



**Array Frame Installation**  
**- MINI ARRAY -**



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## INTRODUCTION

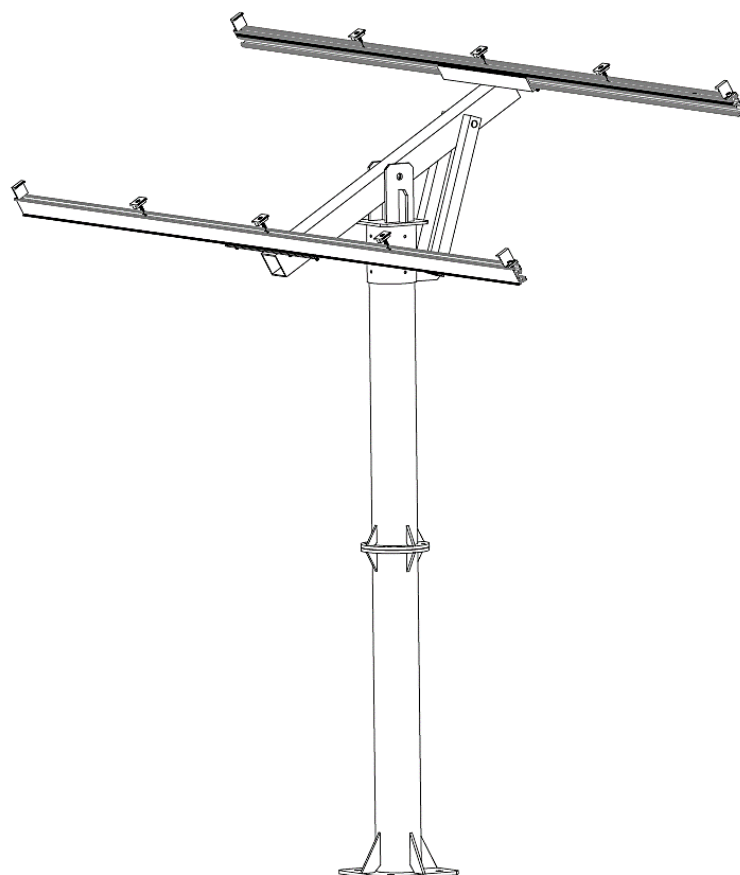
Thank you for choosing a **Waterboy Pole Mounted Solar Array** for your application.

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.






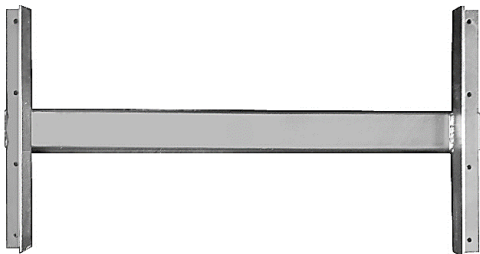
### *Tools required*


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



## COMPONENT LIST

*Some parts may differ from those pictured.*

	PRODUCT NAME	PICTURE	COMMENTS
4x	Aluminium Rail		
4x	End Clamp		Includes: M8 Hexagon screw and fixing nut
6x	Mid Clamp		Includes: M8 Hexagon screw and fixing nut
1x	Tube Cap		
2x	Angle adjustment arm		
1x	Beam		

1x	Post top		
1x	Post Base		
1x	M16x130 Bolts		Includes: M16 Hexagon nuts and washers
2x	Rail Extenders		
6x	M8x12 Key bolts		
2x	M12x180 Hex bolt		Includes: M12 Hexagon nuts And washers
4x	M10x40 hex bolts		Includes: M10 Hexagon nuts And washers

