

Global LEAP Awards

2019 Buyer's Guide for Solar Water Pumps



Credit: Futurepump



The Global LEAP Awards Buyer's Guide

The Global LEAP Awards Buyer's Guide is a catalog of the world's best off-grid appliances. This edition contains information about solar water pumps that were named Winners and Finalists in the 2019 Global LEAP Awards. The Buyer's Guide serves as a procurement tool for off-grid solar companies and distributors, and provides general market intelligence to other interested stakeholders. It includes rated product specifications, performance metrics based on laboratory testing, and sales contact information.

The Global LEAP Awards identify one Winner as the best overall product nominated for each size and form factor-based category, with other high-quality products in that category identified as Finalists. The 2019 Global LEAP Awards Solar Water Pump Buyer's Guide lists twenty-seven solar water pumps designed for 1 to 5-acre smallholder farmers.

The Global LEAP Awards

The Global LEAP Awards – an initiative of the Efficiency for Access Coalition with support from UKaid and Power Africa – is an international competition that identifies and promotes the world's best, most energy-efficient off-grid appliances and equipment.

High-quality, energy-efficient appliance products ensure that un- and under-electrified households and businesses can make the most out of off-grid energy. The Global LEAP Awards incentivize innovation and send the off-grid market clear and actionable signals about appliance quality, energy efficiency, appropriateness of design, and functionality.

All Global LEAP Awards Winners and Finalists undergo testing in accredited laboratories for their energy performance, quality, and reliability, and an evaluation by a panel of off-grid market experts. The products recognized by the Global LEAP Awards offer a strong balance of price, energy efficiency, performance, and reliability.

Global LEAP Awards Winners and Finalists are eligible for results-based financing that drives large-scale procurement and distribution of best-in-class off-grid appliances in key off-grid markets. Further details are available at www.globalleapawards.org/results-based-financing.

Contents

- 2 Competition Overview
 - 4 Solar Water Pump Testing Process
 - 5 Explanation of Information Included for Each Product
-

SURFACE PUMPS

- | | |
|--|----------|
| 6 Bengal Solar Surface Pump 0.35 HP | WINNER |
| 7 Amped Innovation WOWsolar Pump | FINALIST |
| 8 Ennos sunlight pump JSPBL0.3/HF2.4 - 5 | FINALIST |
| 9 Futurepump SF2 | FINALIST |
| 10 Shakti SOLAR 8 DCSSUP 500 | FINALIST |
| 11 Simusolar Mavuno 2 | FINALIST |
-

SUBMERSIBLE PUMPS, LOW HEAD, LOW FLOW APPLICATIONS

- | | |
|--|----------|
| 12 Bengal 3" Solar Submersible Pump 1 HP | WINNER |
| 13 Aggrico Solar Irrigation Kit | FINALIST |
| 14 Azuri GrowFast 10 PS2-100 AHRP-23S | FINALIST |
| 15 LORENTZ PS2-600 C-SJ8-5 | FINALIST |
| 16 KickStart MoneyMaker SunDew Solar Pump | FINALIST |
| 17 Proximity Designs Lotus 2, SI-226 | FINALIST |
| 18 SunCulture RainMaker2C Kubwa with ClimateSmart Direct | FINALIST |
-

SUBMERSIBLE PUMPS, MEDIUM HEAD, LOW FLOW APPLICATIONS

- | | |
|--|----------|
| 19 SunCulture RainMaker2S with ClimateSmart Direct | WINNER |
| 20 LORENTZ, PS2-100 AHRP-07S-2 | FINALIST |
| 21 Solartech SPM600HS | FINALIST |
| 22 Solartech SPM400HS | FINALIST |
| 23 Simusolar Kisma 2 | FINALIST |
| 24 Super Star Solar Submersible Pump System 03 | FINALIST |
-

SUBMERSIBLE PUMPS, HIGH HEAD, LOW FLOW APPLICATIONS

- | | |
|---------------------------|----------|
| 25 Grundfos SQFlex 2.5-2 | WINNER |
| 26 LORENTZ PS2-600 HR-04H | FINALIST |
| 27 Simusolar Kina | FINALIST |
-

SUBMERSIBLE PUMPS, HIGH FLOW APPLICATIONS

- | | |
|--|----------|
| 28 Bengal 4" Solar Submersible Pump 1.7 HP | WINNER |
| 29 Simusolar MTO | FINALIST |
| 30 Super Star Solar Submersible Pump System 02 | FINALIST |
-

SUBMERSIBLE PUMPS, BATTERY-ENABLED

- | | |
|---|----------|
| 31 SunCulture RainMaker2S with ClimateSmart Battery | WINNER |
| 32 SunCulture RainMaker2C with ClimateSmart Battery | FINALIST |

- 33 Acknowledgements

The Importance of Off-Grid Appliance Quality Assurance

Confidence in product quality is essential to the development of the off-grid and productive use appliance markets. As these markets grow, the threat of low-quality, inefficient products eroding consumer confidence grows with it, as stories of experiences with inferior products can spread quickly in off-grid communities.

More importantly, off-grid populations are typically among the world's poorest people. A small off-grid energy system and the appliances and equipment it powers represent one of the biggest purchases these households and businesses will ever make.

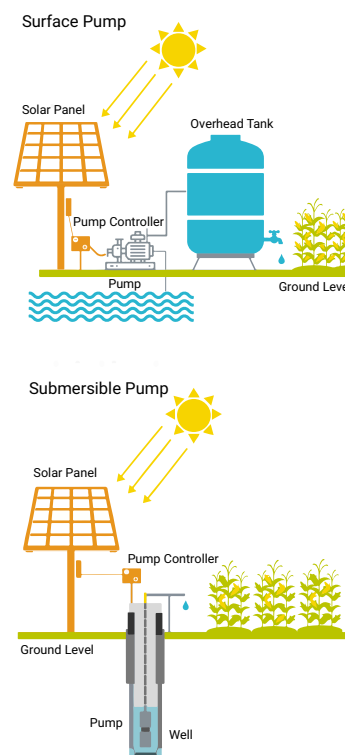
The Global LEAP Awards helps ensure that these consumers have access to best-in-class products by providing clear and actionable data to the global off-grid market about appliance quality and performance.

