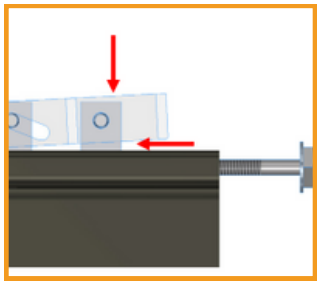
2. Check that the T-bolt position indicator is also aligned perpendicular to the rail before completing the installation.

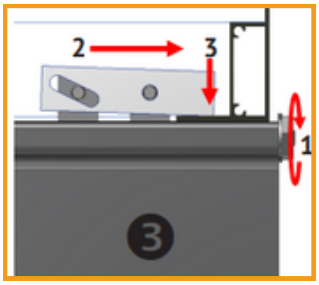
4. SECURING MODULES

4.1. INSTALLING UNIRAC ENDCLAMP









Step 1: Prepare for Module Installation

1. Ensure that the module and pre-positioned clamp assemblies are ready for installation.

2. Verify that rails have been trimmed to the required length, allowing 0" to 1/2" of overhang beyond the module.

Step 2: Position the End Clamps

1. Insert the end clamps into the rail slots before placing the last module.

2. Align the last module onto the rails, ensuring the flange of the module frame sits between the end clamps and the rail ends.

Step 3: Secure the End Clamps

1. Hold the module firmly in position, ensuring the flange is in full contact with the rail.

2. Rotate the end clamp bolt until the clamp firmly engages with the module flange, ensuring proper clamping force.

Step 4: Final Torque & Verification

1. Use a low torque setting on a drill to prevent over tightening.

2. If using an impact driver, stop tightening as soon as the impact action begins.

3. Tighten the end clamp bolt to 3 ft-lbs to complete the installation.

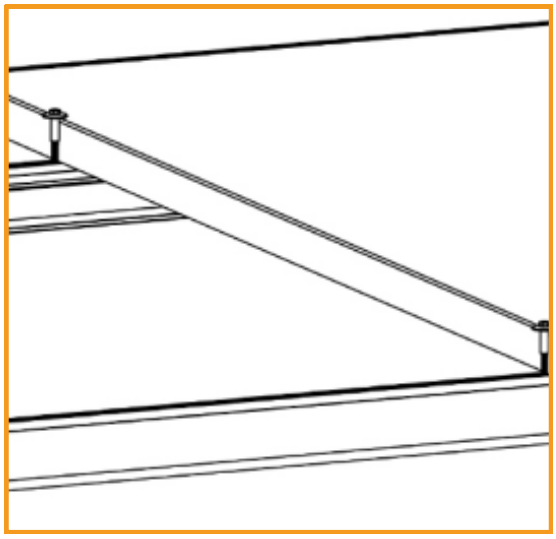
4. SECURING MODULES

4.1. INSTALLING IRONRIDGE UFO MID CLAMP

Step 1: Preparation

1. Make sure the GripRac Universal Clamp assembly is ready, with the T-bolt already installed for securing the module.

2. Position the midclamp assembly close to where the module will be mounted on the rail.



Step 2: Positioning the GripRac Universal Clamp

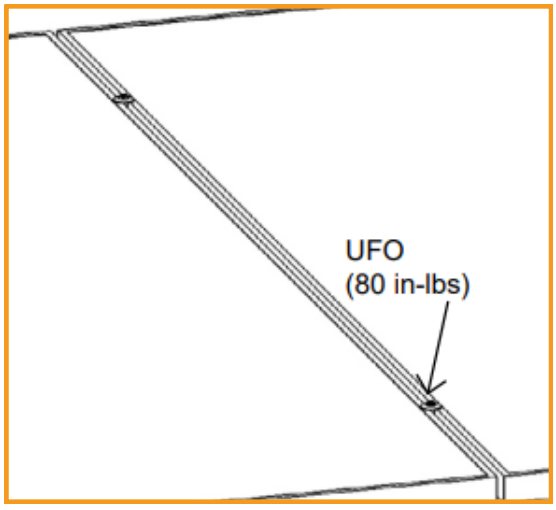
1. Rotate the Universal Clamp assembly and slide it along the rail to the correct location.

2. Adjust the clamp so that it sits firmly against the module frame for a secure fit.

Step 3: Securing the Module

1. Ensure that the module is flush against the clamps without any gaps before tightening.

2. Partially tighten the nut to 11 ft-lbs, but leave final tightening until the next module is positioned.



Step 4: Final Verification

1. Confirm that the bolt is positioned perpendicular to the rail.

2. Check that the T-bolt position indicator is also aligned perpendicular to the rail before completing the installation.

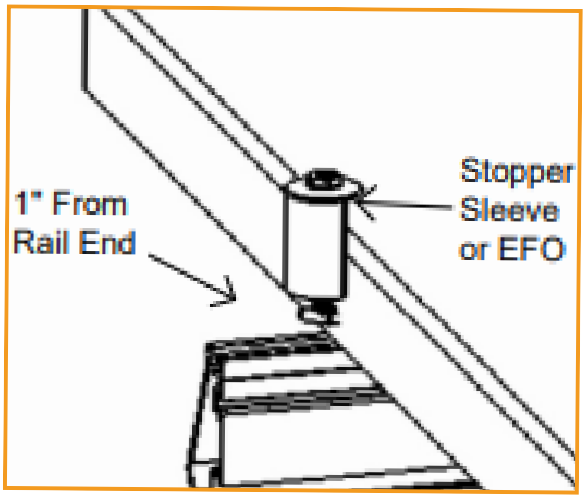
4. SECURING MODULES

4.1. INSTALLING IRONRIDGE UFO END CLAMP

Step 1: Position the First Module

1. Place the first module on the rails, ensuring it is at least 1” from the rail ends.

2. Verify that the rails are square before proceeding with installation.



Step 2: Attach Stopper Sleeves

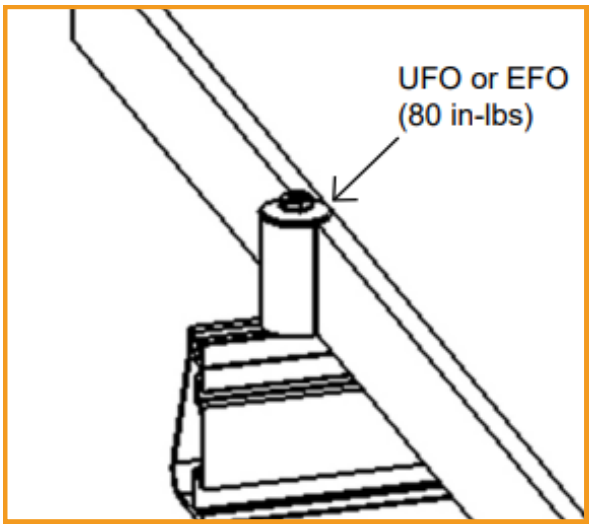
1. Snap Stopper Sleeves onto the UFO before fastening the module.