**PLEASE NOTE – STAINLESS STEEL BOLTS WILL BIND UP OCCASIONALLY**

**APPLY GREASE ONTO BOLT BEFORE TIGHTENING TO STOP THIS OCCURING**

## INSTALLATION

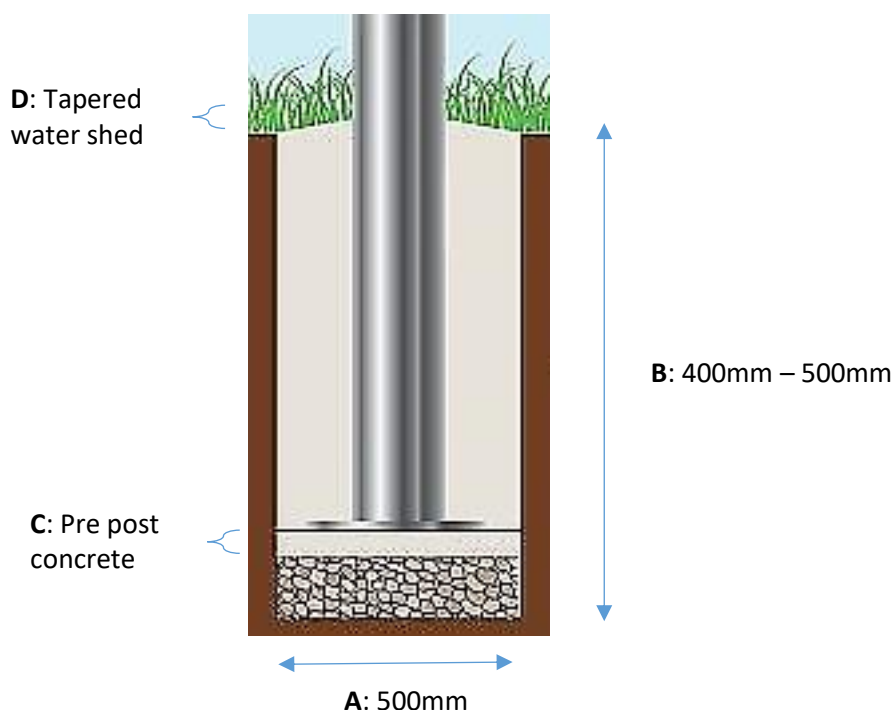
### Footings

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 500mm wide (A), to a depth (B) of 400 – 500mm (*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.

200mm pre-set  
anchor bolts, or  
sleeve anchor  
bolts



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



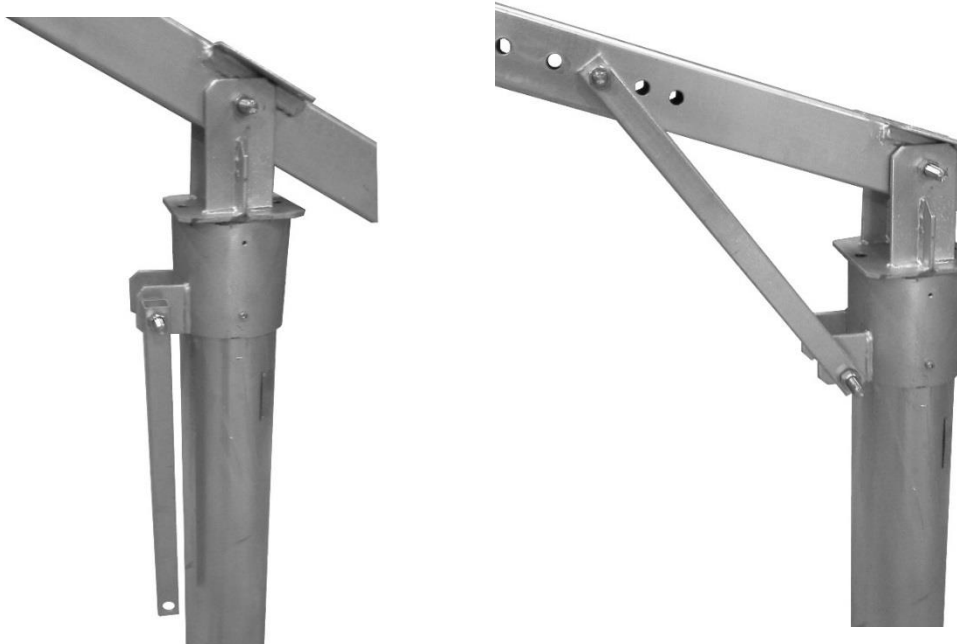
## ***Beam***

Place the Beam in the Tube Cap flanges and fasten with M16 Bolt, washer and nut.

