



Array Frame Installation
- MAXI ARRAY -



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INTRODUCTION

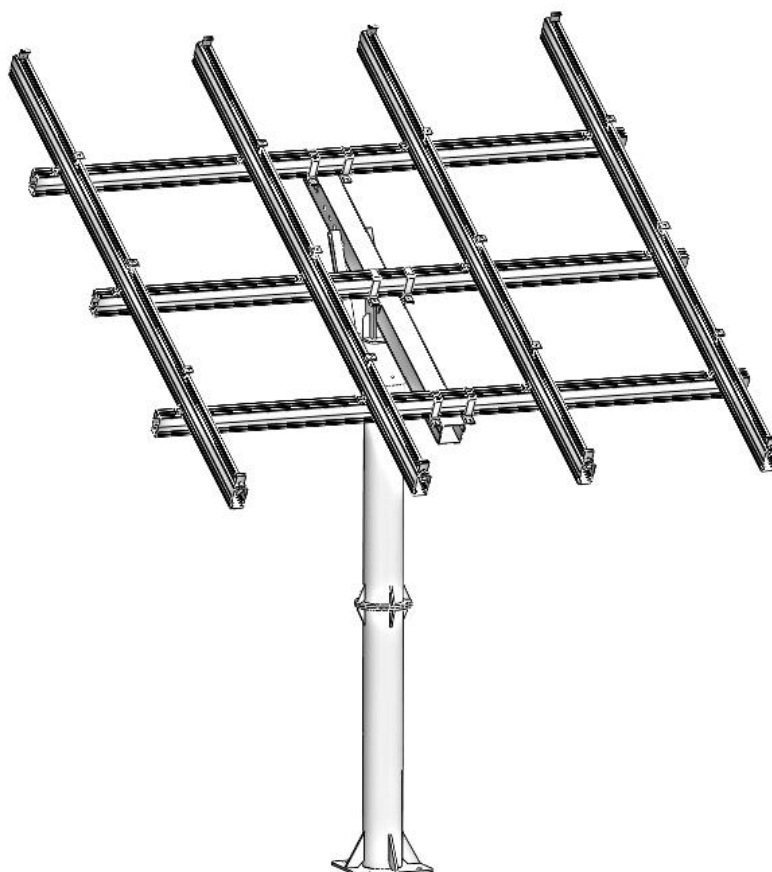
Thank you for choosing a **Waterboy Pole Mounted Solar Array** for your application.

The Waterboy range of pole mounted solar arrays provide a strong, durable and reliable support frame for your solar modules, with an assembly method that is fast, simple and secure.

Utilising a strong galvanised steel base with a lightweight aluminium support frame, we can offer strength and flexibility under even the most extreme conditions.




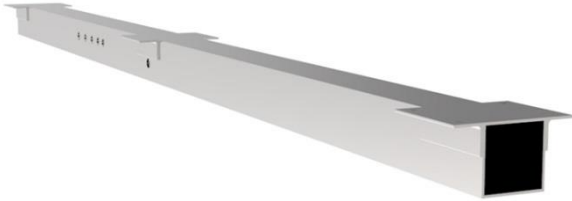

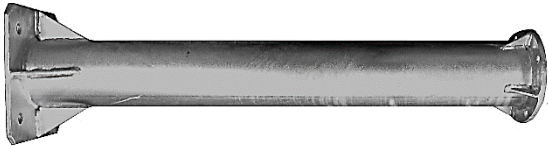
Tools required

- Concrete for footings (Cement, sand, aggregate), shovels, mixer, form work etc..
- Spirit level
- Tek drill
- General spanner set
- 6mm Allen key



COMPONENT LIST

	PRODUCT NAME	PICTURE	COMMENTS
6x	Aluminium Rail		1650mm Lengths
8x	Aluminium Rail		2100mm Lengths
8x	End Clamp		Includes: M8 Hexagon screw and fixing nut
12x	Mid Clamp		Includes: M8 Hexagon screw and fixing nut

24x	Joiner clamps		Includes: M8 Hexagon screw and fixing nut
1x	Tube Cap		
2x	Angle adjustment arm		
1x	Beam		
1x	Post top		
1x	Post Base		

7x	Aluminium Rail extender		
6x	Square Bracket		
3x	M16 All Thread		Includes: 6x M16 Hexagon nuts
6x	M8x12 Key bolts		
12x	M8x30 Hex bolt		Includes: M8 Hexagon nuts And washers
56x	25mm Tech Screw		

