

MAKE THE SUN  
**WORK**  
FOR YOU

# SOLAR

SUBMERSIBLE PUMPING SYSTEM

SINCE 1935

**VARUNA**<sup>TM</sup>  
ELECTRIC





# ABOUT US

Propelling a nation's dreams.....

Water is the lifeline of India. At La-Gajjar, we remain committed to bring this life-giving water from the depths to the surface and take the nation to greater heights with our renowned brand, Varuna Pumps

From a humble beginning in 1935 at Ahmedabad (Gujarat), Varuna Pumps has today evolved to an avant-garde brand of globally acclaimed submersible pumps and open well motors.

Our techno-pioneering spirit inspired us to create India's first oil-based submersible pumps in 1991, an era when no one in India could achieve the same.. We continued our growth and forayed into exports in 2003 and into the manufacturing of Stainless Steel Pumps in 2009. As our India-presence and global growth continues to achieve newer heights, we deliver new-age engineering solutions to make water more accessible for the nation and the world.

In our quest for growth, we have kept an unflinching eye on quality standards in our ISO 9001 accredited production facility. Our Star rated pumps are approved by the Bureau of Energy Efficiency (BEE) and also have CE and ISI certification.

Today, Varuna Pumps is creating new benchmarks with an annual production capacity of half million pumps, a pan-India presence with 500+ Dealers & Distributors and export network spread across 50+ countries and an unmatched experience of eight decades. And as always, we will continue to create a pressure free world for our customers bringing water to them and making the world prosperous.

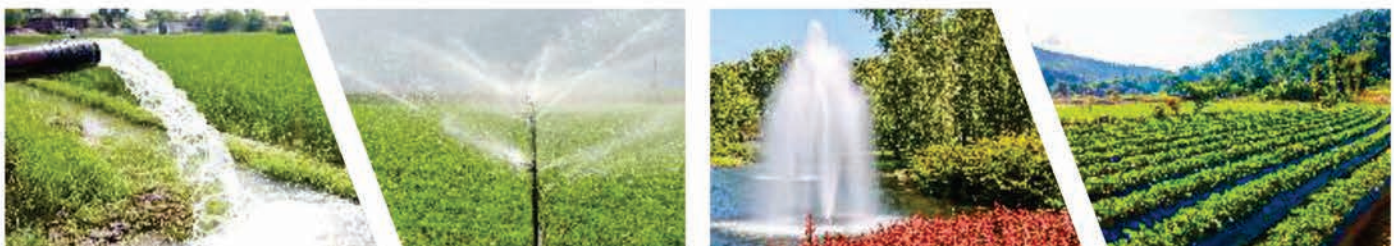
A flourishing legacy.....

One of the most sought-after brands in both domestic and agricultural markets, Varuna Pumps offer a vast selection of over 1000 + models of submersible pumps and motors from 3" – 10" including Bore well and Open well pumps, CMB, MMB and Solar Pump set.

We are also the undisputed leader in the 75 mm & 100 mm segment. The driving force behind our success is our incredible team comprising 100+ marketing professionals, a service support team of 25 service engineers and over 300+ authorised service centres all over India.

Varuna Pumps has an integrated infrastructure, encompassing a covered area of 1,00,000 sq. meters. This includes a domestic submersible plant, an agriculture plant with an export division, Stainless Steel plant and a rotor division. Our four major manufacturing plants with ancillary units in Ahmedabad, Gujarat, create state-of-the-art technology innovations in pumping solutions. At La-Gajjar Machineries, our optimal technological solutions are enabled by latest design softwares, fully equipped manufacturing and testing facilities and a culture of uncompromised determination.

It takes relentless research and product enhancement to achieve a leading position in the industry. At Varuna Pumps, we are consistently striving to develop new products by incorporating the latest technology. We do path-breaking research work at our R&D department to make your life easy with the latest innovations in pumping solutions, with customized design to suit your unique requirements.





# Milestone

- In 1935 Shri Laljibhai J Gajjar introduces the hand blower, a unique product in Indian market
- In 1950 La-Gajjar Machinerics becomes the largest manufacturer in India with expertise in hand blowers, power blowers, coupled and monoblock centrifugal pumps and electric motors.
- In 1981 Bore well and open well submersible pumps are introduced in the Indian market.
- In 1992 Oil-filled submersible motors for the 100 mm sector are conceptualised and introduced in the market.
- In 1997 After the successful launch of the oil-filled motors, Varuna Pumps become the forerunners in the 100 mm submersible pump market.
- In 2003 Varuna Pumps reaches out to the world with export facilities in 2 countries.
- In 2008 Accredited as Star rated export house.
- In 2012 The manufacturing of Stainless Steel pump begins
- In 2014 With a core expertise and experience of over 8 decades, now exports to 50 countries around the world. The domestic presence is marketed by 19 full-fledged branches with 120+ marketing personnel and a 1500+ strong Dealer and After Sales Network all over India.
- In 2017 Acquisition by KOEL La-Gajjar Machinerics (LGM) has executed a definitive agreement with Kirlokar Oil Engines Ltd (KOEL) towards acquisition of its majority stake. This LGM acquisition provides KOEL a strong and established footprint into the electric pump market through its Varuna and Raindrop brands of submersible and mono-block pumps. LGM has an urban network and KOEL has huge distribution strength in rural India. LGM has a good channel set up in Africa and Middle East.
- In 2019 introduced Solar Pumping Solutions and offering wide range of AC / DC Pumps as per MNRE/BIS norms



**ROCK SOLID PERFORMANCE.  
CASTED IN STAINLESS STEEL.**

STAINLESS STEEL SUBMERSIBLE PUMP SETS  
RUST-FREE | ANTI-CORROSIVE | LIGHTWEIGHT





## NEED OF SOLAR ENERGY

Due to lack of grid-connected electricity in many parts of the country, a large number of diesel pump sets are being used for the purpose of irrigation. The operating cost of diesel pump sets is increasing day by day. The Solar Photovoltaic Pumping Systems can easily meet the irrigation requirements of land holdings for small and marginal farmers. These systems would help farmers to avoid traveling long distances for procuring and transporting diesel as also increasing the cropping intensity.