The 2019 Global LEAP Awards Solar Water Pump Competition

The 2019 Global LEAP Awards included the first-ever solar water pump competition. Energy-efficient and affordable solar water pumps have the potential to be a critical enabler of economic growth and security for more than 500 million smallholder farmers worldwide. Approximately 95% of farmed land in sub-Saharan Africa and 60% of land in South Asia relies solely on unpredictable seasonal rainfall to meet water needs. Situated at the heart of the water-food-energy nexus, solar water pumps can play an important role in delivering a sustainable water supply in an increasingly climate-sensitive world, all while reducing or preventing harmful greenhouse gas emissions and improving the incomes and resilience of rural households worldwide.

However, solar water pumps present significant technical challenges as their performance is highly dependent on use case, intended application, size of the associated energy system, and other environmental factors. This Buyer's Guide presents a selection of laboratory test results that will help off-grid market stakeholders better understand the drivers of an individual pump's performance as well as compare the performance of different pumps across size and form factor categories.

Figure 1: Solar Water Pump Types



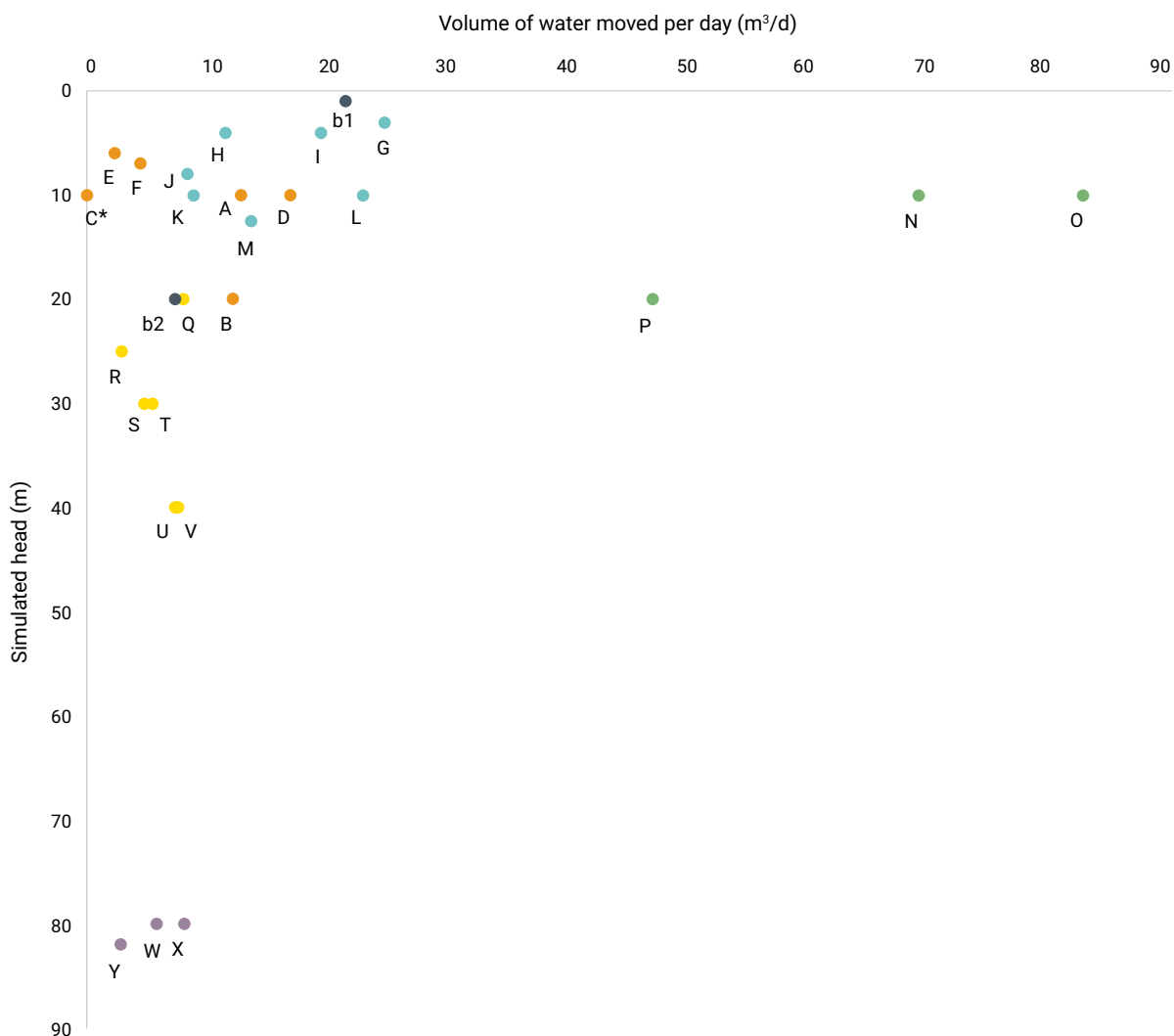
Winner and Finalist solar water pumps are grouped into six categories based on the following: type of pump (surface vs submersible), how high the pump is designed to lift water (head), how much water is pumped in an average day (volume per day), and whether the pump has a built-in battery. This year's competition includes one surface pump category, four submersible categories of varying head and volume outputs, and one battery-integrated category, as seen in the chart below.

Figure 2: Competition Categories

CATEGORY	Head (m)	Volume per day (m ³ /d)
Surface	0-49	0-29
Submersible #1: Low head, low flow applications	0-19	0-29
Submersible #2: Medium head, low flow applications	20-49	0-29
Submersible #3: High head, low flow applications	50+	0-29
Submersible #4: High flow applications	0-49	30+
Battery-integrated	0-49	0-29

The chart below plots all the Winners and Finalists in each category by 1) the volume of water each pump moved in a day during the testing process, and 2) the head at which each pump was tested. The purpose of this chart is to help readers situate the performance metrics provided for each product relative to other products in the competition.

