

# SOLAR WATER PUMPS

TRANSFORMING THE RURAL FARMING LANDSCAPE



## STANDALONE - SOLAR POWERED AC/DC PUMPING SYSTEM



**IEC Certified  
modules from TATA**



**Dawn to dusk  
operation**



**Remote monitoring  
option available**



**Maintenance free  
system**

**BRINGING RELIABLE WATER SUPPLY WITH SOLAR WATER PUMP SOLUTIONS**

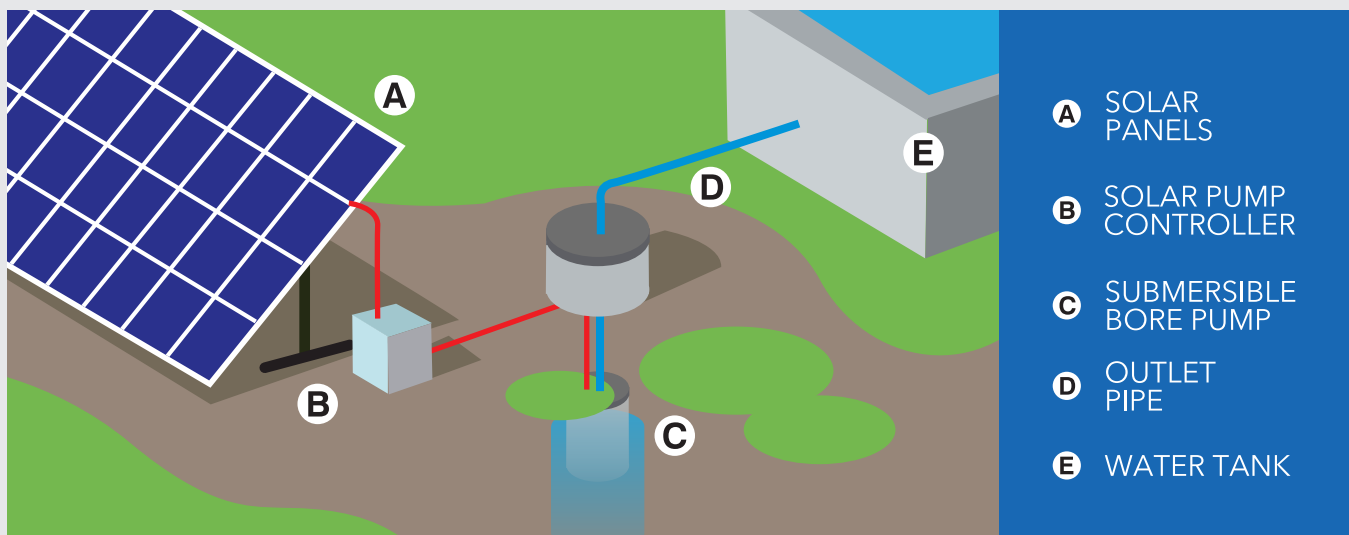
# What is a solar pump

A solar pump is an application of photovoltaic technology which converts solar energy into electricity to run motor and pump. The motor powered by solar energy draws water out of the bore well, river, lake or pond.



## Solar Water Pump working procedure

The photovoltaic cells in solar modules convert sunlight into Direct Current (DC) electrical energy. This DC energy is then fed to the Motor Pump Set via Pump Controller in case of DC pump or via Variable Frequency Drive (VFD) in case of AC pumps (VFD controls speed of Motor). The Pumping system is a combination of an impeller and a motor; the impeller propels water movement and the motor drives the pump. The water is propelled out of the bore well/river/lake/pond through the pipe so that water can then be fed to the fields for irrigation and other purposes. Water output varies during the day depending upon varying solar irradiance.



# Benefits of solar pump

- No dependence on erratic grid power and saving on expensive diesel
- Higher yield during the day time when crop gets all the necessary ingredients - sunlight and water
- Water output across all seasons to cultivate multiple crops every year
- One time investment and then zero running costs (free sunlight) for many years to come
- Easy for farmers to cultivate the land during day time rather than at night time when grid is erratic
- Drip and sprinkler systems can be connected with the solar system to further improve crop yield
- Solar system needs no maintenance except regular cleaning of the modules - no consumables; easy to operate
- As water can be harnessed any time of the day, the user can plan his other activities independently
- Contribution to reduction of carbon emission and pollution

## WHY TATA POWER SOLAR PUMP

Brand Tata	A synonym for trust
Brand Tata Power Solar	India's only solar company with 32 years of solar experience; India's leading solar manufacturing company
Reliability	25 years solar module warranty with <0.1% warranty claim over 2 decades
Safety Features	Protection features like dry run, reverse polarity, low voltage and lightening arrestor
Longevity	Corrosion resistant galvanized iron mounting structures for longer life
Hassle Free Installation	Assistance for paper work and best-fit system for maximizing your benefit
Certifications	Conforming to MNRE specifications by Government of India

