Australian Engineered Solar Pump Systems
WATERBOY Solar pump systems offer state of the art solar pump technology at a very competitive price. Highly reliable and durable, WATERBOY solar pumps and controllers are backed by a 2 year warranty and are designed to withstand our harsh Australian water.

The WATERBOY product concept is to deliver the most reliable and durable solar powered water pump system at a reasonable and very competitive price.

WATERBOY solar pumps are extremely reliable and have developed a strong following in agricultural applications and in developing nations where reliability, simple maintenance and long life are critical.
### 3 inch HR (Helical rotor) pump systems with solar power wattage

<table>
<thead>
<tr>
<th>TDH</th>
<th>3HRSS-200</th>
<th>3HRSS-300</th>
<th>3HRSS-H-400</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L/ Min</td>
<td>L / Hour</td>
<td>L/ Day</td>
</tr>
<tr>
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### 4 inch HR (Helical rotor) pump systems with solar power wattage

<table>
<thead>
<tr>
<th>TDH</th>
<th>4HRSS-400</th>
<th>4HRSS-H-700</th>
<th>4HRSS-H-800</th>
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<td>L / Hour</td>
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### 4 inch C (Centrifugal) pump systems with solar power wattage

<table>
<thead>
<tr>
<th>TDH</th>
<th>4CSS-400</th>
<th>4CSS-700</th>
<th>4CSS-1600</th>
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<td>L / Hour</td>
<td>L/ Day</td>
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Solar Submersible Pumps

The Waterboy solar-powered pump is powered by a brushless direct-current (dc) motor with a helical rotor, which is a helix-shaped rotor that fits closely into a rubber stator that has a helical groove, forming sealed cavities that trap water. As the rotor turns, the cavities move toward the outlet. Higher flow centrifugal models are also available. A helical rotor wet end is especially beneficial on a solar pump, as it is a positive displacement pump, which will produce water in cloudy or low-light conditions. The helical rotor pump is a reliable and proven pumping technology, which has only one moving part, thereby ensuring reliable water production. Older, more traditional pumps employ a brushed dc motor that uses brushes to conduct a current to the motor.

The above ground controller with maximum power point tracking (MPPT) function, continuously enhances the pump duty point according to the input power available, the controller incorporates speed control and time delay to allow optimum automatic operation of the system.

The controller varies the frequency and voltage of the motor to bring it slowly up to speed. It then adjusts the motor speed according to the power available from the sun.

In addition, the Waterboy solar pump’s photovoltaic array comprises no moving or wearing parts and the glass used to manufacture the PV modules is tempered and tested to Australian standards that include resistance to hailstones of one-inch diameter.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brushless DC motor</td>
<td>Lift up to 90m</td>
<td>Drinking water supply</td>
</tr>
<tr>
<td>Integrated Soft start &amp; MPPT</td>
<td>Flow rate up to 6.0m³/h</td>
<td>Livestock watering</td>
</tr>
<tr>
<td>Adjustable Speed &amp; Timer Control</td>
<td>Simple installation</td>
<td>Irrigation</td>
</tr>
<tr>
<td>All Stainless Steel</td>
<td>Maintenance-free</td>
<td></td>
</tr>
<tr>
<td>High Efficiency</td>
<td>High reliability &amp; life expectancy</td>
<td></td>
</tr>
<tr>
<td>Remote switching</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PUMP SYSTEM</th>
<th>3HRSS</th>
<th>3HRSS-H</th>
<th>4HRSS</th>
<th>4HRSS-H</th>
<th>4CSS4-8</th>
<th>4CSS5-12</th>
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<tr>
<td>MAX LIFT (M)</td>
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<td>80</td>
<td>50</td>
<td>90</td>
<td>50</td>
<td>90</td>
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<tr>
<td>MAX FLOW RATE (m³/h)</td>
<td>2.1</td>
<td>2.1</td>
<td>3.1</td>
<td>3.5</td>
<td>3.6</td>
<td>6</td>
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<tr>
<td>MAX FLOW RATE (L/m)</td>
<td>35</td>
<td>35</td>
<td>51</td>
<td>58</td>
<td>60</td>
<td>100</td>
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<tr>
<td>MAX VOC (VDC)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>200</td>
<td>100</td>
<td>200</td>
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<tr>
<td>NOMINAL VOLTAGE (VDC)</td>
<td>24-48</td>
<td>24-48</td>
<td>48</td>
<td>96</td>
<td>48</td>
<td>96</td>
</tr>
<tr>
<td>PUMP OUTLET</td>
<td>3/4”</td>
<td>3/4”</td>
<td>1”</td>
<td>1”</td>
<td>11/4”</td>
<td>11/4”</td>
</tr>
</tbody>
</table>

Warranty

Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.
WATERBOY solar pump systems offer state of the art solar pump technology at a very competitive price. Highly reliable and durable, WATERBOY solar pumps and controllers are backed by a 2 year warranty, designed to withstand our harsh Australian water and incorporate the best features of all the solar pumps on the market and compress all this technology into a compact, robust & highly efficient pumping system.

