

ROCKIT

COMPLETE RAIL-LESS RACKING SYSTEM

INSTALLATION GUIDE

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VERSION: v2.4



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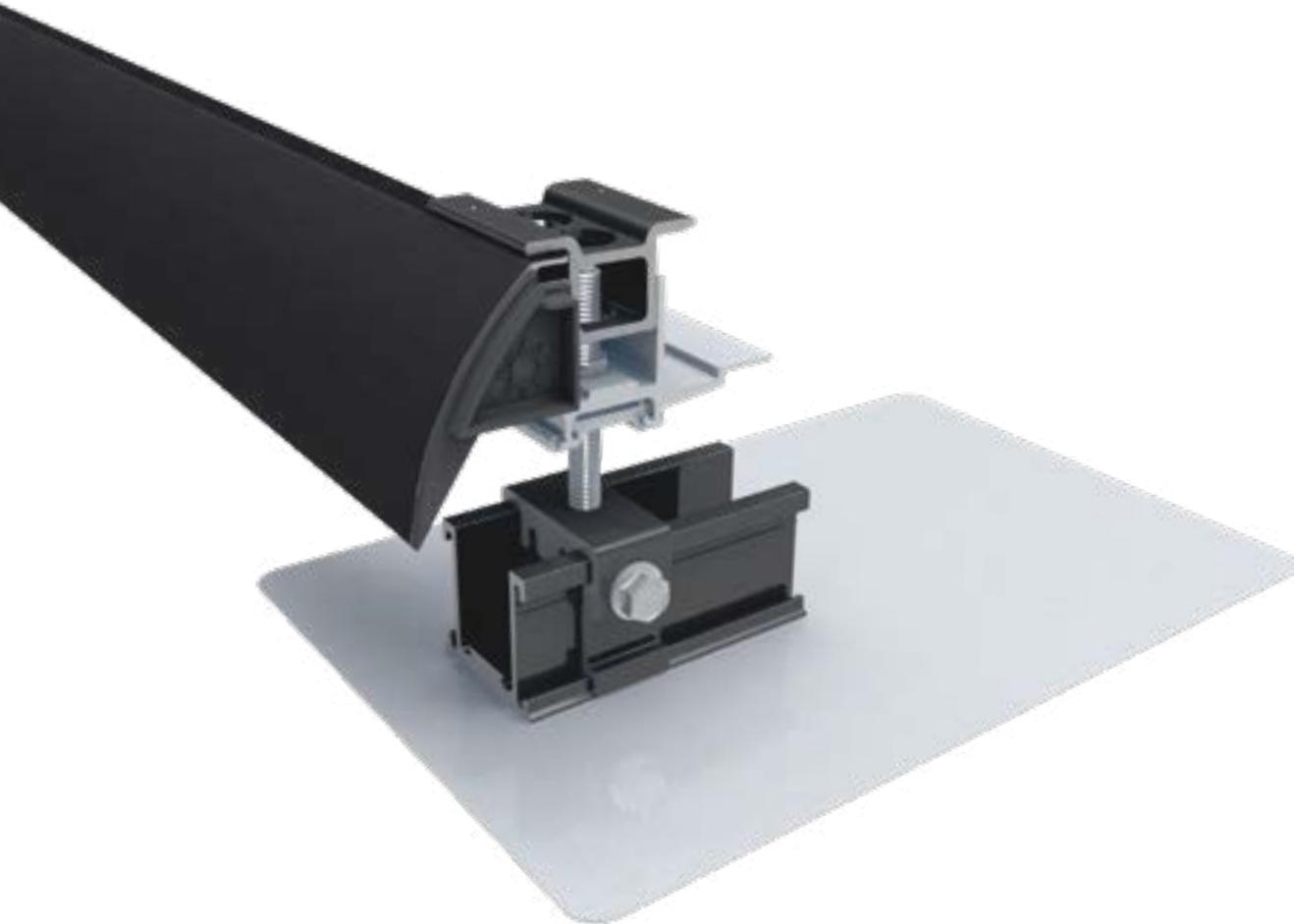


ROCKIT

The RockIt 3.0 system is the industry's premier rail-less PV racking system for composition shingle, tile, and metal pitched rooftops. Designed in conjunction with installers, RockIt quickly & easily installs with a single tool. It features an easy-to-position slide alignment and a top-down leveling system. Logistically smart, no need to ship or transport long rails. Components are available in a black finish that compliments both commercial and residential applications. UL 2703 certified.

FEATURES

- Patented Watertight Technology
- Fully integrated bonding
- Top-down leveling system
- North-South adjustability
- Single tool install



Rockit System Specifications

Leveling Range	3"- 4" off the roof	Coupling Box Qty	24 units
Slide Comp/Steel N-S Range Slide Tile N-S Range	3" 7"	Materials	300 series stainless steel, 6000 series aluminum
Skirt Box Qty	8 units	Coating	Black anodization/Mill finish
Mount Box Qty Rockit Slide Box Qty	24 units 50 units	Slide Fastening Hole	5/16" diameter
Warranty	20 year material and workmanship		

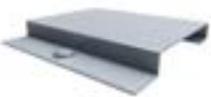
Please Note: Review module and any 3RD party manufacturer's documentation for compatibility and compliance with warranty terms and conditions.



SYSTEM COMPONENTS REQUIRED

COMPOSITION SHINGLE ROOFS	TILE ROOFS	METAL ROOFS
		
<p>GF-1 FLASHING</p>	<p>TF-FLAT SIERRA TAN</p>	<p>STEELDECK</p>
		
<p>SLIDECOMP</p>	<p>TF-W SIERRA TAN</p>	<p>SELF PIERCING SCREW</p>
		<p>ROCKIT MOUNT</p>
<p>ROCKIT MOUNT</p>	<p>TF-S SIERRA TAN</p>	<p>ROCK-IT V3 SLIDE</p>
		<p>ROCKIT COUPLING</p>
<p>ROCKIT COUPLING</p>	<p>TILE BASE-FLAT LITE (Flat, W and S to match flashing profile)</p>	<p>V3 SKIRT & SKIRT CAP PORTRAIT & LANDSCAPE IN 32MM & 38MM OR 35MM & 40MM</p>
		<p>TILE BASE-FLAT LITE (Flat, W and S to match flashing profile)</p>

SYSTEM COMPONENTS ACCESSORIES

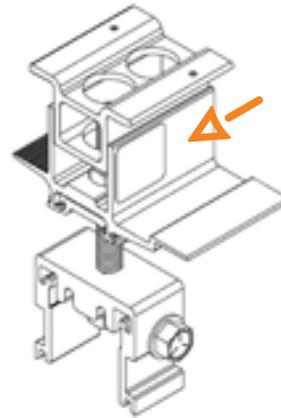
			
<p>ROCKIT CLIP 2.0</p>	<p>J-PLATE COMP</p>	<p>CONDUIT MOUNT BRACKET</p>	<p>CONDUIT MOUNT TILE</p>



Fire Ratings*	Class A System Fire Rating
Max System Voltage	1500V
Max Fuse Rating	20A
Certification	Conforms to UL STD 2703
Markings	Product listing label is located on RockIt Mount
Roof Pitch	2:12 - 12:12
UL 2703 Allowable Design Load Rating	30 psf downward, 30 psf upward and 20 psf lateral
Max Module Size	22 sq. ft.
Maximum Cantilever	1/3 of span
Maximum Span	6 ft Landscape, 4 ft Portrait
Multiple use Rated Components (Position Independent)	Rockit V3 Mount, Rockit V3 Coupling, Rockit Clip 2.0

*Class A System fire rating with Type 1 & 2 PV modules. Any module-to-roof gap is permitted, with no skirt required.

