



INDIA'S LEADING
WATER PUMPING SOLUTION
PROVIDER



WAA MOTORS AND PUMPS
A **WAAREE** group company

SOLAR WATER PUMPS

Pump Range : 1HP to 10HP
(As per MNRE guidelines)





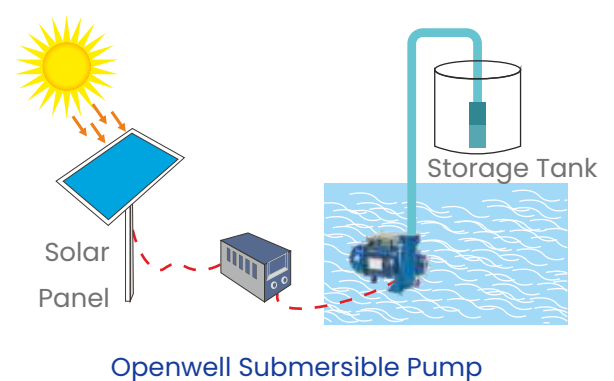
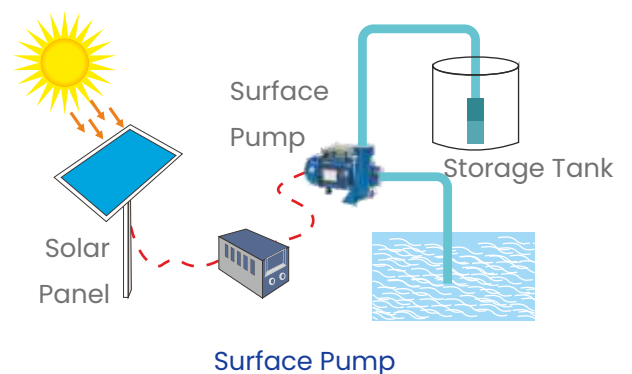
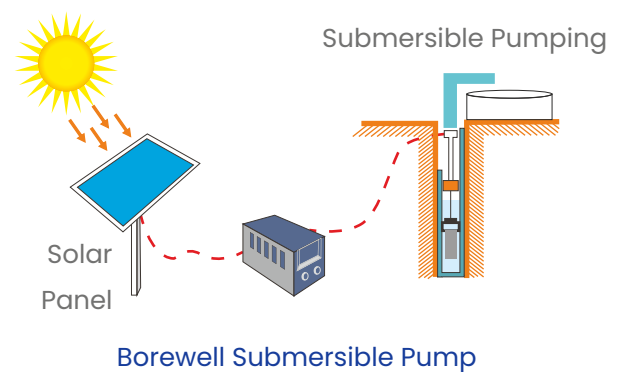
INTRODUCTION – SOLAR PUMP

A solar pump uses power derived from sunlight that is converted into electrical power by Solar Photo Voltaic (SPV) modules, which give higher power output in the afternoons and lower power output in the early morning and evening. As a result, solar pump works on varying power input and gives varying water output at a given pump duty head. The most important parameters to select a solar pump are: how much water is needed daily, at what pump duty head, and at which location. The location is important because solar energy varies from region to region, and sizing of solar panels depends on the capacity of solar pumps and also solar radiation of that region.

SOLAR WATER PUMPING SYSTEM

We have come up with solar water pumping solutions that utilize the energy of the sun to supply water. Major Components of Solar Pumping System:

1. Solar pump and motor set
2. Solar water pump controller
3. Solar PV Modules
4. Structure (for fixing PV modules)
5. Pipes and cables
6. Foundation set (consisting of foundation bolts, structure, anti-theft nut bolts and civil construction material-cement, sand, stones .etc.)
7. Earthing and lightning arresters





TECHNICAL DATA

- Available from 1 HP to 10 HP AC, 50 Hz induction motors as standard, which works on variable frequency according to variable sun intensity.
- Also available for DC category motors
- Rated Power : 0.75 KW to 7.5 kW
- Motor Efficiency: 80% to 96%
- Motor Speed: 900 to 3600 rpm
- Enclosure: IP65
- Head Range: UPTO 300 m
- Flow Rate: Depend on Duty Head and Capacity
- Solar Pumpset are available in 4" - 10" diameter



SOLAR PUMP RANGE

Type of Pump	Head (M)	Discharge (Litre per day)	HP Rating
Borewell Submersible Pump	30-100	As per MNRE Guidelines	1 to 10
Surface Pump	10-30		1 to 10

* Pumps are available in AC & DC version

SOLAR WATER PUMP CONTROLLER

Waaree Solar water pumping controller can implement the control of the whole system operation, which drives the pump by converting DC power produced by the PV array to AC power. Controller can adjust the output frequency according to the solar irradiation intensity in real time to implement the MPPT (maximum power point tracking). The advantages of solar water controller is that it can run easily & efficiently on both solar (DC power) & grid (conventional AC power - optional), giving very high discharge for maximum time.