Figure 3: Snapshot of Pump Performance Across Categories during Partly Cloudy, Average Irradiance Day



● **Surface**

- A - Simusolar Mavuno 2
- B - Ennos sunlight pump
- C* - Shakti SOLAR 8 DCSSUP 500
- D - Bengal Solar Surface Pump - 0.35 HP
- E - Amped Innovation WOWsolar Pump
- F - Futurepump SF2

● **Submersible, Category 1**

- G - SunCulture RainMaker2C Kubwa with ClimateSmart Direct
- H - KickStart MoneyMaker SunDew Solar Pump
- I - Aggrico Solar Irrigation Kit
- J - Proximity Designs Lotus 2, SI-226
- K - Azuri GrowFast 10 PS2-100 AHRP-23S
- L - Bengal 3" Solar Submersible Pump 1HP
- M - LORENTZ, PS2-600 C-SJ8-5

● **Submersible, Category 2**

- N - Bengal 4" Solar Submersible Pump 1.7HP
- O - Simusolar MTO
- P - Super Star Solar Submersible Pump System 02

● **Submersible, Category 3**

- Q - Solartech SPM400HS
- R - Simusolar Kisma 2
- S - LORENTZ, PS2-100 AHRP-07S-2
- T - SunCulture RainMaker2S with ClimateSmart Direct
- U - Solartech SPM600HS
- V - Super Star Solar Submersible Pump System 03

● **Submersible, Category 4**

- W - Simusolar Kina
- X - Grundfos SQFlex 2.5-2
- Y - LORENTZ, PS2-600 HR-04H

● **Submersible, Battery Enabled**

- b1 - SunCulture RainMaker2C with ClimateSmart Battery
- b2 - SunCulture RainMaker2S with ClimateSmart Battery

* During testing under this solar day condition, the simulated PV array size was too small to provide enough power to pump any water at the simulated head value.

The Global LEAP Awards Solar Water Pump Testing Process

The goal of Global LEAP Awards testing is to enable objective assessment and comparison of critical product performance metrics. To the extent possible, all Global LEAP test methods reference existing industry standard test methods^{1,2} with minor modifications as necessary based on input from international experts. Details about the Global LEAP Solar Water Pump Test Method are [available online](#).

The Global LEAP Awards solar water pump testing process focused on the performance and quality of the pump, motor and control components of solar water pumps, and not on the performance of PV arrays. Energy was provided to each pump during the testing process via a solar array simulator that simulates a PV array or, in a limited number of instances, an industry-standard PV array.³

The test method included 1) visual screenings of each solar water pump to evaluate workmanship and product quality, and 2) service delivery and performance tests. In order to ensure the testing process replicated conditions in which a given pump will operate, the service delivery and performance tests were conducted according to recommendations

from participating companies for the following:

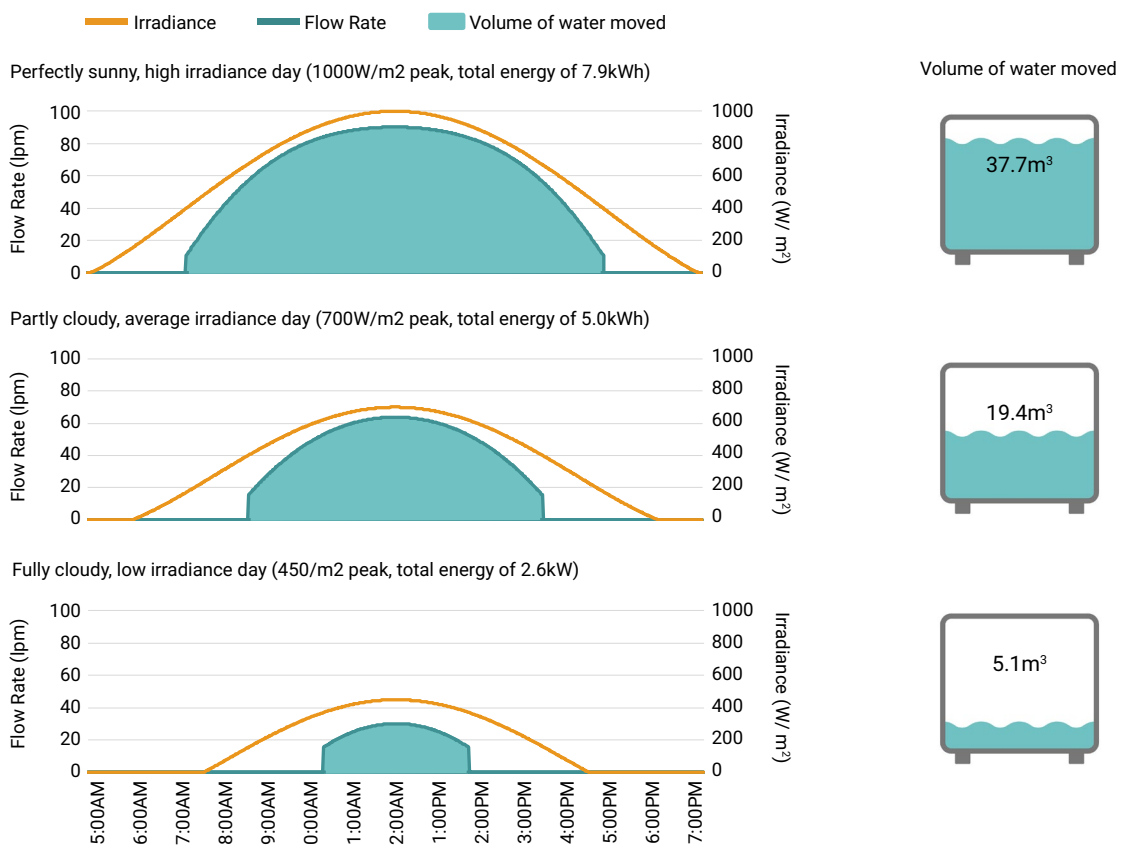
1. Simulated PV array size and setup, and
2. Head/depth at which testing occurred.

To mimic a range of real-world conditions and give potential buyers a better sense of product performance across geographic locations and climatic zones, service delivery and performance testing was performed by simulating three typical solar days:

1. Perfectly sunny, high irradiance day (with peak irradiance of 1000W/m², total energy of 7.9kWh)
2. Partly cloudy, average irradiance day (700W/m² peak and and 5.0kWh)
3. Fully cloudy, low irradiance day (450/m² peak, and 2.6kW)

The charts in Figure 4 below provide indicative examples of the differences in flow rate and total volume of water moved across each of the three different simulated solar days. Each solar day is defined by different irradiance curves, where irradiance is the intensity of the sun hitting the ground throughout the day, which is measured as power per area (W/m²). The charts also show the hours the pump operated, represented by the start and end point of the flow rate line on the x-axis.

