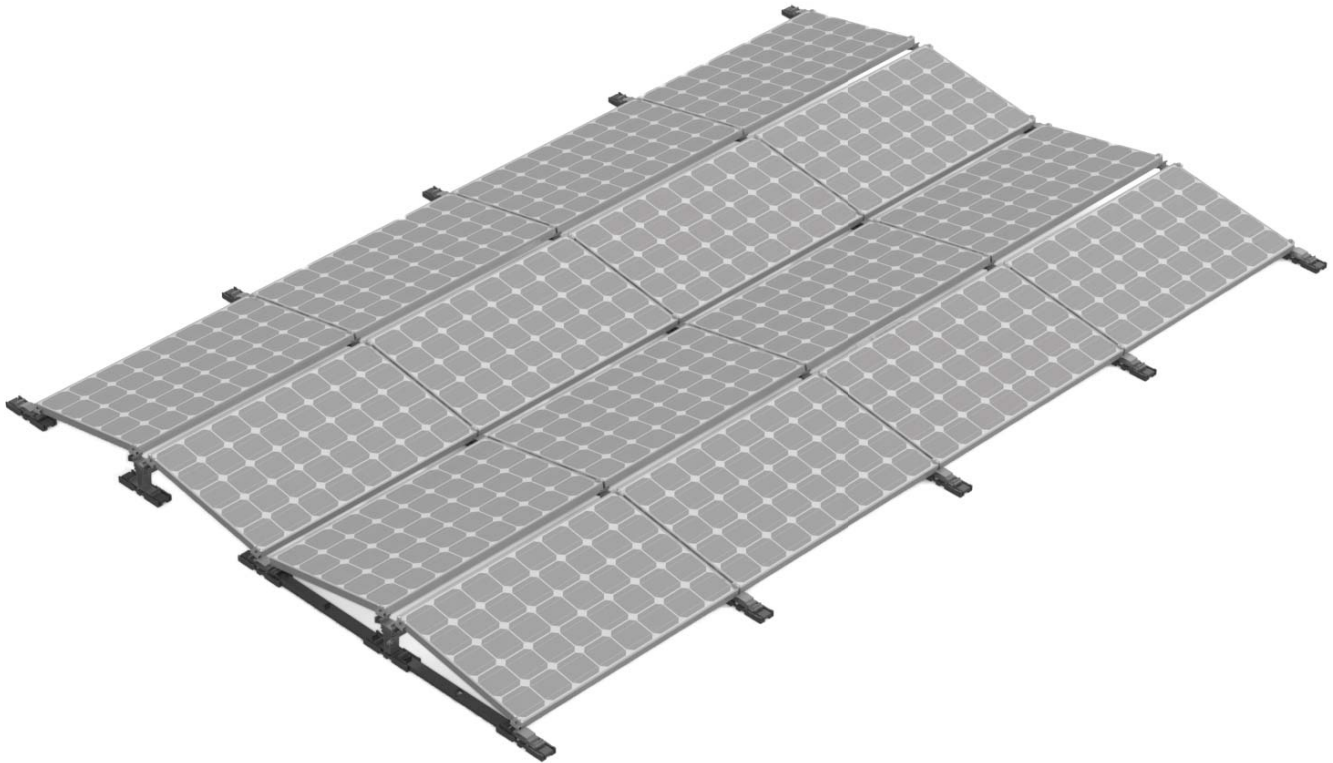


Mounting systems for solar technology



ASSEMBLY INSTRUCTIONS
COMMERCIAL ROOF SOLUTIONS
D DOME RAILLESS² SYSTEM



UL 2703 Listed System

USA

TABLE OF CONTENTS

TABLE OF CONTENTS	2
SAFETY REGULATIONS	3
MATERIALS REQUIRED	4
BONDING AND GROUNDING	6
FIRE RATING	7
ASSEMBLY	8
TERMS AND CONDITIONS	13

ENGINEERING STRENGTH IS AT OUR CORE

With sophisticated product innovations and a deep customer focus, Everest Solar is the engineering leader for all your mounting system needs. We are the US division of K2 Systems, one of Europe’s market leaders with more than 4 GW installed.