The pump and motor assembly is 316 stainless steel. The 3HRSS submersible pump uses a helical rotor wet end coupled to a brushless DC motor. The motor is electronically communicated to by a fully adjustable MPPT pump controller housed in a weather proof enclosure on the surface for easy installation, access and operation.

The WATERBOY 3HRSS pump systems consist of a submersible pump and motor combination that is 3” (76mm) in diameter, the helical rotor (HR) pump provides superior lift and efficiency even at low speeds and flow rates.

### Features
- Brushless DC motor
- Integrated Soft start & MPPT
- Adjustable Speed & Timer Control
- All Stainless Steel
- High Efficiency
- Remote switching

### Benefits
- Lift up to 40m
- Flow rate up to 2.1m³/h
- Simple installation
- Maintenance-free
- High reliability & life expectancy

### Applications
- Drinking water supply
- Livestock watering
- Irrigation

### Sand & Silt Tolerance
The pump (Helical Rotor) has a higher resistance to wear from sand, clay etc. than any other pump type. Continual sand and silt pumping will damage the pump. Do not use this unit to clean out dirty bores.

### Warranty
Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.

<table>
<thead>
<tr>
<th>Pump End</th>
<th>Max flow rate</th>
<th>Max lift</th>
<th>Operating temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.1m³/h</td>
<td>40m</td>
<td>-10°C – +35°C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solar Pump Controller</th>
<th>Input voltage</th>
<th>Nominal 24-48V DC</th>
<th>Max open circuit-100 Voc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timer adjustment</td>
<td>0-30 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed control</td>
<td>Approx 30% flow reduction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motor</th>
<th>Power rating</th>
<th>Max submersion depth</th>
<th>Lubrication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>210w</td>
<td>40m</td>
<td>Oil filled</td>
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</tbody>
</table>

### Total Lift

<table>
<thead>
<tr>
<th></th>
<th>180w (2x90w)</th>
<th>250w (1x250w)</th>
<th>270w (3x90w)</th>
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<tbody>
<tr>
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<td>LPD</td>
<td>LPM</td>
<td>LPD</td>
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<td>3960</td>
<td>11.5</td>
</tr>
</tbody>
</table>

LPM - Liters per minute, LPD - Liters per day. Daily flow based on 6 PSH

www.puranovatech.com
WATERBOY solar pump systems offer state of the art solar pump technology at a very competitive price. Highly reliable and durable, WATERBOY solar pumps and controllers are backed by a 2 year warranty, designed to withstand our harsh Australian water and incorporate the best features of all the solar pumps on the market and compress all this technology into a compact, robust & highly efficient pumping system.

The pump and motor assembly is 316 stainless steel. The 3HRSS-H submersible pump uses a helical rotor wet end coupled to a brushless DC motor. The motor is electronically communicated to by a fully adjustable MPPT pump controller housed in a weather proof enclosure on the surface for easy installation, access and operation.

The WATERBOY 3HRSS-H pump systems consist of a submersible pump and motor combination that is 3” (76mm) in diameter, the helical rotor (HR) pump provides superior lift and efficiency even at low speeds and flow rates.

**Features**
- Brushless DC motor
- Integrated Soft start & MPPT
- Adjustable Speed & Timer Control
- All Stainless Steel
- High Efficiency
- Remote switching

**Benefits**
- Lift up to 80m
- Flow rate up to 2.1m³/h
- Simple installation
- Maintenance-free
- High reliability & life expectancy

**Applications**
- Drinking water supply
- Livestock watering
- Irrigation

**Sand & Silt Tolerance**
The pump (Helical Rotor) has a higher resistance to wear from sand, clay etc. than any other pump type. Continual sand and silt pumping will damage the pump. Do not use this unit to clean out dirty bores.

**Warranty**
Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.

<table>
<thead>
<tr>
<th>Pump End</th>
<th>360w (4x90w)</th>
<th>440w (4x110w)</th>
<th>500w (2x250w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max flow rate</td>
<td>2.1m³/h</td>
<td>36</td>
<td>36</td>
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<tr>
<td>Max lift</td>
<td>80m</td>
<td>11880</td>
<td>12960</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10°C – +35°C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Solar Pump Controller**
- Input voltage: Nominal 24-48V DC, Max open circuit-100 Voc
- Timer adjustment: 0-30 minutes
- Speed control: Approx 30% flow reduction

**Motor**
- Power rating: 500w
- Max submersion depth: 40m
- Lubrication: Oil filled

LPM - Liters per minute, LPD - Liters per day. Daily flow based on 6 PSH
WATERBOY solar pump systems offer state of the art solar pump technology at a very competitive price. Highly reliable and durable, WATERBOY solar pumps and controllers are backed by a 2 year warranty, designed to withstand our harsh Australian water and incorporate the best features of all the solar pumps on the market and compress all this technology into a compact, robust & highly efficient pumping system.