Figure 4: Indicative Pump Performance on Different Solar Days



¹ IEC 62253 (edition 1.0, 2011-07): Photovoltaic pumping systems – Design qualification and performance measurements

² MED 20 (11177) WC Draft Indian Standard on Solar Powered Pumpset – Specification

³ An alternative test setup was used for seven SWPs due to unstable interactions between the solar array simulator and the controllers of those pumps. In the alternative setup, instead of the solar array simulator, an actual PV array was used to power the SWP, irradiance levels were confirmed with a calibrated pyranometer, and flow measurements were taken using the test station.



EXPLANATION OF INFORMATION INCLUDED FOR EACH PRODUCT

To help readers understand the information included for each product in the Buyer's Guide, this page provides explanations of the product details, rated specifications, and laboratory test results for solar water pumps.

Details	Product model number	Identifies the specific product model.
	Pump type	The product's pump type: submersible or surface.
Test Results	Hydraulic energy per day (Wh/d)	Metric representing "service delivery" across a solar day. Defined as energy output by the pump, and measured by the volume and distance of water moved per solar day. There are three "hydraulic energy per day" values listed for each pump, one for each simulated solar day.
	Total volume of water moved per solar day (m ³ /d)	Volume of water moved by the product across a solar day, at the simulated head value recommended by nominating company. There are three "total volume of water moved per day" values listed for each pump, one for each simulated solar day.
	Hours of operation per day	Hours that the product operated (i.e., pumped water) across a solar day, at the simulated head value recommended by nominating company. There are three "hours of operation per day" values listed for each pump, one for each simulated solar day.
	Maximum head (m)	The head depth value where flow rate first reaches zero.
	Maximum static head where flow rate is at least 50% of maximum flow rate (m)	Metric representing a surface pump's versatility, specifically its ability to be used at a range of head depths, relative to its maximum head.
	Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	Minimum irradiance required by the product to start operating, measured in increments of 50W/m ² .
Price	Price index without PV system - includes pump, motor, controls (\$ - \$\$\$\$)*	An index of relative product pricing compared to other products within the category. The index is expressed in \$ to \$\$\$\$, where \$ means the product pricing is in the least expensive tier, and \$\$\$\$ the most expensive tier.
	Price index with PV system - based on standardized price per watt (\$ - \$\$\$\$)*	An index of relative product pricing compared to other products within the same category (see above description) that includes PV system costs. PV system costs were determined using an assumed standard price per watt (\$.81/W) based on the PV array size recommended by participating companies for testing, and does not reflect actual company prices for any individual product.
Test Setup	Simulated PV array size based on company-recommendations	The PV array size used for testing, recommended by the nominating company.
	Simulated head value for testing based on company-recommendations	The simulated head value used for testing, recommended by the nominating company.

* The price index represents the product's FOB price relative to the category's average FOB price:

- \$\$\$\$: >40% more expensive than average
- \$\$\$: <40% more expensive than average
- \$\$: <40% less expensive than average
- \$: >40% less expensive than average

DISCLAIMER

The Global LEAP Awards, and associated partners and agents make no claims about the quality, energy performance, or off-grid appropriateness of any product not listed here. The inclusion in this Guide of a manufacturer's product should not be construed as an endorsement of that manufacturer or of its entire product line.

Global LEAP made every effort to provide transparent and accurate testing results for the product performance metrics included in the Buyer's Guide. The performance data included here is the result of testing randomly selected product samples at ISO/IEC-accredited test laboratories. Product performance may vary based on different product configuration, test environments or other factors. Products were tested in "as shipped" mode.

Data used in the Buyer's Guide should only serve as an indication of product performance. Bulk purchasers considering appliance products are strongly encouraged to request detailed test results from manufacturers and/or conduct independent testing. For guidance on how to interpret the data included here, or on identifying appropriate test laboratories and test methods, please contact Global LEAP.

Solar Surface Pump 0.35 HP

Surface Pump

WINNER

SPECIFICATIONS

Model Number		DQB2.0-30-24/280
Pump Type		Centrifugal
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	603.1
	Total volume of water moved (m ³ /d)	22.4
	Hours of operation (hrs)	11.6
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	461.8
	Total volume of water moved (m ³ /d)	16.9
	Hours of operation (hrs)	9.8
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	266.4
	Total volume of water moved (m ³ /d)	9.8
	Hours of operation (hrs)	7.2
Maximum head (m)		34.2
Maximum static head where flow rate is at least 50% of maximum flow rate (m)		22.1
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)		50
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)		\$
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)		\$\$

TEST SETUP

Simulated PV array size (W)	500
Simulated head (m)	10



Company Bengal Renewable Energy Ltd.
Sales Contact Md. Ershadullah
Phone +8801704112903
Email ops5.brel@bengal.com.bd
Website www.bengalsolar.com.bd

WOWsolar Pump

Surface Pump



SPECIFICATIONS

Model Number		--
Pump Type		Centrifugal
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	95.7
	Total volume of water moved (m ³ /d)	5.9
	Hours of operation (hrs)	7.7
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	38.9
	Total volume of water moved (m ³ /d)	2.4
	Hours of operation (hrs)	4.6
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	0.0*
	Total volume of water moved (m ³ /d)	0.0*
	Hours of operation (hrs)	0.0*
Maximum head (m)		7.1
Maximum static head where flow rate is at least 50% of maximum flow rate (m)		3.6
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)		200
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)		\$
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)		\$

TEST SETUP

Simulated PV array size (W)	80
Simulated head (m)	6

* During testing under this solar day condition, the simulated PV array size was too small to provide enough power to pump any water at the simulated head value.