UL 2703 MARKING EXAMPLE:



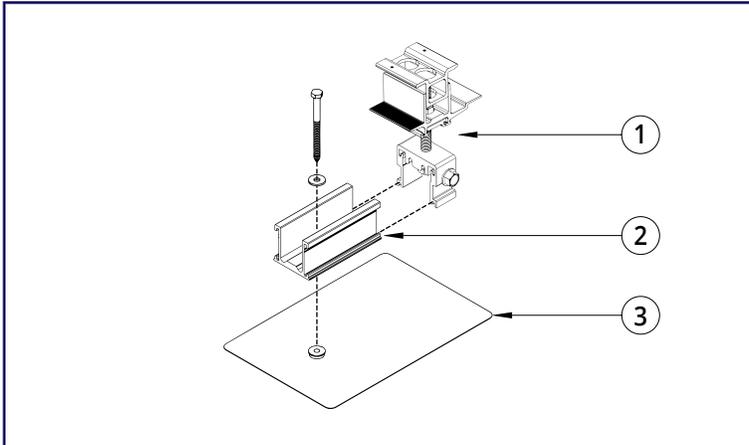
TORQUE SPECIFICATIONS

Component	Torque (in-lb)	Notes
Lag Screws	N/A	Fully Seat. Use visual indicator of the black EPDM ring around the bonded washer for torquing.
V3 Mount	200	
V3 Coupling	200	
Metal Slide Screw	N/A	Fully Seat. Use visual indicator of the black EPDM ring around the bonded washer for torquing.
RockIt Clip 2.0	144	
Ground Lug	N/A	Refer to specific ground lug manufacturer's installation manual
RockIt Pedestal Screw	150	

System components should be periodically re-inspected for loose components, loose fasteners, and corrosion such that if found, the affected components are to be immediately replaced.

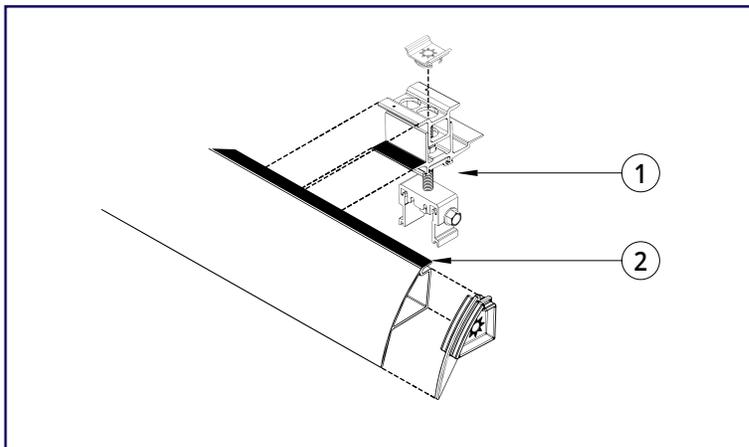


ASSEMBLING ROCKIT



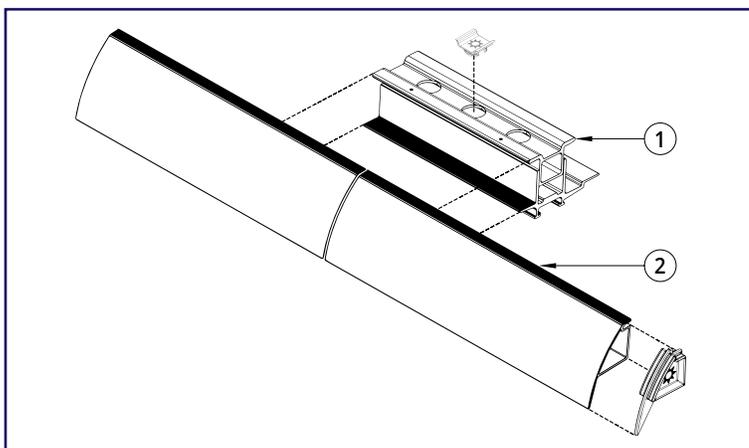
ROCKIT 3.0 FOR COMPOSITION - MOUNT ASSEMBLY

1. ROCK-IT V3 MNT - ROCK-IT MOUNT V3 BLK
2. ROCK-IT SLDCOMP BLK - ROCK-IT SYS SLIDECOMP 4" BLACK4" lag screw & 5/16" EPDM bonded washer
3. GF1 - BLK, MILL, GAL BLK, or GAL MILL



ROCKIT 3.0 MOUNT ASSEMBLY W/ ARRAY SKIRT

1. ROCK-IT V3 MNT - ROCK-IT MOUNT V3 BLK
2. ROCK-IT V3 SKIRT - Portrait & Landscape - 32MM&38MM or 35MM&40MM mid clamp cap & skirt end cap

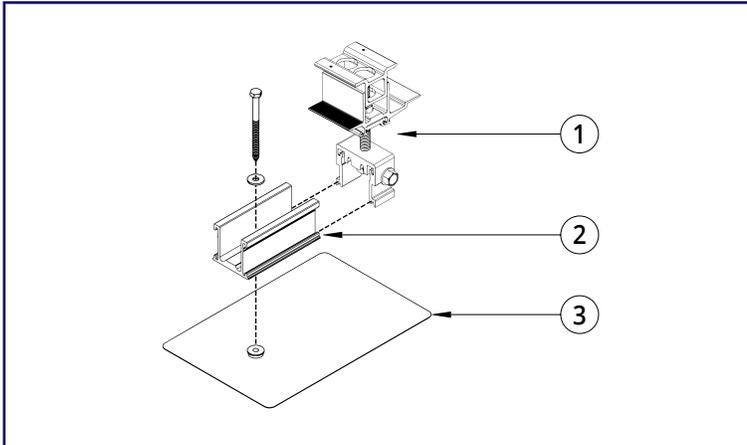


ROCKIT 3.0 COUPLING ASSEMBLY W/ ARRAY SKIRT

1. ROCK-IT V3 COUPL - ROCK-IT COUPLING V3 BLK
2. ROCK-IT V3 SKIRT - Portrait & Landscape - 32MM&38MM or 35MM&40MM mid clamp cap & skirt end cap