2. Confirm that the clamp is hooked securely over the top of the module for proper engagement.

Step 3: Secure the Module

1. Fasten the module to the rail using either the UFO with Stopper Sleeve or EFO.

2. Hold the clamps firmly while tightening to prevent rotation.

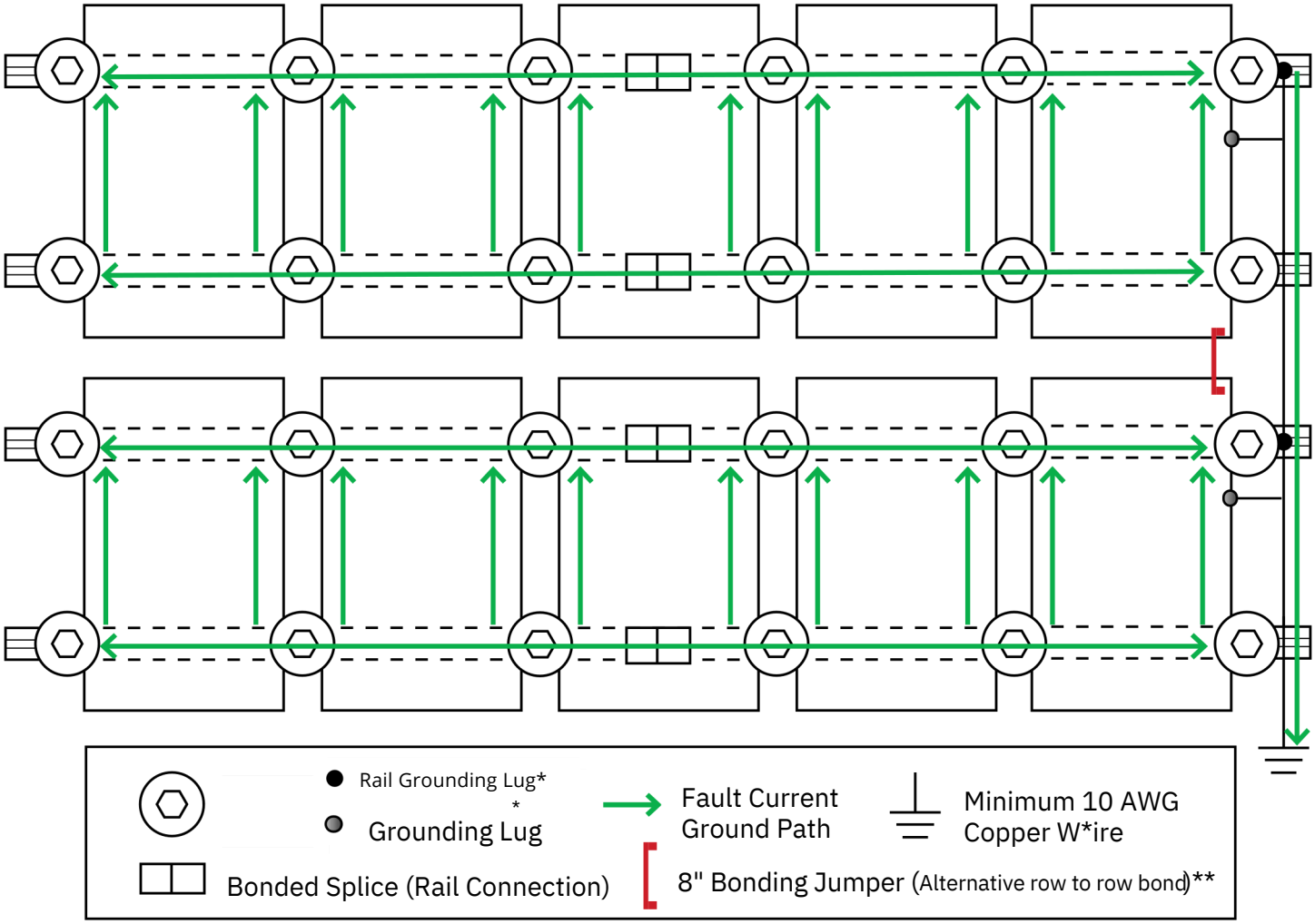


Step 4: Final Torque & Verification

1. Torque the fasteners to 80 in-lbs to ensure a secure connection.

2. Double-check module alignment and verify that all clamps are properly engaged before continuing with additional module installations.

5. GROUNDING PATH DIAGRAM



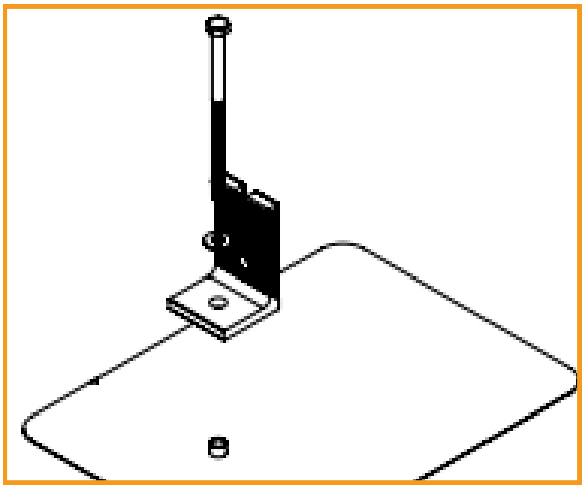
*One Rail Grounding lug is required per row of a system. A minimum of one grounding lug per continuous array is required for earth ground.

6. COMPOSITE SHINGLE ROOF

VENUS ECONOMY

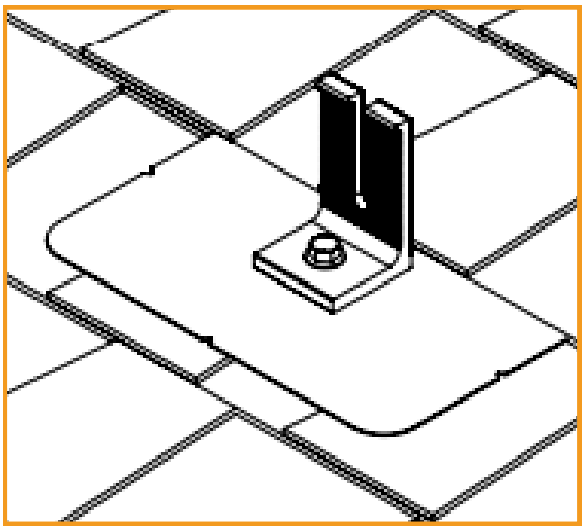
Step 1: Locate Rafters and Drill Pilot Holes

Identify the roof rafters and mark their locations. Drill pilot holes at 7/32” (for lag screws) or 1/8” (for structural screws) at a perpendicular angle to the roof. Fill the holes with sealant approved by the roofing manufacturer.



Step 2: Position Flashing

Slide the flashing between the first and second shingle courses, ensuring the top edge extends under the third shingle course. The flashing should not overhang the downhill shingle course.

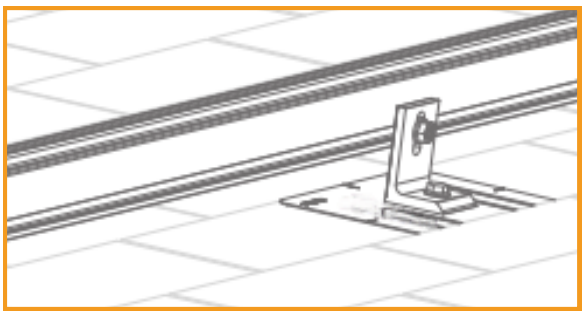


Step 3: Install the L-Foot

Position the L-foot on the flashing flute and rotate it into the desired position. Prepare the lag bolt or structural screw with a sealing washer. Using a 1/2" socket, drive the lag bolt through the L-foot until fully seated, ensuring the L-foot can no longer rotate easily. For structural screws, torque to 156 in-lbs (13 ft-lbs).

Step 4: Attach Rail

Secure the rail to the L-foot using GripRac Bonding Hardware. Torque the hardware to 300 in-lbs (21 ft-lbs).



6. COMPOSITE SHINGLE ROOF

HIGH RISE FLASHING

Step 1: Locate Rafters and Mark Pilot Holes

Identify the roof rafters and mark their locations. Align the vertical holes of the GripRac Base with the center of the rafter and mark the spots. Drill two pilot holes using a 7/32" drill bit, ensuring the holes are perpendicular to the roof. Fill the holes with sealant approved by the roofing manufacturer.

Step 2: Secure the Base

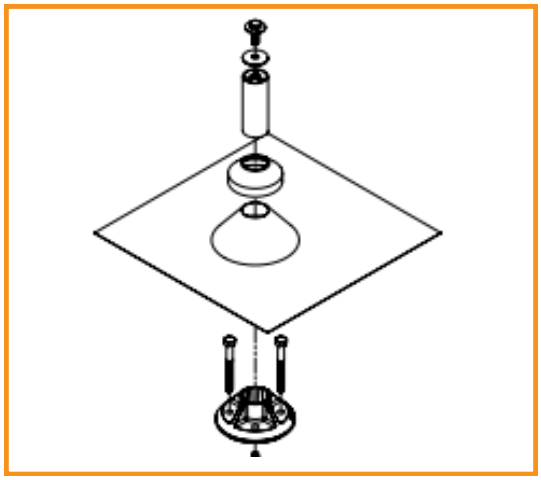
Insert a grade 8 cap screw through the bottom of the Base and position the Base over the drilled holes. Secure the lags tightly in place. Attach the post to the Base.

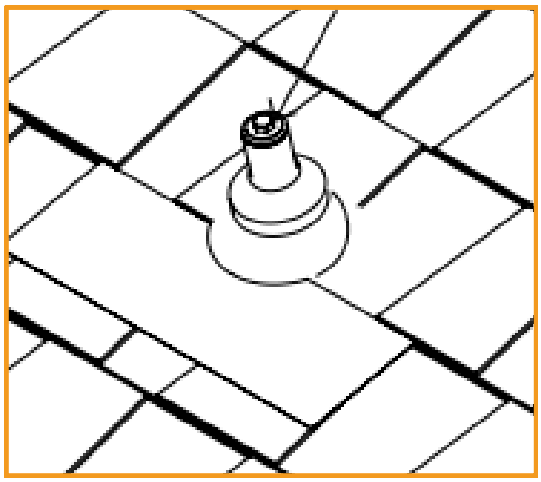
Step 3: Install Flashing

Allow roofing to proceed up to the point where the flashing needs to be installed. Place the flashing over the mount, ensuring proper alignment, and continue roofing to the next course. Apply sealant where the post meets the flashing, then install the EPDM counter-flashing collar.

Step 4: Attach L-Foot and Rail

Secure the L-foot to the standoff using the provided hardware and torque to 174 in-lbs (14.5 ft-lbs). Attach the rail to the L-foot using GripRac Bonding Hardware, torquing it to 300 in-lbs (25 ft-lbs).





6. COMPOSITE SHINGLE ROOF

QUICKGRIP

Step 1: Verify Shingle Step and Prepare Mounting Locations

Ensure the shingle step does not exceed 1/8". Identify and mark the centers of the rafters where mounts will be installed. Choose the shingle courses for mount placement.

