



**OSWAL SOLAR PUMPS**  
*Infinite Solar Pumping Energy*



## Introduction

Existence of human life in rural India depends largely on the availability of clean water of people, livestock and crops. Farmers in rural India can only become prosperous if there is availability of clean water for their farms, homes and livestock. In many parts of India there is a shortage of reliable power for homes and irrigation of fields where OSSSL/ OMSL series of Solar Water Pumping systems can make a remarkable contribution.

The OSSSL/ OMSL Solar Submersible Pumping system offered by OSSSL/ OMSL is a state of the art high technology product designed to provide a green and energy efficient solution for a reliable water supply where there is no access of clean water and electricity.

The OSSSL/ OMSL Solar Water Pumping system comprises of the following equipment.

- Solar Stainless steel submersible bore well pump & Solar Monoblock Pump
- Solar photovoltaic panels with mounting structure
- Automatic IP 65 controller for solar pump with RMU
- With Joint less Cables and accessories.

## Application

- Flood irrigations of small fields
- Drip irrigation for farms
- Cattle watering
- Water supply for small villages, Schools, hospitals and homes.

## Features & Benefits

- Highly energy efficient submersible solar water pump with energy efficient inverter duty motor.
- High efficiency solar photovoltaic panels with a service life of minimum 20 years.
- Robust design Galvanized steel mounting structure for long life.
- High technology automatic controller with dynamic MPPT (Maximum Power Point Tracking) control method.
- The controller offers complete protection against under and over voltage and dry run protection for the pump.
- Highly efficient controller with a conversion efficiency of 98%.
- The controller is tropicalized to to operate satisfactorily with an ambient temperature of up 50°C
- Virtually no maintenance cost.
- Environmentally friendly air and noise pollution free solution.

## Range of Performance

Maximum Flow	: 540 m <sup>3</sup> /day
Maximum Head	: 463 metres.
Rating	: 0.5 hp to 20 hp (0.3kW to 15 kW)

## Features & Benefits

Ambient Temperature	: +50°C
Liquid Temperature Range	: 0°C to +80°C
Water pH	: 6.5 - 8
Sand Content	: 25g/m <sup>3</sup>

## Type Keys

OSSL	900	30	32 (AC)	OSSL	900	30	DC
Type Range	Total PV Module Capacity	Head MTR.	LTR Per Watt	Type Range	Total PV Module Capacity	Head MTR.	Motor Type
OSSL = Solar Stainless Steel Submersible bore well pump series	900	30	32	OSSL = Solar Stainless Steel Submersible bore well pump series	900	30	PMSM
	1200	50	19		1200	50	Or
OMSL = Solar Monoblock Pump Series	1800	70	13	OMSL = Solar Monoblock Pump Series	1800	70	BLDC
	3000	100	8.5		3000	100	
	4800				4800		
	6750				6750		
	9000				9000		

## Minimum Cost of Ownership

Very often investment decision for pumps are based only on the purchase cost of the pump. this initial purchase cost is a fraction of owing and operating a pump over its entire life span. The initial cost for diesel engine driven pumps is just 5% of the total life cycle cost with operation (energy) and maintenance cost contributing to 58% and 10 % respectively.

Solar water pumping systems when compared to diesel engine driven pump sets are much higher in the initial purchase cost but over the life cycle of the solar pumping system they provide significant financial savings in terms of operation (energy) and maintenance costs. Typically when solar pumps are compared with diesel engine pumps they offer a breakeven in costs within 4 to 8 years depending on site conditions, installations cost, and model specification. After the breakeven, the solar pumping systems provide significant cost savings to the owners.