India today has around 19 million grid connected pump-sets and 7 million diesel pump-sets. However, erratic grid supply and high cost of diesel pumping continue to remain problem areas for the farmers. Poor irrigation as a result of these issues results in significant yield losses. While a scientific assessment on yield loss due to poor quality of irrigation has not been done, a high level sample survey of farmers reveals that farmers feel that the crop yield could easily improve by 10% if required volume of water is available when required. India uses more than 4 billion litres of diesel and around 85 million tons of coal per annum to support water pumping for irrigation.

Solar pumping system becomes more and more popular, it can be applied to daily use (underground water), agriculture irrigation, forestry irrigation, desert control, pasture animal husbandry, water supply for islands, wastewater treatment engineering, and so on. In recent years, with the promotion of the utilization of new energy resources, solar pumping systems are more and more used in municipal engineering, city center squares, parks, tourist sites, resorts and hotels, the landscapes and fountain systems in the residential areas. This system is composed of a solar array, a pump and a solar pumping inverter. Based on the design philosophy that it is better to store water than electricity, there is no energy storing device such as store battery in the system.

India has the most favourable conditions for solar energy production and consumption. India has a very good solar radiation between 4 to 7 kWh / square meter per day and highest global solar radiation on horizontal surface. Solar energy is clean and environment friendly technology and being promoted which helps to reduce the burden on conventional energy sources. It is also save earth from Green House Gas emissions resulting out of coal burning.



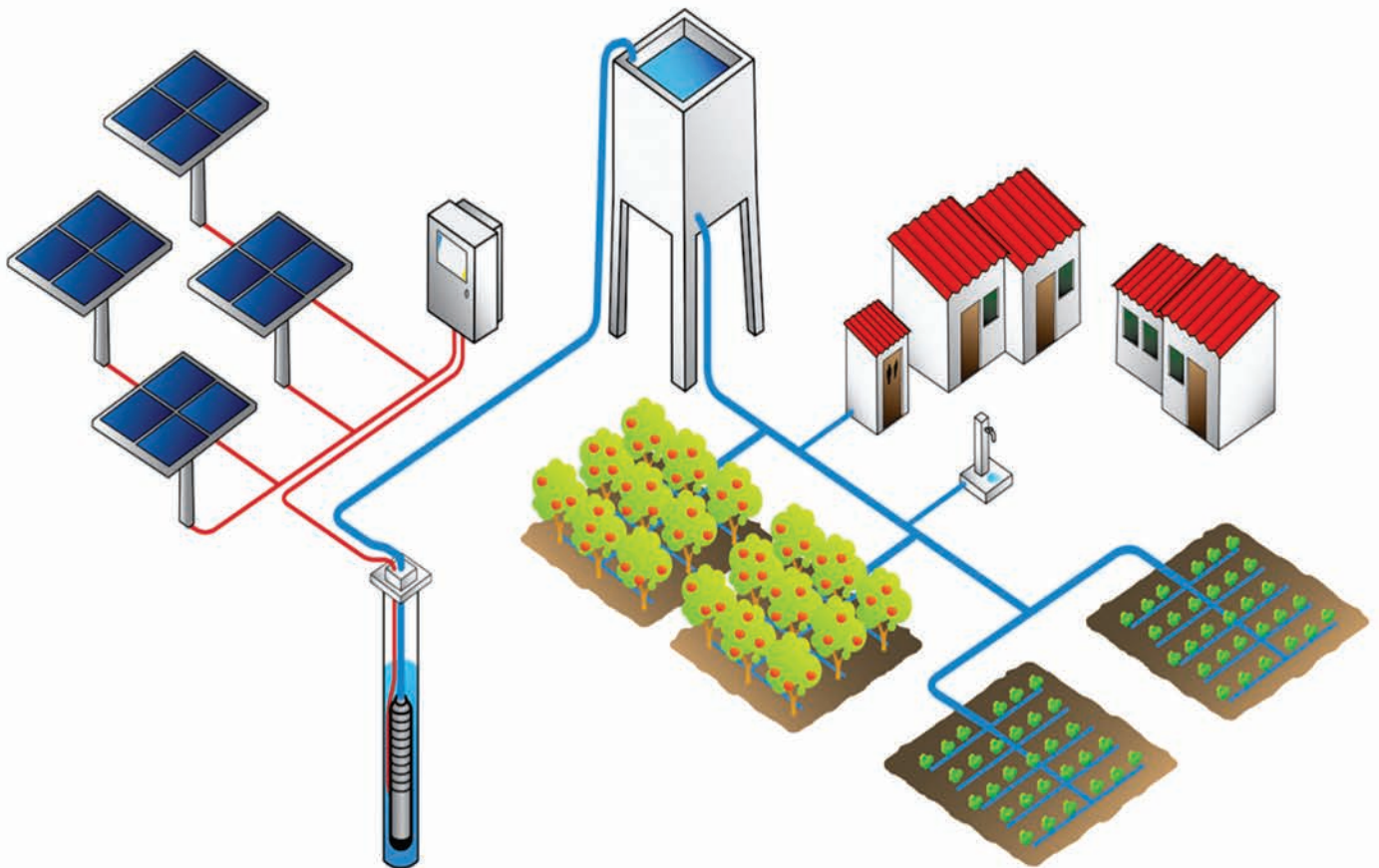
# VARUNA Solar Pumping Systems

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.