The pump and motor assembly is 316 stainless steel. The 4HRSS submersible pump uses a helical rotor wet end coupled to a brushless DC motor. The motor is electronically communicated to by a fully adjustable MPPT pump controller housed in a weather proof enclosure on the surface for easy installation, access and operation.

The WATERBOY 4HRSS pump systems consist of a submersible pump and motor combination that is 4” (96mm) in diameter, the helical rotor (HR) pump provides superior lift and efficiency even at low speeds and flow rates.

**Features**
- Brushless DC motor
- Integrated Soft start & MPPT
- Adjustable Speed & Timer Control
- All Stainless Steel
- High Efficiency
- Remote switching

**Benefits**
- Lift up to 50m
- Flow rate up to 3.1m³/h
- Simple installation
- Maintenance-free
- High reliability & life expectancy

**Applications**
- Drinking water supply
- Livestock watering
- Irrigation

**Sand & Silt Tolerance**
The pump (Helical Rotor) has a higher resistance to wear from sand, clay etc. than any other pump type. Continual sand and silt pumping will damage the pump. Do not use this unit to clean out dirty bores.

**Warranty**
Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.

**Pump End**
- Max flow rate: 3.1m³/h
- Max lift: 50m
- Operating temperature: -10°C – +35°C

**Solar Pump Controller**
- Input voltage: Nominal 48V DC, Max open circuit-100 Voc
- Timer adjustment: 0-30 minutes
- Speed control: Approx 30% flow reduction

**Motor**
- Power rating: 500w
- Max submersion depth: 40m
- Lubrication: Oil filled
WATERBOY solar pump systems offer state of the art solar pump technology at a very competitive price. Highly reliable and durable, WATERBOY solar pumps and controllers are backed by a 2 year warranty, designed to withstand our harsh Australian water and incorporate the best features of all the solar pumps on the market and compress all this technology into a compact, robust & highly efficient pumping system.

The pump and motor assembly is 316 stainless steel. The 4HRSS-H submersible pump uses a helical rotor wet end coupled to a brushless DC motor. The motor is electronically communicated to by a fully adjustable MPPT pump controller housed in a weather proof enclosure on the surface for easy installation, access and operation.

The WATERBOY 4HRSS-H pump systems consist of a submersible pump and motor combination that is 4" (96mm) in diameter, the helical rotor (HR) pump provides superior lift and efficiency even at low speeds and flow rates.

### Features
- Brushless DC motor
- Integrated Soft start & MPPT
- Adjustable Speed & Timer Control
- All Stainless Steel
- High Efficiency
- Remote switching

### Benefits
- Lift up to 90m
- Flow rate up to 3.5m³/h
- Simple installation
- Maintenance-free
- High reliability & life expectancy

### Applications
- Drinking water supply
- Livestock watering
- Irrigation

### Sand & Silt Tolerance
The pump (Helical Rotor) has a higher resistance to wear from sand, clay etc. than any other pump type. Continual sand and silt pumping will damage the pump. Do not use this unit to clean out dirty bores.

### Warranty
Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.

### Pump End
| Max flow rate  | 3.5m³/h |
| Max lift       | 90m     |
| Operating temperature | -10°C – +35°C |

### Solar Pump Controller
- Input voltage: Nominal 96V DC
- Max open circuit: 200 Vdc
- Timer adjustment: 0-30 minutes
- Speed control: Approx 30% flow reduction

### Motor
- Power rating: 1000w
- Max submersion depth: 40m
- Lubrication: Oil filled

### Total Lift
<table>
<thead>
<tr>
<th>Lift</th>
<th>680W (4x170w)</th>
<th>880W (8x110w)</th>
<th>1000W (4x250w)</th>
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<tr>
<td>LPM</td>
<td>LPM</td>
<td>LPM</td>
<td>LPM</td>
</tr>
<tr>
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</table>

LPM - Liters per minute, LPD - Liters per day. Daily flow based on 6 PSH

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Exclusive distributor in MENA region
WATERBOY solar pump systems offer state of the art solar pump technology at a very competitive price. Highly reliable and durable, WATERBOY solar pumps and controllers are backed by a 2 year warranty, designed to withstand our harsh Australian water and incorporate the best features of all the solar pumps on the market and compress all this technology into a compact, robust & highly efficient pumping system.

The pump and motor assembly is 316 stainless steel. The 4CSS4-8 submersible pump uses a centrifugal wet end coupled to a brushless DC motor. The motor is electronically communicated to by a fully adjustable MPPT pump controller housed in a weather proof enclosure on the surface for easy installation, access and operation.