AMPED
INNOVATION

Company Amped Innovation PBC
Sales Contact Andi Kleissner
Phone +14086057227
Email andi@ampedinnovation.com
Website www.ampedinnovation.com

sunlight pump JSPBL0.3/HF2.4 - 5

FINALIST

Surface Pump

SPECIFICATIONS

Model Number	JSPBL0.3/HF2.4-5	
Pump Type	Helical rotor	
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	1076.5
	Total volume of water moved (m ³ /d)	19.9
	Hours of operation (hrs)	11.1
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	664.2
	Total volume of water moved (m ³ /d)	12.2
	Hours of operation (hrs)	9.2
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	322.8
	Total volume of water moved (m ³ /d)	5.9
	Hours of operation (hrs)	6.6
Maximum head (m)	60.9	
Maximum static head where flow rate is at least 50% of maximum flow rate (m)	20.2	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	150	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$\$	

TEST SETUP

Simulated PV array size (W)	400
Simulated head (m)	20



INNOVATIVE SWISS TECHNOLOGY

Company Ennos ag
Sales Contact Karin Jeanneret
Phone +41 79 215 45 24
Email info@ennos.ch
Website www.ennos.ch

Futurepump SF2

Surface Pump

FINALIST



SPECIFICATIONS

Model Number	SF2
Pump Type	Reciprocating positive displacement piston pump
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d) 175.2 Total volume of water moved (m ³ /d) 9.2 Hours of operation (hrs) 7.2
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d) 86.8 Total volume of water moved (m ³ /d) 4.6 Hours of operation (hrs) 3.7
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kWh)	Hydraulic energy per day (Wh/d) 0.0* Total volume of water moved (m ³ /d) 0.0* Hours of operation (hrs) 0.0*
Maximum head (m)	13.3
Maximum static head where flow rate is at least 50% of maximum flow rate (m)	5.2
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	400
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$

TEST SETUP

Simulated PV array size (W)	80
Simulated head (m)	6

* During testing under this solar day condition, the simulated PV array size was too small to provide enough power to pump any water at the simulated head value.



Company Futurepump Limited
Sales Contact Brian Marsh
Phone +44 (0)7429 034566
Email brian.marsh@futurepump.com
Website www.futurepump.com

SOLAR 8 DCSSUP 500

Surface Pump

FINALIST

SPECIFICATIONS

Model Number		9500000973
Pump Type		Centrifugal
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	608.9
	Total volume of water moved (m ³ /d)	22.3
	Hours of operation (hrs)	6.1
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	1.8
	Total volume of water moved (m ³ /d)	0.1
	Hours of operation (hrs)	0.1
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	0.0*
	Total volume of water moved (m ³ /d)	0.0*
	Hours of operation (hrs)	0.0*
Maximum head (m)		10.7
Maximum static head where flow rate is at least 50% of maximum flow rate (m)		7.1
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)		100
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)		\$\$\$\$
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)		\$\$\$\$

TEST SETUP

Simulated PV array size (W)	500
Simulated head (m)	10

* During testing under this solar day condition, the simulated PV array size was too small to provide enough power to pump any water at the simulated head value.



Company Shakti Pumps India Limited
Sales Contact Nikita Patidar
Phone 9109909470
Email nikita.patidar@shaktipumps.com
Website www.shaktipumps.com

Mavuno 2

Surface Pump

FINALIST



SPECIFICATIONS

Model Number		SP 9
Pump Type		Centrifugal
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	486.1
	Total volume of water moved (m ³ /d)	17.8
	Hours of operation (hrs)	10.1
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	351.1
	Total volume of water moved (m ³ /d)	12.9
	Hours of operation (hrs)	8.0
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	168.7
	Total volume of water moved (m ³ /d)	6.2
	Hours of operation (hrs)	5.1
Maximum head (m)		33.7
Maximum static head where flow rate is at least 50% of maximum flow rate (m)		19.7
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)		100
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)		\$\$
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)		\$\$\$

TEST SETUP

Simulated PV array size (W)	600
Simulated head (m)	10



Company Simusolar Ltd.
Sales Contact John Tugaraza
Phone +255 713-123-998
Email jtugaraza@simusolar.com
Website www.simusolar.com

3" Solar Submersible Pump 1HP

Submersible Pump
Low head, low flow applications



SPECIFICATIONS

Model Number	3DPC3.5-95-48-750	
Pump Type	Centrifugal	
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	842.9
	Total volume of water moved (m ³ /d)	31.4
	Hours of operation (hrs)	11.1
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	624.5
	Total volume of water moved (m ³ /d)	22.9
	Hours of operation (hrs)	9.2
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	381.5
	Total volume of water moved (m ³ /d)	14.0
	Hours of operation (hrs)	6.6
Maximum head (m)	79.8	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	50	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$\$	

TEST SETUP

Simulated PV array size (W)	1000
Simulated head (m)	10



Company Bengal Renewable Energy Ltd.
Sales Contact Md. Ershadullah
Phone +8801704112903
Email ops5.brel@bengal.com.bd
Website www.bengalsolar.com.bd

Aggrico Solar Irrigation Kit

Submersible Pump Low head, low flow applications

FINALIST



SPECIFICATIONS

Model Number		SIP 1000
Pump Type		Centrifugal
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	415.1
	Total volume of water moved (m ³ /d)	38.1
	Hours of operation (hrs)	9.2
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	211.4
	Total volume of water moved (m ³ /d)	19.4
	Hours of operation (hrs)	6.7
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	55.1
	Total volume of water moved (m ³ /d)	5.1
	Hours of operation (hrs)	3.3
Maximum head (m)		8.9
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)		250
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)		\$\$
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)		\$\$

TEST SETUP

Simulated PV array size (W)	265
Simulated head (m)	4



Company Aggrico Solar Ghana Ltd.
Sales Contact Karishma Samtani
Phone +971-50-482-4317
Email info@aggrico.com
Website www.aggrico.com

GrowFast 10 PS2-100 AHRP-23S



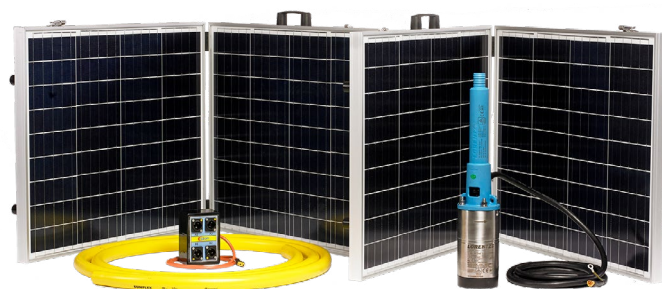
Submersible Pump Low head, low flow applications