VARUNA have specially designed solar pumps which are able to run at low/variable frequency and powered by solar photovoltaic modules. VARUNA offers both types of solar pumps DC and AC pumps. In DC pumps brushless DC motor is used and in AC pumps specially designed AC motor used which is suitable to run on Solar energy. VARUNA have surface and submersible pumps. We have solar powered surface pumps up to 3 HP and submersible pumps up to 100 hp) are available. To control the electrical parameters of the pump, electronic controller is for Solar Modules and Pump.

Solar Photovoltaic modules are connected in series and parallel connection to suit the electrical requirement of pump. The Photovoltaic Modules are mounted and installed on metallic structure. There are two type of structures offered fix stand structure and tracking type structure. The tracking type structure with manual tracking facility can be manually rotated three times in a day in order to follow the Sun direction to get 20-25% more water output compared to fixed stand structure.

## Schematic Layout for Solar Pumping System





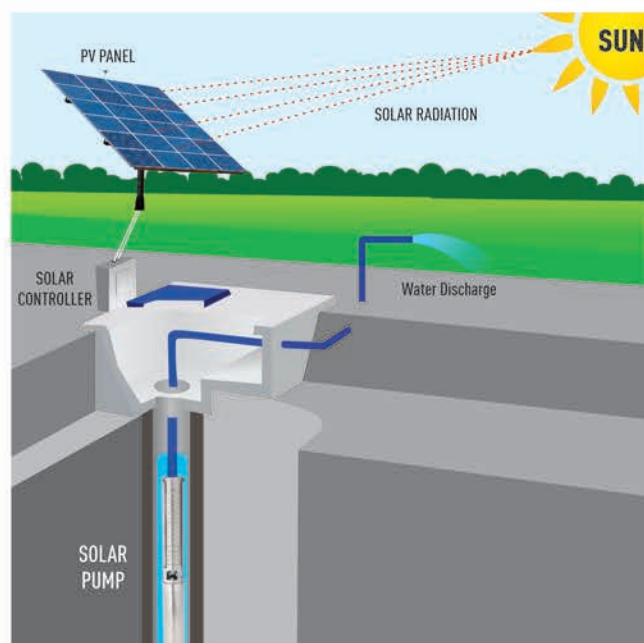
# COMPONENTS OF SOLAR PUMPING SYSTEMS

Components	Type	Specifications	Make
Solar Pump set	Surface Pump	0.75 kW to 7.5 kW (1 HP to 10 HP)	VARUNA
	Submersible Pump	0.75 kW to 7.5 kW (1 HP to 10 HP)	VARUNA
Solar Motor	AC Motor	0.75 kW to 7.5kW (1 HP to 10 HP)	VARUNA
	DC Motor	0.75 kW to 3.5kW (1 HP to 5.0HP)	VARUNA
Solar Pump Controller	Controller	0.75 kW to 7.5 kW (1 HP to 10 HP)	VARUNA / Branded
Solar Photovoltaic Module	Multi-crystalline silicon with high efficiency	300 to 330 Wp As per IEC/BIS & MNRE standard	Branded
Metallic Structure for PV Module Mounting	<ul style="list-style-type: none"> <li>Fixed stand structure</li> <li>Manual single axis tracker</li> <li>Auto single axis/dual axis tracker</li> </ul>	Galvanized iron	VARUNA
Riser Pipe	PVC Column	Pressure rating : Up to 10 kg/cm <sup>2</sup>	VARUNA
	HDPE	Pressure rating : Up to 10 kg/cm <sup>2</sup>	Branded
Accessory	Standard	As per Standard	Branded

In case of pump cable increases beyond 100 mtr. in case of AC pump - We recommend to use Choke or sine filter on output of pump controller

## Features of VARUNA Solar Pumping System

- The system is independent of power cuts
- solar modules having minimum 25 years operational life
- Soft start capability leading to increased motor/ pump life and decreased service /maintenance cost
- Inbuilt motor protections enhancing pump set life and reducing maintenance cost
- Solar pump system can also be run on grid if required (optional) in case of AC pumping system
- Premium Stainless Steel material
- Components are standard
- Fully automatic
- Dawn to dusk working of pump
- Robust and Highly reliable
- Easy for operation
- Saving natural resources by utilization of solar power
- Pollution free
- Eco-friendly