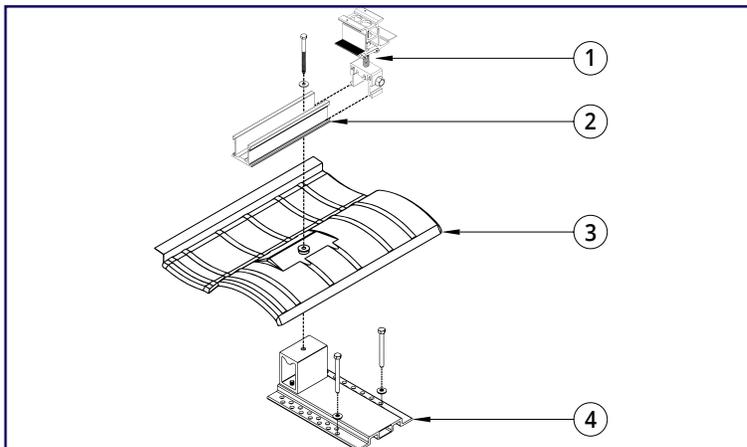


ASSEMBLING ROCKIT



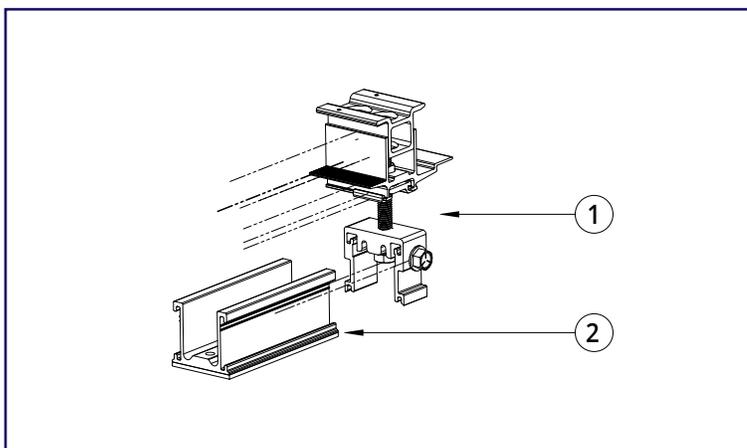
ROCKIT 3.0 FOR COMPOSITION - MOUNT COMP

1. ROCK-IT V3 MNT - ROCK-IT MOUNT V3 BLK
2. ROCK-IT SLDCOMP BLK - ROCK-IT SYS SLIDECOMP 4" BLACK4" lag screw & 5/16" EPDM bonded washer
3. GF1 - BLK, MILL, GAL BLK, or GAL MILL



ROCKIT 3.0 FOR S TILE - MOUNT ASSEMBLY

1. ROCK-IT V3 MNT - ROCK-IT MOUNT V3 BLK
2. ROCK-IT SLIDETILE V2 - ROCK-IT SYSTEM SLIDE TILE 8" 4" lag bolt & 5/16" EPDM bonded washer
3. TF-S SIERRA TAN - TILE FLASHING S-SIERRA TAN
4. TILE BASE-S LITE - TILE BASE-S LITE ASSEM

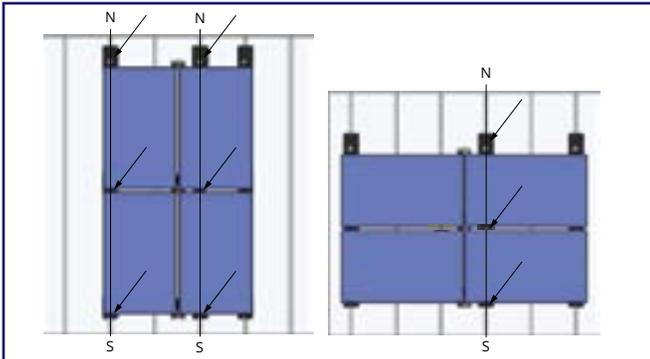


ROCKIT STEEL 3.0 - MOUNT ASSEMBLY

1. ROCK-IT V3 MNT - ROCK-IT MOUNT V3 BLK
2. ROCK-IT STEELDECK



MODULE SPACING

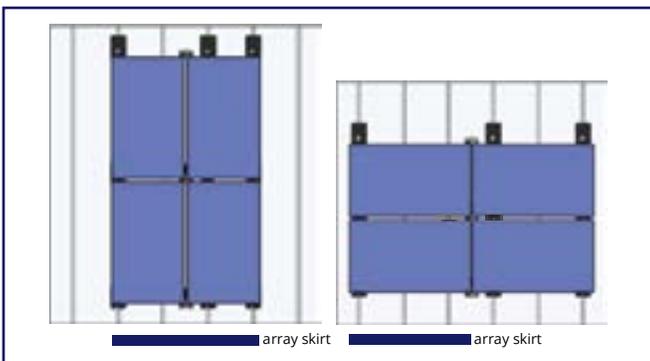
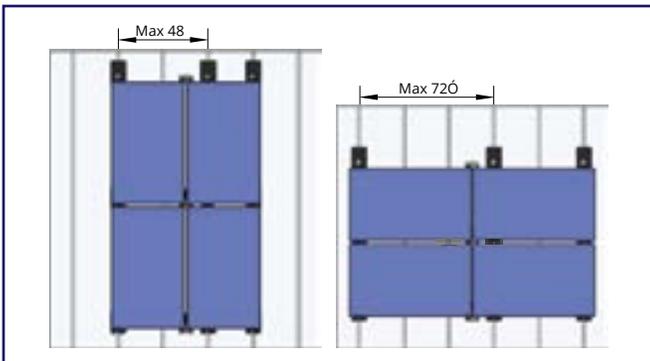


STRUCTURAL ATTACHMENT POINTS

- Find the required structural attachment points.
- Mark these using a vertical (N-S) chalk line on the center of the rafters.

SPACING

- Spacing may vary depending upon project specific structural requirements: i.e. high snow and wind load areas may require lesser bracket spacing in the E-W axis vs. the maximum spacing.
- Max spacing is 48" OC for portrait orientation and 72" OC for landscape orientation.
- Consult project layout diagram for project specific bracket spacing on the roof.
- Install RockIt mounts to predetermined mount spacing.

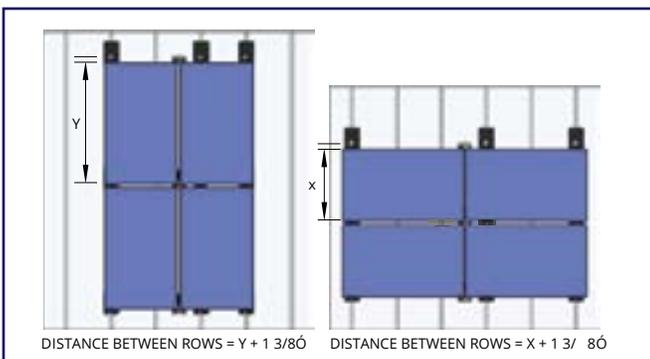


ARRAY SKIRT SECTIONS

- The RockIt array skirt sections are the width of a typical 60 cell module
- Use the RockIt array skirt as a guide to lay out module placement.

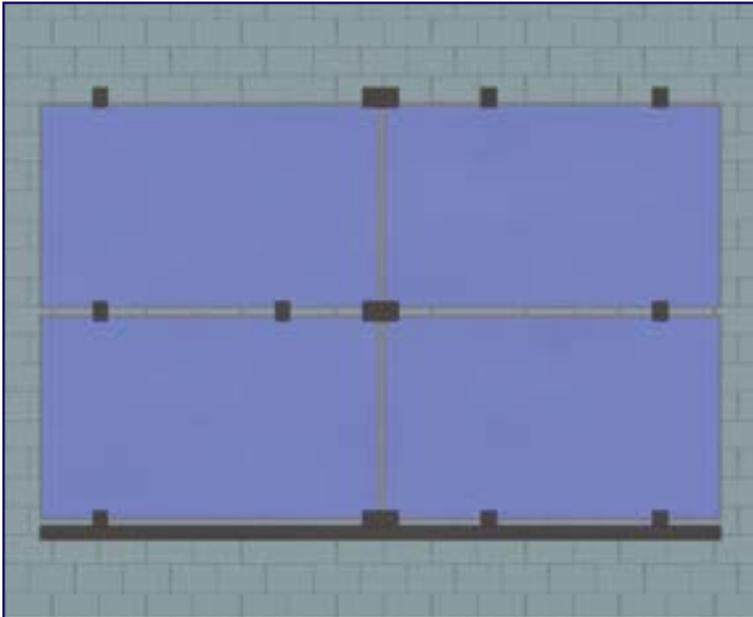
THE DISTANCE

- The distance between the rows of mounts is calculated by the module dimension N-S plus 1.5".
- Lag screw should be installed as close to center of exposed shingle as possible.
- The minimum distance between the lag screw and the edge of the shingle is 1/2".