Step 2: Position the Quickgrip Mount

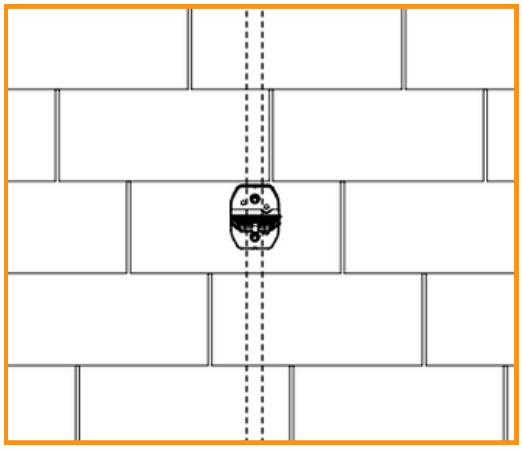
Remove the release liner from the mount. Align the Quick grip horizontally using the shingle edge or a chalk line, ensuring it lines up with the alignment grooves on the mount. Once correctly positioned, press the mount lightly against the roof to hold it temporarily in place.

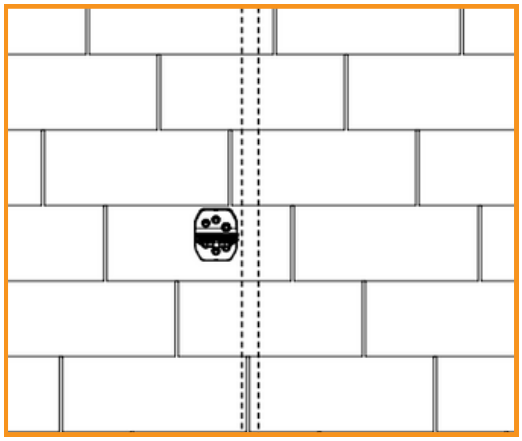
Step 3: Install Structural Screws

Using a 5/16” socket, drive the RD Structural Screws into the center of the rafter. Install two screws, ensuring they are fully seated.

Step 4: Deck Mount Installation

For deck-mounted installations, repeat the process by marking the attachment locations and peeling off the release liner. Align the Quickgrip horizontally, press it in place, and drive all six RD Structural Screws until fully seated using a 5/16” socket. Ensure proper alignment and secure attachment at every step.





6. SPANISH TILE ROOF

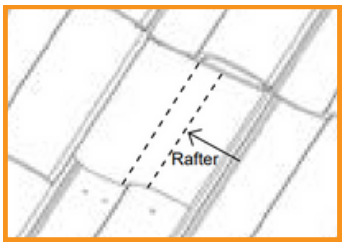
SPANISH TILE ATTACHMENT

Step 1: Prepare the Installation Site

Remove the tile and mark the location of the rafter. Use the base as a guide to drill a 1/4” pilot hole. Fill the hole with roofing manufacturer-approved sealant.

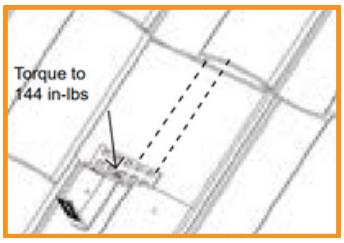
Step 2: Install the Base

If using optional roof flashing, position it and seal it appropriately. Insert a lag bolt with a bonded washer through the base (and flashing if used) and drive it until fully seated.



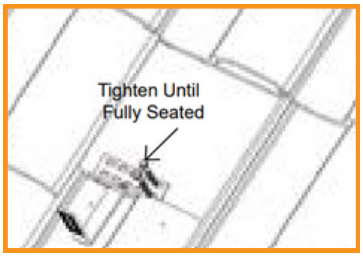
Step 3: Add Tile Replacement Flashing

Place the Tile Replacement Flashing over the base and press down on the threaded post until it creates a dimple in the flashing. Position the L-Foot over the dimple, then tap it with a hammer to punch the threaded post through the flashing. Ensure all punched-out pieces are cleared away.



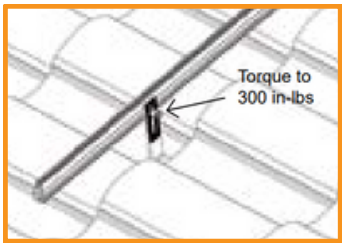
Step 4: Final Adjustments

Form the flashing as needed to sit flush with the surrounding tiles. Align the L-Foot in the desired orientation and tighten the hardware to 132 in-lbs (11 ft-lbs).



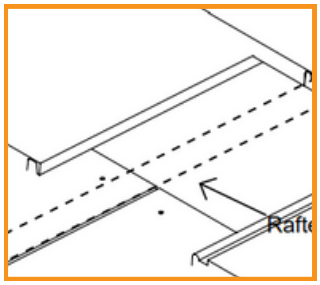
Step 5: Attach Rail

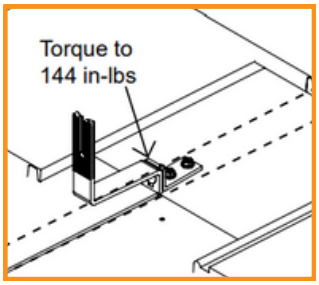
Secure the rail to the L-Foot using Bonding Hardware and torque it to 300 in-lbs (25 ft-lbs).

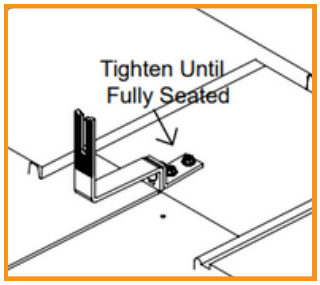


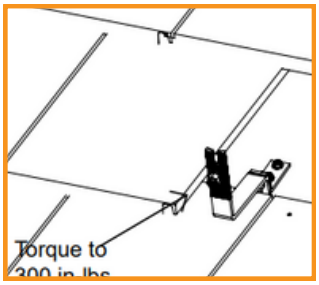
6. FLAT TILE ROOF

FLAT TILE ATTACHMENT









Step 1: Prepare the Installation Site

Remove the tile and mark the location of the rafter. Use the base as a guide to drill a 1/4” pilot hole. Fill the hole with roofing manufacturer-approved sealant.

Step 2: Install the Base

If using optional roof flashing, position it and seal it appropriately. Insert a lag bolt with a bonded washer through the base (and flashing if used) and drive it until fully seated.

Step 3: Add Tile Replacement Flashing

Place the Tile Replacement Flashing over the base and press down on the threaded post until it creates a dimple in the flashing. Position the L-Foot over the dimple, then tap it with a hammer to punch the threaded post through the flashing. Ensure all punched-out pieces are cleared away.

Step 4: Final Adjustments

Form the flashing as needed to sit flush with the surrounding tiles. Align the L-Foot in the desired orientation and tighten the hardware to 132 in-lbs (11 ft-lbs).

Step 5: Attach Rail

Secure the rail to the L-Foot using Bonding Hardware and torque it to 300 in-lbs (25 ft-lbs).

7. METAL ROOF

STANDING SEAM ROOF

Step 1: Position the Mount on the Roofing Seam

Identify the desired mounting location on the metal roof. Ensure that the mounting block is fully seated and properly aligned over the roofing seam to provide a secure attachment.

Step 2: Secure the Mounting Block

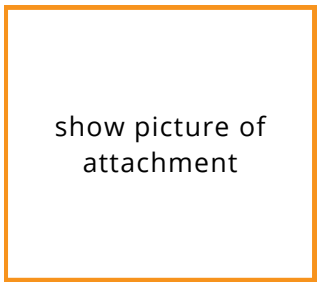
Using a 3/16-inch Hex Drive, gradually tighten the set screws in an alternating pattern. Continue tightening until the required torque of 150 in-lbs (12.5 ft-lbs) is achieved. This step ensures even pressure distribution and a firm grip on the seam.

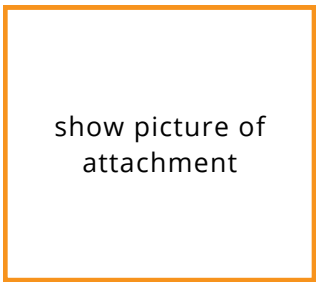
Step 3: Insert and Position the Hex Bolt

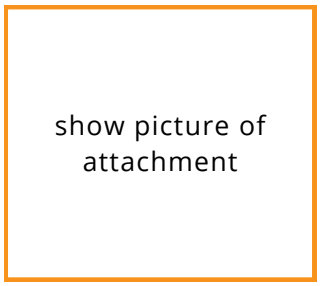
Slide the Hex Bolt into the designated slot on the mounting block. Adjust its position as needed to align with the rail attachment bracket.

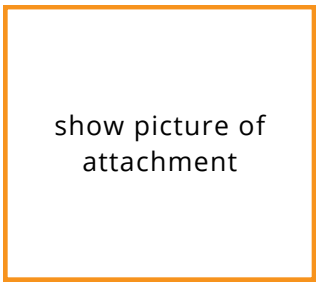
Step 4: Attach the Rail Bracket and Secure with Flange Nut

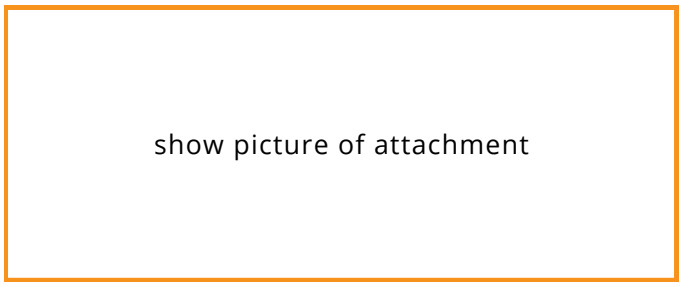
Place the rail attachment bracket over the Hex Bolt and fasten it securely using a Flange Nut. Using a 1/2-inch socket, torque the Flange Nut to 150 in-lbs (12.5 ft-lbs) to ensure a strong and stable connection. By following these steps, you will achieve a secure and durable GripRac mounting system installation on a metal roof.