## What does Tata Power Solar system consist of...

- Solar PV modules with 25 years power warranty
- Galvanized iron module mounting structures with a provision to adjust module towards sun 3 times in a day. This can withstand speed of 150 km/hr
- Pump controller (in DC) or Variable Frequency Drive (in AC pump)
- Solar Pump motor set (DC/AC) made of stainless steel which remains rust-free.
- Cast iron pump available as per request
- Suitable accessories - pipe, cable, rope etc
- Remote monitoring option available on request
- Warranty against manufacturing defect on pump, controller, module and pump kit
- NABARD - MNRE scheme pump systems are also available

# Tata Power Solar Pump Range

Tata Power Solar offers both dual AC and DC range of pumps suitable for Surface, Bore well and Open Well applications. These pumps can be used for various applications: Agriculture irrigation, drinking water (replacement of hand pump & dual hand pump). Customized solutions are available on request.

## DC Surface Pumps

Technical Data	1HP DC	2HP DC	3HP DC	5HP DC	7.5HP DC	10HP DC
Pump Type	Surface / Shallow water source					
PV Array Size (Wp)	900	1800	2700	4800	6750	9000
Pump Capacity (HP)	1	2	3	5	7.5	10
Total Dynamic Head (m)	10	10	10	10	10	10
Shut off Dynamic Head (m)*	12	12	12	12	12	12
Water discharge (LPD)	99,000	1,98,000	2,97,000	5,28,000	7,42,000	9,90,000
LPD - Litres per day	@ 10m head	@ 10m head	@ 10m head	@ 10m head	@ 10m head	@ 10m head

## DC Submersible Pumps

Technical Data	1HP DC	2HP DC	3HP DC	5HP DC	7.5HP DC	10HP DC
Pump Type	Submersible / Borewell, Tubewell, Diggi					
PV Array Size (Wp)	1200	1800	3000	4800	6750	9000
Pump Capacity (HP)	1	2	3	5	7.5	10
Total Dynamic Head (m)	30	30	50	50	50	50
Shut off Dynamic Head (m)*	45	45	75	70	70	70
Water discharge (LPD)	45,600	68,400	1,14,000	1,10,400	1,55,250	2,07,000
LPD - Litres per day	@ 30m head	@ 30m head	@ 30m head	@ 50m head	@ 50m head	@ 50m head



## AC Surface Pumps

Technical Data	1HP AC	2HP AC	3HP AC	5HP AC	7.5HP AC	10HP AC
Pump Type	Surface / Shallow water source					
PV Array Size (Wp)	900	1800	2700	4800	6750	9000
Pump Capacity (HP)	1	2	3	5	7.5	10
Total Dynamic Head (m)	10	10	10	10	10	10
Shut off Dynamic Head (m)*	12	12	12	12	12	12
Water discharge (LPD)	89,100	1,78,200	2,67,300	4,75,200	6,41,025	8,90,000
LPD - Litres per day	@ 10m head	@ 10m head	@ 10m head	@ 10m head	@ 10m head	@ 10m head

## AC Submersible Pumps

Technical Data	1HP AC	2HP AC	3HP AC	5HP AC	7.5HP AC	10HP AC
Pump Type	Submersible / Borewell, Tubewell, Diggi					
PV Array Size (Wp)	1200	1800	3000	4800	6750	9000
Pump Capacity (HP)	1	2	3	5	7.5	10
Total Dynamic Head (m)	30	30	30	50	50	50
Shut off Dynamic Head (m)*	45	45	45	70	70	70
Water discharge (LPD)	42,000	63,000	1,05,000	1,00,800	1,41,750	1,89,000
LPD - Litres per day	@ 30m head	@ 30m head	@ 30m head	@ 50m head	@ 50m head	@ 50m head

# Project Showcase

Tata Power Solar has a rich experience of over 32 years with extensive installation base of more than 50,000 Nos. of Pumps across the country. Major installations are in the state of Maharashtra, Jharkhand, U.P, Chattisgarh, Haryana, Bihar to name a few.