We offer proven product solutions and innovative designs. Wind tunnel testing along with advanced structural and electrical validation that should facilitate permitting, design and installation. Our designs result in cost competitive racking systems with dedicated support that will position you to win more projects.

We partner with our customers and suppliers for the long-term. High quality materials and cutting edge designs provide a durable, yet functional system. Our product line is comprised of a few, coordinated components that lower the cost of materials, and simplify installation, saving you time and money. All backed by German engineering, a long track record of quality, and a company that is here to stay.

Thank you for choosing Everest Solar mountings systems for your Solar PV Project.

INTRODUCTION TO THE D DOME RAILLESS² SYSTEM

The D Dome Railless² System is our newest innovation to the double-sided, low-ballast system designed to be installed in an East/West orientation. Our D Dome Railless² has truly modular components and installs with virtually no hardware.

Our East/West system eliminates shading between modules and allows higher energy density compared to conventional South-facing systems.

Wind tunnel tested in a boundary layer wind tunnel, the D Dome has one of the lowest ballast requirements of any system available.



GENERAL SAFETY INSTRUCTIONS

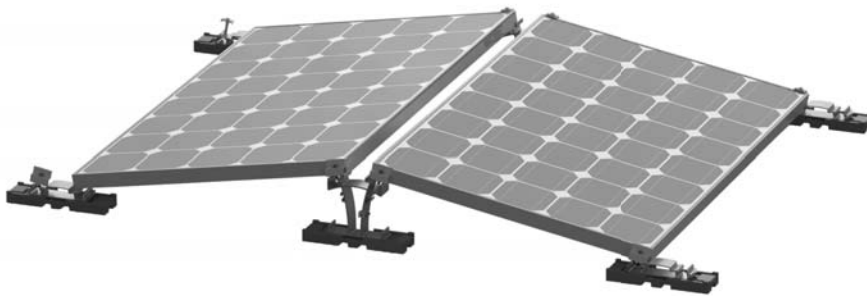
Everest Solar Systems' General Assembly Instructions must be followed to maintain the exclusive, limited product warranty. Contractor shall verify the use of the most current instructions by downloading the latest version from our website: <http://www.everest-solarsystems.com/> or by contacting us directly at info@everest-solarsystems.com.

In general, the following applies:

- ▶ Systems should be installed by experienced contractors licensed and qualified to perform the work with professional workmanship and quality.
- ▶ Before installation, Contractor must verify that the system meets all applicable laws, regulations, ordinances, and codes. Contractor shall verify that the roof or other structures to which the system is being attached are capable of carrying the system loads.
- ▶ Contractor is solely responsible for work safety and accident prevention regulations and corresponding standards and regulations of the applicable occupational safety and health agency are followed.
- ▶ Module manufacturer installation guides must be followed. Use approved electrical bonding and grounding components as required by the local or national codes and AHJ.
- ▶ A copy of these instructions must be on site, and read and understood by all workers during installation.
- ▶ In the event our general installation and assembly instructions are not followed, or that not all system components and assemblies are used according to these instructions, or that components are used which were not obtained from us, Everest Solar Systems is not liable for any resulting defects and damages, and the exclusive, limited warranty will be void.
- ▶ The exclusive, limited product warranty shall apply only if all instructions are strictly adhered to and the system is correctly installed. Everest Solar Systems disclaims any and all warranties, express or implied, including without limitation any warranties of merchantability and fitness for a particular purpose other than as set forth in the exclusive, limited warranty in the terms and conditions of sale, which can be viewed under on our website: <http://www.everest-solarsystems.com/>
- ▶ This system can be installed for all standard flat roofs with pressure-resistant substrates and a roof pitch of up to 5 degrees. The elevation angle is 10 degrees.
- ▶ It is recommended to verify compatibility of the Roof Protection Mat and Spacer Pad with the particular roofing on the project.
- ▶ Minimum distance to roof edge: 20 in.
- ▶ A thermal break is required at no more than 50 feet in both directions, North/South and East/West. A minimum separation of 2.5 inches is required between separate arrays.
- ▶ The D Dome Railless² System is designed to be used with standard 60, 72, and 96 cell modules with a frame height of 1.18-1.97in (30-50mm). All modules used with the D Dome system must be approved by the module manufacturer prior to installation. For a complete list of approved modules, please visit <http://everest-solarsystems.com/en-US/technical-information-demo/approved-modules>
- ▶ The dismantling of the system should be in reverse order of these assembly instructions.



