

# WORLD'S NO. 1 **SOLAR PUMPS** WITH 40% MORE DISCHARGE



# What is a Solar Pump?

A Solar Pump has PV panels that convert solar energy into electricity that drives motors and pumps. Thus, water from a well, river, lake or tube well can be drawn/ circulated using solar energy.

## Why Solar Pump?

With solar pumps, a farmer can cultivate 3 crops a year, which earlier was not possible because of lack of power availability or costlier operation through diesel. Solar pumps enable crop irrigation during daytime because they make food from sunlight, CO<sub>2</sub> and water. Water given at night anyway gets wasted. Other benefits are:

- One time investment delivers profits year after year for long life
- Freedom from unreliable grid power or diesel/ kerosene driven pumps
- No motor burnouts/ transformer burnouts
- Zero running cost, as sunlight is free (only protection & cleaning of solar panels required)
- No pollution of air (carbon emission free pump), water or sound
- Easy to operate in remote areas too

## How does a Solar Pump work?

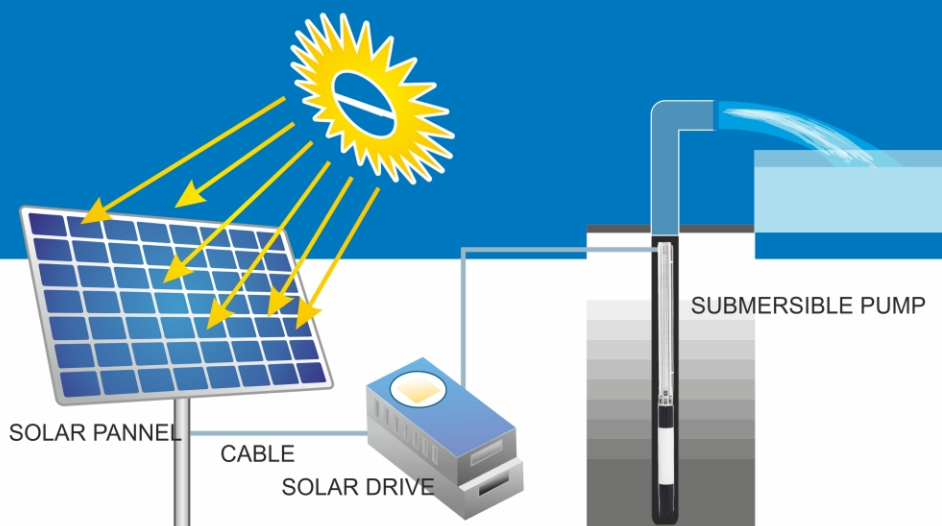
Solar pumps operate using three main components. Solar cells collect the sun's rays and convert them into usable electricity. These cells are usually covered in silicon or another semiconductor material that produces direct-current electricity. Wiring moves the electricity from the cells to the pump, and the pump does the work of moving the water. As sun rises, intensity in sunlight slowly increases and starts driving a pump say 1-2 hours after sunrise. Current and pump flow increase from morning to noon and then decrease from noon to evening.

## Help us to help you select

To select the most suitable solar pump model to fulfill your need/ application, we need from you:

- (1) Total daily water need in litres/ day for your application
- (2) Vertical distance/ depth/ height through which water is to be raised in meters or feet
- (3) Total pipeline length (in meter or feet) from pump discharge to water delivery point and pipe diameter (mm)
- (4) If water is entering any drip/ sprinkler/ filter system which needs minimum pressure to work satisfactorily?
- (5) If yes, how much?

Do share the above data with us so that we select just the right pump model for you. That'll make your investment smart and you- happy!



# Why Brand Shakti?

- Shakti- a synonym for Efficiency, Reliability, Durability and After Sales Service
- 1st manufacturer of energy efficient pumps and motors & 100% stainless steel pumps
- India's largest manufacturer of solar pumps & largest exporter of submersible pumps
- Manufacturer of India's largest solar pump of 40 HP rating commissioned in Middle East
- "India's Most Trusted Solar Pump Manufacturer" - by Tata, JAIN, SunEdison & over 100 Corporate OEMs
- Channel Partner of highest rating '1A' with Ministry of New & Renewable Energy, Government of India

## What does Shakti Solar Pumping System consist of?

- Solar PV Modules & Mounting Structure with double axis manual tracking & Anti theft nuts
- Solar Pump Motor set with Controller (DC/ AC)
- Suitably engineered Pipes, Cable & Accessories complete with Earthing Kit & Switches
- Strong and stable foundation for lasting longer
- Site survey for appropriate pump selection
- Installation/commissioning & training to use solar pump

## Why Shakti Solar Pump?

Shakti Solar Pumps have better hydraulic impeller & casing/diffuser designs and sheet metal stainless steel parts for smooth hydraulic passages; which ensure higher efficiencies in pumps. Shakti Solar Motors are specially designed for high efficiency and long life. That is why they give more discharge than other solar pumps of same rating. An ordinary solar pump is not as efficient as a Shakti Solar Pump. It draws more current than equivalent Shakti Solar Pump with the same water output as Shakti Solar Pump. An ordinary solar pumps start late after sunrise and shut early; or require more solar PV panels, to deliver the same water as a Shakti Solar Pump. Shakti product is also more reliable & more durable than others and are built for long life. It is backed by authorized service centres all around the country, where trained technicians handle service quickly and efficiently.