## How to Order

Kindly provide the below mentioned information to get the optimal solution for your water pump requirement:

- A) Customer Contact Details: Name, Address and Phone number
- B) Pump Details: Type of pump (AC/DC and Surface/Submersible/Open Well), location address, daily water requirement (Litre per day - LPD), vertical height, pipeline length from pump discharge to delivery point, drip / sprinkler system

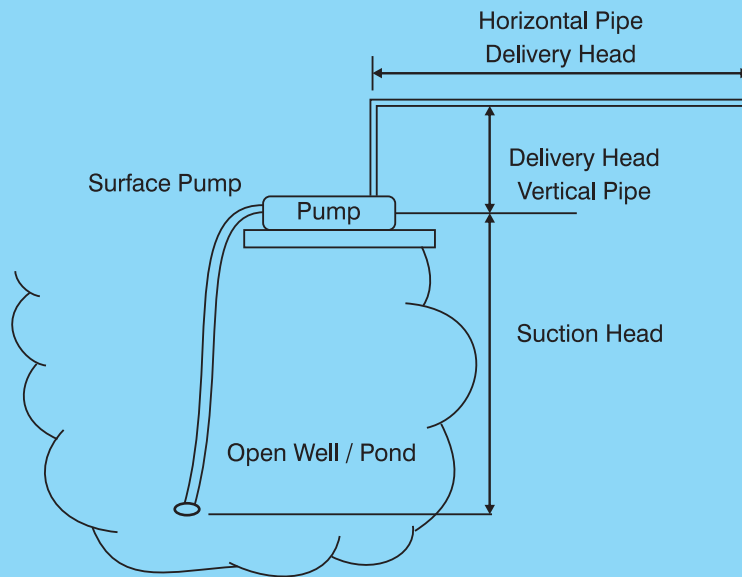
NOTE: The selection of suitable pump is a very crucial decision and is based on the type of source, depth of water and delivery conditions; please consult our experts before finalizing the variant.

Kindly reach out to our nearest dealer / regional sales office / customer care for your enquiry.

## Our Water Pump Installations

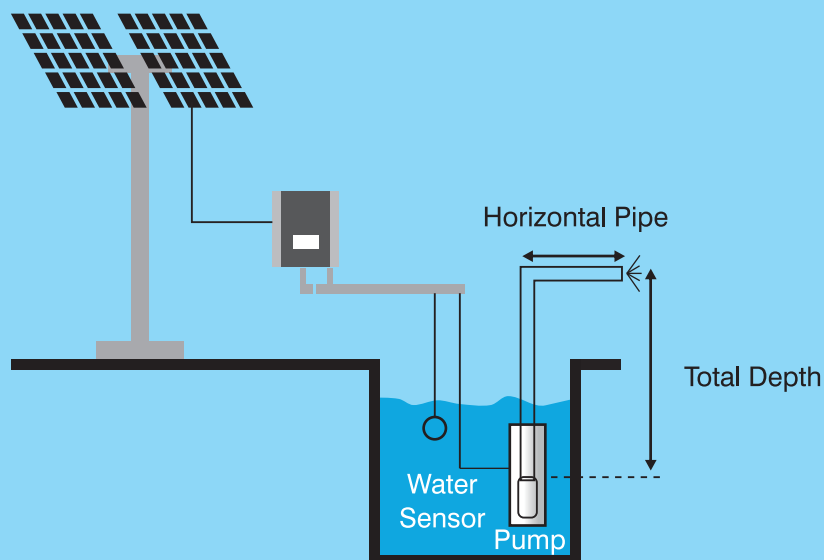


# Surface Pump Schematic



Total Dynamic Head in surface pump = Suction Head + Vertical Pipe Delivery Head

# Submersible Pump Schematic



Total Dynamic Head in submersible pump = Vertical Head (Total Depth) + Horizontal Head

1. Please note, horizontal head is dependent upon pipeline length from pump discharge to water delivery point.
2. In case, the water is being stored in an overhead storage tank, please mention the height from the ground and horizontal distance from the pump.
3. If you are using any drip / sprinkler, kindly mention the same in your enquiry.

# Do's

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- Check the connections and cables periodically for any damages and report.
- Always operate the controller with dry hands.
- Set the tracker to position shown.
- After sunset, when operating in manual mode, modules must be brought to stow position which is parallel to the earth.
- Check safety rope for damages and replace when needed.
- After any storms/rain, check the system for healthy working.
- Controller to be operated by trained people.
- Clean the modules early in the morning or late in the evening when the modules are at normal temperature.
- Keep the controller box locked.
- If the controller or actuator is not working, then, do place a call to the customer service support team of Tata Power Solar.
- Get the annual maintenance contract signed.
- Ensure the lubrication on screw rods (manual tracking) is provided every 3 months for smooth operation.

# Don'ts

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- Do not replace any modules with modules of other make or rating.
- Do not open the connections between the modules.
- Junction box must not be operated by an untrained person.
- Do not compare your pump's water discharge at the field with that of neighbours, as it depends on the bore condition.



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