Mounting systems for solar technology



D Dome Railless² for Flat Roofs:

- ▶ New innovative double-sided low ballast system suitable for all orientations
- ▶ Simple, fast installation
- ▶ Aerodynamic optimization enables minimal ballast; wind tunnel tested by leading structural aerodynamics lab
- ▶ Low material cost and easy installation

UL 2703 LISTED COMPONENTS

All components evaluated under UL 2703 and encompassed within Everest Solar System's UL 2703 Listing shown below. If you seek a UL Listed System, only the parts shown on this page are acceptable.



Dome Peak R² with Roof Protection Mat
Material: aluminum, recycled rubber



ILSCO Lug SGB-4¹
Material: tin plated aluminum
Hardware: stainless steel



Dome Base R² with Roof Protection Mat
Material: aluminum, recycled rubber



Optional: Micro Inverter and Optimizer Mounting Kit^{1,2}
Material: stainless steel



Aluminum End Clamp Set with WEEB BMC
Material: aluminum, stainless steel
Hardware: stainless steel



Dome-XR Mid Clamp Set
Material: stainless steel
Hardware: stainless steel



¹ For certain jurisdictions, this item is regarded as a single-use item for a UL 2703 Listed System.

² The inverter hardware kit is not intended to replace the micro inverter ground and has only been evaluated to attach to the rail.



NON-UL LISTED COMPONENTS

Components in this section were not evaluated by UL for bonding



Roof Protection Mat R²

Material: recycled rubber

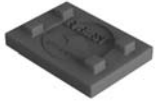


Optional: OMG PowerGrip Plus with Porter Bracket

OMG supplied by customer

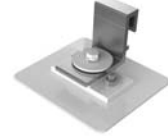
Material: aluminum

Hardware: stainless steel



Roof Spacer Mat R²

Material: recycled rubber



Optional: Eco Fasten Eco65 with Porter Bracket

Eco Fasten supplied by customer

Material: aluminum

Hardware: stainless steel



Dome Porter R²

Material: aluminum



Dome Corner Strut R²

Material: aluminum

Hardware: stainless steel

TOOLS AND TORQUE SPECIFICATIONS REQUIRED

Everest Solar Systems are designed to make installation easy and fast. The basic tools required to assemble the parts are listed below as a guide.

TOOLS REQUIRED

- ▶ Torque Wrench (0 – 50 ft-lb)
- ▶ 11mm Deep Socket (ILSCO Lug)
- ▶ 13mm Deep Socket (Dome Corner Strut R²)
- ▶ 6mm Allen Socket (Clamps, Dome Corner Strut R²)
- ▶ Measuring Tape
- ▶ Chalk Line

TORQUE SPECIFICATIONS

- ▶ End Clamps: 10.3 ft-lb
- ▶ Bonding Mid Clamp: 12 ft-lb
- ▶ Micro-Inverter Set: 10.3 ft-lb
- ▶ Dome Corner Strut R²: 12 ft-lb
- ▶ ILSCO Lug: 35 in-lb

Tools and materials for the installation of third party items such as roof attachment products, roof covering and sealing products or items used for bonding and grounding are not listed here. Please refer to the instructions of those third party products.

BONDING AND GROUNDING

The D Dome Railless² System has obtained a UL 2703 system listing from Underwriter's Laboratories (UL).

A sample bonding path diagram is shown in Figure 1, below. Specific installations may vary based on site conditions and AHJ requirements.

Each electrical connection has been evaluated to a maximum fuse rating of 30A. When installed per these installation instructions, all connections meet the requirements of NEC 690.43.

Installation should be periodically reinspected for loose components or fasteners and any corrosion.

Everest D Dome system was tested with the SolarWorld, Sunmodule family of modules.

- ▶ PlusSW200-300Mono (including black)
- ▶ PlusSW200-280Poly (including black)

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.