PLEASE NOTE – STAINLESS STEEL BOLTS WILL BIND UP OCCASIONALLY

APPLY GREASE ONTO BOLT BEFORE TIGHTENING TO STOP THIS OCCURING

INSTALLATION

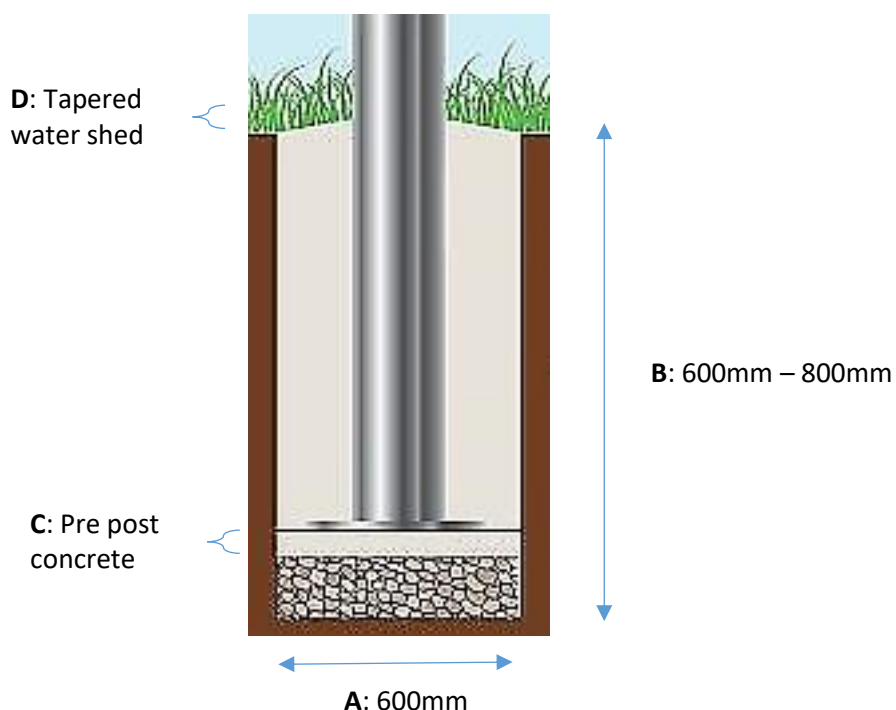
Footings

There are two common types of array footing, *Set* and *Fastened*.

Set Footing

A Set Footing is the most common method for installing the Post Base. It involves setting the large square base into the concrete footing.

Prepare a posthole min 600mm wide (A), to a depth (B) of 600 – 800mm (*double the width measurements for soft sandy ground*) and pre pour a thick layer of concrete into the bottom of the hole, and place the post base onto this.



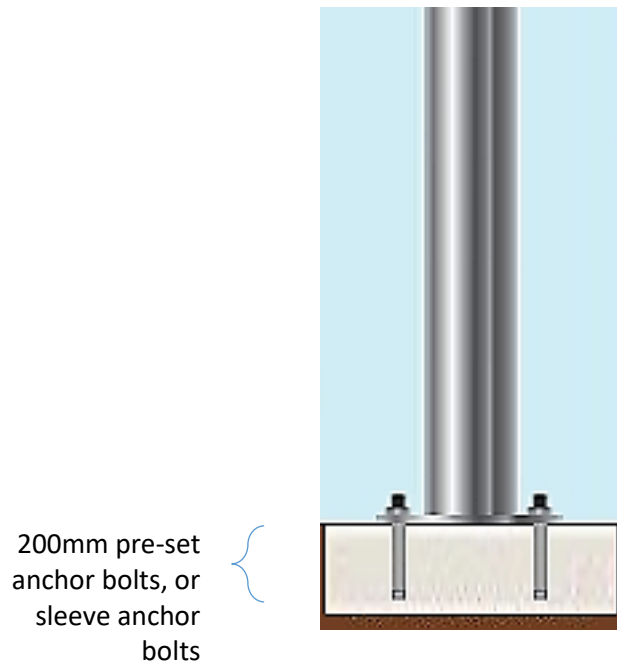
Ensure post is straight and level before continuing the concrete.
To avoid water sitting around the post base, finish with a tapered water shed (D).
Allow concrete to set.

Once the concrete is set, attach post top to post base with 4 bolts/nuts/washers provided.