# AC Solar Pumpset With Controller



Sr. No.	Suitable for bore size		Flow Range Litre Per day	RPM	Model	Operating Head	Head Range in Feet	Delivery Size		Pump Power		Minimun Solar Panel Total Watt	Outer Dimension M X P	Motor Voltage
	mm / inch							mm	inch	HP	kW			
1	150	6"	31500	0-2880	<b>OSSL-900-30-32</b>	30	98	40	1.5"	0.75	0.55	900	4" X 4"	72 VAC
2	150	6"	42000	0-2880	<b>OSSL-1200-30-32</b>	30	98	50	2"	1	0.75	1200	4" X 4"	110 VAC
3	150	6"	25200	0-2880	<b>OSSL-1200-50-19</b>	50	164	40	1.5"	1	0.75	1200	4" X 4"	110 VAC
4	150	6"	63000	0-2880	<b>OSSL-1800-30-32</b>	30	98	50	2"	2	1.5	1800	4" X 4"	160 VAC
5	150	6"	37800	0-2880	<b>OSSL-1800-50-19</b>	50	164	40	1.5"	2	1.5	1800	4" X 4"	160 VAC
6	150	6"	25200	0-2880	<b>OSSL-1800-70-13</b>	70	230	40	1.5"	2	1.5	1800	4" X 4"	160 VAC
7	150	6"	105000	0-2880	<b>OSSL-3000-30-32</b>	30	98	50	2"	3	2.2	3000	4" X 4"	230 VAC
8	150	6"	63000	0-2880	<b>OSSL-3000-50-19</b>	50	164	50	2"	3	2.2	3000	4" X 4"	230 VAC
9	150	6"	42000	0-2880	<b>OSSL-3000-70-13</b>	70	230	50	2"	3	2.2	3000	4" X 4"	230 VAC
10	150	6"	27000	0-2880	<b>OSSL-3000-100-8.5</b>	100	328	40	1.5"	3	2.2	3000	4" X 4"	230 VAC
11	200	8"	105000	0-2880	<b>OSSL-3000-30-32</b>	30	98	50	2"	3	2.2	3000	6" X 6"	230 VAC
12	200	8"	63000	0-2880	<b>OSSL-3000-50-19</b>	50	164	50	2"	3	2.2	3000	6" X 4"	230 VAC
13	200	8"	42000	0-2880	<b>OSSL-3000-70-13</b>	70	230	50	2"	3	2.2	3000	6" X 4"	230 VAC
14	200	8"	27000	0-2880	<b>OSSL-3000-100-8.5</b>	100	328	40	1.5"	3	2.2	3000	6" X 4"	230 VAC
15	200	8"	168000	0-2880	<b>OSSL-4800-30-32</b>	30	98	75	2.5"	5	3.75	4800	6" X 6"	380 VAC
16	200	8"	100800	0-2880	<b>OSSL-4800-50-19</b>	50	164	50	2"	5	3.75	4800	6" X 6"	380 VAC
17	200	8"	67200	0-2880	<b>OSSL-4800-70-13</b>	70	230	50	2"	5	3.75	4800	6" X 6"	380 VAC
18	200	8"	43200	0-2880	<b>OSSL-4800-100-8.5</b>	100	328	50	2"	5	3.75	4800	6" X 4"	380 VAC
19	200	8"	236000	0-2880	<b>OSSL-6750-30-32</b>	30	98	75	3"	7.5	5.5	6750	6" X 6"	300 VAC
20	200	8"	142000	0-2880	<b>OSSL-6750-50-19</b>	50	164	50	2"	7.5	5.5	6750	6" X 6"	300 VAC
21	200	8"	94500	0-2880	<b>OSSL-6750-70-13</b>	70	230	50	2"	7.5	5.5	6750	6" X 6"	300 VAC
22	200	8"	60750	0-2880	<b>OSSL-6750-100-8.5</b>	100	328	50	2"	7.5	5.5	6750	6" X 6"	300 VAC
23	200	8"	315000	0-2880	<b>OSSL-9000-30-32</b>	30	98	100	4"	10	7.5	9000	6" X 6"	380 VAC
24	200	8"	189000	0-2880	<b>OSSL-9000-50-19</b>	50	164	75	2.5"	10	7.5	9000	6" X 6"	380 VAC
25	200	8"	126000	0-2880	<b>OSSL-9000-70-13</b>	70	230	50	2"	10	7.5	9000	6" X 6"	380 VAC
26	200	8"	81000	0-2880	<b>OSSL-9000-150-6.5</b>	100	328	50	2"	10	7.5	9000	6" X 6"	380 VAC
27			178200	0-2880	<b>OMSL-1800-10</b>	10	33	75x50	2.5"/2"	2	1.5	1800	N/A	160 VAC
28			147000	0-2880	<b>OMSL-3000-20</b>	20	66	75x50	2.5"/2"	3	2.2	3000	N/A	230 VAC
29	Monoblock pump		235200	0-2880	<b>OMSL-4800-20</b>	20	66	75x50	2.5"/2"	5	3.7	4800	N/A	380 VAC
30	Monoblock pump		330750	0-2880	<b>OMSL-6750-20</b>	20	66	75x50	2.5"/2"	7.5	5.5	6750	N/A	300 VAC