# Solar Photovoltaic Modules

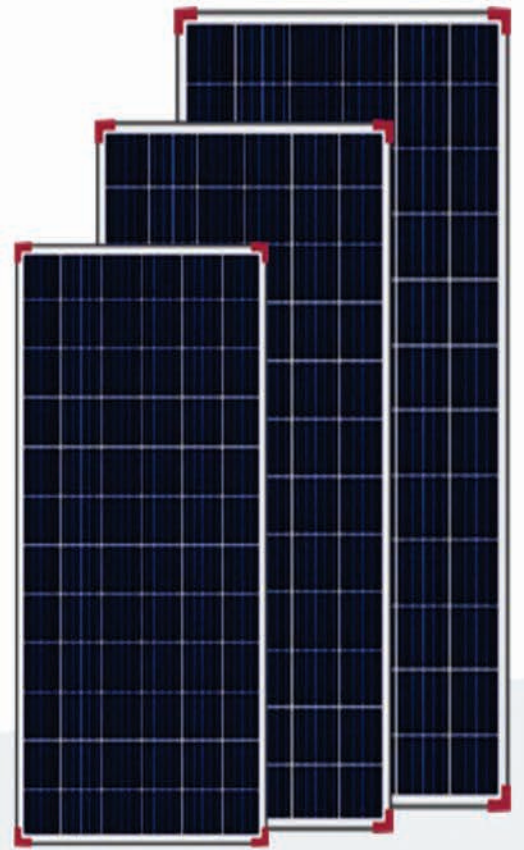
Solar PV module consists of high efficiency crystalline PV cells wired in parallel to increase current and in series to produce a higher voltage. The module is encapsulated with high transmissivity tempered glass using UV stable Ethylene Vinyl Acetate (EVA) sheet and premium quality back sheet. These encapsulating materials protect the cells from the harsh environmental conditions when laminated together thus ensuring long life. The edges are sealed for weather proofing, and there is often an aluminium frame holding everything together in a mountable unit. In the back of the module there is a junction box providing electrical connections

## Features

- Module as per IEC-61215; IEC-61730 safety class & IEC-61701 Salt Mist Test.
- IP65 rated 4 terminal junction box with 3 by-pass diodes.
- PID free high efficiency multi crystalline silicon solar cells.
- Latest PERC Technology for high efficiency models.
- AR coated high transmission textured toughened glass.
- Narrow power tolerance for minimizing losses due to module power mismatch in an array.
- Screw less anodized aluminium frame
- Bypass diodes to reduce the effect of partial shading of modules.
- Preassembled cable of one meter length each with MC4 type +Ve and -Ve connectors.

## Warranty

- Manufacturing defect & workmanship : 5 Years
- Power Production (Limited Warranty) : 90% for 10 years & 80% for 25 years
- Please refer standard warranty details





# MODULE MOUNTING STRUCTURE

We provide Module Mounting Structure as per the requirement of project / specifications with options of Fix Stand Structure, Manual Tracking Structure & Auto Tracking Structure. Structure provided with Hot dip Galvanising / Aluminium structure as per requirement





# VARUNA SUBMERSIBLE PUMP END

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Varuna 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.

We have developed Pump End ranging from 1 HP to 10 HP (0.74 KW to 7.5 KW)

## Features

- Stainless steel construction for rust-free, hygienic water supply
- Light weight which is easy to install
- Easy start at low voltage and works in wide voltage band
- Dynamically balanced rotating parts
- Designed and built for trouble free operation
- Better life in sand and other abrasives as well as salty water application
- High efficient
- Mounting specifications – NEMA standards.
- Bowl and impeller of SS Material has a better surface finish which provides higher efficiency.
- Quality shaft bearings providing low friction and high wear resistance
- SS Strainer to protect from sand and other extraneous material
- Integrated NRV to reduces the thrust load of back pressure
- 100% high grade stainless steel

## Material of Construction

- Bowl & Impeller : SS 304
- Suction Casing : SS 304 / CI FG 260
- Non Return Valve : SS 304 / CI FG 260
- Strainer : SS 304



# VARUNA SOLAR PUMPS

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## Features

- Stainless Steel Material
- High efficiency permanent magnet technology
- Minimum Maintenance
- No electronics inside motor
- Efficient electrical design for low operation cost & cooler winding temperature
- Hermetically sealed stator, anti track, self healing stator resin prevents motor burn out
- Removable load connector
- Oil seals for sand protection
- Prefilled with special non-contaminating and antirust solution
- Degree of protection: IP68
- Hydrodynamic robust thrust bearing Materials of construction : Perineum stainless steel, Low loss silicon stampings, High magnetic density permanent magnets, corona resistant winding wires, rubber & cable drinking water approved
- Vertical mounting - Max 30° inclination to water surface
- Pressure balanced design
- Hydrodynamic journal bearings
- Compatible for Submersible pump sets as per IS8034:2002
- Motor head as per IS9283:2013
- Tested from MNRE approved Labs

## Motor

- Stator : Insulated varnish using vacuum impregnation method
- Rotor : Copper Rotor
- Motor Body : Stainless Steel
- Thrust Bearing : Self aligned carbon Vs. Stainless steel thrust bearing Winding : Multi Layer PVC insulated wire
- Cable Sealing Arrangement : NBR
- Journal Bearings : Gun Metal Bush with 2% nickel
- Pressure Diaphragm : to contain expansion of water inside the motor

Solar Motors are specially designed for high efficiency and long life & are backed by authorized service centres all around the country, where trained technicians handle service quickly and efficiently.