Continue to Array Build

Fastened Footing

The array post base is designed with the option to be bolted to pre-set bolts in a concrete floor or block if desired.



Position post over bolts and tighten down.

Attach post top to post base with 4 bolts/nuts/washers provided.

Continue to Array Build

ARRAY BUILD

Place the Tube Cap on the Pole and position with the two adjuster mounting holes facing south.
Tighten the six M8 key bolts to maintain the correct position, so panels will face towards true North.

Tube Cap

South Facing side



North Facing side

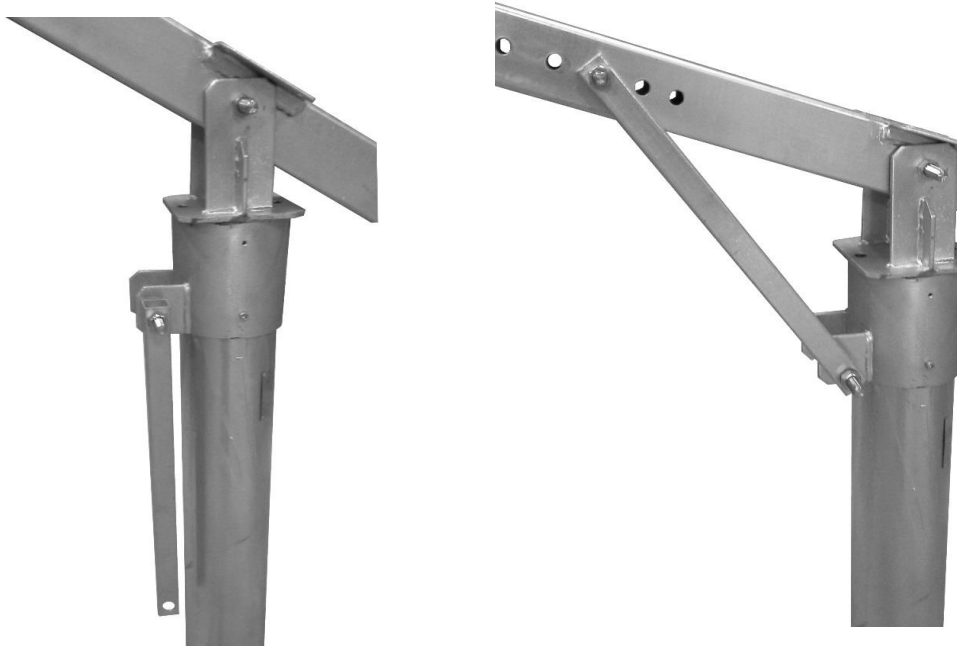
Beam

Place the Beam in the Tube Cap flanges and fasten with M16 All Thread and nut.