# DC Solar Pumpset With Controller



Sr. No.	Suitable for Min. bore size		Flow Range m3/day/LPD	RPM	Model	Head Range in MTR	Head Range in Feet	Discharge Size		Pump Power		Minimum Solar Panel Total Watt	Outer Dimension M X P	Motor Voltage
	mm / inch							mm	inch	HP	kW			
1	150	6"	34200	0-3600	OSSL-900-30-DC	30	98	40	1.5"	0.75	0.55	900	4" X 4"	72 VAC
2	150	6"	1000	0-3600	OSSL-900-60-DC	60	197	40	1.5"	0.75	0.55	900	4" X 4"	72 VAC
3	150	6"	45600	0-3600	OSSL-1200-30-DC	30	98	50	2"	1	0.75	1200	4" X 4"	110 VAC
4	150	6"	27600	0-3600	OSSL-1200-50-DC	50	164	40	1.5"	1	0.75	1200	4" X 4"	110 VAC
5	150	6"	68400	0-3600	OSSL-1800-30-DC	30	98	50	2"	2	1.5	1800	4" X 4"	160 VAC
6	150	6"	41400	0-3600	OSSL-1800-50-DC	50	164	40	1.5"	2	1.5	1800	4" X 4"	160 VAC
7	150	6"	27000	0-3600	OSSL-1800-70-DC	70	230	40	1.5"	2	1.5	1800	4" X 4"	160 VAC
8	150	6"	114000	0-3600	OSSL-3000-30-DC	30	98	50	2"	3	2.2	3000	4" X 6"	230 VAC
9	150	6"	69000	0-3600	OSSL-3000-50-DC	50	164	50	2"	3	2.2	3000	4" X 4"	230 VAC
10	150	6"	45000	0-3600	OSSL-3000-70-DC	70	230	50	2"	3	2.2	3000	4" X 4"	230 VAC
11	150	6"	30000	0-3600	OSSL-3000-100-DC	100	328	40	1.5"	3	2.2	3000	4" X 4"	230 VAC
12	200	8"	182400	0-3600	OSSL-4800-30-DC	30	98	65	2.5"	5	3.7	4800	4" X 6"	380 VAC
13	200	8"	110400	0-3600	OSSL-4800-50-DC	50	164	50	2"	5	3.7	4800	4" X 6"	380 VAC
14	150	6"	72000	0-3600	OSSL-4800-70-DC	70	230	50	2"	5	3.7	4800	4" X 4"	380 VAC
15	150	6"	50400	0-3600	OSSL-4800-100-DC	100	328	50	2"	5	3.7	4800	4" X 4"	380 VAC
16	200	8"	256500	0-3600	OSSL-6750-30-DC	30	98	75	3"	7.5	5.5	6750	4" X 6"	300 VAC
17	200	8"	155200	0-3600	OSSL-6750-50-DC	50	164	50	2"	7.5	5.5	6750	4" X 6"	300 VAC
18	200	8"	101250	0-3600	OSSL-6750-70-DC	70	230	50	2"	7.5	5.5	6750	4" X 6"	300 VAC
19	150	6"	70875	0-3600	OSSL-6750-100-DC	100	328	50	2"	7.5	5.5	6750	4" X 4"	300 VAC
20	200	8"	342000	0-3600	OSSL-9000-30-DC	30	98	75	3"	10	7.5	9000	4" X 6"	380 VAC
21	200	8"	207000	0-3600	OSSL-9000-50-DC	50	164	65	2.5"	10	7.5	9000	4" X 6"	380 VAC
22	200	8"	135000	0-3600	OSSL-9000-70-DC	70	230	50	2"	10	7.5	9000	4" X 6"	380 VAC
23	200	8"	94500	0-3600	OSSL-9000-100-DC	100	328	50	2"	10	7.5	9000	4" X 6"	380 VAC
24			198000	0-3600	OMSL-1800-10-DC	10	33	75x50	2.5"x2"	2	1.5	1800	NA	160 VAC
25			165000	0-3600	OMSL-3000-20-DC	20	66	75x50	2.5"x2"	3	2.2	3000	NA	230 VAC
26	Monoblock pump		264000	0-3600	OMSL-4800-20-DC	20	66	65x50	2.5"x2"	5	3.7	4800	NA	380 VAC
27	Monoblock pump		371250	0-3600	OMSL-6750-20-DC	20	66	75x75	3"x3"	7.5	5.5	6750	NA	300 VAC







