

ModuRack

Integrated Solar Racks



Installation Manual

Tile Roof and Composite Shingle Roof



Solar system on tile roof



Solar system on composite shingle roof

DISCLAIMER

This manual describes the proper procedures and standards required for installation of hooks, rails and solar modules. Thorough compliances are required for product liability and warranty. Failure to follow these guidelines may result in property damage, bodily injury or death. This racking system is to be used only in combination with modules that include this specific rack system in their installation manual.

RATINGS

Structural Code Per Asce 7-10

All components in this manual (see specifications and certification letter)

Integrated Bonding Per UL2703

All components in this manual (see limitations and UL listing)

Fire Certification

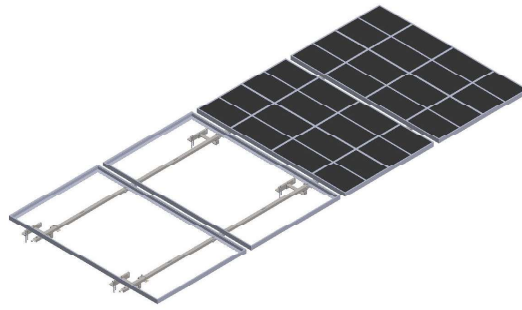
Class A.

Others

It is necessary to periodic re-inspection the installation for loose components, loose fasteners and any corrosion. The affected parts are to be immediately replaced.

This racking system may be used to ground and/or mount a PV module complying with UL 1703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions.¹

¹ ModuRack Installation Manual, Control # IM0017, revision 01 2017/4/08



ASSEMBLIES AND USE

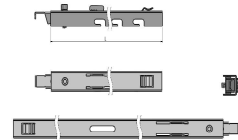
Rails R4, R3 and R1

MR-R4, MR-R3 AND MR-R1

Allowable span 60 in

Allowable cantilever 6 in

Torque on nut for C-Clamp: 40 in-lb



Splice Bar

MR-SB

All nuts 120 in-lb

Max # of rails that can be connected: up to 5 rails



Hooks for Tile Roof

MR-TH-R

5/16 x 3-1/2 Wood Screws (not provided) on Rafters: Impact Drill

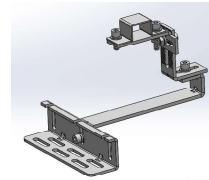
All other nuts on hook 120 in-lb

Load rating:

Downward Pressure – 10 psf

Upward Pressure – 5 psf

Down-Slope Load – 5 psf



Hooks for Shingle Roof

MR-CH-R

5/16 x 3-1/2 Wood Screws (not provided) on Rafters: Impact Drill

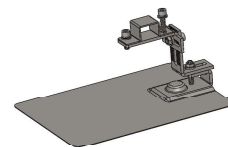
All other nuts on hook 120 in-lb

Load rating:

Downward Pressure – 10 psf

Upward Pressure – 5 psf

Down-Slope Load – 5 psf



COMPONENTS

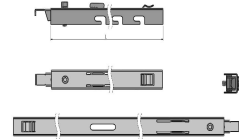
Rails R4, R3 and R1

MR-R4, MR-R3 AND MR-R1

Allowable span 48 in

Allowable cantilever 6 in

Torque on nut for C-Clamp: 40 in-lb



<u>Item #</u>	<u>Part #</u>	<u>Description</u>	<u>Qty/PCS</u>	<u>Material and finish</u>	<u>Photo</u>
1	ZJ-GFB-HL- 0001	RAIL	1	SS304 NO FINISH	
2	ZJ-GFB-KJ	CLAMP	4,3,1	SS304 NO FINISH	
3	BXG-LS-5/16-5/8"	5/16 BOLT	4,3,1	SS304 NO FINISH	
4	BXG-TD-5/16	SPRING WASHER	4,3,1	SS304 NO FINISH	
6	ZJ-GFB-YXLM	CLAMO NUT	4,3,1	SS304 NO FINISH	

COMPONENTS

Splice Bar

MR-SB

All nuts 120 in-lb

Max # of rails that can be connected: up to 5 rails



<u>Item #</u>	<u>Part #</u>	<u>Description</u>	<u>Qty/PCS</u>	<u>Material and finish</u>	<u>Photo</u>
1	ZJ-HL-LJGDP-000	SPLICE	1	SS304 NO FINISH	
2	ZJ-HL-NLJJ	SPLICE NUT	1	SS304 NO FINISH	
3	BXG-TD-5/16	SPRING WASHER	4	SS304 NO FINISH	
4	BXG-PD-5/16	SPRING WASHER	4	SS304 NO FINISH	
5	BXG-LS-5/16-5/8"	5/16 BOLT	4	SS304 NO FINISH	

COMPONENTS

Hooks for Tile Roof

MR-TH-R

5/16 x 3-1/2 Wood Screws (not provided) on Rafters: Impact Drill

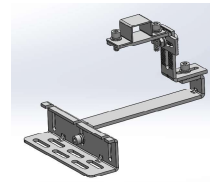
All other nuts on hook 120 in-lb

Load rating:

Downward Pressure – 10 psf

Upward Pressure – 5 psf

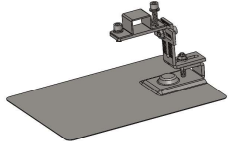
Down-Slope Load – 5 psf



<u>Item #</u>	<u>Part #</u>	<u>Description</u>	<u>Qty/PCS</u>	<u>Material and finish</u>	<u>Photo</u>
1	DGNKG-KJ-0001	TILE HOOK BASE	1	SS304 NO FINISH	
2	DGNKG-GDJ-0001	HOOK	1	SS304 NO FINISH	
3	BXG-LS-5/16-5/8"	5/16 BOLT	1	SS304 NO FINISH	
4	BXG-TD-5/16	SPRING WASHER	5	SS304 NO FINISH	

5	BXG-PD-5/16	SPRING WASHER	5	SS304 NO FINISH	
6	JZ-DZ-GG-0002	L-FOOT	I	SS304 NO FINISH	
7	ZJ-DZ-KJ-0002	RAIL BASE	I	SS304 NO FINISH	
8	BXG-LS-5/16-1"	5/16 BOLT	3	SS304 NO FINISH	
9	HL-BG-I	RAIL BUCKLE	I	SS304 NO FINISH	
10	FLANGE NUT	FLANGE NUT	I	SS304 NO FINISH	
11	ZJ-YTLS-5-16X1-1 /2"	5/16 BOLT	I	SS304 NO FINISH	

COMPONENTS

Hooks for Shingle Roof MR-CH-R 5/16 x 3-1/2 Wood Screws (not provided) on Rafters: Impact Drill All other nuts on hook 120 in-lb Load rating: Downward Pressure – 10 psf Upward Pressure – 5 psf Down-Slope Load – 5 psf	
--	---

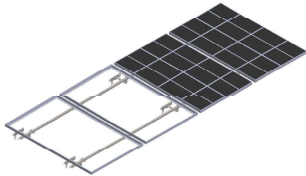
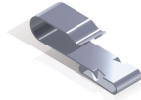
<u>Item #</u>	<u>Part #</u>	<u>Description</u>	<u>Qty/PCS</u>	<u>Material and finish</u>	<u>Photo</u>
1	ZJ-DZ-FYZ-001	FLUSHING	1	AL	
2	ZJDZ-GDJ	COMP HOOD BASE	1	SS304 NO FINISH	
3	BXG-LS-5/16-5/8"	5/16 BOLT	1	SS304 NO FINISH	
4	BXG-TD-5/16	SPRING WASHER	4	SS304 NO FINISH	
5	BXG-PD-5/16	SPRING WASHER	4	SS304 NO FINISH	

6	JZ-DZ-GG-0002	L-FOOT	1	SS304 NO FINISH	
7	ZJ-DZ-KJ-0002	RAIL BASE	1	SS304 NO FINISH	
8	ZJ-WHL-LJSJLS -1-5/8"	5/16 BOLT	1	SS304 NO FINISH	
9	BXG-LS-5/16-1"	5/16 BOLT	3	SS304 NO FINISH	
10	HL-BG-1	RAIL BUCKLE	1	SS304 NO FINISH	
11	Flange nut	FLANGE NUT	1	SS304 NO FINISH	
12	ZJ-YTLS-5-16X1 -1/2"	5/16 BOLT	1	SS304 NO FINISH	

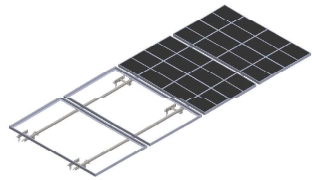
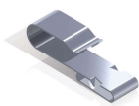
TOOLS

6mm Torque Wrench (0-240 in-lbs) Tightening the screws already in position with specified torques	
Cordless drill with bits Drill or impact driver for driving roof material fixings	
Gloves Protect the hazard of the sharp corners.	
Chalk Mark the installation position;	
Level Adjust rail leveling	
Tape Keep distance and mark positions	
Ladder: using extendable Aluminum alloy ladder; Model: 12ft, 24ft for roof installation	
Safety Harness: Length: 12ft; Weight: 300lb Usage: for the safety of installers	

INSTALLATION STEPS Tile Roof

Confirm the layout and the number of parts Refer to your project layout drawing. Wear safety gloves before and always wear harness on the roof.	This racking assembly is to be mounted over a fire resistant roof covering rated for the application.
a. Hook installation 1. Find rafter and use chalk to mark the positions 2. Fix hook on the rafter with two 5/16 x 3-1/2 wood screws (not provided) in slots 1. Adjust the hook for alignment with tile then fix screw 2. Repeat and keep hook spacing 48" apart	
b. Rail installation 1. Mount the Rail by dropping in the Rail Clamp C 2. If needed, connect rails with Splice Bar by inserting into the slots S on the end of rail, then tighten all screws on splice bar 3. Tighten Screws 3 and 4 to fix Rail Clamp C 4. Set to the desired height and use level to confirm the rail at level position then tighten two standing screws 5 and 6.	
c. Micro-inverter or Optimizer Ready (optional) Use slot O in the middle of the Rail to fix Micro-inverter or Optimizer.	
d. Module installation 1. Insert one side of module frame into S-clamps by pushing the frame inner edge into S-clamp slot. This holds the module in position 2. Slide the C-clamp on the other inner side of frame, then tighten with standing screw 7, with torque 40 in-lb	
e. Grounding (parts not provided) Use grounding lug ILSCO Tin Plated, GBL-4DBT Lay In Lug for each string not exceeding 20 modules, and bare copper grounding wire (#6 and above) to connect to grounding rod.	
f. Wire Clips (optional) Clip on the inner edge of the module frame where needed to fix the cable.	
g. Box Bracket (optional) Use box bracket in case of need, clamp on the module frame and fix box on the bracket by tightening all 4 screws on box bracket.	