7. METAL ROOF

STANDING SEAM ROOF (RAILLESS)

Step 1: Position the NXT-Clamps on the Standing Seam Roof

Determine the appropriate mounting locations based on the solar panel width. Ensure that each NXT-Clamp Pro 4 is properly aligned and fully seated on the metal standing seam roof to create a secure attachment point.

Step 2: Secure the NXT-Clamps

Using a 3/16-inch Hex Drive, gradually tighten the set screws in an alternating pattern. Continue tightening until the required torque of 150 in-lbs (12.5 ft-lbs) is achieved. This step ensures that the clamps firmly grip the metal seam without causing damage.

Step 3: Position the Solar Panels

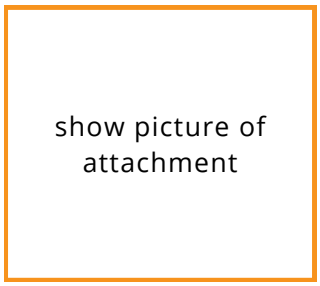
Carefully place the solar panel onto the installed NXT-Clamps, ensuring that it is properly aligned with the clamps for a secure and balanced fit.

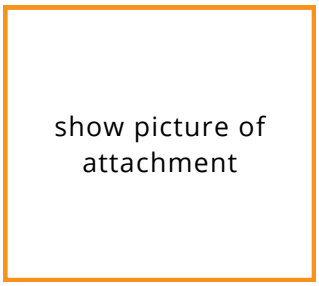
Step 4: Secure the Solar Panels with End Clamps

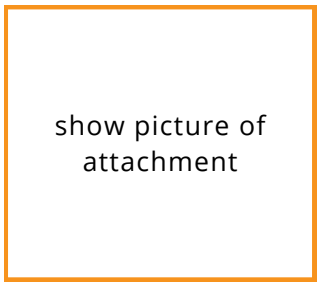
Attach the End Clamps at both ends of the solar panel to lock it in place. Using a 1/2-inch socket, tighten the clamps to the manufacturer-specified torque to prevent panel movement.

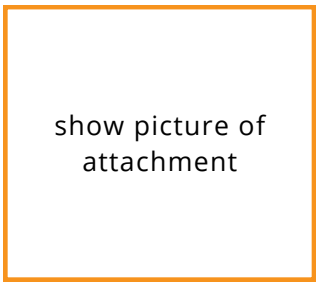
Step 5: Install Mid-Clamps for Additional Stability

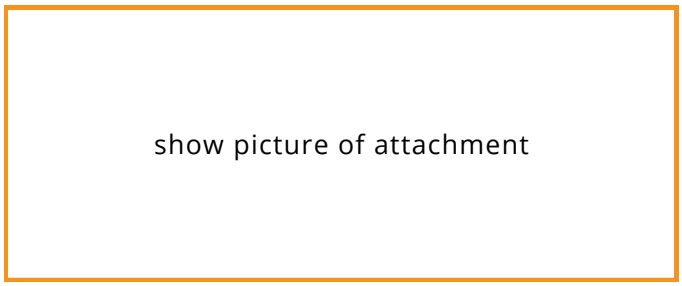
For multi-panel installations, insert Mid-Clamps between adjacent panels to provide structural support. Torque them to the specified setting, ensuring a firm and even hold. By following these steps, you will achieve a secure and properly installed GripRac NXT-Clamp Pro 4 system on a metal standing seam roof.











7. METAL ROOF

STANDING SEAM ROOF (RAILLESS)

Step 1: Position the NXT-Clamps on the Standing Seam Roof

Determine the appropriate mounting locations based on the solar panel width. Ensure that each NXT-Clamp Pro 4 is properly aligned and fully seated on the metal standing seam roof to create a secure attachment point.

Step 2: Secure the NXT-Clamps

Using a 3/16-inch Hex Drive, gradually tighten the set screws in an alternating pattern. Continue tightening until the required torque of 150 in-lbs (12.5 ft-lbs) is achieved. This step ensures that the clamps firmly grip the metal seam without causing damage.

Step 3: Position the Solar Panels

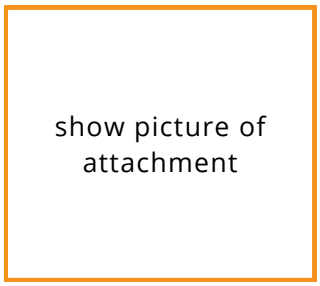
Carefully place the solar panel onto the installed NXT-Clamps, ensuring that it is properly aligned with the clamps for a secure and balanced fit.

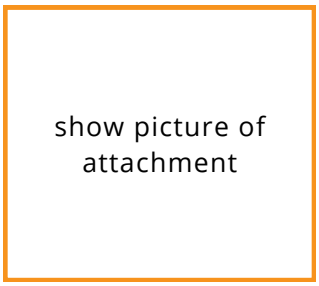
Step 4: Secure the Solar Panels with End Clamps

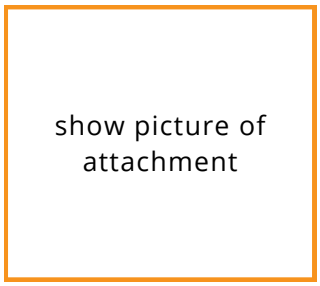
Attach the End Clamps at both ends of the solar panel to lock it in place. Using a 1/2-inch socket, tighten the clamps to the manufacturer-specified torque to prevent panel movement.

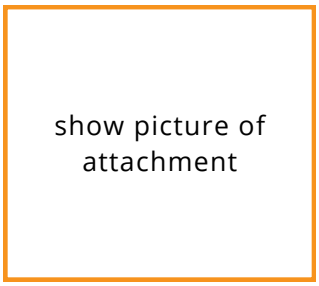
Step 5: Install Mid-Clamps for Additional Stability

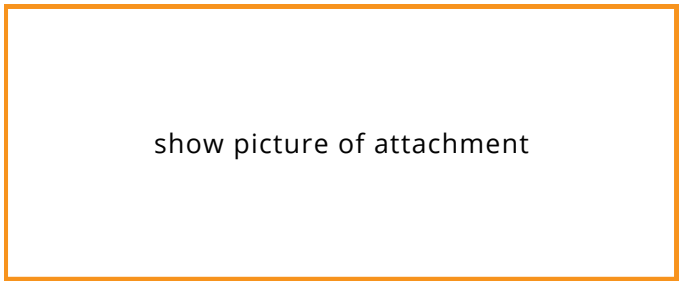
For multi-panel installations, insert Mid-Clamps between adjacent panels to provide structural support. Torque them to the specified setting, ensuring a firm and even hold.
By following these steps, you will achieve a secure and properly installed GripRac NXT-Clamp Pro 4 system on a metal standing seam roof.











9 . WIRE CLIPS

Step 1: Insert the Wire Clip into the Rail

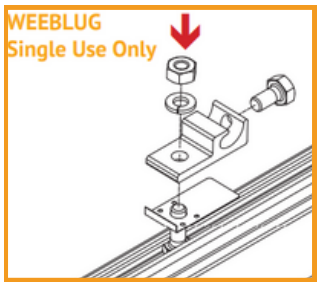
Firmly press the Wire Clip into the top rail slot until it is securely seated. Ensure that the clip is properly aligned for a tight fit.

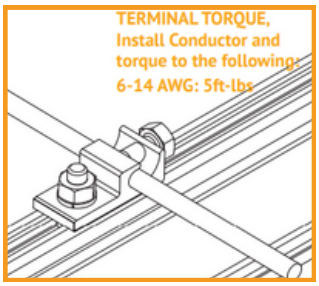
Step 2: Route Electrical Wires

Carefully run the electrical wire through the open clip. The Wire Clip is designed to accommodate up to 10 AWG PV wires or an equivalent bundled diameter.

Step 3: Secure the Wires

Once all wires are in place, snap the clip closed to lock them in securely. Double-check that the wires are neatly organized and not pinched or overly tight.





10 . MICRO INVERTERS AND OPTIMIZERS

Step 1: Insert the T-Bolt into the Rail

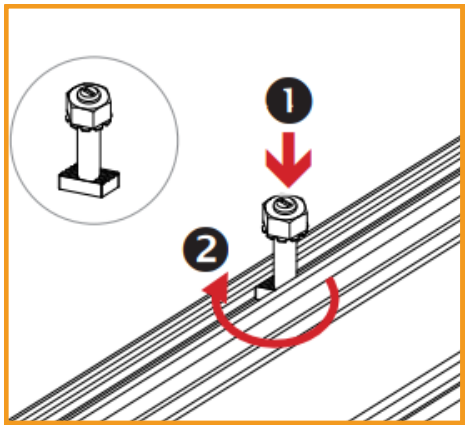
Slide the Microinverter Kit T-Bolt into the top rail slot until it is securely positioned. Ensure it is properly aligned within the rail for a stable connection.