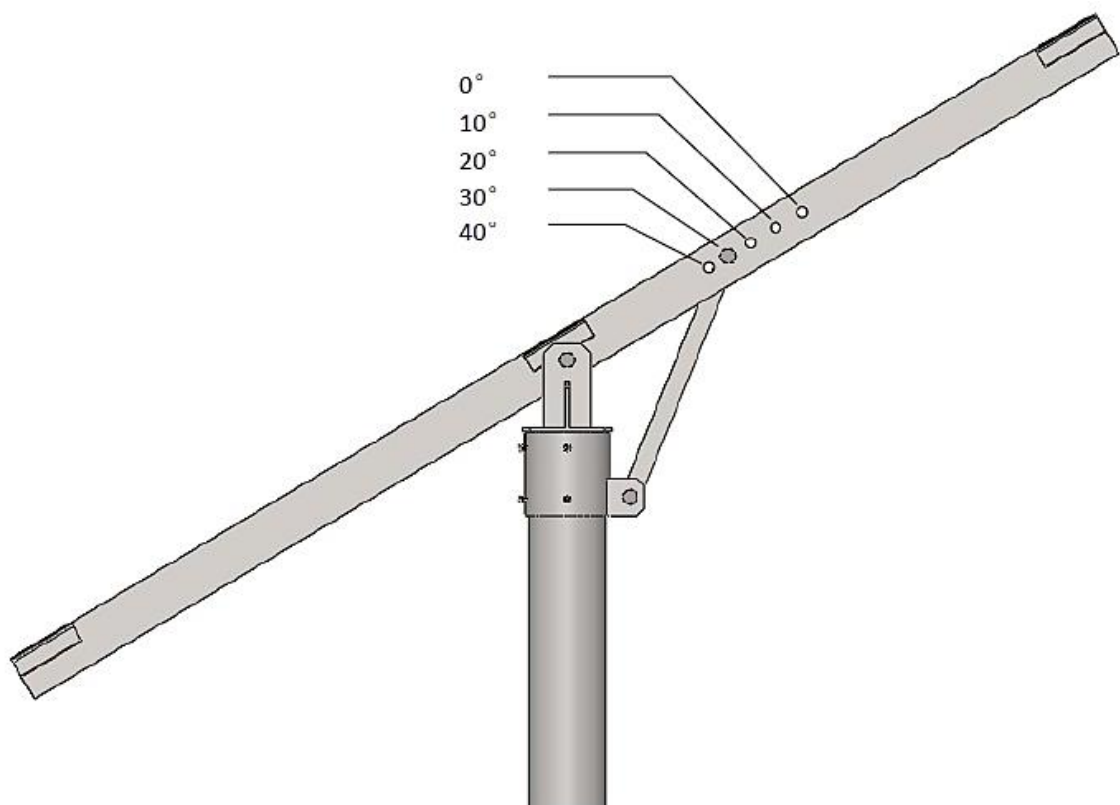


Angle Adjusters

Place the 2 x angle adjustment tubes between the beam and the tube cap, on the outside of each. Fasten with the M16 All Thread and nuts once you select the angle desired (*see next page*). It is recommended positioning the beam flat for assembly and adjusting for angle once complete.



Adjust the angle of elevation by attaching the Adjustment Tubes to the hole positions required corresponding to the required angle. Please refer to the illustration below.



Rails

Sub Frame

Place the 3x sub frame rails (2600mm) across the flanges on the Beam, ensure the mid- point of the rail is centre to the beam.

Lightly fasten the brackets with M8 bolts, leaving loose at first, then tightening once all 3 are square.



Upper Frame

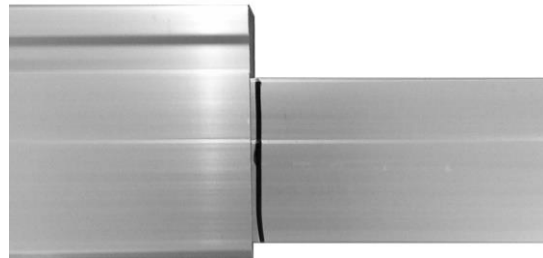
Rail Joiners

The Upper Frame assembly is made up of 4 long rails comprised of 2x 1700mm lengths joined together as outlined below.

- Mark a centre line on the small joiners



- Slide one end into one length of rail



- Fix Tek screws through the rail and into the joiner (make sure to avoid the screws protruding into any mounting channels)



- Slide the second rail onto the joiner and repeat as above



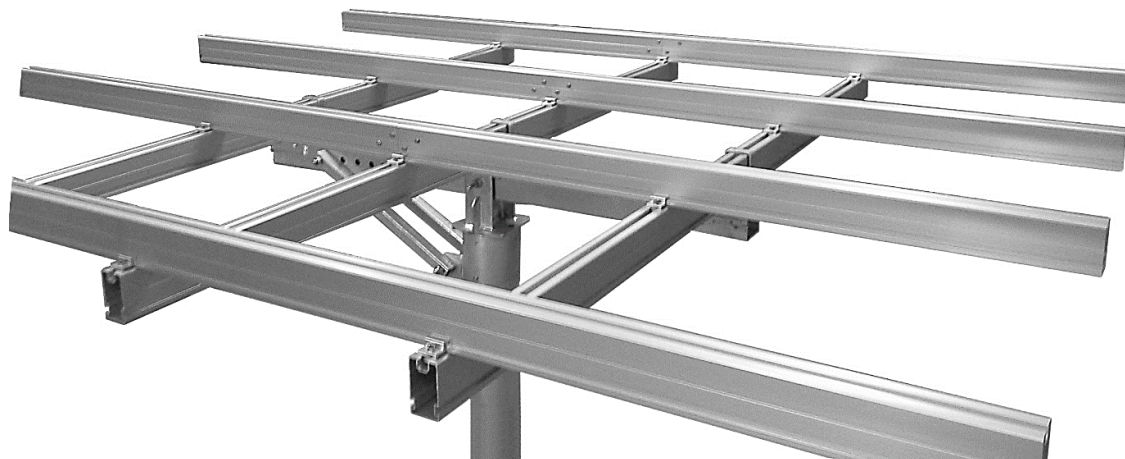
- Repeat Tek screws on the reverse side

Rail placement

Place the joined rails on top of the sub frame in 4 x places, evenly spaced, and no closer than 10mm from any edge. Align the centre of the join with the mid-point of the middle Sub Frame rail and clamp BOTH SIDES with the joiner clamps.