TECHNICAL DETAILS FOR SUBMERSIBLE AND SURFACE PUMP SOLAR CONTROLLER

Technical Data	1 HP Pump	2 HP Pump	3 HP Pump	5 HP Pump	7.5 HP Pump	10 HP Pump
Input Power (as per MNRE Guideline)	1200 WP	1800 WP	3000 WP	4800 WP	6750 WP	9000 WP
Max. Input DC Voltage	30 TO 150V	30 TO 230V	30 TO 400V	30 TO 600V	30 TO 450V	30 TO 550V
MPPT Voltage Range	80 TO 135V	180 TO 240V	200 TO 380V	300 TO 540V	300 TO 400V	300 TO 510V
Power Rating	1340Wp	2010Wp	3350Wp	5025Wp	7370Wp	9380Wp
Output Frequency	0 to 120Hz					
MPPT Efficiency	99%					
Max. Output Current	7A	8.5A	9A	9.5A	17A	17A
Applicable Motor Output Power	0.75kW/1 HP	1.5kW/2 HP	2.2kW/3 HP	3.7kW/5 HP	5.5kW/7.5 HP	7.5kW/10 HP
Rated Output Voltage	Depends upon capacity					
Output Current	Depends upon capacity					
Operating Temperature	-10 to 50°C					

Note: For higher capacity pump above 10 HP controllers specification will vary according to pump motor ratings.



ADDITIONAL FEATURES OF WAAREE SOLAR PUMP CONTROLLER

System	Max. Efficiency	97-98%
	Ingress Protection	IP 54 (also available in IP 65)
	Environmental Temp.	-10° C to 45° C
	Cooling Method	Air / Fan cooling
	Display	LCD
Protection	Dry Run Protection	Available
	Over voltage, Low voltage, Phase loss	
	Over current, short circuit, open circuit	
	Reverse Polarity Protection	

REMOTE MONITORING SYSTEM (RMS)

With the help of our GSM based remote monitoring module user can monitor and control his system remotely from all over the world just with the help of internet.

INDICATIVE TECHNICAL SPECIFICATIONS

DRINKING WATER APPLICATION

Description		Model-IV	Description		Model-V
PV array		900 Wp	PV array		900 Wp
Motor Pump set type		1HP Submersible Pump set with electronic controller/inverter	Motor Pump set type		1HP Submersible Pump Set with electronic controller/inverter
Max. Shut Off Head		90 metres	Max. Shut Off Head		120 metres
Module mounting structure		MS hot dipped galvanised, three times manual tracking facilities	Module mounting structure		MS hot dipped galvanised, three times manual tracking facilities
Water Output*		10,000 liters per day from a total dynamic head of 60 meters	Water Output*		5,000 liters per day from a total dynamic head of 90 meters





AGRICULTURE APPLICATION

Shallow Well Surface Solar Pumping Systems with D.C. Motor Pump Set

Description	Model-I	Model-II	Model-III	Model-IV	Model-V	Model-VI	Model-VII	Model-VIII	Model-IX	Model-X	Model-XI	Model-XII	Model-XIII
PV array (Wp)	900	1800	2700	2700	4800	4800	4800	6750	6750	6750	9000	9000	9000
Motor Pump set Cap (Hp)	1	2	3	3	5	5	5	7.5	7.5	7.5	10	10	10
Shut off Dynamic Head(meter)	12	12	12	25	12	25	45	12	25	45	12	25	45
Water Output* (Liter per day)	99000 Total head of 10 meter	198000 Total head of 10 meter	297000 Total head of 10 meter	148500 Total head of 20 meter	528000 Total head of 10 meter	264000 Total head of 20 meter	182400 Total head of 30 meter	742500 Total head of 10 meter	371250 Total head of 20 meter	256500 Total head of 30 meter	990000 Total head of 10 meter	495000 Total head of 20 meter	342000 Total head of 30 meter

*Water output figures are on a clear sunny day with three times tracking of SPV panel, under the "Average Daily Solar Radiation" condition of 7.15 kWh/ sq.m. on the surface of PV array (i.e. coplanar with the PV Modules).