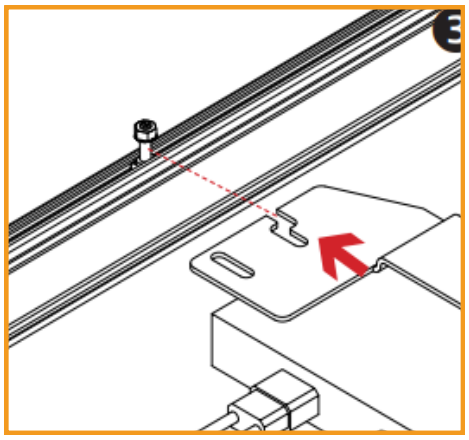
Step 2: Position the Microinverter or Power Optimizer

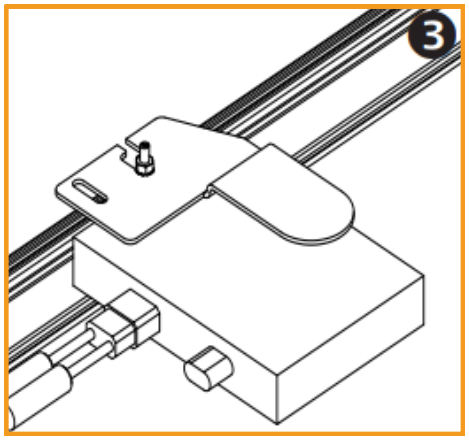
Place the compatible microinverter or power optimizer onto the T-Bolt, ensuring it is properly aligned with the mounting position on the rail.

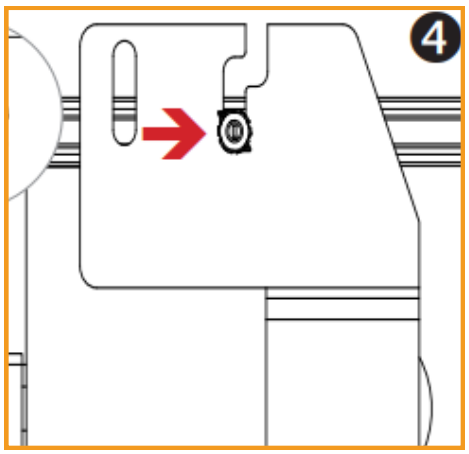
Step 3: Secure the Microinverter or Power Optimizer

Tighten the hex nut to 80 in-lbs using a wrench or socket tool. Confirm that the device is firmly secured to the racking system to maintain a solid electrical bond.



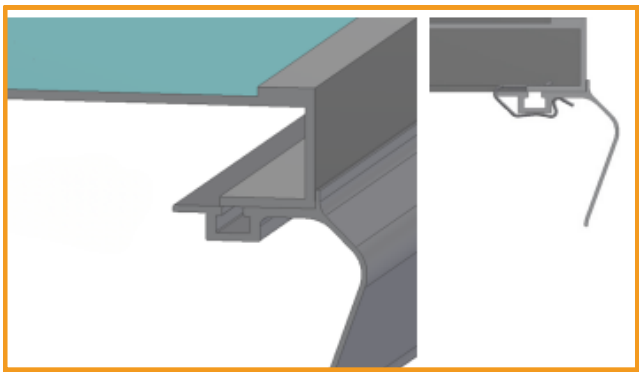






AP Systems	DS3, QS1, QT2 and YC600
Darfon	MIG240, MIG300, G320, G640
Duracell	250-72, 250-60, M215-60, C250-72, S230, S280, IQ 6, IQ 6+, IQ7, IQ 7A, IQ 7+, IQ7 PD, IQ 7X, Q Aggregator; IQ8-60, IQ8PLUS-72, IQ8A-72, IQ8H208-72, IQ8H-240-72, IQ8M-72, may be followed by -2-US; IQ8H-3P-72--US
Generac	S2502
Hoymiles	HMA-xxxYY-ZZ where "A" can be blank or S, xxx can be 300, 350, 400, 450, 500, 600, 700, 800, 900, 1000, 1200, 1500, 1600, 1800 or 2000; "YY" can be NT, 1T, 2T, 4T; and "ZZ" can be blank, NA or 208-NA
Lunar Energy	Maximizer
NEP Microinverters	BDM-xxx-yyy Where "xxx" can be 300, 300X2, 350, 400, 500, 550, 650, 800, 1000, 1200, 1600, 2000; and "yyy" can be blank, 208A or 240A
NP Rapid Shutdown	PVG-1, PVG-2, PVG-3, PVG-4
SMA	RoofCommKit-P2-US, TS4-R Module Retrofit Kits (TS4-R-S, TS4-R-O, TS4-R-F)
Solar Edge	1600, P300, P320, P340, P370, P400, P401, P405, P485, P505, P600, P700, P730, P750, P800p, P800s, P801, P850, P860, P950, P960, P1100, P1101, S440, S500, S500B, S650B, S1200, S1201
Tigo	Tigo Access Point (TAP) TS4-R-X (where X can be F, M, O, or S) TS4-R-X-DUO (where X can be M, O, or S) TS4-A-X (where X can be F, 2F, O, O-DUO, or S)

11 . RAIL SKIRT



Step 1: Prepare for Splice Bar Installation

If your installation requires GripRac Splice Bars, ensure that the rails are joined together before mounting to the L-Feet or footings. Splice bars should only be used with flush installations or low-profile tilt legs.

Step 2: Position the Splice Bar

Align the T-feature on the splice bar with the T-slot on each rail. Slide the splice bar into position, ensuring it is centered between the two rails. Maintain a gap of up to 3/16" between the rail ends at the splice connection.

Step 3: Secure the Splice Bar

Tighten each bolt until the bolt head is flush against the splice bar. Continue tightening until the torque reaches 10 ft-lbs, ensuring the bonding hardware penetrates the opposite side of the rail.

Step 4: Final Check

Confirm that the splice is secure and that T-bolts are placed at least 1" away from the rail ends, regardless of the splice connection. Ensure the assembly torque is achieved for a strong and stable installation.

12 . END CAP

Step 1: Prepare the End Caps

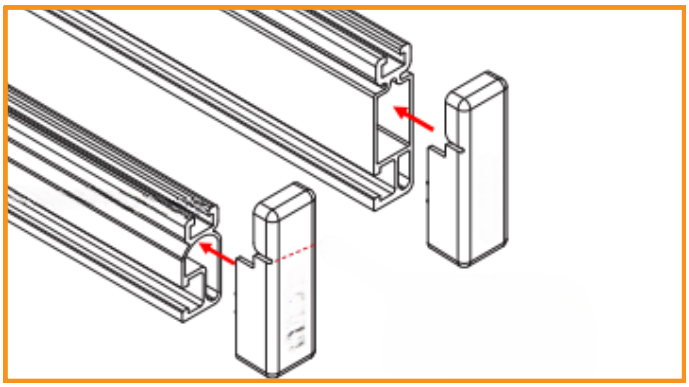
Ensure you have the correct GripRac End Caps for your Standard Rail. End caps come ready to install on GripRac Standard Rail.

Step 2: Install the End Caps

Firmly press the end cap into the open rail end until it is fully seated. For GripRac Rail, the end cap can be modified by hand or using a cutting tool if necessary.

Step 3: Final Check

Ensure the end cap is securely fitted and sits flush with the rail. Proper installation of end caps helps protect the rail ends and improve aesthetics.



MODULE COMPATIBILITY

BRAND	MODELS
Adani	Adani modules with 30, 35 and 40 mm frames ASX-Y-ZZ-xxx Where "X" can be B, M or P, "Y" can be 6, 7 or M10 and "ZZ" can be blank, 144, PERC, B-PERC, or ABPERC
AIONRISE	AIONRISE modules with 35 and 40 mm frames AIONyyG1-xxx Where "yy" can be 60 or 72
Amerisolar	Amerisolar modules with 35 and 40 mm frames AS-bYxxxZ Where "b" can be 5 or 6; "Y" can be M, P, M27, P27, M30, or P30; and "Z" can be blank, W or WB
Aptos Solar	Aptos modules with 35 and 40 mm frames DNA-yy-zzaa-xxxbb Where "yy" can be 108, 120 or 144; "zz" can be MF or BF; "aa" can be 10, 23 or 26; and "bb" can be blank or W-DG
Astronergy Solar	Astronergy modules with 30, 35 and 40 mm frames aaSMbbyyC/zz-xxx Where “aa” can be CH or A; "bb" can be 60, 66, or 72; “yy” can be blank, 10 or 12; "C" can M, P, M(BL), M-HC, M(BL)-HC, P-HC, M(DG), M(DGT) or N(DG); and “zz” can be blank, HV, F-B, or F-BH
ASUN	ASUN modules with 35 and 40 mm frames ASUN-xxx-YYZZ-aa Where "YY" can be 60 or 72; "ZZ" can be M,or MH5; and "aa" can be blank or BB
Auxin	Auxin modules with 35 and 40 mm frames AXNCyzAxxxB Where "C" can be 6, 10 or G1; "y" can be M or P; "z" can be blank, 08, 09, 610, 11, or 612; and "A" can be F, M or T; and "B" can be blank, A, B, C or W
Axitec	Axitec Modules with 30, 35 and 40 mm frames AC-xxxY/aaZZb Where "Y" can be M, P, MB, MBT or MH; "aa" can be blank, 125- or 156-; "ZZ" can be 54, 60, 72, 108, 120, or 144; "b" can be S, X, V, VB, XV, or MX
Bluesun Solar	Bluesun modules with 30 and 35 mm frames BSMxxxY-AAA Where "Y" can be M or M10; and "AAA" can be 54HPH, 60HPH or 72HBD
Boviet	Boviet modules with 35 and 40 mm frames BVMZZaaYY-xxxBcc Where "ZZ" can be 66 or 76; "aa" can be 9, 10 or 12; "YY" is M or P; and "B" can be blank, L or S; and "cc" can be blank, H, H-BF, H-BF-DG, H-HC, H-HC-BF, H-HC-BF-DG, HC-BF or HC-BF-DG
BYD	BYD modules with 35 mm frames BYDxxxAY-ZZ Where "A" can be M6, P6, MH, MLT or PH; "Y" can be C or K; and "ZZ" can be 30 or 36
Canadian Solar	Canadian Solar modules with 30, 32, 35 and 40 mm frames CSbY-xxxZ Where "b" can be 1, 3, 6, 6.1, 6.2 or 7; "Y" can be H, K, L, N, P, R, U, V, W, X, Y, -54TM, -66TB or -72TB; and "Z" can be H, M, P, T, MS, PX , M-SD, P-AG, P-SD, MB-AG, PB-AG, MS-AG, MS-HL or MS-SD
CertainTeed	CertainTeed modules with 30, 35 and 40 mm frames CTBBxxxYZZ-AA Where "BB" can be blank or M10; "Y" can be M, P, or HC; "ZZ" can be 00, 01, 10, or 11; and "AA" can be 01, 02, 03, 04, 06, 08 or 09