The WATERBOY 4CSS4-8 pump systems consist of a submersible pump and motor combination that is 4” (96mm) in diameter, the centrifugal (C) pump provides superior flow rates at lower heads.

**Features**
- Brushless DC motor
- Integrated Soft start & MPPT
- Adjustable Speed & Timer Control
- All Stainless Steel
- High Efficiency
- Remote switching

**Benefits**
- Lift up to 50m
- Flow rate up to 3.6m³/h
- Simple installation
- Maintenance-free
- High reliability & life expectancy

**Applications**
- Drinking water supply
- Livestock watering
- Irrigation

**Sand & Silt Tolerance**
Continual sand and silt pumping will damage the pump. Do not use this pump to clean out dirty bores.

**Warranty**
Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.

### Pump End

<table>
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<th>Feature</th>
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</thead>
<tbody>
<tr>
<td>Max flow rate</td>
<td>3.6m³/h</td>
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<tr>
<td>Max lift</td>
<td>50m</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10°C − +35°C</td>
</tr>
</tbody>
</table>

### Solar Pump Controller

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Input voltage</td>
<td>Nominal 48V DC Max open circuit-100 Voc</td>
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<tr>
<td>Timer adjustment</td>
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</tr>
<tr>
<td>Speed control</td>
<td>Approx 30% flow reduction</td>
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</table>

### Motor

<table>
<thead>
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<td>Max submersion depth</td>
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<tr>
<td>Lubrication</td>
<td>Oil filled</td>
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</table>

### Performance Table

<table>
<thead>
<tr>
<th>Lift</th>
<th>340W (2x170w)</th>
<th>440W (4x110w)</th>
<th>680W (2x2 170w)</th>
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<td>LPM</td>
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<tr>
<td>50</td>
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<td>3600</td>
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</tbody>
</table>

LPM - Liters per minute, LPD - Liters per day. Daily flow based on 6 PSH.
Waterboy Solar Pump Systems offer state of the art solar pump technology at a very competitive price. Highly reliable and durable, Waterboy solar pumps and controllers are backed by a 2 year warranty, designed to withstand our harsh Australian water and incorporate the best features of all the solar pumps on the market and compress all this technology into a compact, robust & highly efficient pumping system.

The pump and motor assembly is 316 stainless steel. The 4CSS5-12 submersible pump uses a centrifugal wet end coupled to a brushless DC motor. The motor is electronically communicated to by a fully adjustable MPPT pump controller housed in a weather proof enclosure on the surface for easy installation, access and operation.

The Waterboy 4CSS5-12 pump systems consist of a submersible pump and motor combination that is 4” (96mm) in diameter, the centrifugal (C) pump provides superior flow rates at lower heads.

**Features**
- Brushless DC motor
- Integrated Soft start & MPPT
- Adjustable Speed & Timer Control
- All Stainless Steel
- High Efficiency
- Remote switching

**Benefits**
- Lift up to 80m
- Flow rate up to 6.0m³/h
- Simple installation
- Maintenance-free
- High reliability & life expectancy

**Applications**
- Drinking water supply
- Livestock watering
- Irrigation

**Sand & Silt Tolerance**
Continual sand and silt pumping will damage the pump. Do not use this pump to clean out dirty bores.

**Warranty**
Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.

<table>
<thead>
<tr>
<th>Pump End</th>
<th>Total Lift 680W (4x170w)</th>
<th>1000W (4x250w)</th>
<th>1360W (2x4170w)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LPM</td>
<td>LPD</td>
<td>LPM</td>
</tr>
<tr>
<td>Max flow rate</td>
<td>6.0m³/h</td>
<td>2480</td>
<td>80</td>
</tr>
<tr>
<td>Max lift</td>
<td>80m</td>
<td>21600</td>
<td>74</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-10°C - +35°C</td>
<td>18000</td>
<td>67</td>
</tr>
<tr>
<td>Solar Pump Controller</td>
<td>Input voltage</td>
<td>Nominal 96V DC</td>
<td>Max open circuit-200 Vac</td>
</tr>
<tr>
<td>Timer adjustment</td>
<td>0-30 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed control</td>
<td>Approx 30% flow reduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor</td>
<td>Power rating</td>
<td>1000w</td>
<td></td>
</tr>
<tr>
<td>Max submersion depth</td>
<td>40m</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Oil filled</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LPM - Liters per minute, LPD - Liters per day. Daily flow based on 6 PSH.

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**Exclussive Distributor in MENA region**
Insist on Quality, Insist on Waterboy

Solar Surface Pumps

For a cleaner pool and planet, keep your pool sparkling clean all year round and reduce your carbon output by around 6 tonnes per annum

Your pool pump is generally the most costly household electrical appliance to run. Depending on the size of your pool, to run a standard 240 volt AC pump costs around $1000 in electricity per year and rising.