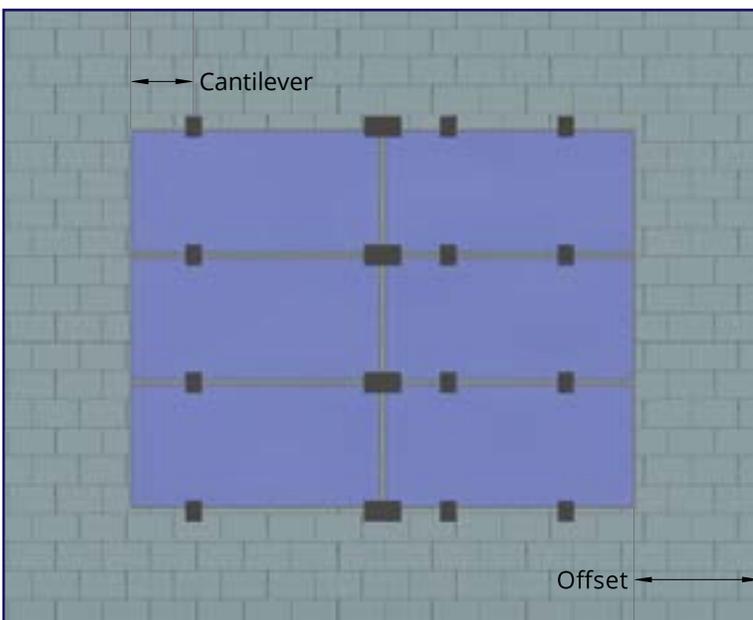


MOUNT PLACEMENT



STAGGERED LAYOUT WITH STAGGERED MOUNTING POINTS

- The array layout instructions in this installation manual offer a general overview of layout. Periodically, due to a variety of factors (roof obstacles, shading, etc.) other layouts are required.
 - RockIt Mount
 - RockIt Coupling



CANTILEVER & OFFSET

- Cantilever: Maximum cantilever is $\frac{1}{3}$ bracket spacing. For portrait orientation installations, check layout prior to installing.
- Offset: offset from all roof edges depends on wind speed, snow loads, local fire and building codes per location.



FLASHING & SLIDE INSTALLATION



1 SNAP LINES

Locate the rafters and snap horizontal and vertical lines to mark the installation position for each GF1 flashing.



2 PILOT HOLE

Drill a pilot hole (1/4" diameter) for the lag bolt. Backfill with sealant. EcoFasten recommends an EPDM mastic.



3 INSERT FLASHING

Insert the flashing so the top part is under the next row of shingles and pushed far enough up slope to prevent water infiltration through vertical joint in shingles. The leading edge of flashing must butt against upper row of nails to prevent turning when torqued.



4 INSERT LAG BOLT

- Line up pilot hole with flashing hole.
- Insert the lag bolt through the EPDM bonded washer, the RockIt slide, the gasketed hole in the flashing and into the rafter.
- Torque: The range is between 100-140 torque inch-pounds depending on the type of wood and time of year. The visual indicator for proper torque is when the EPDM on the underside of the bonded washer begins to push out the sides as the washer compresses. If using an impact wrench to install the fasteners be careful not to over torque the fastener. You may need to stop and use a ratchet to finish the install.

***The Engineer of Record shall check capacity of rafter to support lag screw loading.**

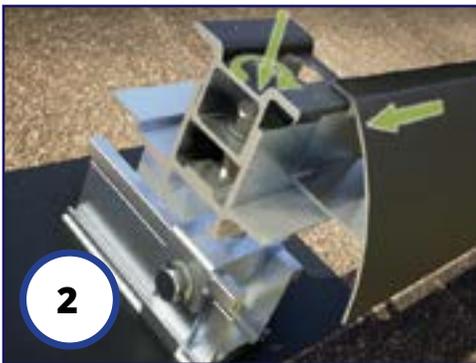


SYSTEM INSTALLATION



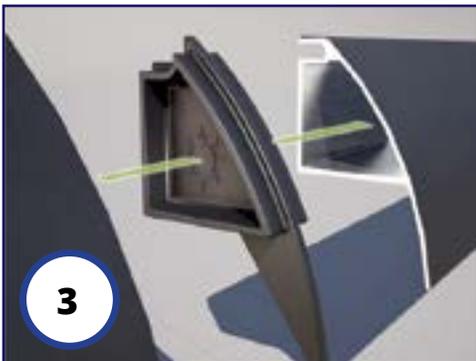
1 INSTALL ECOFASTEN FLASHING WITH ROCKIT MOUNTS

- Follow EcoFasten installation instructions for flashings and brackets.
- Optimum vertical distance between lag bolts is 1 5/16" plus module dimension.
- Set mounts on eave most row so that the RockIt pedestal is on the South end of RockIt slide.
- Set mounts on all upper rows to the North end of RockIt slides.



2 INSTALL ROCKIT ARRAY SKIRT ONTO EAVE MOUNTS

- Slide RockIt array skirt into front channel on RockIt shelf.
- Tighten mid clamp bolt, clamping RockIt array skirt to mount.
- Torque to 200 in-lb.



3 INSTALL ROCKIT ARRAY SKIRTS WITH END CAPS

Array skirt end caps are pre-installed on the East end of each skirt section, and are used to couple the skirt sections where needed.



4 INSTALL ROCKIT COUPLINGS WITH A LOAD BEARING FOOT

- Prior to mounting on the roof, snap the bearing foot into the bottom of the RockIt coupling.
- Each load bearing foot is set to the same height as the RockIt mounts - adjust accordingly.
- Use a load bearing foot when joining 4 panels with a coupling.

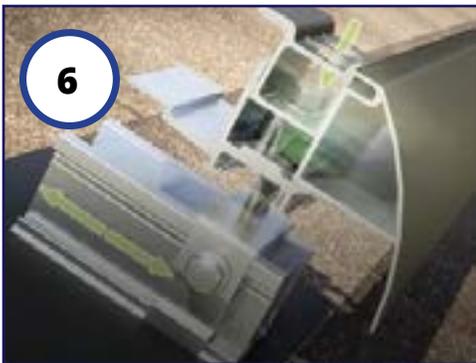


SYSTEM INSTALLATION



5 INSTALL ROCKIT COUPLINGS AND ARRAY SKIRT

- On eave row only, slide Rock-It array skirt onto RockIt coupling shelf.
- Torque to 200 in-lbs.



6 ALIGN & STRAIGHTEN 1ST ROW WITH ROCKIT ARRAY SKIRT

- Refer back to pg. 7, prior to starting this step.
- Use North-South adjustment of the RockIt Pedestal to straighten RockIt array skirt.
- Torque screw on side of RockIt pedestal to 150 in-lbs to secure it to the RockIt slide. The first row of RockIt mounts and array skirts should be level and aligned, with panel gaps evenly spaced before installing the level nut caps.