SPECIFICATIONS

Model Number	PS2-100 AHRP-23S	
Pump Type	Helical rotor	
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	442.6
	Total volume of water moved (m ³ /d)	16.2
	Hours of operation (hrs)	8.7
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	240.7
	Total volume of water moved (m ³ /d)	8.8
	Hours of operation (hrs)	6.1
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	56.0
	Total volume of water moved (m ³ /d)	2.1
	Hours of operation (hrs)	2.0
Maximum head (m)	18.4	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	200	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$	

TEST SETUP

Simulated PV array size (W)	200
Simulated head (m)	10



Company Azuri Technologies Ltd.
 Sales Contact Nigel Preston
 Phone +44 7748 337929
 Email info@azuri-technologies.com
 Website www.azuri-technologies.com

PS2-600 C-SJ8-5

Submersible Pump Low head, low flow applications



SPECIFICATIONS

Model Number	PS2-600 C-SJ8-5	
Pump Type	Centrifugal	
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	1027.0
	Total volume of water moved (m ³ /d)	30.2
	Hours of operation (hrs)	9.2
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	465.2
	Total volume of water moved (m ³ /d)	13.7
	Hours of operation (hrs)	6.7
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	106.0
	Total volume of water moved (m ³ /d)	3.1
	Hours of operation (hrs)	3.3
Maximum head (m)	23.4	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	250	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$\$\$	

TEST SETUP

Simulated PV array size (W)	410
Simulated head (m)	12.5



Company BERNT LORENTZ GmbH
Sales Contact Adrian Honey
Phone +44 7935 372155
Email adrian.honey@lorentz.de
Website www.lorentz.de

MoneyMaker SunDew Solar Pump

Submersible Pump
Low head, low flow applications

FINALIST

SPECIFICATIONS

Model Number	SLPC-200/24D	
Pump Type	Centrifugal	
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	219.0
	Total volume of water moved (m ³ /d)	20.1
	Hours of operation (hrs)	10.1
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	125.7
	Total volume of water moved (m ³ /d)	11.5
	Hours of operation (hrs)	8.0
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kWh)	Hydraulic energy per day (Wh/d)	45.7
	Total volume of water moved (m ³ /d)	4.2
	Hours of operation (hrs)	5.1
Maximum head (m)	11.6	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	200	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$	

TEST SETUP

Simulated PV array size (W)	120
Simulated head (m)	4



Lotus 2, SI-226

Submersible Pump Low head, low flow applications



SPECIFICATIONS

Model Number	Lotus 2, SI-226	
Pump Type	Centrifugal	
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	434.4
	Total volume of water moved (m ³ /d)	19.9
	Hours of operation (hrs)	9.2
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	181.5
	Total volume of water moved (m ³ /d)	8.3
	Hours of operation (hrs)	6.7
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	30.0
	Total volume of water moved (m ³ /d)	1.4
	Hours of operation (hrs)	3.3
Maximum head (m)	18.3	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	400	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$	

TEST SETUP

Simulated PV array size (W)	260
Simulated head (m)	8



Company Proximity Designs
Sales Contact
Phone +95 97 8787 6699
Email engage@proximitydesigns.org
Website www.proximitydesigns.org

RainMaker2C Kubwa with ClimateSmart Direct

Submersible Pump
Low head, low flow applications

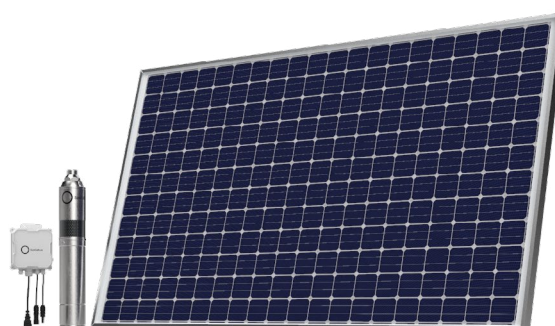


SPECIFICATIONS

Model Number	RainMaker2C Kubwa	
Pump Type	Centrifugal	
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	324.1
	Total volume of water moved (m ³ /d)	30.6
	Hours of operation (hrs)	11.6
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	269.3
	Total volume of water moved (m ³ /d)	24.7
	Hours of operation (hrs)	9.8
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	178.8
	Total volume of water moved (m ³ /d)	16.4
	Hours of operation (hrs)	7.2
Maximum head (m)	39.6	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	150	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$\$	

TEST SETUP

Simulated PV array size (W)	600
Simulated head (m)	3



SunCulture

Company SunCulture Kenya Ltd.
Sales Contact Hack Stiernblad
Phone +254708025877
Email hack.stiernblad@sunculture.com
Website www.sunculture.com

RainMaker2S with ClimateSmart Direct

Submersible Pump Medium head, low flow applications



SPECIFICATIONS

Model Number	RainMaker2S	
Pump Type	Helical rotor	
Sunny, high irradiance day (peak irradiance of 1000W/m ² , total energy of 7.9kWh)	Hydraulic energy (Wh/d)	600.4
	Total volume of water moved (m ³ /d)	7.3
	Hours of operation (hrs)	8.0
Partly cloudy, average irradiance day (700W/m ² peak, and 5.0kWh)	Hydraulic energy per day (Wh/d)	445.1
	Total volume of water moved (m ³ /d)	5.4
	Hours of operation (hrs)	8.0
Fully cloudy, low irradiance day (450/m ² peak, and 2.6kW)	Hydraulic energy per day (Wh/d)	250.4
	Total volume of water moved (m ³ /d)	3.1
	Hours of operation (hrs)	5.1
Maximum head (m)	66.9	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	100	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$	

TEST SETUP

Simulated PV array size (W)	600
Simulated head (m)	30



SunCulture

Company SunCulture Kenya Ltd.
 Sales Contact Hack Stiernblad
 Phone +254708025877
 Email hack.stiernblad@sunculture.com
 Website www.sunculture.com