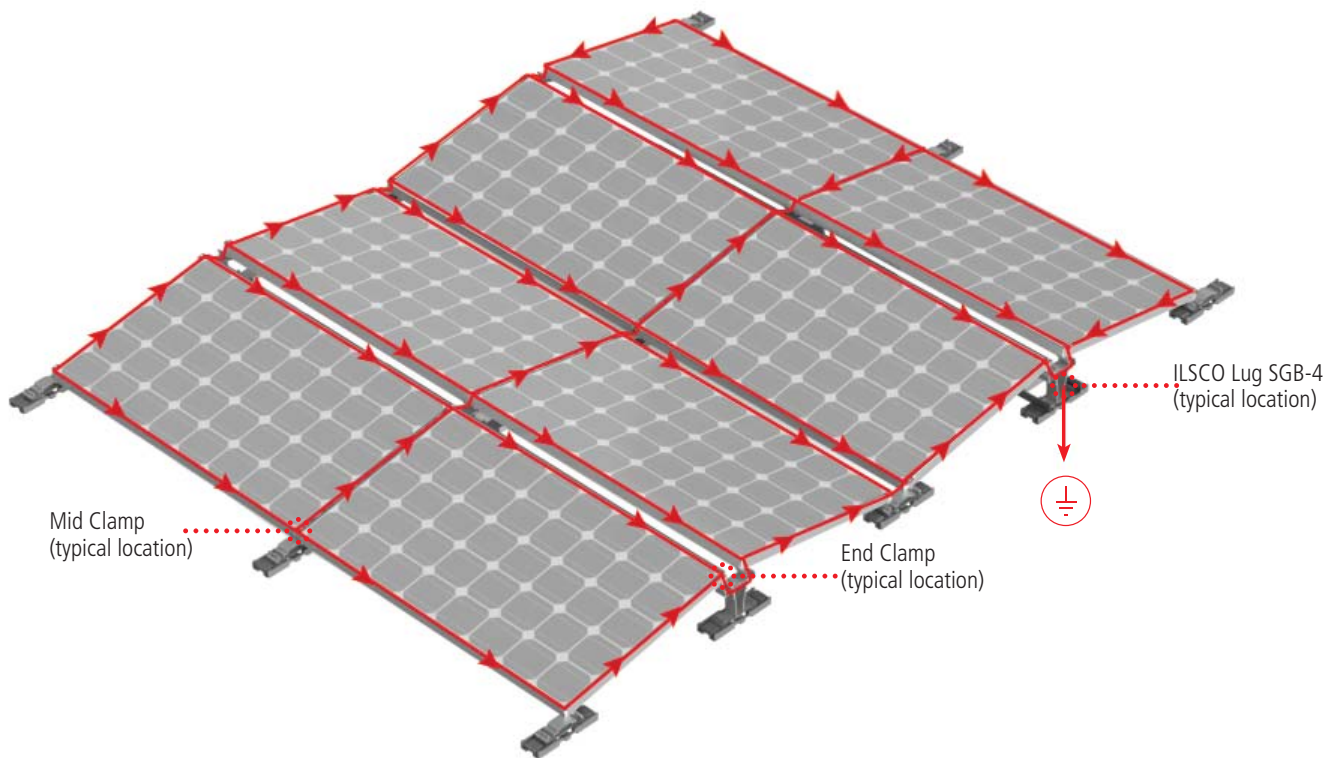


Figure 1: Bonding connections shown in red. For certain jurisdictions, bonding and grounding connections are identified at typical locations.

FIRE RATING

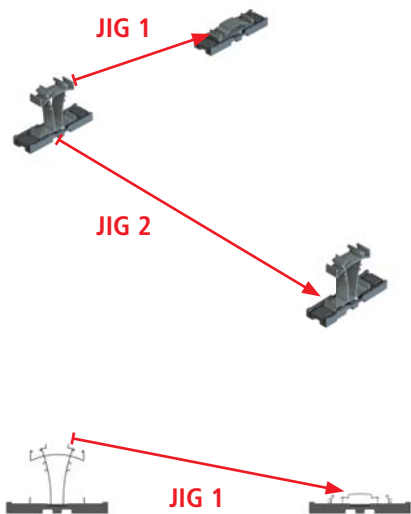
The D Dome Railless² System has undergone fire performance testing in accordance with UL 2703, Fire Performance.