7 INSTALL LEVEL NUT CAPS

- Adjust flange level nut to level the system and install one level nut cap into the hole directly over the level nut on each RockIt mount mid clamp. This is to prevent accidental adjustment.
- If further leveling of the first row of panels or array skirt is required after the installation of the level nut caps, remove the mid clamps using the accessible bolt, reinstall the mid clamps with the level nut caps already installed, and re-level.

NOTE: DO NOT REMOVE LEVEL NUT CAPS AFTER THEY HAVE BEEN INSTALLED IN THE ROCKIT MOUNT MID CLAMPS.



8 INSTALL 1ST ROW OF PV MODULES

- Slide upslope RockIt mounts down to engage top of first module.
- Gap between modules (East/West) should be 1/2"



SYSTEM INSTALLATION



9 INSTALL SECOND ROW OF ROCKIT COUPLINGS

Install RockIt couplings on the upslope side of 1st row of panels.



10 INSTALL ROCKIT ARRAY SKIRT ONTO EAVE MOUNTS

Torque 2nd row of mid clamps on RockIt mounts and RockIt couplings to 200 in-lb.



11 INSTALL THE REMAINDER OF ROCKIT COMPONENTS

Install balance of PV modules, ensuring that the RockIt pedestals are in the appropriate position, then torque mid clamps to secure modules.

NOTE: MANAGE WIRES AFTER EACH ROW OF MODULES IS INSTALLED

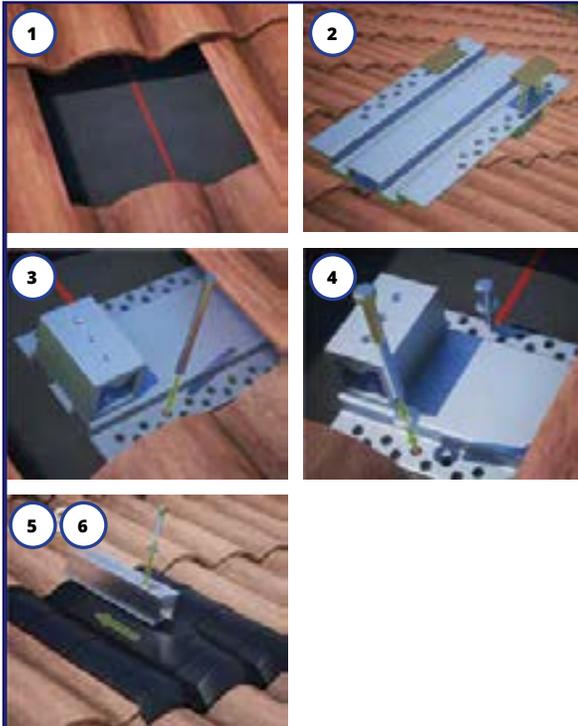


12 INSTALL ROCKIT COUPLINGS WITH A LOAD BEARING FOOT

When assembly is complete, level all subsequent rows of panels by adjusting flange level nuts (flange level nuts have no torque value).



ROCKIT TILE INSTALLATION



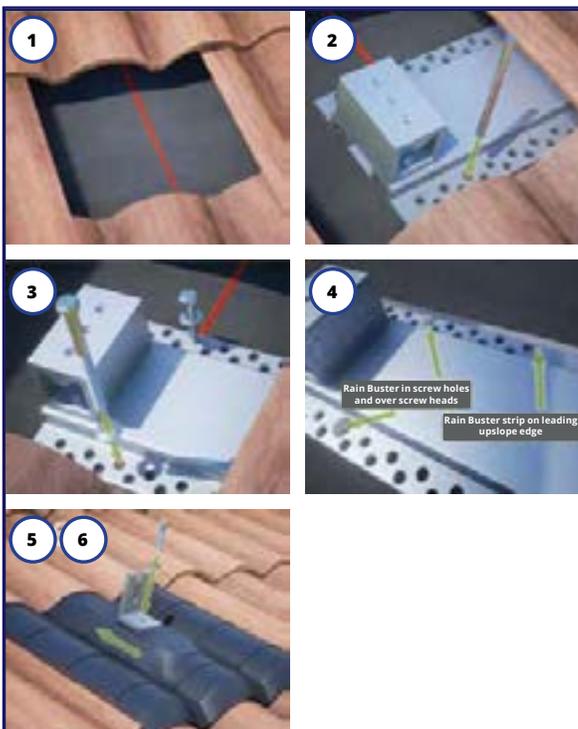
TILE FLASHING INSTALLATION

1. Locate rafter in the typical manner. Remove tile.
2. Remove clear film and align edges of base with edges of butyl tape. Press down firmly on the tile base.
3. Pre-drill lag bolt holes through base and butyl tape.
4. Remove release paper from bottom of butyl tape.
 - Place base in proper location and press down firmly.
 - Backfill holes with sealant. Install lag bolts in pre-drilled locations.
5. Install Flashing.
 - Always install one flashing prior to installing fasteners to verify layout
6. Attach compression bracket with provided 5/16"-18 x 1.25" Hex Bolt and EPDM bonded washer, torque to 120-150 in-lb. (May be attached in either North-South orientation.)

Re-align adjacent tiles as necessary to create a watertight roof connection.

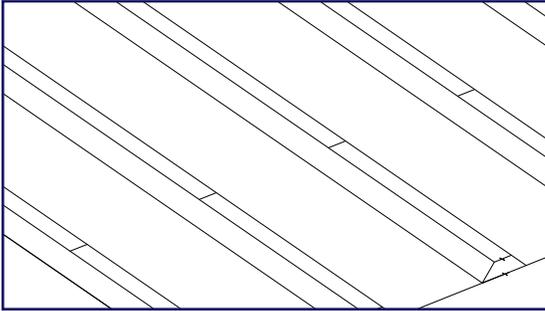
CONDUIT MOUNT BRACKET FOR TILE ROOFS INSTALLATION

1. Locate rafter in the typical manner.
 - Remove tile.
2. Pre-drill lag bolts holes through base and backfill holes with RainBuster.
3. Place base in proper location and install lag bolts with washers in pre-drilled locations.
4. Apply RainBuster over screw heads and along leading upslope edge of the base.
5. Install Flashing.
 - Always install one flashing prior to installing fasteners to verify layout
6. Attach compression bracket with provided 5/16"-18 X 1.25" Hex Bolt and EPDM bonded washer, torque to 120-150 in-lb. Re-align adjacent tiles as necessary to create a watertight roof connection.



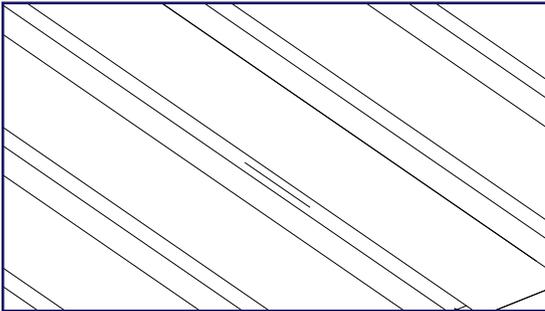


ROCKIT STEEL INSTALLATION



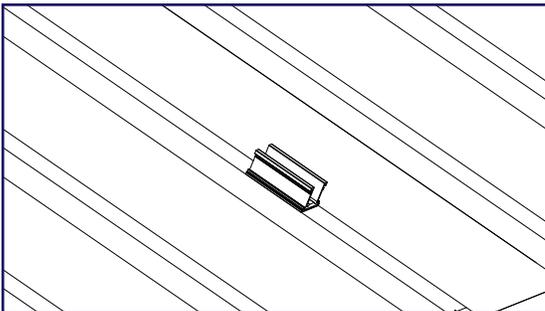
EAST-WEST ROOF MARKING

Snap horizontal lines to mark the installation position for each Rockit Steel slide