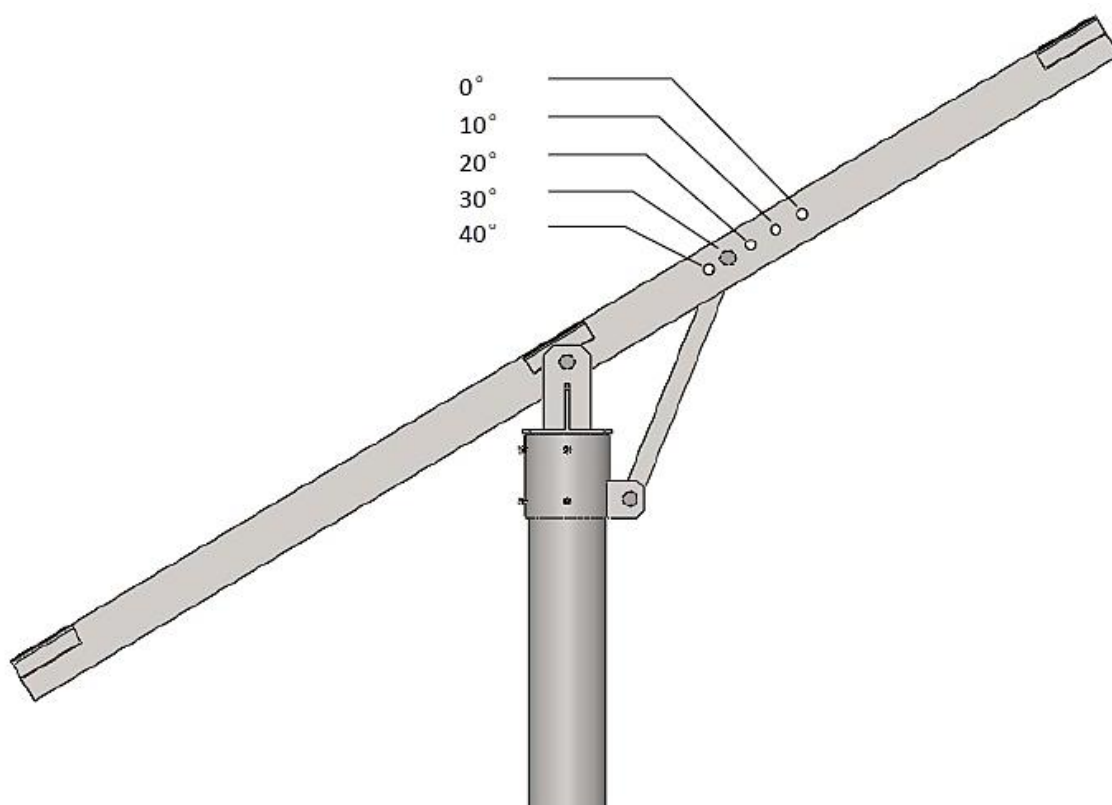


## ***Angle Adjusters***

Place the 2 x angle adjustment tubes between the beam and the tube cap, on the outside of each. Fasten with the M12x140 bolts, washers 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

### Extending Rails

(If not extending, skip this section)



- Insert the rail joiner into the side channel of one rail and tighten with half the joiner exposed.
- Slide the second rail onto the joiner and tighten

Note: rail joiner may be longer than the one shown.

### Attaching rails top and bottom

Insert 2x rail clamps in the holes at the bottom of the mounting plate, place the rail on the beam and place 2x rail clamps in the holes at the top of the mounting plate.

Ensure the mid- point of the rail is centre to the beam before tightening *(see picture below)*.



## 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 panel/s on the rails with even overlap at both ends and then place the mid clamps in position but do not fully tighten.

Always place the panels so that the junction box with the cables protruding on the underside of the panels are at the **TOP** of the array, this will ensure no rain or dew will run down to sit on the cables and connections.



Continue adding modules to either side until all are in place, then insert and tighten End Clamps once everything is square.



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.

## **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/m<sup>3</sup>, 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.