# AC SOLAR PUMP CONTROLLER

## Features

- Fully Automatic ON/OFF
  - Operating automatically on solar radiation. Automatically gets ON when sun rises and OFF at sun set
- Efficient power electronics for minimum power loss and maximum water output
- Wide operating voltage range – operates in cloudy conditions also.
- IP 65 Compliant
- Maintenance free
  - Sensor less protection against dry run
  - Inbuilt protections against faults
- User friendly interface
  - Digital display for operating parameters
  - Screw less connection
  - Inbuilt emergency power disconnect switch
  - Remote ON/OFF through mobile phone
  - Bluetooth interface
  - SD Card Connectivity
  - Online and offline data downloads
- Remote monitoring system inbuilt
  - Parameters includes module voltage, current, power, energy generated, Pump RPM, UP time and OFF time
  - Remotely monitoring provision with portal
  - Local or offline data available – able to downloaded through mobile App

## Protections:

- Overload protection
- Dry run protection
- Short circuit protection
- Panel reverse polarity protection
- Motor jam or open

## AC Pump Controller Specifications; 5.0 HP – 3.7 KW

Parameters	Specifications
Motor Wattage	3700 W
Startup Voltage*	500 Vdc
Minimum I/P Voltage (Voc)	250 Vdc
Maximum I/P Voltage (Voc)	800 Vdc
Startup Voltage*	500 Vdc
O/P Voltage (maximum)	380 Vrms
Minimum RPM of Motor	600
Maximum RPM of Motor	2950
Output Voltage Range	380-500 V
Electronics Efficiency	>95%
Operating Temperature Range	-10° to 50°C
Storage Temperature Range	-10° to 60°C

\*At minimum operating voltage controller unit starts functioning and waits for Voc to reach Motor Startup Voc to start Motor



# DC SOLAR PUMP CONTROLLER

Available Range - 1 HP to 10 HP (0.74 KW to 7.5 KW)

## Features

- Fully Automatic ON/OFF
  - Operating automatically on solar radiation. Automatically gets ON when sun rises and OFF at sun set
- Efficient power electronics for minimum power loss and maximum water output
- Wide operating voltage range – operates in cloudy conditions also.
- IP 65 Compliant
- Maintenance free
  - Sensor less protection against dry run
  - Inbuilt protections against faults



- User friendly interface
  - Digital display for operating parameters
  - Screw less connection
  - Inbuilt emergency power disconnect switch
  - Remote ON/OFF through mobile phone
  - Bluetooth interface
  - SD Card Connectivity
  - Online and offline data downloads
- Remote monitoring system inbuilt
  - Parameters includes module voltage, current, power, energy generated, Pump RPM, UP time and OFF time
  - Remotely monitoring provision with portal
  - Local or offline data available – able to download through mobile App



### DC Pump Controller Specifications; 1.0 HP - 0.75 KW

Parameters	Specifications
System Wattage	900 W
Startup Voltage*	90 V
Input Voltage Range	90-350 Vdc
Output Voltage Range	0-110 V
Minimum RPM of Motor	900
Maximum RPM of Motor	3300
Electronics Efficiency	>=95%
Operating Temperature Range	-10 <sup>o</sup> to 50 <sup>o</sup> C
Storage Temperature Range	-10 <sup>o</sup> to 60 <sup>o</sup> C

\*At start up voltage controller unit will wake up and motor will start running if sufficient power is available

### Protections:

- Overload protection
- Dry run protection
- Short circuit protection
- Panel reverse polarity protection
- Motor jam or open

## AC SOLAR PUMPING SYSTEM

VARUNA also provides AC Solar Pumping Systems and Solutions. In VARUNA AC pumps, AC motor compatible to variable frequency is used. The pump with controller having controls and protections, the pump can run at lower frequency than 50 Hz. This pump can start with sufficient sun light, the AC pump can be operated on solar during day time and on grid power during night time. The pump output is meeting MNRE guidelines.

### AC Submersible Solar Pump Range

Sr	Pump kW / HP	SPV Array Wp	Pump Output in LPD*				Option
			30 m	50 m	70 m	100 m	
1	0.74 kW / 1 HP	1200	26000	-	-	-	Solar / Grid Dual supply Controller
2	1.5 kW / 2 HP	1800	43000	-	-	-	
3	2.2 kW / 3 HP	3000	96000	63000	38000		
4	3.7 kW / 5 HP	4800	-	110000	71000	41000	
5	5.5. kW/7.5 HP	6750	-	142000	99000	63000	
6	7.5 kW / 10 HP	9000	-	163000	135000	101000	



**Note:**

- \*Discharge is using manual tracking stand
- Discharge figures are based on the Average daily solar radiation of 7.15/kWh/m<sup>2</sup> on the surface of the PV array.
- The system installed on automatic single axis tracking results 20-25% more water output per day compared to fixed stand structure and 10-12% more output as compared to manual tracker.

**Applications:**

- Irrigation
- Micro Irrigation
- Community Irrigation
- Lift Irrigation
- Drinking Water Pumping
- Urban water supply
- Stand alone pumping
- Grid connect pumping

## DC SOLAR PUMP SYSTEM

VARUNA Pumps are high efficient with permanent magnet DC motor with smart controller

### DC Submersible Solar Pump Range

Sr	Pump kW / HP	SPV Array Wp	Pump Output in LPD*			Option
			30 m	60 m	90 m	
1	0.74 kW / 1 HP	975	20000	10700	5000	Solar / Grid Dual supply Controller

Sr	Pump kW / HP	SPV Array Wp	Pump Output in LPD*				Option
			30 m	50 m	70 m	100 m	
1	2.2 kW / 3 HP	3000	147000	48000	47000	-	Solar / Grid Dual supply Controller
2	3.7 kW / 5 HP	4800	-	143000	93000	55000	

**Note:**

- \*Discharge is using manual tracking stand
- Discharge figures are based on the Average daily solar radiation of 7.15/kWh/m<sup>2</sup> on the surface of the PV array.
- The system installed on automatic single axis tracking results 20-25% more water output per day compared to fixed stand structure and 10-12% more output as compared to manual tracker.