ROOF MARKING

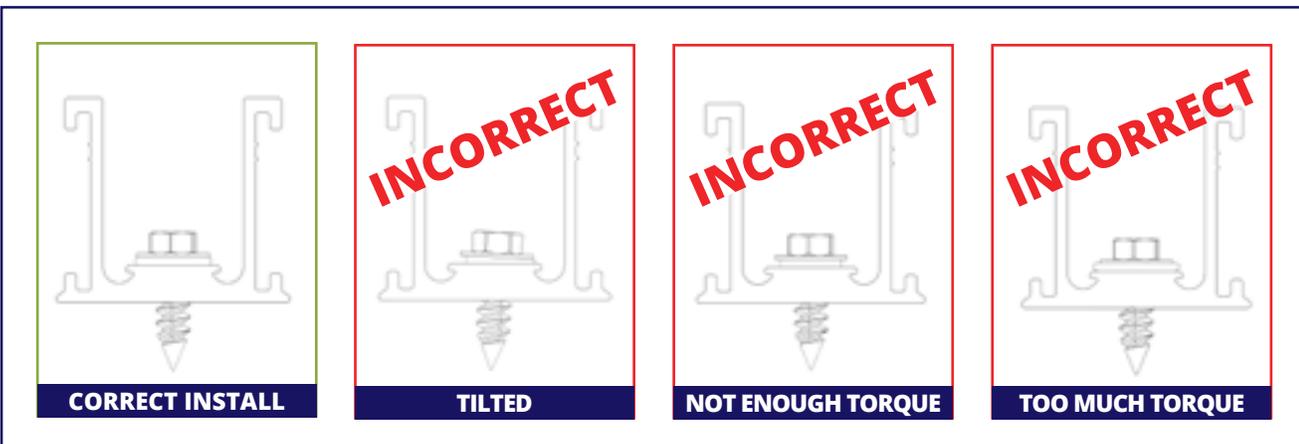
Mark the center of the corrugation and draw a straight line to indicate where the mounting profile must be installed. Double check the ridge width (minimum of 0.75") and metal thickness (26ga).



ATTACH MOUNTING PROFILES

Screw the mounting profiles onto the roof using the self piercing screws. Use a cordless screwdriver or impact driver with a 1/4" hex socket. *

*A WATERTIGHT SEAL HAS BEEN FORMED WHEN THE RUBBER ON THE WASHER CREATES A VISIBLE RING AROUND THE SCREW HEAD.



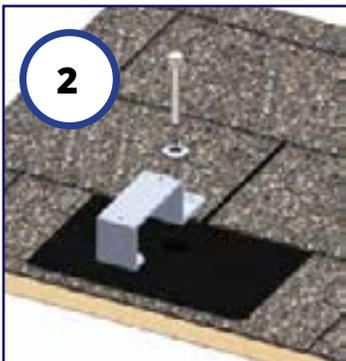


CONDUIT MOUNT INSTALL



1 PILOT HOLE

- Drill a pilot hole (1/4" diameter) for the lag bolt. Backfill with sealant. EPDM mastic is recommended.
- Insert the flashing so the top part is under the next row of shingles and pushed far enough up slope to prevent water infiltration through vertical joint in shingles.



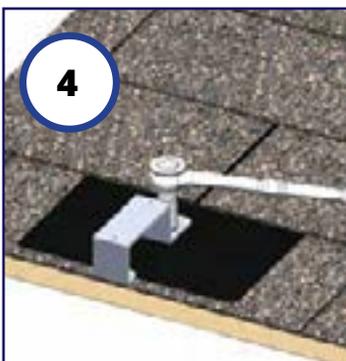
2 LINE UP

Line up pilot hole with GF1 hole.



3 INSERT LAG BOLT

Insert the lag bolt through the EPDM washer, the conduit mount bracket for composition shingle, the gasketed hole within the flashing and into the roof deck.



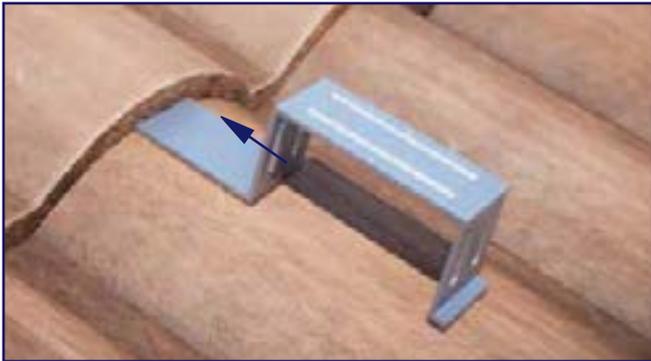
4 TORQUE

The visual indicator for proper torque is when the EPDM on the underside of the bonded washer begins to push out the sides as the washer compresses. If using an impact wrench to install the fasteners be careful not to over torque the fastener. You may need to stop and use a ratchet to finish the install.

Consult an engineer or go to www.ecofastensolar.com for engineering data.



TILE CONDUIT MOUNT INSTALL



CONDUIT MOUNT BRACKET FOR TILE ROOFS INSTALLATION

- Hook the strap of the conduit mount over the top of the tile at the desired mounting location.
- Install conduit and conduit clamp (not included).



ROCKIT CLIP 2.0



INSTALL ROCKIT CLIP 2.0 ACCESSORY

- Install the RockIt Clip 2.0
- Slide the RockIt Clip 2.0 onto the lip of the micro-inverter/power optimizer.
- Slide the micro-inverter/power optimizer into the opposite lip of the module frame.
- Tighten the bolt to 144 in-lb to clamp the RockIt Clip 2.0 to the module frame and the micro-inverter/power optimizer to the Rock-It Clip 2.0.
- Ensure that the lip on the clip is tight against the frame and that the micro-inverter/power optimizer flange is tight against the clip flange to avoid rotation during tightening.

ROCKIT CLIP 2.0 IS COMPATIBLE WITH:

- **AP SYSTEMS:** QS1, YC600
- **DARFON:** MIG240, MIG300, G320, G640
- **ENPHASE:** M250-72, 250-60, M215-60, C250-72, S230, S280, IQ 6, IQ 6+, IQ7, IQ 7A, IQ 7+, IQ 7X, Q Aggregator
- **SMA:** "RoofCommKit-P2-US, TS4-R Module Retrofit Kits (TS4-R-S, TS4-R-O, TS4-R-F)"
- **SOLAREEDGE:** M1600, P300, P320, P340, P370,

P400, P401, P405, P485, P505, P600, P700, P730, P800p, P800s, P801, P850, P860, P950, P960

- **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)"
- **SEE PAGE 22 FOR COMPATIBLE MODULE LIST**



INSTALL ROCKIT J PLATE ACCESSORY

- Install the J-plate using the GF1 flashing installation instructions Refer back to pg. 11, prior to starting this step.
- Screw the customer-supplied J-box to the J-plate.