A System Class A fire rating is achieved when using D Dome Railless² System under the following conditions:

- ▶ Used in combination with a UL 1703 Listed module with a fire performance of Type 1 or Type 2. Consult the module manufacturer for specific fire performance rating information.
 - ▶ Type 1 and Type 2 modules tested with UL
- ▶ Roof slope up to 5 degrees.
- ▶ The assembly is to be mounted over a fire resistant roof covering rated for the application.
- ▶ The results of the racking system do not improve a roof covering Class rating.

All documentation can be found on UL's Online Database as well as Everest Solar Systems' website.

ASSEMBLY: STEP BY STEP



1

of 11

PREPARE JIGS FOR LAYOUT

Two job site jigs will simplify array layout.

Jig 1 is used to set the East/West distance between the module stops on each type of the Domes:

Jig 1: Length = width of the module being used on the project. Jig 1 will be used to correctly space between Dome Peak assembly and Dome Base assemblies. We recommend starting East and moving West.

Note: Jig 1 should start at the module stop on Dome Peak R² and end at the module stop on Dome Base R².

Jig 2 is used to set the North/South inside distance between Domes:

Jig 2: Length = length of the module minus 1 7/8". Jig 2 will be used to correctly space between D Dome assemblies of the same type (Base to Base, or Peak to Peak). We recommend starting North and moving South.

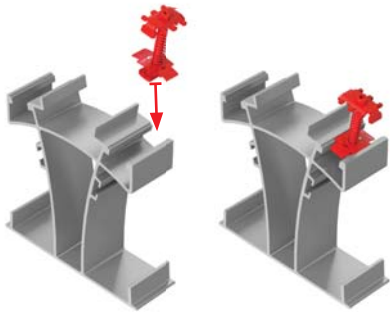
2

of 11

PRE-INSTALL MODULE CLAMPS

Insert the appropriate clamps into the MK3 channel of both the Dome Peak and Dome Base utilizing the installer aid.

Bend the plastic tabs up with your thumb and index finger, inset the MK3 into the channel and turn 90 degrees clockwise to lock into place. Release the installer aids and the clamp will stand on its own.

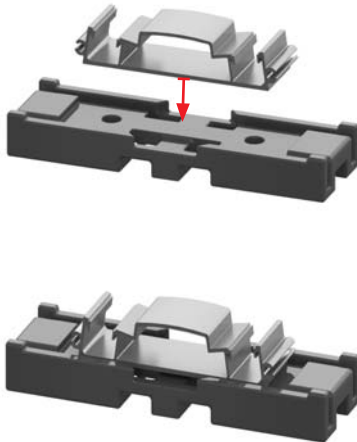


3

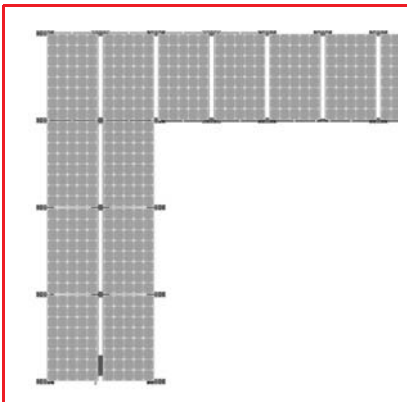
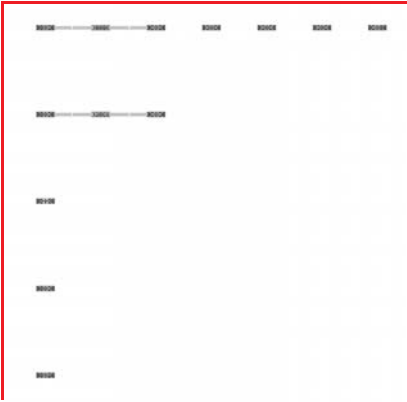
of 11

INSTALL ROOF PROTECTION MATS

The Roof Protection Mat R² is installed by simply placing the Dome Peak R² or Dome Base R² component on top of the mat, ensuring that the Dome is properly nested within the protrusions in the mat.