### Benefits of Shakti Solar Pump:

- 25 years back to back performance guarantee of solar photovoltaic panels from Shakti Pumps (I) Ltd.
- More water discharge than other equivalent pumps due to high efficiency pumps and motors
- All parts of pumps & motors are made of stainless steel; which when in touch with water, stay rust-free
- Reliable and Durable as the Sun
- Investment payback in less than 4 years and Gain for the next 20 years
- Backed by nationwide service
- Indigenously designed and made in India, so spare parts etc can be available for 25 years



## Technical Features:

- Starts and stops automatically after sunrise and close to sunset
- Can run on both Grid power and Solar PV power
- Dry Run Protection i.e. controller switches off the motor pump set if there is no water, preventing pump blockage
- Protections against Over-voltage, Under-voltage, Short Circuit, Phase imbalance, Cut cable, Lightening Strike
- Remote monitoring and control come programming unit optionally available at extra price
- Anti theft fasteners, which make it impossible for thieves to remove solar panels from structure unless solar panels are broken or steel frame itself is cut
- One of the widest duty range of pumps from 0.5 HP to 335 HP with heads upto 600 meters
- Mounting Structure that can withstand wind speeds upto 150 km/hr
- Mounting structure elements made of hot dip galvanized metal with 80 micron thickness for long corrosion free life of 25 years

## Technical Specifications of Major Parts:

<b>Solar PV Modules</b>	:	Conforming to IEC 61215 and IEC 61730 – Part I & II
<b>Controller</b>	:	As per IEC 61683
<b>Pump &amp; Motor</b>	:	As per MNRE specifications of Government of India for Solar Pumps and as per IS (Indian Standard)

## Shakti Solar Pump Package Range :

(Giving detailed list of bill of material that Shakti provides)

A	B	C (Solar Pump Kit)	D (Solar Pumping System with Pipe, Cable & Accessories)	E (Solar Pumping System Commissioned)
Solar Pump-Motor Set (A1) & Solar Pumps Motor set with controller (A2)	Solar Pump-Motor Set with PV Panels (B1) or Solar Pump-Motor Set with PV mounting structure (B2)	<ol style="list-style-type: none"> <li>1. Solar Pump-Motor Set</li> <li>2. Solar Controller</li> <li>3. Solar PV Modules with interconnecting Cables</li> <li>4. PV Mounting Structure with Anti-theft Fasteners &amp; Earthing Kit</li> </ol>	<ol style="list-style-type: none"> <li>1. Solar Pump-Motor Set</li> <li>2. Solar Controller</li> <li>3. Solar PV Modules</li> <li>4. PV Mounting Structure with Anti-theft Fasteners &amp; Earthing Kit</li> <li>5. Pipe, Cable &amp; all accessories as per MNRE</li> </ol>	Solar Pumping System as per Package (D) with free service from site survey to commissioning to training

For specific enquiries, write an e-mail to [info@shaktipumps.com](mailto:info@shaktipumps.com)

## Warranty & Performance Guarantee:

Warranty against manufacturing defects only	Solar Pump-Motor Set	Solar Controller	Solar Pump Kit	Solar Pump System
	5 years if bought under Nabard - MNRE scheme OR 1 year if bought directly with reduced price			
Performance Guarantee for SPV modules back to back from Shakti & PV manufacturer (as per IEC)				25 years as per IEC

# FARMERS WHO HAVE SWITCHED TO SHAKTI SOLAR PUMPS:

“After 18 years, I could sleep soundly and without worrying about irrigating my farm at night.”

Kullappa Kumbhal, Atharga

“Nuisance of motor/ transformer burning or unreliable grid supply stopping our irrigation is finally ... over!”

Srishail Kumbhal, Atharga

“Shakti Solar pump made me rich & now I'm going to invest in Shakti drip to increase my yield and become richer.”

Santosh Kumar Shringar, Chadchan

“I could cultivate 3 crops in the last 2 years due to Shakti Solar pump and my investment bore fruits. Now only profits!”

Dadasaheb Pawar Desai, Athani

# SOLAR PUMP SETS INSTALLED

ZONE	QUANTITY
India (MP, CG, Rajasthan, Karnataka, Maharashtra AP, Bihar)	10,000
Abroad (Africa & Middle East)	16,000
Turnkey Installation	500



Authorised Dealer/Distributor

## SHAKTI PUMPS (I) LTD.

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