Ensure ALL edges are square and evenly placed before tightening all clamps.



Check and tighten ALL frame bolts and clamps before proceeding.

SOLAR PANELS

Placing the solar panels on the array.

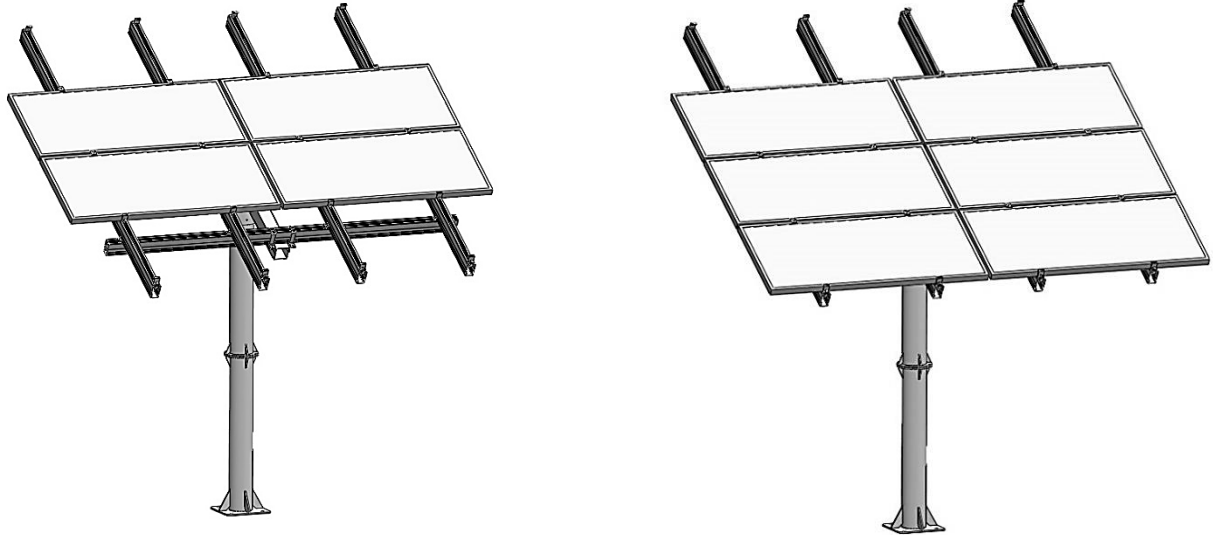
Use end and mid clamps to attach solar panels to the rails. Clamps are inserted from above (see below).



With the array at an angle of 0° (flat) place the first two panels centre and then place the mid clamps in position but do not tighten.

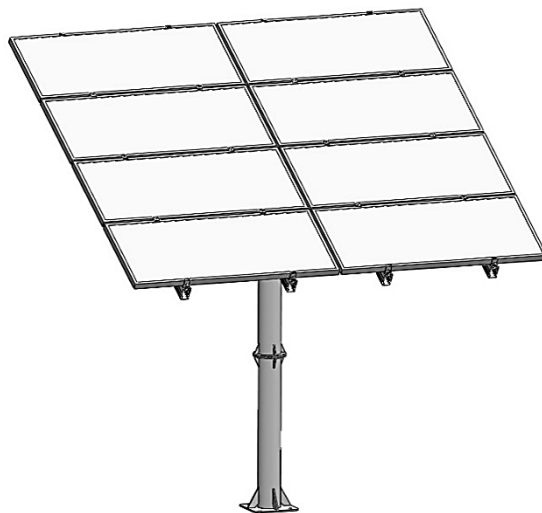


Place the second row of panels and tighten Mid Clamps once everything is square.
Continue with subsequent rows



Fix end clamps on outside of final modules.

Once fitted with the required number of solar modules, be sure to double check tightness of all mechanical fixings.



Adjust array for optimal angle when complete (see pg. 11)

WATERBOY solar array installation is now complete.

Solar Module Cable Clips

For your convenience, the Waterboy range of Solar Array Frames come with cable fastening clips to secure the solar panel power cables to the modules.