**Applications:**

- Irrigation
- Micro Irrigation (Drip & Sprinklers)
- Drinking Water Pumping
- Rural Drinking water supply
- Stand alone pumping
- Dual Pump (Hand+Solar)
- Fountains, Ponds & Gardens
- Civil, Industrial & Mining

# RURAL DRINKING WATER PUMP SYSTEM

VARUNA 1 HP DC Submersible Solar Pump can be used in Rural Drinking Water supply schemes which provide drinking water to village. The

## Features

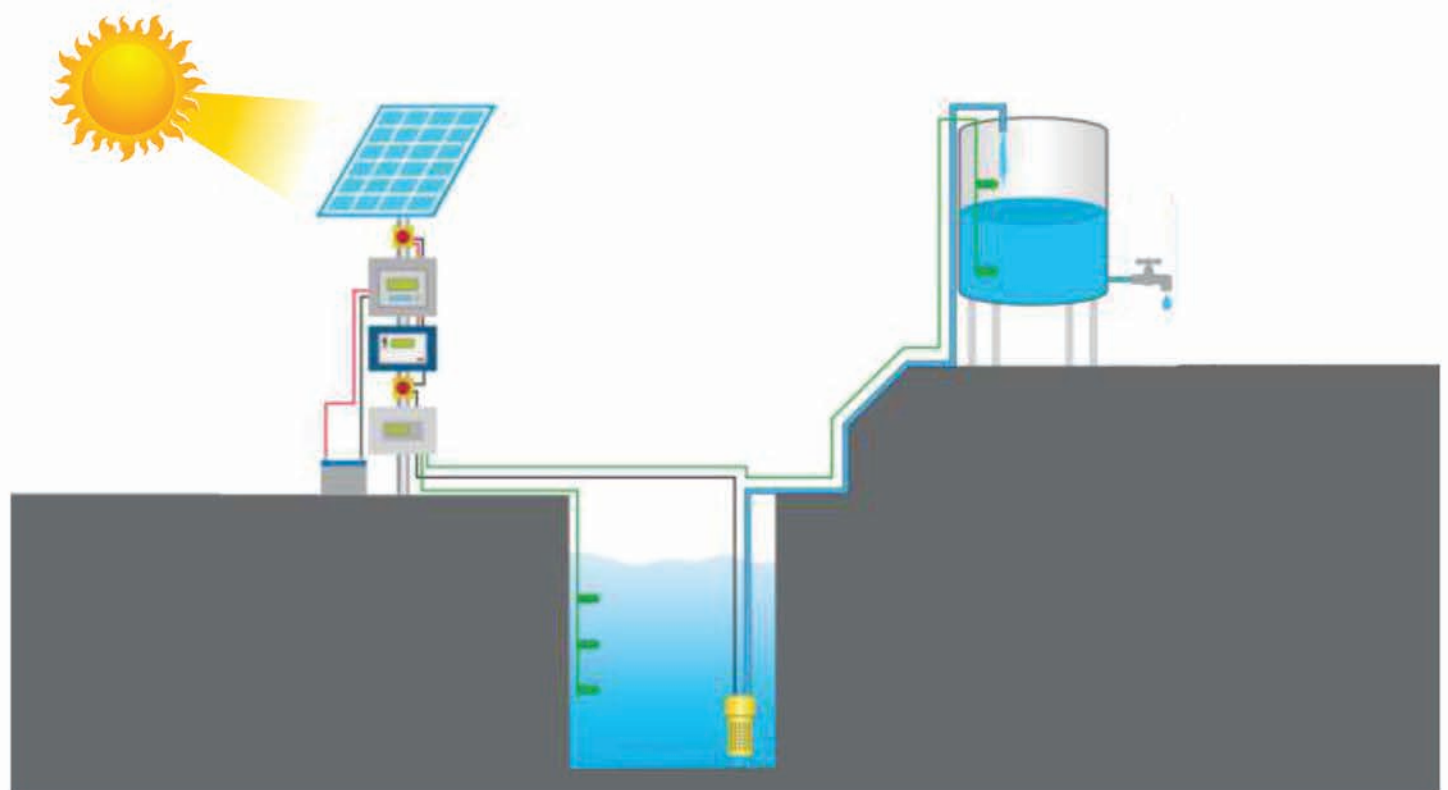
- Perfect for remote hamlet / small village
- Integrated hand pump and solar pumping system both can operate
- Water distribution Pipeline & can be laid as per requirement
- Easy to operate and maintain

## Benefits

- Independent of availability of grid and power quality
- Inbuilt protections ensures higher pump life
- High system uptime and availability
- Low maintenance
- No Hardship

## Technical specifications

- Pump Capacity : 0.75 kW to 1.0 HP
- Pump Head : up to 90 m
- Solar PV Array : 300 Wp to 1800 Wp
- Pump type : Dual (Solar cum Hand Pump)
- Water tank capacity : up to 10,000 Ltr
- Input Power : Hybrid – AC/DC
- Water Discharge : up to 50,000 Ltr
- Stand Post : As per requirement