Notes :

1. Suction head, if applicable, minimum 7 meters.

Solar Deep well submersible Pumping Systems with D.C. Motor Pump Set

Description	Model-I	Model-II	Model-III	Model-IV	Model-V	Model-VI	Model-VII	Model-VIII	Model-IX	Model-X	Model-XI	Model-XII	Model-XIII	Model-XIV
PV array (Wp)	1200	1800	3000	3000	3000	4800	4800	4800	6750	6750	6750	9000	9000	9000
Motor Pump set Cap (Hp)	1	2	3	3	3	5	5	5	7.5	7.5	7.5	10	10	10
Shut off Dynamic Head(meter)	45	45	45	70	100	70	100	150	70	100	150	70	100	150
Water Output* (Liter per day)	45600 Total head of 30 meter	68400 Total head of 30 meter	114000 Total head of 30 meter	69000 Total head of 50 meter	45000 Total head of 70 meter	110400 Total head of 50 meter	72000 Total head of 70 meter	50400 Total head of 100 meter	155250 Total head of 50 meter	101250 Total head of 70 meter	70875 Total head of 100 meter	207000 Total head of 50 meter	135000 Total head of 70 meter	94500 Total head of 100 meter

*Water output figures are on a clear sunny day with three times tracking of SPV panel, under the "Average Daily Solar Radiation" condition of 7.15 kWh/ sq.m. on the surface of PV array (i.e. coplanar with the PV Modules).

Shallow Well (Surface) Solar Pumping Systems with A.C. Induction Motor Pump Set

Description	Model-I	Model-II	Model-III	Model-IV	Model-V	Model-VI	Model-VII	Model-VIII	Model-IX	Model-X	Model-XI	Model-XII	Model-XIII
PV array (Wp)	900	1800	2700	2700	4800	4800	4800	6750	6750	6750	9000	9000	9000
Motor Pump set Cap (Hp)	1	2	3	3	5	5	5	7.5	7.5	7.5	10	10	10
Shut off Dynamic Head(meter)	12	12	12	25	12	25	45	12	25	45	12	25	45
Water Output* (Liter per day)	89100 Total head of 10 meter	178200 Total head of 10 meter	267300 Total head of 10 meter	132300 Total head of 20 meter	475200 Total head of 10 meter	235200 Total head of 20 meter	168000 Total head of 30 meter	641025 Total head of 10 meter	330750 Total head of 20 meter	236250 Total head of 30 meter	890000 Total head of 10 meter	441000 Total head of 20 meter	324000 Total head of 30 meter

*Water output figures are on a clear sunny day with three times tracking of SPV panel, under the "Average Daily Solar Radiation" condition of 7.15 kWh/ sq.m. on the surface of PV array (i.e. coplanar with the PV Modules).

Notes :

1. Suction head, if applicable, minimum 7 meters.



Solar Deep well submersible Pumping Systems with A.C. Motor Pump Set

Description	Model-I	Model-II	Model-III	Model-IV	Model-V	Model-VI	Model-VII	Model-VIII	Model-IX	Model-X	Model-XI	Model-XII	Model-XIII	Model-XIV
PV array (Wp)	1200	1800	3000	3000	3000	4800	4800	4800	6750	6750	6750	9000	9000	9000
Motor Pump set Cap (Hp)	1	2	3	3	3	5	5	5	7.5	7.5	7.5	10	10	10
Shut off Dynamic Head(meter)	45	45	45	70	100	70	100	150	70	100	150	70	100	150
Water Output* (Liter per day)	42000 Total head of 30 meter	63000 Total head of 30 meter	105000 Total head of 30 meter	63000 Total head of 50 meter	42000 Total head of 70 meter	100800 Total head of 50 meter	67200 Total head of 70 meter	43200 Total head of 100 meter	141750 Total head of 50 meter	94500 Total head of 70 meter	60750 Total head of 100 meter	189000 Total head of 50 meter	126000 Total head of 70 meter	81000 Total head of 100 meter

*Water output figures are on a clear sunny day with three times tracking of SPV panel, under the "Average Daily Solar Radiation" condition of 7.15 kWh/ sq.m. on the surface of PV array (i.e. coplanar with the PV Modules).

DATA REQUIRED FOR PUMP SELECTION APPLICATIONS

- Type of pump (surface, open well, submersible)
- Bore depth and diameter
- Static water level
- Daily water discharge requirement
- Location/Site details
- Agriculture
- Drinking Water
- Residential apartment / Bungalows
- Hotels, Resorts
- Salt farming



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