MODULE COMPATIBILITY

BRAND	MODELS
Crossroads Solar	Crossroads Solar modules with 40 mm frames Crossroads Solar xxx
CSUN	Csun modules with 35 and 40 mm frames YYxxx-zzAbb Where "YY" is CSUN or SST; "zz" is blank, 60, or 72; and "A" is blank, P, M or MM; "bb" is blank, BB, 5BB, BW, or ROOF
Dehui	Dehui modules with 30, 35 and 40 mm frames DH-MYYYZ-xxx Where “YYY” can be 760, 772, 860, 872; and “Z” can be B, F or W
Ecosolargy	Ecosolargy modules with 35 and 40 mm frames ECOxxxYzzA-bbD Where “Y” can be A, H, S, or T; “zz” can be 125 or 156; “A” can be M or P; “bb” can be 60 or 72; and “D” can be blank or B
Emmvee	Emmvee modules with 35 mm frames Exxx-YYZZZ-A Where "YY" can be M, P, HCM, HCMW, HCBG, HCBT; "ZZZ" can be 72, 108, 120, 132 or 144; and "A" can be blank, B, T, or BT
Energy America	Energy America modules with 30mm frames EA-ZLK8-THLDD132xxx/M
ET Solar (EliTe Solar)	ET Solar modules with 30, 35 and 40 mm frames ET-YZZZxxxAA Where "Y" can be P, L, M or N; "ZZZ" can be 660, 660BH, 672, 672BH, 754BH, 760BH, 766BH, 772BH, 760TBH, 766TBH or 772TBH; and "AA" can be GL, TB, TW, WB, WW, BB, WBG, WWG, WBAC, WBCO, WWCO, WWBCO or BBAC
Flex	Flex modules with 35 and 40 mm frames FXS-xxxYY-ZZ; Where “YY” can be BB or BC; and “ZZ” can be MAA1B, MAA1W, MAB1W, SAA1B, SAA1W, SAC1B, SAC1W, SAD1W, SBA1B, SBA1W, SBC1B, or SBC1W
Freedom Forever	Freedom Forever modules with 35 mm frames FF-MPa-BBB-xxx Where "a" can be blank or 1
Freevolt	Freevolt modules with 35 mm frames ECP-PVGRAF-144HC-xxx
GCL	GCL modules with 35 mm and 40 mm frames GCL-ab/YY xxx Where “a” can be M or P; “b” can be 3 or 6; and “YY” can be 60, 72, 72H, or 72DH
GigaWatt Solar	Gigawatt modules with 40 mm frames GWxxxYY Where “YY” can be either PB or MB
Goldi	Goldi modules with 35 mm frames GS10-Byyy-zz-xxx Where "yyy" can be 108 or 144; and "zz" can be GF or TF
Grape Solar	Grape modules with 35 mm frames GS-M120-xxx-FAB1
GreenWatts Solar	GreenWatts modules with 30 and 35mm frames HSYY-A-xxx-ZZ Where "YY" can be 54, 60, 66, 72 or 78; "A" can be blank or F; and "ZZ" can be MN or BOB
Hansol	Hansol modules with 30, 35 and 40 mm frames HSxxxYY-zz Where "S" can be A or S; "YY" can be AA, AD, PB, PD, PE, TB, TD, UB, UD, UE or XD; and "zz" can be AH2, AN1, AN3, AN4, HH2, HV1, JH2, GNEA0 or NNEA0

MODULE COMPATIBILITY

BRAND	MODELS
Hanwa Solar	Hanwha Solar modules with 40 mm frames HSLaaP6-YY-1-xxxZ Where “aa” can be either 60 or 72; “YY” can be PA or PB; and “Z” can be blank or B
Hanwha Q CELLS	Hanwha Q CELLS Modules with 30, 32, 35, 40 mm frames aaYY-ZZ-xxx where "aa" can be Q. or B.; "YY" can be PLUS, PRO, PEAK, LINE PRO, LINE PLUS, PLUS DUO, PEAK DUO or TRON; and "ZZ" can be G3, G3.1, G4, G4.1, L-G2, L-G2.3, L-G3, L-G3.1, L-G3y, L-G4, L-G4.2, L-G4y, LG4.2/TAA, BFR-G3, BLK-G3, BFR-G3.1, BLK-G3.1, BFR-G4, BFR-G4.1, BFR G4.3, BLK-G4.1, G4/SC, G4.1/SC, G4.1/TAA, G4.1/MAX, BFR G4.1/TAA, BFR G4.1/MAX, BLK G4.1/TAA, BLK G4.1/SC, EC-G4.4, G5, G5/SC, G5/TS, BLK-G5, BLK-G5/SC, BLK-G5/TS, L-G5, L-G5.1, L-G5.2, L-G5.2/H, L-G5.3, G6, G6/SC, G6/TS, G6+/TS, G6+, BLK-G6, L-G6, L-G6.1, L-G6.2, L-G6.3, L-G6.3/BFG, G7, BLK-G6+, BLK-G6+/AC, BLK-G6+/HL, BLK-G6+/SC, BLK-G6/TS, BLK-G6+/TS, BLK-G7, G7.2, G8, BLK-G8, G8+, BLK-G8+ L-G7, L-G7.1, L-G7.2, L-G7.3, L-G8, L-G8.1, L-G8.2, L-G8.3, L-G8.3/BFF, L-G8.3/BFG, L-G8.3/ BGT, M-G2+, BLK M-G2+, BLK M-G2+/AC, ML-G9, BLK ML-G9, ML-G9+, BLK ML-G9+, BLK-G10, BLK-G10+, BLK G10+/AC, BLK-G10+/HL, ML-G10, BLK ML-G10, ML-G10+, BLK ML-G10+, ML-G10.a, BLK ML-G10.a, ML-G10.a+, BLK ML-G10.a+, BLK ML-G10.B+, BLK ML-G10 +/t, BLK ML-G10+/TS, XL-G2.3/ BFG, XL-G9, XL-G9.2, XL-G9.3, XL-G9.3/BFG, XL-G10.2, XL-G10.3, XL-G10.c, XL-G10.d, XL-G10.d/BFG, XL-G10.3/BFG, XL-G11.2, XL-G11.3, XL-G11.3/BFG or XL-G11S.3/BFG
Heliene	Heliene modules with 35 and 40 mm frames YYZZxxxA Where "YY" can be 36, 60, 72, 96, 108, 120, 132, 144 or 156; "ZZ" can be HC, M, P, or MBLK; and "A" can be blank, HomePV, Bifacial, M10-SL, M10-SL-BLK, M10 TPC SL, M10 Bifacial, M10 SL-Bifacial, M10 TPC SL Bifacial, M10 NTYP SL or M10 NTYP SL Bifacial
HT-SAAE	HT-SAAE modules with 35 and 40 mm frames HTyy-aaaZ-xxx Where "yy" can be 60, 66, 72 or 78, "aaa" can be 18, 156 or 166, "Z" can be M, P, M-C, P-C, M(S), M(VS), M(V), P(V), M(V)-C, P(V)-C, X or X (ND)-F
Hyperion Solar	Hyperion or Runergy modules with 30 and 35 mm frames HY-DHzzzA8-xxxB Where "zzz" can be 108 or 144; "A" can be N or P; and "B" can be blank or B
Hyundai	Hyundai modules with 32, 33, 35 and 40 mm frames HiY-SxxxZZ Where "Y" can be A, D or S; "S" can be M or S; and "ZZ" can be GI, HG, HI, KI, MI, MF, MG, OJ, PI, RI, RG, RG(BF), RG(BK), SG, TI, TG, YH(BK) or XG(BK)
Illuminate USA	Illuminate USA Modules with 30 and 35 mm frames IL5-72HBD-xxxM
Itek	Itek Modules with 40 mm frames IT-xxx-YY Where “YY” can be blank, HE, or SE, or SE72
JA Solar	JA Solar modules with 30, 35 and 40 mm frames JAyyzz-bbww-xxx/aa Where “yy” can be M, P, M6 or P6; “zz” can be blank, (K), (L), (R), (V), (BK), (FA), (TG), (FA)(R), (L)(BK), (L) (TG), (R)(BK), (R)(TG), (V)(BK), (BK)(TG), or (L)(BK)(TG); “bb” can be 48, 54, 60, 66, 72 or 78; "ww" can be D09, D10, D20, D30, D40, D45, S01, S02, S03, S06, S09, S10, S12, S17, S20, S30 or S31; and “aa” can be BP, LB, MB, MR, SI, SC, PR, 3BB, 4BB, 4BB/RE, 5BB
Jakson Solar	Jakson Solar modules with 35mm frames JH-xxxYY Where "YY" can be BB or BT
Jinko	Jinko modules with 30, 35 and 40 mm frames JKMYxxxZZ-aa Where "Y" can either be blank or S; "ZZ" can be M, N, P, or PP; and "aa" can be blank, 54HL4-B, 60, 60B, 60H, 60L, 60BL, 60HL, 60HB, 60HBL, 6HBL-EP, 60-J4, 60B-J4, 60B-EP, 60(Plus), 60-V, 60-MX, 6RL3, 6RL3-B, 6TL3-B, 7RL3-V, 7RL3-TV, 72, 72B, 72-J4, 72B-J4, 72(Plus), 72-V, 72H-V, 72L-V, 72HL-V, 72HBL-V, 72HL4-V, 72HL4-BDV, 72HL4-TV, 72-MX, 72H-BDVP, 72HL-TV, 72HL-V-MX3 or 72HL4-BDX
KB Solar	KB Solar modules with 35 mm frames KBS-xxx-Mono-YY Where "YY" can be blank or BF
Kyocera	Kyocera Modules KYxxxZZ-AA Where “Y” can be D or U; “ZZ” can be blank, GX, or SX; and “AA” can be LPU, LFU, UPU, LPS, LPB, LFB, LFBS, LFB2, LPB2, 3AC, 3BC, 3FC, 4AC, 4BC, 4FC, 4UC, 5AC, 5BC, 5FC, 5UC, 6BC, 6FC, 8BC, 6MCA, or 6MPA