The Waterboy Solar Pump System removes your pool pumping costs completely from your household electricity bill. Our DC pool pump and controller is added to your filtration system and a 800W Solar Panel system to your roof so your pool pumping becomes a zero cost powered by the sun!

During the summer swimming season, your pool requires more pumping and naturally, with more hours of sunlight, your solar pool pump will put in the work needed to keep your pool sparkling. The system is so efficient that it will continue to run even on partially cloudy days.

WATERBOY surface mount centrifugal pumps are high quality products designed for higher flow, lower head drinking water supply, livestock watering, pond management and irrigation applications. Surface mount swimming pool pumps provide large volumes of water economically, without pollution, anywhere.

Benefits
- Zero energy costs provide a very fast return on Investment
- Longer life expectancy than standard AC motors
- Quiet and efficient
- Proven in service record
- Smart modular design for simple and cost effective servicing and repair
- Fast and simple installation, direct replacement for an existing pool pump

<table>
<thead>
<tr>
<th>PUMP SYSTEM</th>
<th>SSP500</th>
<th>SSC2.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX LIFT (M)</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>MAX FLOW RATE (m³/h)</td>
<td>17</td>
<td>2.2</td>
</tr>
<tr>
<td>MAX FLOW RATE (L/m)</td>
<td>280</td>
<td>38</td>
</tr>
<tr>
<td>MAX VDC (VDC)</td>
<td>96</td>
<td>100</td>
</tr>
<tr>
<td>NOMINAL VOLTAGE (VDC)</td>
<td>72</td>
<td>36-48</td>
</tr>
<tr>
<td>PUMP OUTLET</td>
<td>1.5”</td>
<td>1”</td>
</tr>
</tbody>
</table>

Warranty
Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.
WATERBOY solar pump systems offer state of the art solar pump technology at a very competitive price. Highly reliable and durable, WATERBOY solar pumps and controllers are backed by a 2 year warranty, designed to withstand our harsh Australian water and incorporate the best features of all the solar pumps on the market and compress all this technology into a compact, robust & highly efficient pumping system.

The pump assembly is stainless steel. The SSC2.2 Solar Pump uses a centrifugal wet end coupled to a brushless DC motor. The motor is electronically communicated to by a fully adjustable MPPT pump controller housed in a weather proof enclosure for easy installation, access and operation.

The WATERBOY SSC2.2 Solar Pump systems consist of a surface mount pump and motor combination that uses a bronze impeller and has a 1” inlet and outlet. The motor is fan cooled.

**Features**
- Brushless DC motor
- Integrated Soft start & MPPT
- Adjustable Speed & Timer Control
- High Efficiency
- Remote switching

**Benefits**
- Lift up to 25m
- Flow rate up to 2.2m³/h
- Simple installation
- Maintenance-free
- High reliability & life expectancy

**Applications**
- Drinking water supply
- Livestock watering
- Irrigation
- Water transfer

**Sand & Silt Tolerance**
Continual sand and silt pumping will damage the pump and block impeller causing a reduction in flow.

**Warranty**
Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.

**Pump End**
- Max flow rate: 2.2m³/h
- Max lift: 25m
- Water temperature: up to 40°C

**Solar Pump Controller**
- Input voltage: Nominal 36-48 DC Max open circuit-100 Voc
- Timer adjustment: 0-30 minutes
- Speed control: Approx 30% flow reduction

**Motor**
- Power rating: 210w

<table>
<thead>
<tr>
<th>Total Lift</th>
<th>270W (3x90w)</th>
<th>360W (4x90w)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LPM</td>
<td>LPD</td>
</tr>
<tr>
<td>5</td>
<td>35</td>
<td>12600</td>
</tr>
<tr>
<td>10</td>
<td>27</td>
<td>9720</td>
</tr>
<tr>
<td>15</td>
<td>18</td>
<td>6480</td>
</tr>
<tr>
<td>20</td>
<td>7.5</td>
<td>2700</td>
</tr>
<tr>
<td>25</td>
<td>10</td>
<td>3600</td>
</tr>
</tbody>
</table>

LPM - Liters per minute, LPD - Liters per day. Daily flow based on 6 PSH

Exclusive Distributor in MENA region

www.puranovatech.com
The WATERBOY series of Photovoltaic modules are specifically manufactured for solar pumping systems. With low wattages and higher voltages compared to the mass produced On grid solar modules the WATERBOY range is designed only for Off grid applications to optimize the pumps performance in low light conditions and high operating temperatures.

With the solar panel market becoming increasingly competitive, almost all of the panels on the market are built as cheaply as possible and there is only one way to do that which is reduce the cost of the materials used.

**Features**

- Modules are made with high quality materials which lead to the high reliability of the module.
- Designed to charge 12 to 48 volt batteries for off grid remote power systems.
- Manufactured in ISO9001 certified factory.