# OSWAL SOLAR PUMP CONTROLLER



Domestic | Agriculture | Industrial



**Protection :**  
Automatics shuts in case of

- ▶ Dry run
- ▶ High or low voltage surge
- ▶ Over heating
- ▶ Short or open circuit in motor
- ▶ Earth fault

## Oswal Solar Pump Controller (Solar Pump Inverter-IP65)

A transformer-less Inverter system, with 110/160/230/320/415Vac, 3-phase output voltage and V/F control to manage pump starting condition (soft start). The equipment is micro controller based and operated with software for digital control of inverter parameters, fault finding-diagnostics and digital I/O signaling.

**OSWAL**  
— SOLAR PUMP —



# Oswal Solar Water Pump Controller Technical Specification

## MPPT Controller

With the Inbuilt MPPT (Maximum Power Point Tracking) function, it regulates the output frequency according to irradiation in real time to achieve the maximum power. Adopting the proposed dynamic VI maximum power point tracking (MPPT) control method, fast response and stable operation, better than the conventional methods, which may lead to the problems including poor tracking performance, unstable or even cause water hammer damaging when the irradiation on the array changes rapidly.

## Salient features of Oswal Solar Pump Controller

- ▶ When solar power is not available controller can be automatically or manually switched to an alternating single phase or three phase input ac supply.
- ▶ High Resolution LCD display shows speed(%), input DC voltage, Output AC/PWM voltage and current system status.
- ▶ Uses MPPT technology to maximize water delivery at various solar energy level.
- ▶ MPPT maximize power points tracking for maximizing the efficiency of input power.
- ▶ GSM option also available to controls and monitor remote locations pumps.
- ▶ Remote telemetry capability through RS485 continuous data points(optional)
- ▶ High flow systems for faster tank fill and significant water outputs.
- ▶ Simple installation and easy maintenance.
- ▶ The control unit convert that(DC) power into alternating current for AC power ans supply is further given to the submersible pump through cable.
- ▶ Operate through Oswal mobile APP.