NORTH



4
of 11

GENERAL LAYOUT - D DOME R² SYSTEM

Prior to install, verify setback requirements with the local AHJ.

Place all Dome Peak R², Dome Base R² and Roof Protection Mat R² on the roof per the following scheme: Dome Base R², Dome Corner Strut R² (only when called out on project plan), Dome Peak R². Repeat Dome Base R², Dome Peak R², and always end with Dome Base R². Refer to image.

Note: It is helpful to distribute ballast blocks and porters now as well so they are close at hand when it is time to install them.

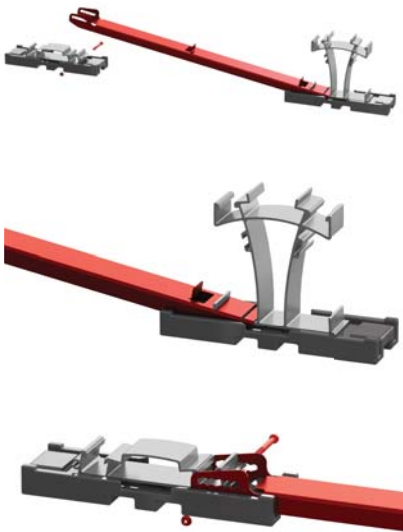
Mark the corner of the array using a chalk line. Snap the line along the entire North row. Snap another line along the entire West column.

Important: It is imperative that you make a true 90 degree angle with your lines. We recommend using the 3-4-5 triangle method.

Arrange the Domes, Mats, Porters and ballast blocks over the rooftop, using the job-site jigs on the North row and the West column for spacing.

You will build the North row first and then the West column, ensuring that you install the ballast and wiring as you go. Once you have defined the North-West corner, install the modules row by row and arrange the Domes so that the module clamps are located at the North/South center line of the MK3 channel.

If called out on the project drawing, install the Dome Corner Strut R², Dome Porters R², ballast blocks, and/or anchors. Refer to steps 5, 6 and 7.



5
of 11

INSTALL DOME CORNER STRUT R²

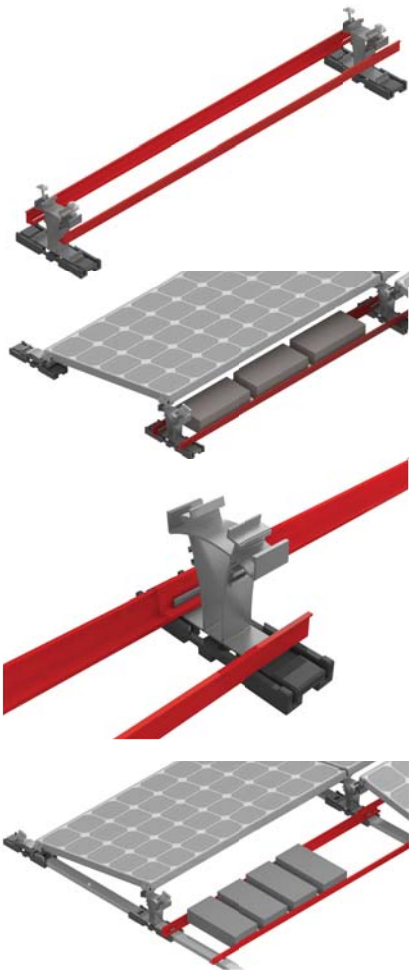
Position Dome Corner Strut R² on the tabs of Dome Peak R² utilizing the slot in the end of the Corner Strut.

Next, swing the Dome Corner Strut R² over the D Dome Base and align the slot in the Corner Strut to the hole in the Dome Base.

Slide the socket cap screw through the slot and hole and attach the nut.
Torque the nut to 11.8 ft-lb.

Note: Use the jig to find the proper placement for the bolt on the Corner Strut. Use the outer slot for module widths greater than 41 mm. Use the inner slot for module widths less than or equal to 41 mm.