SHIM CLIP



INSTALLING THE ROCKIT SHIMCLIP ACCESSORY

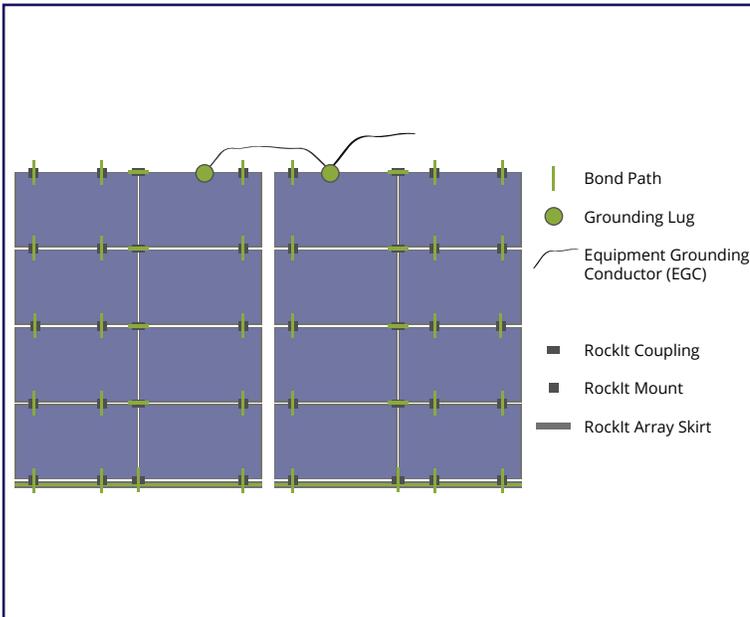
- Install array skirt onto first row of array (see installation instructions pages 8-9).
- For 32mm modules, set the array skirt to the 35mm setting and install the skirt clip on upslope RockIt shelf
- For couplings, attach to array skirt and install 2 skirt clips as shown far left.



Correctly installed shim clip

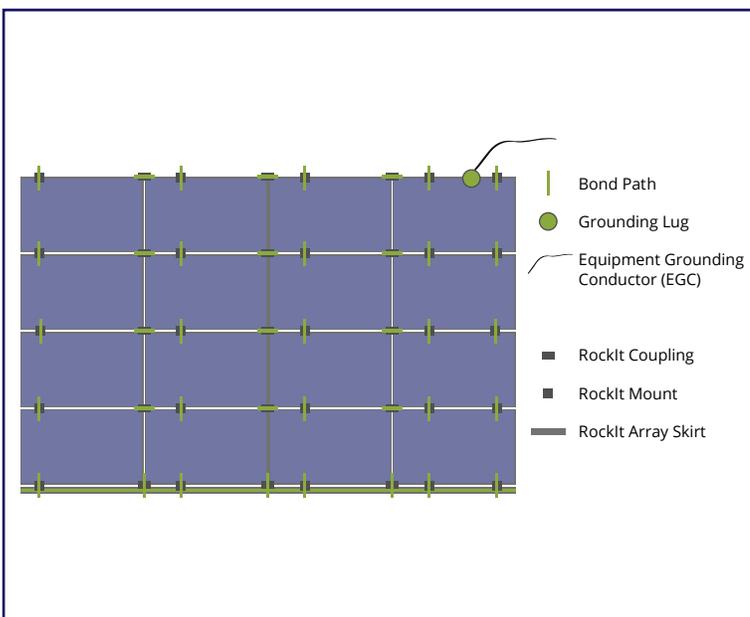


BONDING AND GROUNDING



THERMAL EXPANSION AND BONDING

- A thermal expansion gap is required per each continuous 40' length of modules.
- Omit a coupling and leave a 2" gap in the RockIt array skirt and also between the modules at that point.
- Bonding across the thermal gap should be accomplished with an approved ground lug for each array and an equipment grounding conductor.

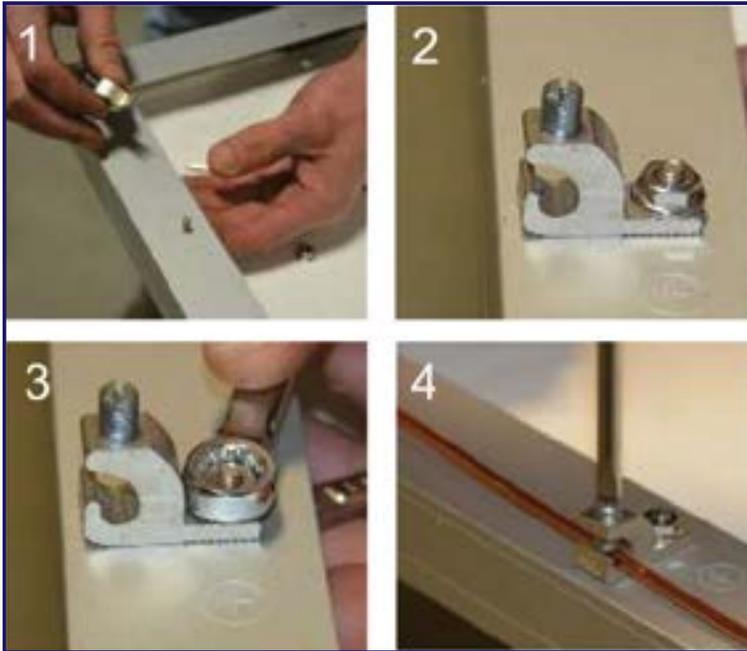


BONDING PATH & ASSEMBLY

- RockIt 3.0 mount bonds N-S rows of modules
- RockIt 3.0 coupling bonds E-W rows of modules
- RockIt array skirt is bonded to the array via the RockIt mount.
- One approved ground lug is required per continuous PV array.



BONDING AND GROUNDING



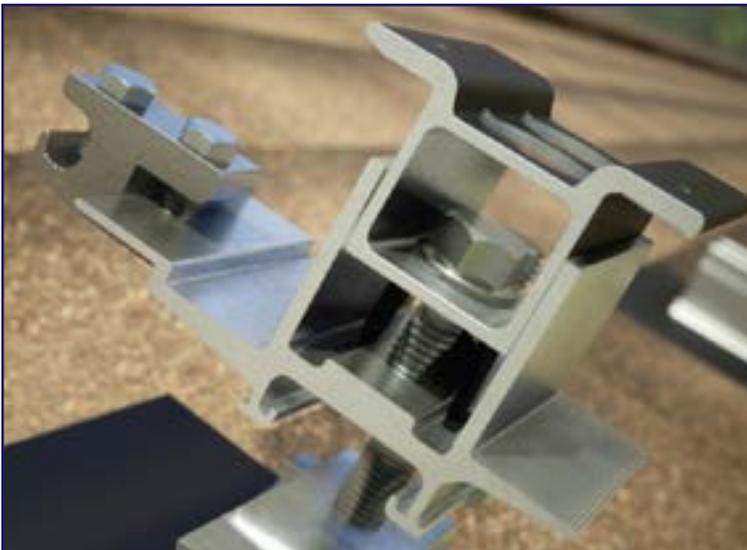
NECESSARY COMPONENTS

One of the following grounding lugs (or any UL2703 Compliant ground Lug):

- Burndy CL50-1TN Ground Lug (UL2703 - E3514343 / UL 467 - E9999)
- ILSCO SGB-4 Ground Lug (UL2703 - E354420/ UL 467 - E34440)
- ILSCO GBL-4DBT (UL2703 - E354420 / UL 467 - E34440)
- ILSCO GBL-4DBTH (UL2703 - E354420 / UL 467 - E34440)
- ILSCO GBL-4SS (UL2703 - E354420 / UL 467 - E34440)

INSTALLATION

1. Insert the flange bolt into the module ground hole. Place Star Washer over bolt. Place ground lug over the bolt and Star Washer, and turn to desired orientation.
2. Install Flange Nut.
3. Tighten Flange Nut/Bolt.
4. Place wire in Ground Lug channel and tighten set screw to complete assembly.