PS2-100 AHRP-07S-2

Submersible Pump Medium head, low flow applications

FINALIST

SPECIFICATIONS

Model Number	PS2-100 AHRP-07S-2	
Pump Type	Helical rotor	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	593.9
	Total volume of water moved (m ³ /d)	7.3
	Hours of operation (hrs)	9.7
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	391.7
	Total volume of water moved (m ³ /d)	4.8
	Hours of operation (hrs)	7.4
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	163.2
	Total volume of water moved (m ³ /d)	2.0
	Hours of operation (hrs)	4.3
Maximum head (m)	62.2	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	200	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$	

TEST SETUP

Simulated PV array size (W)	205
Simulated head (m)	30



LORENTZ 

Company BERNT LORENTZ GmbH
Sales Contact Adrian Honey
Phone +44 7935 372155
Email adrian.honey@lorentz.de
Website www.lorentz.de

Solartech SPM600HS

Submersible Pump Medium head, low flow applications

FINALIST



SPECIFICATIONS

Model Number	SPM600HS	
Pump Type	Helical rotor	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	1557.2
	Total volume of water moved (m ³ /d)	14.3
	Hours of operation (hrs)	10.1
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	803.1
	Total volume of water moved (m ³ /d)	7.4
	Hours of operation (hrs)	8.0
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	309.6
	Total volume of water moved (m ³ /d)	2.8
	Hours of operation (hrs)	5.1
Maximum head (m)	70.2	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	100	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$\$	

TEST SETUP

Simulated PV array size (W)	600
Simulated head (m)	40



Company Shenzhen Solartech
Renewable Energy Co., Ltd.
Sales Contact Chen Huimin
Phone +86-18665968286
Email chenhuimin@solartech.net.cn
Website www.solartech.cn

Solartech SPM400HS

Submersible Pump Medium head, low flow applications

FINALIST

SPECIFICATIONS

Model Number	SPM400HS	
Pump Type	Helical rotor	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	775.1
	Total volume of water moved (m ³ /d)	14.2
	Hours of operation (hrs)	10.1
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	436.8
	Total volume of water moved (m ³ /d)	8.0
	Hours of operation (hrs)	8.0
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	187.7
	Total volume of water moved (m ³ /d)	3.4
	Hours of operation (hrs)	5.1
Maximum head (m)	45.8	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	150	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$	

TEST SETUP

Simulated PV array size (W)	330
Simulated head (m)	20



Company Shenzhen Solartech
Renewable Energy Co., Ltd.

Sales Contact Chen Huimin
Phone +86-18665968286
Email chenhuimin@solartech.net.cn
Website www.solartech.cn

Kisma 2

Submersible Pump Medium head, low flow applications



SPECIFICATIONS

Model Number	SP 12	
Pump Type	Helical rotor	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	426.2
	Total volume of water moved (m ³ /d)	6.3
	Hours of operation (hrs)	9.7
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	200.3
	Total volume of water moved (m ³ /d)	2.9
	Hours of operation (hrs)	7.4
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	54.3
	Total volume of water moved (m ³ /d)	0.8
	Hours of operation (hrs)	4.3
Maximum head (m)	48.9	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	150	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$	

TEST SETUP

Simulated PV array size (W)	250
Simulated head (m)	25



Company Simusolar Ltd.
Sales Contact John Tunganaza
Phone +255 713-123-998
Email jtunganaza@simusolar.com
Website www.simusolar.com

Solar Submersible Pump System 03



Submersible Pump Medium head, low flow applications

SPECIFICATIONS

Model Number	SSG-GLSP-04 (Powered by Nastec)	
Pump Type	Helical rotor	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	1576.3
	Total volume of water moved (m ³ /d)	14.5
	Hours of operation (hrs)	9.2
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	826.9
	Total volume of water moved (m ³ /d)	7.6
	Hours of operation (hrs)	6.7
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	250.4
	Total volume of water moved (m ³ /d)	2.3
	Hours of operation (hrs)	3.3
Maximum head (m)	75.6	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	200	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$\$\$	

TEST SETUP

Simulated PV array size (W)	600
Simulated head (m)	40



Company Super Star Renewable Energy Ltd.
 Sales Contact Sheikh Tofael Ahmed
 Phone +8801755633924
 Email tofael@ssgbd.com
 Website www.ssgbd.com

SQFlex 2.5-2

Submersible Pump High head, low flow applications



SPECIFICATIONS

Model Number		2.5-2
Pump Type		Helical rotor
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	3466.2
	Total volume of water moved (m ³ /d)	15.9
	Hours of operation (hrs)	10.1
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	1774.7
	Total volume of water moved (m ³ /d)	8.1
	Hours of operation (hrs)	8.0
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	667.8
	Total volume of water moved (m ³ /d)	3.1
	Hours of operation (hrs)	5.1
Maximum head (m)		130.9
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)		50
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)		\$\$\$
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)		\$\$\$

TEST SETUP

Simulated PV array size (W)	1000
Simulated head (m)	80



Company Grundfos
Sales Contact Geraldine Tsui Yee Lin
Phone +45 24852108
Email gtylin@grundfos.com
Website www.grundfos.com

PS2-600 HR-04H

Submersible Pump High head, low flow applications

FINALIST

SPECIFICATIONS

Model Number	PS2-600 HR-04H	
Pump Type	Helical rotor	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	1083.7
	Total volume of water moved (m ³ /d)	4.9
	Hours of operation (hrs)	9.7
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	638.4
	Total volume of water moved (m ³ /d)	2.9
	Hours of operation (hrs)	7.4
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	212.8
	Total volume of water moved (m ³ /d)	1.0
	Hours of operation (hrs)	4.3
Maximum head (m)	191.1	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	100	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$	

TEST SETUP

Simulated PV array size (W)	410
Simulated head (m)	82



LORENTZ 

Company BERNT LORENTZ GmbH
Sales Contact Adrian Honey
Phone +44 7935 372155
Email adrian.honey@lorentz.de
Website www.lorentz.de