Tools: 13mm socket, 6mm Allen Socket, Torque Wrench (0-50 ft-lb)



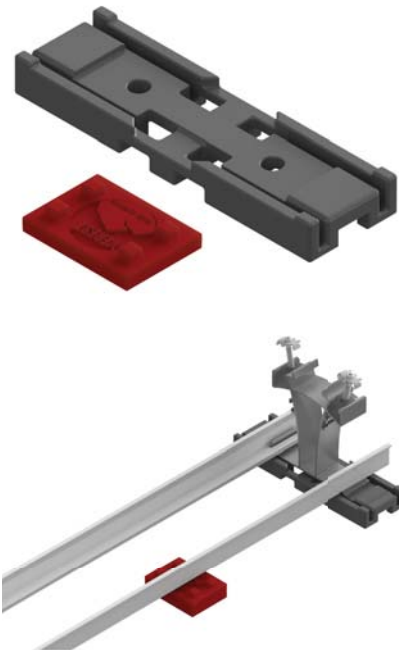
6
of 11

INSTALL PORTERS AND BALLAST BLOCKS

Position porters on the tabs of Dome Peak with L facing inward and drop into place. If more than 4 blocks are required, install Corner Struts (refer to step 5) and utilize the tabs on the corner strut with L facing inward.

Where required, stack porters on top of each other in a nesting configuration.

For corner and North/South edge modules, assemble the porters and ballast on the Corner Struts that are located at the outer edge of the array.

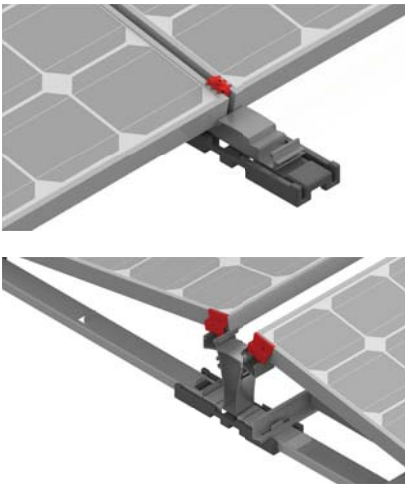


7
of 11

OPTIONAL: INSTALL ROOF SPACER MAT R²

Where required to level the array, as many as 4 spacer mats may be stacked underneath a Roof Protection Mat R². The square nubs on the pad fit into square holes on its bottom side that aligns with the nubs for stacking.

The Roof Spacer Mats can be used anywhere the roof imperfections increase the risk of metal components coming in contact with the roof such as under the Dome Porters as shown.



8
of 11

INSTALL PV AND ATTACH CLAMPS

Important: Verify module manufacturers recommended torque specification to ensure clamps are compatible.

BUILD NORTH ROW

Start assembly on the West module pair, then move to the East. Continue with this pattern until the entire row is complete. Insert ballast blocks as required.

Secure the clamps to the module as you go.
Torque End Clamps to 10.3 ft-lb.
Torque Bonding Mid Clamps to 12 ft-lb.

Remember: Always bias ballast to outside edges of the sub-array.

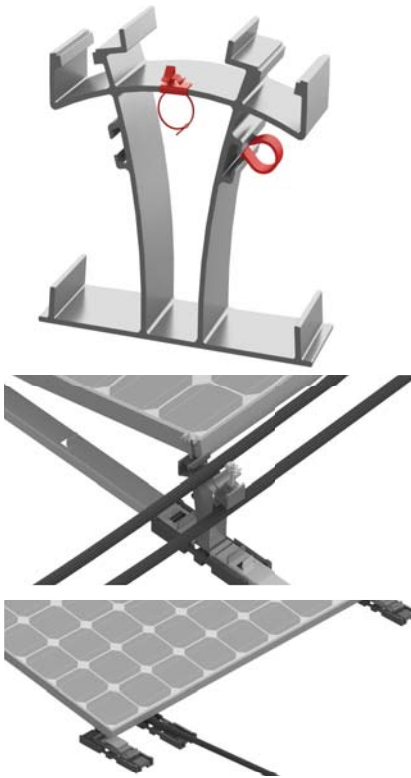
BUILD WEST COLUMN

Next, install the modules on the West column. As before, if called out on the project drawing, install porters, ballast blocks and corner struts as you go.