Above: Optional Location for grounding lug on last row upslope of array

*Equipment grounding wire should be sized in accordance with the National Electrical Code, NFPA70 and a minimum of 1/4" clearance is required between bare copper wires and aluminum components.



UL2703 CERTIFIED MODULES

This racking system may be used to ground and/or mount a PV module complying with UL 1703 or UL61730 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions.

Unless otherwise noted, "xxx" refers to the module power rating and both black and silver frames are included in the certification. " "

MANUFACTURER	LIST OF UL2703 APPROVED MODULES
Adani	Adani modules with 35 and 40mm frames ASX-Y-ZZ-xxx Where "X" can be B, M or P, "Y" can be 6 or 7, and "ZZ" can be blank, PERC, B-PERC, or AB-PERC
Axitec	Axitec Modules with 35 mm frames AC-xxxY/aaZZ "Y" can be M, P, or MH; and "aa" can be blank, 125 or 156; and "ZZ" can be 60S or 120S
Boviet	Boviet modules with 35 and 40mm frames BVM66aaYY-xxxBcc Where "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-HC or HC-BF
Canadian Solar	Canadian Solar modules with 35 and 40 mm frames CSbY-xxxZ Where "b" can be 1, 3 or 6; "Y" can be H, K, P, or V; and "Z" can be M, MS, M-SD, MS-SD, P, PX, or P-SD
Dehui	Dehui modules with 35 and 40mm frames DH-MYYYY-xxx Where "YYYY" can be 760, 772, 860, 872; and "Z" can be B or W
ET Solar	ET Solar modules with 35 and 40mm frames ET-Y6ZZxxxAA Where "Y" can be P, L, or M; "ZZ" can be 60, 72 or 72BH; and "AA" can be WB, WW, BB, WBG, WWG, WBAC, WBCO, WWCO, WWBCO or BBAC



MANUFACTURER	LIST OF UL2703 APPROVED MODULES
Hanwha Q CELLS	<p>Hanwha Q CELLS Modules with 32, 35 and 40mm frames aaYY-ZZ-xxx where “aa” can be Q. or B.; “YY” can be PLUS, PRO, PEAK, LINE PRO, LINE PLUS, PLUS DUO or PEAK DUO; 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+, G6+/TS, BLK-G6, G7, BLK-G6+, BLK-G6+/AC, 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, BLK ML-G9, ML-G9+, BLK ML-G9+, or ML-G9</p>
Hyundai	<p>Hyundai modules with 35 and 40 mm frames HiY-SxxxZZ Where “Y” can be A, M or S; and “ZZ” can be HG, KI, MF, MG, PI, SG, RG, RG (BK), or TG</p>
Itek	<p>Itek Modules with 40 mm frames IT-xxx-YY “YY” can be blank, HE, or SE</p>
JA Solar	<p>JA Solar modules with 35 and 40 frames JAyyzz-60bb-xxx/aa Where “yy” can be M, P, M6 or P6; “zz” can be blank, (K), (L), (R), (V), (BK), (FA), (SE), (TG), (FA)(R), (K)(SE), (K)(TG), (L)(BK), (L)(TG), (R)(BK), (R)(TG), (V)(BK), (BK)(TG), or (L)(BK)(TG); “bb” can be blank, S01, SO2, SO3, S09, S10; and “aa” can be MR, SI, SC, PR, RE, 3BB, 4BB, 4BB/RE, 4BB/1500V, PR/1500V, 5BB</p>
Jinko	<p>Jinko modules with 35 and 40 mm frames JKMYxxxZZ-aa Where “Y” can either be blank or S; “ZZ” can be M, P, PP, or -V; and “aa” can be blank, 60, 60B, 60H, 60HB, 60L, 60BL, 60HL, 60HBL, 60-J4, 60B-J4, 60B-EP, 60(Plus), 60-V, or 60-MX, 72H, 72H-V, 72HL-V, 72HBL-V, 72L-V</p>
LG	<p>LG modules with 40mm frames LGxxxy1z-bb “y” can be A, E, M, N, Q, or S; “z” can be C or K; and “bb” can be G4, A5, L5, N5 or V5</p>
Longi	<p>Longi modules with 35 and 40 mm frames LRa-60ZZ-xxxM Where “a” can be 4 or 6; “ZZ” can be blank, BK, PB, PE, PH, HPB, or HPH</p>



MANUFACTURER	LIST OF UL2703 APPROVED MODULES
Mission Solar	Mission Solar modules with 40 mm frames MSbbExxxZZaa Where "bb" can be blank or 60A; "ZZ" can be blank, SO or SQ, and "aa" can be blank, 4J, 4S, 5K, 5T, 8T, or 8K
Next Energy Alliance	Next Energy Alliance modules with 35 and 40mm frames yyNEA-xxxZZ where "yy" can be blank or US; "ZZ" can be M, MB or M-60
Panasonic (HIT)	Panasonic modules with 40 mm frames VBHNxxxYYzA "YY" can be either SA or KA; "zz" can be either 03, 04, 17 or 18; and "A" can be blank, E or G
Panasonic (EverVolt)	Panasonic modules with 30 mm frames EVPVxxxA Where "A" can be blank or K
REC	REC modules with 30 and 38 mm frames RECxxxYYZZ Where "YY" can be AA, M, NP, PE, PE72, TP, TP2, TP2M, TP2SM, or TP2S, or TP3M; and "ZZ" can be blank, Black, BLK, BLK2, SLV, or 72
Recom	Recom modules with 35 and 40 mm frames RCM-xxx-6yy Where "yy" can be MA, MB, ME or MF
Renesola	ReneSola 60-cell modules with 40 mm frames JCxxxY-ZZ "Y" can be F, M or S; and "ZZ" can be Ab, Ab-b, Abh, Abh-b, Abv, Abv-b, Bb, Bb-b, Bbh, Bbh-b, Bbv, Bbv-b, Db, or Db-b
S-Energy	S-Energy modules with 35 and 40mm frames SABB-CCYYY-xxxZ Where "A" can be C, L or N; "BB" can be blank, 20, 40 or 45; "CC" can be blank, 60 or 72; "YYY" can be blank, MAE, MAI, MBE, MBI, MCE or MCI; and "Z" can be V, M-10, P-10 or P-15
Silfab	Silfab Modules with 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; and "b" can be A, L, G, or T
Solaria	Solaria modules with 40 mm frames PowerXT xxxR-ZZ "ZZ" can be AC, BD, BX, BY, PD, PX, PZ, WX or WZ



MANUFACTURER	LIST OF UL2703 APPROVED MODULES
Sunpower	Sunpower modules with 40 mm frames SPR-A-xxx-YY "YY" can be blank or G-AC
Sunpreme	Sunpreme Modules with 40mm frames GxB-xxxT
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
Trina	Trina modules with 35 mm frames TSM-xxxYYZZ "YY" can be PA05, PC05, PD05, PX05, DD05, DD05A, DD06, DE05, DX05A; and "ZZ" can be blank or A,.05, .08, A.05, A.08, A(II), A.05(II), A.08(II), H, H.05, H.08, H.05(II), H.08 (II), M, M(II)
Waaree	Waaree modules with 40mm frames WSyy-xxx where "yy" can be blank, M or MB
Yingli	YGE and YLM series modules with 35 and 40 mm frames