# AC SOLAR PUMP CONFIGURATION

## AC Submersible Pumps - Product Code

Pump kW / HP	SPV Array Wp	Complete System Model Code	Pump Code	Stage	Delivery Size (mm)	Pump Size (mm)	Motor Code	Volt	Phase
0.74 kW / 1 HP	1200	VSP-100-A010-03-10-P1.2	VPO-03-10-1.0	10	32	100	1.0 SSSMC	110	TP
1.5 kW / 2 HP	1800	VSP-100-A020-08-08-P1.8	VPO-08-08-1.8	8	50	100	2.0 SSSMC	160	TP
2.2 kW / 3 HP	3000	VSP-150-A030-15-05-P3.0	VPO-15-05-3.0	5	65	150	3.0 SSSMC	230	TP
	3000	VSP-100-A030-08-14-P3.0	VPO-08-14-3.0	14	50	100	3.0 SSSMC	230	TP
	3000	VSP-100-A030-05-18-P3.0	VPO-05-18-3.0	18	38	100	3.0 SSSMC	230	TP
3.7 kW / 5 HP	4800	VSP-150-A050-15-08-P5.0	VPW-15-08-5.0	8	65	150	5.0 E2 SSSC	380	TP
	4800	VSP-150-A050-08-21-P5.0	VPW-08-21-5.0	21	50	150	5.0 E2 SSSC	380	TP
	4800	VSP-150-A050-05-28-P5.0	VPW-05-28-5.0	28	50	150	5.0 E2 SSSC	380	TP
5.5 kW/7.5 HP	6750	VSP-150-A075-17-08-P7.0	VPW-17-08-7.0	8	65	150	7.5 E2 SSSC	300	TP
	6750	VSP-150-A075-10-11-P7.0	VPW-10-11-7.0	11	65	150	7.5 E2 SSSC	300	TP
	6750	VSP-150-A075-08-28-P7.0	VPW-08-28-7.0	28	50	150	7.5 E2 SSSC	300	TP
7.5 kW / 10 HP	9000	VSP-150-A100-30-07-P9.0	VPW-30-07-10.0	7	65	150	10.0 E2 SSSC	380	TP
	9000	VSP-150-A100-17-10-P9.0	VPW-17-10-10.0	10	65	150	10.0 E2 SSSC	380	TP
	9000	VSP-150-A100-10-15-P9.0	VPW-10-15-10.0	15	65	150	10.0 E2 SSSC	380	TP

Pump kW / HP	Pumpset MOC	Motor Size (mm)	Controller Code	Head, mtr	Pump Output in LPD*
0.74 kW / 1 HP	High grade stainless steel	100	VSPCAAI65R 1.0	30	26000
1.5 kW / 2 HP	High grade stainless steel	100	VSPCAAI65R 2.0	30	60000
2.2 kW / 3 HP	High grade stainless steel	100	VSPCAAI65R 3.0	30	121000
	High grade stainless steel	100	VSPCAAI65R 3.0	50	65000
3.7 kW / 5 HP	High grade stainless steel	100	VSPCAAI65R 3.0	70	40000
	High grade stainless steel	150	VSPCAAI65R 5.0	50	124000
	High grade stainless steel	150	VSPCAAI65R 5.0	70	73000
5.5 kW/7.5 HP	High grade stainless steel	150	VSPCAAI65R 5.0	100	47000
	High grade stainless steel	150	VSPCAAI65R 7.5	50	142000
	High grade stainless steel	150	VSPCAAI65R 7.5	70	99000
7.5 kW / 10 HP	High grade stainless steel	150	VSPCAAI65R 7.5	100	73000
	High grade stainless steel	150	VSPCAAI65R 10.0	50	190000
	High grade stainless steel	150	VSPCAAI65R 10.0	70	130000
	High grade stainless steel	150	VSPCAAI65R 10.0	100	99000

\*Discharge is using manual tracking stand \* Results under Test Conditions

### Technical specifications

- Pump Capacity : 1.0 to 10.0 HP
- Pump Head : 30 m to 100 m
- Solar PV Array : 1200 Wp to 9000 Wp

# DC SOLAR PUMP CONFIGURATION

## DC Submersible Pumps - Product Code

Pump kW / HP	SPV Array Wp	Complete System Model Code	Pump Code	Stage	Delivery Size (mm)	Pump Size (mm)	Motor Code	Volt	Phase
0.74 kW / 1 HP	900	4WDDC130H80V3A-07R	VPW-03-07-1.0	7	38	100	1.0 WF PMSM	80	TP
	900	4WDDC160H80V2A-14R	VPW-02-14-1.0	14	38	100	1.0 WF PMSM	80	TP
	900	4WDDC190H80V2A-18R	VPW-02-18-1.0	18	38	100	1.0 WF PMSM	80	TP
2.2 kW / 3 HP	3000	4WADC330H230V17A-04R	VPW-17-04-3.0	4	50	150	3.0 WF PMSM	230	TP
	3000	4WADC350H230V10A-06R	VPW-10-06-3.0	6	50	150	3.0 WF PMSM	230	TP
	3000	4WADC370H230V05A-16R	VPW-05-16-3.0	16	38	100	3.0 WF PMSM	230	TP
3.7 kW / 5 HP	4800	4WADC550H340V17A-05R	VPW-17-05-5.0	5	50	150	5.0 WF PMSM	380	TP
	4800	4WADC570H340V10A-07R	VPW-10-07-5.0	7	50	150	5.0 WF PMSM	380	TP
	4800	4WADC5100H340V8A-21R	VPW-08-21-5.0	21	50	100	5.0 WF PMSM	380	TP