MODULE COMPATIBILITY

BRAND	MODELS
LA Solar	LA Solar modules with 35 mm frames LSxxxYY Where "YY" can be BF, BL, BLA, HC or ST
LG	LG modules with 35 and 40 mm frames LGxxxYaZ-bb Where "Y" can be A, E, M, N, Q, S; "a" can be A, 1, 2 or 3 "Z" can be C, K, T, or W; and "bb" can be A3, A5, A6, B3, B6, E6, E6.AW5, G3, G4, J5, K4, L5, N5, V5, V6
Longi	Longi modules with 30, 35 and 40 mm frames LRa-YYZZ-xxxM Where "a" can be 4, 5, 6, 7 or 8; "YY" can be blank, 54, 60, 66, or 72; and "ZZ" can be blank, BK, BP, HV, PB, PE, PH, HBD, HGD, HIB, HIH, HPB, HPH, HIBD, HABB, HABD or HGBB
Magnus Green Solar	Magnus Green Solar modules with 35 mm frames MGS-xxxW-yyy-M10 Where "yyy" can be blank, M54H, M60H or M72H
Maxeon	Maxeon modules with 35, 40 and 46 mm frames SPR-AAAY-xxx-zzz Where "AAA" can be MAX, P or X; "Y" can be 3, 5, 6, 7, 21 or 22; and "zzz" can be blank, R, BLK, BLK-R, COM or UPP
Meyer Burger	Meyer Burger Modules with 35 mm frames Meyer Burger Black, White or Glass
Mission Solar (mSolar)	Mission Solar modules with 30, 33, 35 and 40 mm frames YYYbb-xxxZZaa Where "YYY" can be MSI, MSE, TXI or TXS; "bb" can be blank, 6, 10 or 60A; "ZZ" can be blank, HN, HT, MM, SE, SO, SQ , SR, SX, TS, 108, 120 or 144; and "aa" can be blank, 0B, 2B, BB, BW, 1J, 4G, 4J, 4S, 4T, 5K, 5R, 5T, 60, 6J, 6S, 6W, 6Z, 8K, 8T, 9R, 9S or 9Z
Mitrex	Mitrex modules with 30 and 40 mm frames Mxxx-XYZ Where "X" can be A, B, I or L; "Y" can be 1 or 3; and "Z" can be F or H
Mitsubishi	Mitsubishi modules PV-MYYxxxZZ Where “YY” can be LE or JE; and “ZZ” can be either HD, HD2, or FB
Moltech	IM and XS series modules with 40 mm frames
Navitas	Navitas Modules with 35 mm frames NSMxxx-yyy Where "yyy" can be 120, 132 or 144
Next Energy Alliance	Next Energy Alliance modules with 35 and 40 mm frames yyNEA-xxxZZ where “yy” can be blank or US; “ZZ” can be M, MB or M-60
NE Solar	NE Solar modules with 30, 35 and 40 mm frames NESExxx-zzAAX-yy Where "zz" can be 54, 60 or 72; "AA" can be MH or TH; "X" can be blank or B; and "yy" can be M6 or M10
Neo Solar Power	Neo Solar Power modules with 35 mm frames D6YxxxZZaa Where “Y” can be M or P; “ZZ” can be B3A, B4A, E3A, E4A, H3A, H4A; and “aa” can be blank, (TF), ME or ME (TF
Panasonic (HIT)	Panasonic modules with 35 and 40 mm frames VBHNxxxYYzzA Where “YY” can be either KA, RA, SA or ZA; “zz” can be either 01, 02, 03, 04, 06, 06B, 11, 11B, 15, 15B, 16, 16B, 17, or 18; and “A” can be blank, E, G, or N
Panasonic (EverVolt)	Peimar modules with 40 mm frames SbxxxYzz Where “b” can be G, M or P; “Y” can be M or P; and “zz” can be blank, (BF) or (FB)

MODULE COMPATIBILITY

BRAND	MODELS
Philadelphia Solar	Philadelphia modules with 30, 35 and 40 mm frames PS-YzzAA-xxxW Where "Y" can be M, MNB, MNG or P; "zz" can be 60, 72, 108 or 144; "AA" can be blank, (BF), (HC), (HCBF) or (HCBF)-GG; and "W" can be blank or W
Phono Solar	Phono Solar modules with 30, 35 and 40 mm frames PSxxxY-ZZ/A Where "Y" can be M, M1, MH, M1H, M4, M4H, M5GF, M5GFH, M6, M6H, M8, M8H, M8GF, M8GFH or P; "ZZ" can be 18, 20 or 24; and "A" can be F, T, TH, THB, TNH, U, UH, UHB, VH, VHB or VNHB
Prism Solar	Prism Solar modules with 35 mm frames PST-xxxW-M72Y Where "Y" can be H, HB or HBI
Rayzon Solar	Rayzon Solar modules with 35 and 40 mm frames RSYxxxWC Where "Y" can be blank or B
Recom	Recom modules with 35 and 40 mm frames RCM-xxx-6yy Where “yy” can be MA, MB, ME or MF
REC Solar	Meyer Burger Modules with 35 mm frames Meyer Burger Black, White or Glass
Renesola	ReneSola modules with 35 and 40 mm frames AAxxxY-ZZ Where "AA" can be SPM(SLP) or JC; "Y" can be blank, F, M or S; and "ZZ" can be blank, Ab, Ab-b, Abh, Abh-b, Abv, Abv-b, Bb, Bb-b, Bbh, Bbh-b, Bbv, Bbv-b, Db, Db-b, or 24/Bb
Renogy	Renogy Modules with 35 and 40 mm frames RZZ-xxxY-AAA Where "ZZ" can be NG or SP; "Y" can be D or P; and "AAA" can be blank, 144, BB-108, BB-120 or BK-120
Risen	Risen Modules with 30, 35 and 40 mm frames RSMyy-a-xxxZZ Where "yy" can be 60, 72, 110, 120, 132 or 144; "a" can be 6, 7 or 8; and "ZZ" can be M, P or BMDG
Saatvik	Saatvik Modules with 35 mm frames SGExxx-YYYZZZ Where "YYY" can be 108 or 144; and "ZZZ" can be MHC, MBHC or MHCB
S-Energy	S-Energy modules with 35 and 40 mm frames SABB-CCYYY-xxxZ Where “A” can be C, D, L or N; “BB” can be blank, 20, 25, 40 or 45; “CC” can be blank, 60 or 72; “YYY” can be blank, BDE, MAE, MAI, MBE, MBI, MCE or MCI; and “Z” can be V, M-10, P-10 or P-15
SEG Solar	SEG Solar with 30, 35 and 40 mm frames SEG-aYY-xxx-ZZ Where "a" can be blank, 6 or B; "YY" can be blank, MA, MB, PA, or PB; and "ZZ" can be blank, BB, BG, BW, HV, WB, WW, BMB, BMA-HV, BMA-BG, BMA-TB, BMB-TB, BMB-HV, BMD-BG, BMD-HV, BMB-BG, BTABG, BTB-BG, BTC-BG or BMD-TB
Seraphim USA	Seraphim modules with 30, 35 and 40 mm frames SRP-xxx-YYY-ZZ Where "xxx" is the module power rating; and "YYY" can be BMA, BMD, 6MA, 6MB, 6PA, 6PB, 6QA-XX-XX, and 6QB-XX-XX; ZZ is blank, BB, BG or HV
Sharp	Sharp modules with 35 and 40 mm frames NUYYxxx Where “YY” can be SA or SC
Shinsung E&G	Shinsung Modules with 35 mm frames SSVxxx-144MH
Silfab	Silfab Modules with 35 and 38 mm frames SYY-Z-xxxAb Where "YY" can be IL, SA, LA, SG or LG; "Z" can be blank, M, P, or X; "A" can be blank, B, H, M, N or Q; and "b" can be A, C, C+, D, G, K, L, M, N, T, U or X