RATING	3 HP	5 HP	7.5 HP	10 HP
Pump Controller Rating	2.2 kW	3.7 kW	5.5 KW	7.5 kW
MPPT Range	250-450 VDC	350-790 VDC	350-790 VDC	350-790 VDC
Controller I/P Voc	310-450 VDC	540-790 VDC	540-790 VDC	540-790 VDC
Controller I/P Vmp	310-450 VDC	450-790 VDC	300-790 VDC	450-790 VDC
Controller I/P Current DC	10 Amp	10 Amp	18.5 Amp	18.5 Amp
Controller O/P Current	9 Amp	9 Amp	17 Amp	17 Amp
Controller I/P Power (kW)	2.2 kW	3.7 kW	5.5 KW	7.5 kW
Enclosure IP Protection	IP 65	IP 65	IP 65	IP 65
MPPT Tracking	yes	yes	yes	yes
Operating Temp	C(-10) to C(+55)	C(-10) to C(+55)	C(-10) to C(+55)	C(-10) to C (+55)
Inside the control box	up to 60	up to 60	up to 60	up to 60
Relative Humidity	Less than 95%,	Less than 95%,	Less than 95%,	Less than 95%,
Controller overload capacity	120% rated current for 60s	120% rated current for 60s	120% rated current for 60s	120% rated current for 60s



## Oswal Stainless Steel Submersible Pumps

### Special Features

Oswal Sheet Metal Stainless Steel Submersible pump are specially designed, with the use of latest manufacturing techniques. Years of experience, superior design and better manufacturing techniques have resulted into development of this range of pumps, which are efficient and reliable in operation. Strict quality assurance standards during the total process assure trouble free and reliability in operation requiring minimum maintenance. The pump range consist of many pump sizes is available with an optional number of stages to match any duty point.

- ▶▶ 30% higher efficient.
- ▶▶ Suitable to 4", 6" & 8" Submersible Motor.
- ▶▶ All bearings are water-lubricated and have a square shape, enabling sand particles, if any, to leave the pump together with the pumped liquid.
- ▶▶ Bearing bush is made of anti friction rubber-NBR to withstand wear resistance.
- ▶▶ Non return Valve made in stainless steel (AISI 304 Grade). The valve casing is designed for optimum hydraulic properties to minimize the pressure loss across the valve and, thus, contributes to the high efficiency of the pump.
- ▶▶ Pump motor coupling is according to NEMA standard.
- ▶▶ Radial flow and mixed flow impellers & bowl made from stainless steel (AISI 304 Grade).
- ▶▶ Stop Ring which is designed as thrust bearings limits axial movements of pump shaft.
- ▶▶ Suction Case, stage casing and discharge chambers are made by stainless steel (AISI 304 Grade) from sheet metal so rust free and long service life
- ▶▶ With 100% Ss304 fabrication technology.

### Application in

- Water supply from bore well
- AC and solar energy compatible
- Municipal & irrigation purpose
- Water supply in commercial establishments
- Small farms, gardening & nurseries

Head Range :10 - 800 MTR.

Discharge Range :12 - 3600 LPM







# OSWAL SOLAR AC/DC SUBMERSIBLE MOTOR

**OSWAL**

— SOLAR PUMP —  
Domestic | Agriculture | Industrial



## DC MOTOR BENEFITS

30% higher efficient compare to AC submersible motor.

30% higher discharge compare to AC submersible motor.

Require lower torque and low power to operate.

Start Early in the morning.

100% stainless steel 304.

## Features

- ❖ IP68 grade protection
- ❖ Stainless steel casing, shaft & other components
- ❖ Equipped with mechanical seal and sand guard for maximum sand protection
- ❖ Insulation Class

## Comparison of Solar DC Motor Over Induction Motor

Sr. No.		PMSM DC MOTOR	INDUCTION MOTOR
1	Speed Range	0-3600 RPM	0-2900RPM
2	Solar Array	Less	More
3	Size For same power ration	Less	More
4	Power Desnity for same size	More	Less
5	Requiriment of Current for same load	Less	High
6	Efficiency	Higher (>85%)	Lower (<85%)
7	Drive (AC/DC-DC-AC)	Compulsory	Optional
8	Power Injction	Higher	Limited by Speed
9	Frequency of motor	0-120Hz	0-50/60Hz
10	overloading	150%	120%
11	system Efficiency (Drive-Motor-Pump)	Higher	Lower