The clips are made from high quality stainless steel and offer a long lasting solution to untidy cables. They clip directly to the module frame underside edge and are simple to install and remove or relocate.

Clip to module frame



insert cable



done!



Clip to the underside of the modules and anywhere suitable on the Array Frame.



Keeps the cables safely tucked up and away.



Appendix

Our designs are compliant with the following standards:

GB50009-2001

GB50011-2001

GB/T 13912-92

GBT 14846-2008

GB-T 6892-2006

GB50429-2007

GB50017-2003

AS NZS 1170

ASCE/SEI 7-05

ASCE/SEI 7-010

2007 California Administrative Code

IBC 2006

Euro Code 8

DIN1055

EN 1991-1-3 - Snow Load

EN 1991-1-4 - Wind Actions

WARRANTY STATEMENT

BW Solar warrants that, subject to the limitations outlined below, the product will, with normal use, and within the original operating specifications, be free from faulty parts, manufacture or workmanship during the warranty periods relevant to the products stated below

- **Waterboy** Solar Water Pump Range - no more than 24 months
- **Waterboy** Solar Module Array Frame Range - no more than 24 months
- All other Products, including actuators, A/C water pumps and controllers - no more than 12 months

*** PLEASE NOTE: ANY DISASSEMBLY or MODIFICATION WHATSOEVER OF THE PRODUCT VOIDS ALL WARRANTY. ***

1. Warranty Limitations

This warranty is limited to the quality and performance of the products provided, BW Solar shall have no responsibility or liability whatsoever for damages or injury to persons or property, initial or consequential, or for any other losses (including lost profits) resulting from any cause whatsoever arising out of or relating to the installation or commissioning of any product sold.

This warranty does not cover products altered, modified or used in ANY WAY not authorized in writing by BW Solar.

2. Warranty Performance

This limited warranty is applicable only to Customers who have purchased the above products directly from BW Solar or from an authorized agent of BW Solar. To qualify for this warranty adequate documentation must be presented to prove that the product was purchased from BW Solar or their authorized Agent.

For any claims relating to the **WATERBOY Solar Pump** range, a **SYSTEM REPORT FORM** must be returned to BW Solar within 1 Month of the products installation, failure to do so will void this warranty.

Returned products shall become the property of BW Solar. BW Solar shall have the right to deliver a different type of product (performing to the same or better operational functionality as the returned product) if an identical replacement is deemed no longer available or suitable.

Pumps - All wearing parts of the Pump that are in contact with the pumped liquid, such as rotor, stator, impeller, guide wheel, valves, vanes, bearings, seals etc., are not covered by this warranty. BW Solar Pumps are designed for pumping water potable for humans and animals, not containing solid or long fibred particles larger than sand grains. Max sand content: 50 g/m³, max salt content: 300-500 ppm at max. 30° C. Defects due to pumping other liquids are not covered by this warranty.

Negative head on the pressure side of any BW Solar submersible pump will void warranty of pump and motor. Pumps with a centrifugal pump end require a minimum positive head as specified in the product information sheets.

Any alteration, damaging, removal, or other changes leaving the serial number or identification plate illegible or obscuring the identity and date of production of the product, will void this warranty.

If product has been modified, remanufactured or tampered with in any way the claim will be rejected and sent back at the customer's / Agents expense. (NO EXCEPTIONS)

Array Frames – All Array frames, built or sold by BW Solar are compliant with current structural and loading ratings and are only to be used and installed as per instruction manuals provided. ANY alteration on design or installation voids all warranty. Any overloading of array structure and/or components are NOT covered under this warranty.

3. Costs

All costs incurred in obtaining warranty are the responsibility of the customer or Agent, including but not limited to, shipping and handling, travel expense, lost time, lost production, or pickup and delivery and return shipment.

4. Agents Responsibility

- The Agent must supply their customer with all documentation relating to installation and warranty and, if installing, must complete and submit the SYSTEM REPORT FORM on behalf of their customer.
- The Agent shall maintain a sufficient inventory of replacement parts to promptly satisfy their after sales service and customer needs.
- The Agent is responsible for any warranty requirements of their customers.
- The Agent must not make any unauthorized modifications or alterations to the product.
- The Agent may not make any warranties on behalf of BW Solar which have not been authorized in writing.

5. Validity

This limited warranty shall be valid from 1 September 2015 and shall apply to the above mentioned BW Solar Products sold to the Customer or Agent from this date, replacing and making void all previous warranties issued by BW Solar.