Pump kW / HP	Pumpset MOC	Motor Size (mm)	Controller Code	Head, m	Pump Output in LPD*
0.74 kW / 1 HP	High grade stainless steel	100	VSPCDDI65R 1.0	30	20000
	High grade stainless steel	100	VSPCDDI65R 1.0	60	11800
	High grade stainless steel	100	VSPCDDI65R 1.0	90	5000
2.2 kW / 3 HP	High grade stainless steel	100	VSPCADI65R 3.0	30	147000
	High grade stainless steel	100	VSPCADI65R 3.0	50	48000
	High grade stainless steel	100	VSPCADI65R 3.0	70	47000
3.7 kW / 5 HP	High grade stainless steel	100	VSPCADI65R 5.0	50	143000
	High grade stainless steel	100	VSPCADI65R 5.0	70	93000
	High grade stainless steel	100	VSPCADI65R 5.0	100	55000

\*Discharge is using manual tracking stand \* Results under Test Conditions

### Technical specifications

- Pump Capacity : 1.0 to 5.0 HP
- Pump Head : 30 to 100 m
- Solar PV Array : 900 Wp to 4800 Wp



# VARUNA COLUMN PIPE

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Varuna uPVC column pipes are designed with the most advanced processes to get the desired performance. Their smooth inner surface minimises the friction losses. All products are extensively tested to deliver quality, durability, reliability and a longer service life.

- Salient Features
  - Light in weight, easy to handle and transport.
  - Low friction loss due to smooth surface finish, resulting in energy saving.
  - An innovative locking arrangement to hold the joint.
  - Installation for vertical, horizontal or inclined application.
  - Long-life use even in salty, sandy and chemically aggressive water.
  - Low Installation cost, no wrenches or threading tools required.
  - Usable for submersible and jet pump for irrigation, domestic, industrial, mining and chemical distribution.
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- Application
  - Irrigation
  - Domestic
  - Industrial
  - Chemical distribution



# VARUNA Brand

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## Why INDIA Trust VARUNA ?

- Over 8 decades of engineering expertise
- Leader in agriculture pump sets (150-440 volts)
- Leader in domestic pump sets (120-240 volts)
- 500 models of submersible pumps and motors from 3– 10 inch
- Maximum star rated pump sets approved by the Bureau of Energy Efficiency (BEE), Govt. of India
- Energy efficient pumps that consume less power, save electricity and give higher returns on initial investment
- Efficient pumps that work even at 1000+ ft. depth
- 1,00,000 Sq. Mtr. infrastructure with state-of-the-art machineries
- Exports to more than 50 countries
- Government recognized Star rated Export House
- Product certified by ISO 9001, IS: 8034, IS: 9283, IS: 14220 & CE

## Quality First

- Varuna product have been certified for quality by the BIS (ISI) certification for its submersible pump sets against IS:8034
- This was followed by the certification of compliance against ISO:2001-2008 for its quality systems and CE mark towards
- performance exceeding the standards set for the European Community as also the Star Rated Pump sets approval Bureau of
- Energy Efficiency

## Benefits of VARUNA Solar Pump System

- 25 years back to back performance guarantee of solar photovoltaic panels from Varuna
- Indigenously designed and made in India, so spare parts etc can be available for 25 years
- Investment payback in less than 4 years and Gain for the next 20 years
- More water discharge than other equivalent pumps
- All parts of pumps & motors are made of stainless steel, So stay rust-free
- Backed by strong Nationwide Service
- More Durability with 80 years expertise

## VARUNA

- Expertise of more than 80 years
- One of the top pump manufacturers in India
- Exporting Worldwide
- 1500+ Sales and Service Dealers Nationwide
- Operates in 440 to 170 Volts in 3Ø & 240 to 140 Volts in 1Ø
- 1100+ Pump Model Range
- 300+ BEE Star Rated Models
- Higher Output with Lower Energy Consumption



# FREQUENTLY ASKED QUESTIONS

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**Q: What is meant by Solar Pump?**

A: System which converts energy of Sun rays into electrical energy to fetch /pump the water from Bore well/Tube well, open well etc. is called as Solar Pump.

**Q: Why Solar Pump:**

A: Solar pump is Ideal for remote areas, where electricity is not available/reliable and diesel is costly/difficult to get and store. With solar pumps, farmer can irrigate crops and can cultivate 3 crops a year. It is one time investment and delivers profits year after year for long life. Other benefits of Solar Pump is Clean energy, pollution and noise free, Harmonious with nature

**Q: How many types of Solar Pumps are there?**

A: There are Submersible (AC & DC) and Surface (AC & DC) Pumpset

**Q: Up to what head solar pumps can be used?**

A: Currently solar pumps can be used up to 300 mtr head.

**Q: How many hours solar pump can work?**

A: The average working hours of solar pump is 7 hours. Solar pump starts working with Sunrise and stop at Sunset.

**Q: What standards are applicable for Solar Panels?**

A: IEC 61730-1,61730-2, IEC-61215, IEC-61701

**Q: Is Panel Cleaning required?**

A: Yes, Regular panel cleaning ensures optimum power generation

SINCE 1935

**VARUNA**<sup>TM</sup>  
ELECTRIC



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