**Applications**

- Water pumping
- Off-grid home solar systems
- Street and camp lights
- Traffic signals
- Medical facilities in remote areas
- Microwave/radio repeater stations
- Battery charging
- Remote location lighting
- Water purification systems

**Warranty**

2 years manufacturer’s warranty against defects in material and workmanship, from date of installation.
The WATERBOY Midi and Maxi fixed solar arrays have been designed to work with the WATERBOY range of solar pump systems and solar panels.

The heavy duty, hot galvanized, steel mounting posts have upper and lower sections which bolt together. This increases portability and ease of installation. The angle of the solar array can be adjusted in 5 steps between 10° and 50°.

The Midi fixed array will hold up to 4 solar panels that are 675mm wide. The Maxi fixed array will hold up to 8 panels that are 1600mm x 675mm. Mounting clamps are suitable for panels that are 35mm thick.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold up to 8 panels, Total 8.6m²</td>
<td>Aluminium Components are 6005 - T5</td>
</tr>
<tr>
<td>Simple installation</td>
<td>Bolts are SS304</td>
</tr>
<tr>
<td>Maintenance-free</td>
<td>Steel components are Q235 and are hot gavanized</td>
</tr>
<tr>
<td>High reliability &amp; life expectancy</td>
<td>Adjustable angle of array in 5 steps between 10 and 50 degrees</td>
</tr>
<tr>
<td></td>
<td>Compatible with most 35mm thick solar modules</td>
</tr>
</tbody>
</table>

**Warranty**

Two years manufacturer’s warranty against defects in material and workmanship, from date of installation.

**Midi**

- Up to 2.8m wide
- 4 panels

**Maxi**

- Up to 3.1m wide
- 8 panels

www.puranovatech.com
The Waterboy-Series of PV modules offer a conversion efficiency of 17-20% due to the unique back-contact technology. Our monocrystalline silicon solar cells yield a higher voltage per cell, therefore 32 cells are sufficient to provide the same voltage as traditional 36-cell modules. As a result, BW Solar modules are lighter and smaller. In combination with an extremely low voltage-temperature coefficient, this guarantees a superior battery charging performance, even at high operating temperatures. Exceptional low-light performance and broad spectral response further enhance energy delivery in all weather conditions, year round.

Features

▪ Photovoltaic modules made with unique SunPower cells.
▪ Cells with high conversion efficiency of up to 20%.
▪ Due to the high efficiency, the modules are smaller in size than modules made with conventional cells.
▪ Modules are made with high quality materials which lead to the high reliability of the module.
▪ Designed to charge 12 to 48 volt batteries for off grid remote power systems.
▪ Manufactured in ISO9001 certified factory.

Applications

▪ Water pumping
▪ On and off-grid home solar systems
▪ Street and camp lights
▪ Traffic signals
▪ Medical facilities in remote areas
▪ Microwave/radio repeater stations
▪ Battery charging
▪ Remote location lighting
▪ Water purification systems

Electrical Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Measurement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Power</td>
<td>PMax</td>
<td>90W</td>
</tr>
<tr>
<td>Max Power Voltage</td>
<td>Vmpp</td>
<td>17.6V</td>
</tr>
<tr>
<td>Max Power Current</td>
<td>Immp</td>
<td>5.11A</td>
</tr>
<tr>
<td>Open Circuit Voltage</td>
<td>Voc</td>
<td>21.1V</td>
</tr>
<tr>
<td>Short Circuit Current</td>
<td>Isc</td>
<td>5.52A</td>
</tr>
<tr>
<td>Maximum System Voltage</td>
<td></td>
<td>600V</td>
</tr>
<tr>
<td>Series Fuse Rating</td>
<td></td>
<td>10A</td>
</tr>
</tbody>
</table>

Temperature Coefficients

- Power: -0.38%/°C
- Voltage: -60.8mV/°C
- Current: 2.2mA/°C

Cell Efficiency: 19.7%

Number of Cells in Series: 32
Max Power Tolerance: ±5%

Mechanical Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>7.6kg</td>
</tr>
<tr>
<td>Dimension</td>
<td>1050<em>540</em>35</td>
</tr>
<tr>
<td>Frame</td>
<td>&gt;10um clear anodized</td>
</tr>
</tbody>
</table>

Warranty

2 years Warranty. Performance guarantee: 10 years (90% power output) 20 years (80% power output) Details according to warranty issued by BW Solar
The Waterboy-Series of PV modules offer a conversion efficiency of 17-20% due to the unique back-contact technology. Our monocrystalline silicon solar cells yield a higher voltage per cell. As a result, BWSolar modules are lighter and smaller. In combination with an extremely low voltage-temperature coefficient, this guarantees a superior battery charging performance, even at high operating temperatures. Exceptional low-light performance and broad spectral response further enhance energy delivery in all weather conditions, year round.