INSTALLATION STEPS Comp Roof

Confirm the layout and the number of parts Refer to your project layout drawing. Wear safety gloves before and always wear harness on the roof.	This racking assembly is to be mounted over a fire resistant roof covering rated for the application.
a. Hook installation 1. Find rafter and use chalk to mark the positions 2. Fix hook on the rafter with one 5/16 x 3-1/2 wood screws 1 (not provided). Adjust the flushing alignment with shingle then fix screw 2. Repeat and keep hook spacing 48" apart	
b. Rail installation 1. Mount the Rail by dropping in the Rail Clamp C 2. If needed, connect rails with Splice Bar by inserting into the slots S on the end of rail, then tighten all screws on splice bar 3. Tighten Screws 3 and 4 to fix Rail Clamp C 4. Set to the desired height and use level to confirm the rail at level position then tighten two standing screws 5 and 6.	
c. Micro-inverter or Optimizer Ready (optional) Use slot O in the middle of the Rail to fix Micro-inverter or Optimizer.	
d. Module installation 1. Insert one side of module frame into S-clamps by pushing the frame inner edge into S-clamp slot. This holds the module in position 2. Slide the C-clamp on the other inner side of frame, then tighten with standing screw 7, with torque 40 in-lb	
e. Grounding (parts not provided) Use grounding lug ILSCO Tin Plated, GBL-4DBT Lay In Lug for each string not exceeding 20 modules, and bare copper grounding wire (#6 and above) to connect to grounding rod.	
f. Wire Clips (optional) Clip on the inner edge of the module frame where needed to fix the cable.	
g. Box Bracket (optional) Use box bracket in case of need, clamp on the module frame and fix box on the bracket by tightening all 4 screws on box bracket.	

ModuRack™ LIMITED WARRANTY

10 YEAR LIMITED PRODUCT WARRANTY | 5 YEAR LIMITED FINISH WARRANTY

Limited Warranty. ModuRack, Inc. ("Manufacturer"), the manufacturer of the ModuRack solar module racking system (the "Product"), warrants to the end-user ("you") of the Product, that while installed as part of the original solar electric system (the "System") at the original installation site, the Product shall be free from defects in materials and workmanship for a period of ten (10) years (the "Limited Product Warranty"), and the Product finish shall be free from visible rusting, peeling, cracking or chalking under normal atmospheric conditions for a period of five (5) years (the "Limited Finish Warranty") (collectively, the "Limited Warranties"). The Limited Warranties shall commence on the date of completion of the installation of the Product as a part of the System.

Warranty Service. If, within the applicable warranty period, the Product is determined by Manufacturer to be defective, based on reasonable evidence of a defect provided by you, Manufacturer will, at its sole option, (a) repair the Product or replace it with an equivalent product, or (b) take back the Product and refund to you the purchase price paid to Manufacturer by the original purchaser of the Product (the "Distributor"). Your sole and exclusive remedy under the Limited Warranties shall be limited to the repair, replacement or refund specified herein. For warranty claims, contact Manufacturer at the address below.

Warranty Conditions. The foregoing warranties are contingent on the proper use of the product in accordance with the instructions and specifications published by manufacturer and shall not apply to any product that has been repaired or modified by persons other than manufacturer.

Warranty Disclaimer. The express warranties set forth in herein are in lieu of all other warranties, express or implied. Manufacturer hereby specifically disclaims any other representations or warranties, express or implied, including without limitation any warranties of title, non-infringement, quiet enjoyment, merchantability, or fitness for a particular purpose.

Damage Waiver. Notwithstanding any other provisions herein, in no event will manufacturer or its suppliers be liable for any special, incidental or consequential damages suffered by you, distributor or any third party which may arise under or in connection with the product or these limited warranties.

Limitation of Liability. Distributor and manufacturer have negotiated risk allocation between themselves and agree that in no event will manufacturer's liability for any claim, whether in contract, tort or under any other theory of liability, exceed the cumulative amounts actually received by manufacturer from distributor for the products sold to distributor during the 12 month period immediately preceding the accrual of the claim.

Address for Warranty Claims:

ModuRack, Inc. 41441 W I-55 Service Rd. Hammond, LA 70403



ModuRack, Inc.
41441 W I-55 Service Rd
Hammond, LA 70403
408-614-8499
www.modurack.com