MODULE COMPATIBILITY

BRAND	MODELS
Sinotec	Sinotec Modules with 30 and 35 mm frames STS-xxxP-aabb Where "aa" can be 54 or 72; and "bb" can be BB, DB or DD
Sirius PV	Sirius PV Modules with 35 mm frames ELNSMzzM-HC-xxx Where "zz" can be 54 or 72
Solar4America	Solar4America modules with 30, 35 and 40 mm frames S4Axxx-YYzzAA Where "YY" can be 60, 72, 108 or 144; "zz" can be MH5, MH10, TH10 or TH16; and "AA" can be blank or BB, BW, SW or STT
Solarever	Solarever modules with 30, 35 mm frames SE-zzz*yy-xxxM-aaa Where "zzz" can be 166 or 182; "yy" can be 83, 91 or 105; and "aaa" can be 108, 96-BD, 120-BH, 144 or 144N
Solaria	Solaria modules with 35 and 40 mm frames PowerA-xxxY-ZZ Where "A" can be X or XT, "Y" can be R or C; and "ZZ" can be blank, AC, BD, BX, BY, PD, PL, PM, PM-AC, PX, PZ, WX, WZ or 4T
Solarcity (Tesla	Solarcity modules with 40 mm frames SCxxxYY Where “YY” can be blank, B1 or B2
SolarTech	SolarTech modules with 40 mm frames AAA-xxxYY Where "AAA" can be PERCB-B, PERCB-W, HJTB-B, HJTB-W or STU; "YY" can be blank, PERC or HJT
SolarWorld AG	SolarWorld Sunmodule Plus, Protect, Bisun, XL, Bisun XL, may be followed by mono, poly, duo, black, bk, or clear; modules with 31 and 33 mm frames SW-xxx
SolarWorld Americas	SolarWorld Sunmodule Plus, Protect, Bisun, XL, Bisun XL, may be followed by mono, poly, duo, black, bk, or clear; modules with 33 mm frames SWA-xxx
Sonali	Sonali Modules with 35 and 40 mm frames SS-M-xxx-yyy Where "M" can be blank or M; and "yyy" can be blank, 108M-B or W-M60H M10
Star Solar	Star Solar modules with 35 mm frames Star-xxxW-YYY-ZZZ Where "YYY" can be M60H or M60HB; and "ZZZ" can be blank or M10
Stion	Stion Thin film modules with 35 mm frames STO-xxx or STO-xxxA
SunEdison	SunEdison Modules with 35 and 40 mm frames SE-YxxxZABCDE Where "Y" can be B, F, H, P, R, or Z; "Z" can be 0 or 4; "A" can be B,C,D,E,H,I,J,K,L,M, or N ; "B" can be B or W; "C" can be A or C; "D" can be 3, 7, 8, or 9; and "E" can be 0, 1 or 2
Sunmac Solar	Sunmac modules with 30 and 35 mm frames SMxxxMaaaZZ-YY Where "aaa" can be 660, 754 or 772; "ZZ" can be NH or SH; and "YY" can be BB or TB
Sunpower	Sunpower standard (G3 or G4) or InvisiMount (G5) 35, 40 and 46 mm frames SPR-Zb-xxx-YY Where "Z" can be A, E, M, P or X; “b” can be blank, 17, 18, 19, 20, 21, or 22; and “YY” can be blank, BLK, COM, C-AC, D-AC, E-AC, BLK-E-AC, G-AC, BLK-G-AC, H-AC, BLK-H-AC, BLK-C-AC, or BLK-D-AC
Sunspark	Sunspark modules with 40 mm frames SYY-xxxZ-A Where “YY” can be MX or ST; and “Z” can be M, MB, M3, M3B, P or W; and "A" can be 60 or 72

MODULE COMPATIBILITY

BRAND	MODELS
Suntech	Suntech modules with 35 and 40 mm frames STPxxxy-zz/aa Where "y" is blank or S; and "zz" can be 20, 24, A60, A72U, B60 or B72; and "aa" can be Vd, Vem, Vfw, Vfh, Vnh, Wdb, Wde, Wd, Wfhb or Wnhb
Talesun	Talesun modules with 30, 35 and 40 mm frames TAByZZaa-xxx-b Where "A" can be D, M or P; "B" can be 3, 6, 7 or 9; "y" can be blank, F, G, H, I or L; "ZZ" can be 54, 60, 66, 72 or 78; "aa" can be M, M(H), or P; and "b" can be blank,
Tesla	Tesla modules with 40 mm frames TxxxY Where "Y" can be H or S
Thornova	Thornova Modules with 30 and 35 mm frames TS-YYZZ(xxx)-X Where "YY" can be BB, BG or BGT; "ZZ" can be 54, 60 or 72; and "X" can be blank, G11 or X
Trina	Trina Modules with 30, 35 and 40 mm frames TSM-xxxYYZZ Where "YY" can be DD05, DD06, DD14, DE14, DE15, DE15V, DEG15, DEG15VC, DE18M, DEG18MC, DE09, DE19, DEG19C.20, DE06X, PA05, PC05, PD05, PD06, PA14, PC14, PD14, PE14, PE15, NEG19RC or 5, NEG19RC or NE09RC ; and "ZZ" can be blank, .05, .05(II), .08, .08(II), .10, .18, .08D, .18D, 0.82, .002, .00S, 05S, 08S, .20, .20(II), A, A.05, A.08, A.10, A.18, (II), A(II), A.05(II), A.08(II), A.082(II), A.10(II), A.18(II), C.05, C.07, C.05(II), C.07(II), H, H(II), H.05(II), H.08(II), HC.20(II), HC.20(II), M, M(II), M.05(II), MC.20(II)
Universal	Universal Solar modules with 35 mm frames UNI-xxx-yyyZZZ-aa Where "yyy" can be 108, 120 or 144; "ZZZ" can be M, MH, BMH; and "aa" can be blank, BB or DG
URE	URE modules with 30 and 35 mm frames with 30 and 35 mm frames DyZxxxaa Where "D" can be D or F, "y" can be A, B, 6 or 7; "Z" can be F, K, L or M; and "aa" can be B7G, B8G, BFG, BFG-BB, C8G, DFG-BB, H3A, H4A, H8A, L4A, E7G-BB, E8G, E8G-BB, MFG, MFG-BB or M7G-BB
Vikram	Vikram solar modules with 30, 35 and 40 mm frames XVSyy.ZZ.AAA.bb Where "X" can be blank, Hypersol, Paradea, Prexos or Somera; "yy" can be M, P, MBB, MDH, MDHT, MH, MS, MHBB, or PBB; "ZZ" can be 54, 60, 72 or 78; "AAA" is the module power rating; and "bb" can be 03, 04 or 05
VSUN	VSUN modules with 30, 35 and 40 mm frames VSUNxxxA-YYz-aa Where "A" can be blank or N; "YY" can be 60, 72, 108, 120, 132, 144; "z" can be M, P, MH, PH, or BMH; and "aa" can be blank, BB, BW, or DG
Waaree	Waaree modules with 35 and 40 mm frames AAyy-xxx Where "AA" canbe WS or Bi; and "yy" can be blank, M, MB, MD, MDI, MDIB, 33, 55, 57 or 66
Winaico	Winaico modules with 35 and 40 mm frames Wsy-xxxZa Where "y" can be either P or T; "Z" can be either M, P, or MX; and "a" can be blank or 6
Yingli	Yingli modules with 30, 35 and 40 mm frames YLxxxZ-yy Where "Z" can be D or P; "yy" can be blank, 29b, 30b, 34d, 35b, 36b, 37e 1/2, 37e 1500V 1/2, 40d, 49e 1/2 or 49e 1500V 1/2
Yotta	Yotta modules with 30 and 35 mm frames YSM-Bxxx-ZZ-72-1 Where "ZZ" can be 06 or 10
Zeus	Zeus Solar Modules with 40 mm frames ZxxxM-HB
ZN Shine	ZN Shine modules with 30 and 35 mm frames ZXMY-AAA-xxx/M Where "Y" can be 6, 7 or 8; "AAA" can be 72, NH120, NH144, NHDB144, NHLDD144, SH108, SH144, SHDB120, SHDB144, SHLDD144, TP120 or UHLDD144; and "M" can be M or N