### Features
- Photovoltaic modules made with unique SunPower cells.
- Cells with high conversion efficiency of up to 20%.
- Due to the high efficiency, the modules are smaller in size than modules made with conventional cells.
- Modules are made with high quality materials which lead to the high reliability of the module.
- Designed to charge 12 to 48 volt batteries for off grid remote power systems.
- Manufactured in ISO9001 certified factory.

### Applications
- Water pumping
- On and off-grid home solar systems
- Street and camp lights
- Traffic signals
- Medical facilities in remote areas
- Microwave/radio repeater stations
- Battery charging
- Remote location lighting
- Water purification systems

### Warranty
2 years Warranty. Performance guarantee: 10 years (90% power output) 20 years (80% power output) Details according to warranty issued by BW Solar

### Electrical Characteristics
- Max Power (PMax) 110W
- Max Power Voltage (Vmp) 19.8V
- Max Power Current (Imp) 5.56A
- Open Circuit Voltage (Voc) 23.7V
- Short Circuit Current (Isc) 5.91A
- Maximum System Voltage 600V
- Series Fuse Rating 10A
- Temperature Coefficients
  - Power -0.38%/°C
  - Voltage -60.8mV/°C
  - Current 2.2mA/°C
- Cell Efficiency 20.5%
- Number of Cells in Series 36
- Max Power Tolerance ±5%

### Mechanical Characteristics
- Weight 8.5kg
- Dimension 1175*540*35
- Frame >10um clear anodized
The Waterboy-Series of PV modules offer a conversion efficiency of 17-20% due to the unique back-contact technology. Our monocrystalline silicon solar cells yield a higher voltage per cell, therefore 60 cells are sufficient to provide the same voltage as traditional 72-cell modules. As a result, BWSolar modules are lighter and smaller. In combination with an extremely low voltage-temperature coefficient, this guarantees a superior battery charging performance, even at high operating temperatures. Exceptional low-light performance and broad spectral response further enhance energy delivery in all weather conditions, year round.

**Features**
- Photovoltaic modules made with unique SunPower cells.
- Cells with high conversion efficiency of up to 20%.
- Due to the high efficiency, the modules are smaller in size than modules made with conventional cells.
- Modules are made with high quality materials which lead to the high reliability of the module.
- Designed to charge 12 to 48 volt batteries for off grid remote power systems.
- Manufactured in ISO9001 certified factory.

**Applications**
- Water pumping
- On and off-grid home solar systems
- Street and camp lights
- Traffic signals
- Medical facilities in remote areas
- Microwave/radio repeater stations
- Battery charging
- Remote location lighting
- Water purification systems

**Electrical Characteristics**
- Max Power (Pmax): 170W
- Max Power Voltage (Vmpp): 32.7V
- Max Power Current (Impp): 5.20A
- Open Circuit Voltage (Voc): 39.2V
- Short Circuit Current (Isc): 5.80A
- Maximum System Voltage: 600V
- Series Fuse Rating: 10A

**Temperature Coefficients**
- Power: -0.38%/°C
- Voltage: -60.8mV/°C
- Current: 2.2mA/°C

**Cell Efficiency**: 18.7%

**Mechanical Characteristics**
- Weight: 16.0kg
- Dimension: 1556*669*35
- Frame: >10um clear anodized

**Warranty**
2 years Warranty. Performance guarantee: 10 years (90% power output) 20 years (80% power output) Details according to warranty issued by BW Solar
Wherever, Whenever... rely on Waterboy