Secure the clamps to the module. Torque to the correct specification.
We suggest clamping down as you add panels.

Note: For certain jurisdictions, this item is regarded as a single-use item for a UL 2703 Listed System.

Tools: 6mm Allen Socket, Torque Wrench (0-50 ft-lb)



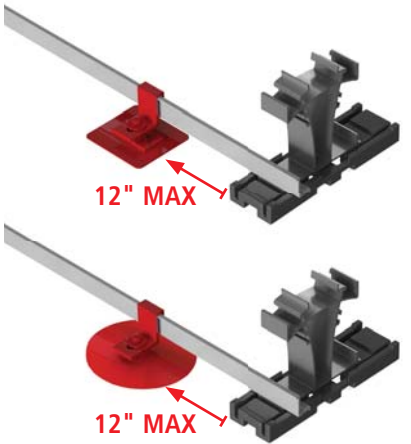
9
of 11

WIRE MANAGEMENT

D Dome R² is compatible with many off-the-shelf wire clips from Heyco, HellermannTyton, Wiley and others. A few samples are shown.

When stringing home runs in the North/South direction, utilize a product such as the Sun Runner with a Sun Bundler. The wires can be placed in the top of the Dome, or run alongside.

When running home runs in the East/West Direction, use the Roof Protection mars to cradle the wires and keep them off the roof. Secure them appropriately with zip ties or other products designed to safely bundle wires.



10
of 11

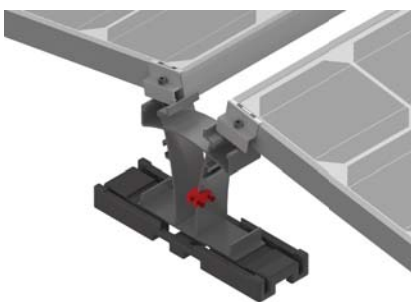
OPTIONAL: INSTALL ANCHORS

Install one porter as described in step 6 if not already installed.

Determine the desired anchor location. It must be located within 12" of the Dome Peak R²

Install anchor to roof per manufactures instructions.

Slip anchor bracket over Dome Porter R² and bolt the anchor bracket to anchor plate with supplied hardware, and torque to anchor manufacturer's specification.



11
of 11

INSTALL GROUND LUG

Secure the ILSCO SGB-4 ground lug to the horizontal flange or vertical walls of Dome Peak R².

Torque to 35 in-lb as specified by lug manufacturer.

For UL 203 compliance, use 4- I 4 AWG Solid/ Stranded Copper ground wire.

Note: For certain jurisdictions, this item is regarded as a single-use item for a UL 2703 Listed System.

Warning: Employ best industry practices to ensure that copper does not contact aluminum or galvanized steel.

Mounting systems for solar technology



Ready!

THANK YOU FOR CHOOSING AN EVEREST SOLAR SYSTEMS MOUNTING SYSTEM.

Systems from Everest Solar Systems are fast and simple to install. Please contact us if you have any questions or suggestions for improvements. We are looking forward to receive your call on our

Service-Hotline +1 760.301.5300

TERMS AND CONDITIONS

Product images are for illustrative purposes only. Specifications are subject to change without notice. All sales of our products shall be subject to Everest Solar Systems terms and conditions, including the exclusive limited warranty set forth therein. The terms and conditions can be found at <http://www.everest-solarsystems.com/>

Everest Solar Systems, LLC
3809 Ocean Ranch Blvd.
Suite 111
Oceanside, CA 92056
Tel. +1.760.301.5300
info@everest-solarsystems.com
www.everest-solarsystems.com

K2 Systems International:
World headquarters
K2 Systems GmbH, Germany
K2 Systems SARL, France
K2 Systems SRL, Italy
K2 Solar Mounting Solutions Ltd., UK

D Dome R² Assembly Instructions US6-0617

Product images are for illustrative purposes only. Specifications are subject to change without notice. All sales of our products shall be subject to Everest Solar Systems terms and conditions, including the exclusive limited warranty set forth therein.