Submersible Pump High head, low flow applications



SPECIFICATIONS

Model Number	SP8	
Pump Type	Centrifugal	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	2937.4
	Total volume of water moved (m ³ /d)	13.5
	Hours of operation (hrs)	8.7
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	1268.8
	Total volume of water moved (m ³ /d)	5.8
	Hours of operation (hrs)	6.1
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	127.9
	Total volume of water moved (m ³ /d)	0.6
	Hours of operation (hrs)	2.0
Maximum head (m)	101.4	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	50	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$\$	

TEST SETUP

Simulated PV array size (W)	2250
Simulated head (m)	80



Company Simusolar Ltd.
 Sales Contact John Tunganaraza
 Phone +255 713-123-998
 Email jtunganaraza@simusolar.com
 Website www.simusolar.com

4" Solar Submersible Pump 1.7HP

Submersible Pump High flow applications

WINNER

SPECIFICATIONS

Model Number	4DPC9-58-110-1300	
Pump Type	Centrifugal	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	2401.0
	Total volume of water moved (m ³ /d)	90.9
	Hours of operation (hrs)	12.2
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	1880.3
	Total volume of water moved (m ³ /d)	69.0
	Hours of operation (hrs)	10.5
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	1170.1
	Total volume of water moved (m ³ /d)	42.9
	Hours of operation (hrs)	7.9
Maximum head (m)	77.1	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	50	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$	

TEST SETUP

Simulated PV array size (W)	1650
Simulated head (m)	10



Company Bengal Renewable Energy Ltd.
 Sales Contact Md. Ershadullah
 Phone +8801704112903
 Email ops5.brel@bengal.com.bd
 Website www.bengalsolar.com.bd

Submersible Pump High flow applications



SPECIFICATIONS

Model Number	SP6	
Pump Type	Centrifugal	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	3214.8
	Total volume of water moved (m ³ /d)	119.3
	Hours of operation (hrs)	11.6
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	2250.7
	Total volume of water moved (m ³ /d)	82.6
	Hours of operation (hrs)	9.8
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	1203.8
	Total volume of water moved (m ³ /d)	44.2
	Hours of operation (hrs)	7.2
Maximum head (m)	22.7	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	100	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$	

TEST SETUP

Simulated PV array size (W)	1500
Simulated head (m)	10



Company Simusolar Ltd.
 Sales Contact John Tungaraza
 Phone +255 713-123-998
 Email jtungaraza@simusolar.com
 Website www.simusolar.com

Solar Submersible Pump System 02



Submersible Pump High flow applications

SPECIFICATIONS

Model Number	SSG-GLSP-03 (Powered by Nastec)	
Pump Type	Centrifugal	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	4287.2
	Total volume of water moved (m ³ /d)	78.7
	Hours of operation (hrs)	9.2
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	2559.4
	Total volume of water moved (m ³ /d)	47.0
	Hours of operation (hrs)	6.7
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	952.8
	Total volume of water moved (m ³ /d)	17.5
	Hours of operation (hrs)	3.3
Maximum head (m)	50.7	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	250	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$\$\$	

TEST SETUP

Simulated PV array size (W)	2100
Simulated head (m)	20



Company Super Star Renewable Energy Ltd.
 Sales Contact Sheikh Tofael Ahmed
 Phone +8801755633924
 Email tofael@ssgbd.com
 Website www.ssgbd.com

RainMaker2S with ClimateSmart Battery

Battery-Integrated Pump



SPECIFICATIONS

Model Number	Rainmaker2S	
Pump Type	Positive displacement	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	634.2
	Total volume of water moved (m ³ /d)	11.6
	Hours of operation (hrs)	14.9
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	401.1
	Total volume of water moved (m ³ /d)	7.4
	Hours of operation (hrs)	9.4
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	221.8
	Total volume of water moved (m ³ /d)	4.1
	Hours of operation (hrs)	5.2
Maximum head (m)	70.7	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	Not tested	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$	

TEST SETUP

Simulated PV array size (W)	300
Simulated head (m)	20



SunCulture

Company SunCulture Kenya Ltd.
 Sales Contact Hack Stiernblad
 Phone +254708025877
 Email hack.stiernblad@sunculture.com
 Website www.sunculture.com

RainMaker2C with ClimateSmart Battery



Battery-Integrated Pump

SPECIFICATIONS

Model Number	RainMaker2C	
Pump Type	Centrifugal	
Sunny, high irradiance day (1000W/m ² peak)	Hydraulic energy (Wh/d)	92.3
	Total volume of water moved (m ³ /d)	33.9
	Hours of operation (hrs)	12.6
Partly cloudy, average irradiance day (700W/m ² peak)	Hydraulic energy per day (Wh/d)	58.4
	Total volume of water moved (m ³ /d)	21.4
	Hours of operation (hrs)	8.0
Fully cloudy, low irradiance day (450W/m ² peak)	Hydraulic energy per day (Wh/d)	32.3
	Total volume of water moved (m ³ /d)	11.9
	Hours of operation (hrs)	4.4
Maximum head (m)	18.8	
Minimum irradiance required to start the pump - 50W/m ² increments (W/m ²)	Not tested	
Price index without PV system - includes pump, motor, controls (\$-\$\$\$\$)	\$\$	
Price index with PV system - based on standardized price per watt (\$-\$\$\$\$)	\$\$	

TEST SETUP

Simulated PV array size (W)	300
Simulated head (m)	1



SunCulture

Company SunCulture Kenya Ltd.
 Sales Contact Hack Stiernblad
 Phone +254708025877
 Email hack.stiernblad@sunculture.com
 Website www.sunculture.com



Credit: Simusolar



www.globalLEAPawards.org



info@globalLEAPawards.org



[@LEAP_Awards](https://twitter.com/LEAP_Awards)



Credit: Shell Foundation

ACKNOWLEDGEMENTS

Global LEAP extends its thanks to the companies that participated in the 2019 Global LEAP Awards Solar Water Pump Competition. Global LEAP would also like to extend a special thanks to the off-grid market and technical experts who served as Expert Judges for the competition, including: Augusta Abrahamse (US Department for International Development), Elliot Avila (A2EI), Walter Kipruto (GIZ Kenya), Amanda DelCore (factorE), Eric Ruzigamanzi (Energy 4 Impact), Headley Jacobus (Tetrattech), Naate Masangazira (Venture South Uganda).



CLASP serves as Administrator of the Global LEAP Awards and other Global LEAP initiatives.