### WB Fixed Arrays

#### Wherever, Whenever...

- reliy on Waterboy

### Meter Head Conversion

- 1 kPa = 3.28 ft Head
- 1 ft Head = 0.328 kPa

### Feet Head Conversion

- 1 kPa = 3.281 ft Head
- 1 ft Head = 0.3281 kPa

### PSI Conversion

- 1 PSI = 6.89 kPa
- 1 kPa = 0.145 PSI

### Gallons to Litres Conversion

- 1 Gallon = 4.54 Litres
- 1 Litre = 0.2193 Gallons

### Litres to Gallons Conversion

- 1 Litre = 0.2193 Gallons
- 1 Gallon = 4.54 Litres

### Power Conversion

- 1 kW = 1.34 HP
- 1 HP = 0.7457 kW

---

### WATER PUMPING CONVERSION CHART

<table>
<thead>
<tr>
<th>SALT CONTENT</th>
<th>uS/cm</th>
<th>mS/cm</th>
<th>ppm</th>
<th>gr/gl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot Water Systems</td>
<td>2000</td>
<td>2</td>
<td>1100</td>
<td>77</td>
</tr>
<tr>
<td>Human Consumption</td>
<td>3000</td>
<td>3</td>
<td>1650</td>
<td>115.5</td>
</tr>
<tr>
<td>Poultry</td>
<td>5000</td>
<td>5</td>
<td>2750</td>
<td>192.5</td>
</tr>
<tr>
<td>Dairy Cattle</td>
<td>6000</td>
<td>6</td>
<td>3300</td>
<td>231</td>
</tr>
<tr>
<td>Showers &amp; Baths</td>
<td>6000</td>
<td>6</td>
<td>3300</td>
<td>231</td>
</tr>
<tr>
<td>Pigs</td>
<td>7000</td>
<td>7</td>
<td>3850</td>
<td>269.5</td>
</tr>
<tr>
<td>Horses</td>
<td>10000</td>
<td>10</td>
<td>5500</td>
<td>385</td>
</tr>
<tr>
<td>Lambs, Weaners, Breeder Ewes</td>
<td>11000</td>
<td>11</td>
<td>6050</td>
<td>423.5</td>
</tr>
<tr>
<td>Beef Cattle</td>
<td>15000</td>
<td>15</td>
<td>8250</td>
<td>577.5</td>
</tr>
<tr>
<td>Adult Sheep</td>
<td>16000</td>
<td>16</td>
<td>8800</td>
<td>616</td>
</tr>
</tbody>
</table>

### CALCULATE YOUR TOTAL DYNAMIC HEAD (TDH) IN TWO EASY STEPS

To choose the right pumping system you need to first calculate your “Total Dynamic Head” (T.D.H). Total Head is the actual height to which water is to be pumped - from the water level at the source to the highest delivery point. Total Dynamic Head (T.D.H) takes into account the friction loss created by the movement of water through the delivery pipeline.

T.D.H is the addiction of Static Lift + Friction Loss.

Static Lift - is the height in metres from the low water level to the highest point along the delivery pipeline.

Friction Loss - the resistance to water flow - is expressed as height in metres per kilometer of pipe. Using the diagrams below as a guide, measure the height and distance from the low water level to the highest point along the delivery pipeline. This is usually done with an altimeter or GPS.

**Contact your solar pumping specialist to calculate friction loss**

---

**CALCULATE YOUR TOTAL DYNAMIC HEAD (TDH) IN TWO EASY STEPS**

**Horizontal Distance**

**Vertical Lift**

**LOW WATER LEVEL**

**CALCULATE YOUR TOTAL DYNAMIC HEAD (TDH) IN TWO EASY STEPS**

**Horizontal Distance**

**Vertical Lift**

**LOW WATER LEVEL**

**Contact your solar pumping specialist to calculate friction loss**
Average water requirements of stock

Stock on dry pasture need increased water consumption to utilise the less digestible fodder. In pastoral areas, stock grazing saltbush or other chenopod plants require large quantities of relatively low salinity water. This is because of the high level of salt in the diet and the need for a high water turnover to maintain the salt balance in the body.

Animal factors
Age and condition of stock - Young animals, heavily pregnant or lactating females, and aged or weakened stock are less tolerant of saline water. In weaner sheep, high salinity depresses growth rate and wool production, and causes scouring.

<table>
<thead>
<tr>
<th>STOCK TYPE</th>
<th>CONSUMPTION PER HEAD PER DAY (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep - Weaners</td>
<td>2-4</td>
</tr>
<tr>
<td>Adult dry sheep - grassland saltbush</td>
<td>2-6</td>
</tr>
<tr>
<td>4-12</td>
<td></td>
</tr>
<tr>
<td>Ewes with lambs</td>
<td>4-10</td>
</tr>
<tr>
<td>Cattle - lactating cows - grassland saltbush</td>
<td>40-100</td>
</tr>
<tr>
<td>70-140</td>
<td></td>
</tr>
<tr>
<td>Young stock</td>
<td>25-50</td>
</tr>
<tr>
<td>Dry stock (400 kg)</td>
<td>35-80</td>
</tr>
<tr>
<td>Horses</td>
<td>40-50</td>
</tr>
</tbody>
</table>

Breed differences
British breed sheep need about 20 per cent more water than do Merino sheep in hot weather. Cattle of the Bos indicus or Bos indicus infused breeds drink less water under hot conditions than do Bos Taurus breeds (British or European breeds).

Watering points
The consumption of water can be affected by the cleanliness of the watering point. Where the water level in an earth tank is low, animals may be forced to wade through mud to get to the water. Due to the boggy surroundings, the water becomes heavily contaminated with suspended soil and faeces, which can make stock reject the water. Also, animals in weak condition may become bogged and die. Feral pigs can create the same effect by wallowing along the water’s edge.

Such dams should be fenced off and the water pumped or gravitated to temporary troughing. This will ensure maximum use of the available water by avoiding fouling, and will remove the risk of stock losses from bogging.

Pumping Accessories

For more information visit www.puranovatech.com
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