

SOLAR **PUMPING SYSTEMS**

Watering the Future: Sustainable
Solar Pumping Solutions



Introduction

ROTO ENERGY is an enterprise of Roto Pumps, a globally known and preferred brand for positive displacement pumps. With over 55 years of establishment and legacy, Roto Pumps is the pioneer and leading manufacturer of progressive cavity pumps. Caters to a diverse range of industries for various applications to handle highly viscous and abrasive fluids, Roto has transformed itself into a fluid engineering solution provider,

Recognising the importance of renewable energy and as a green initiative to contribute towards a sustainable future, Roto Pumps has incorporated ROTO ENERGY SYSTEMS Ltd., a wholly owned subsidiary, in 2021, which assumed the brand "Roto Rudra" to carry its product line.

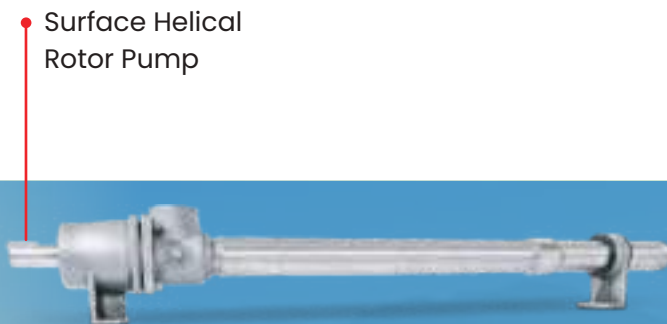
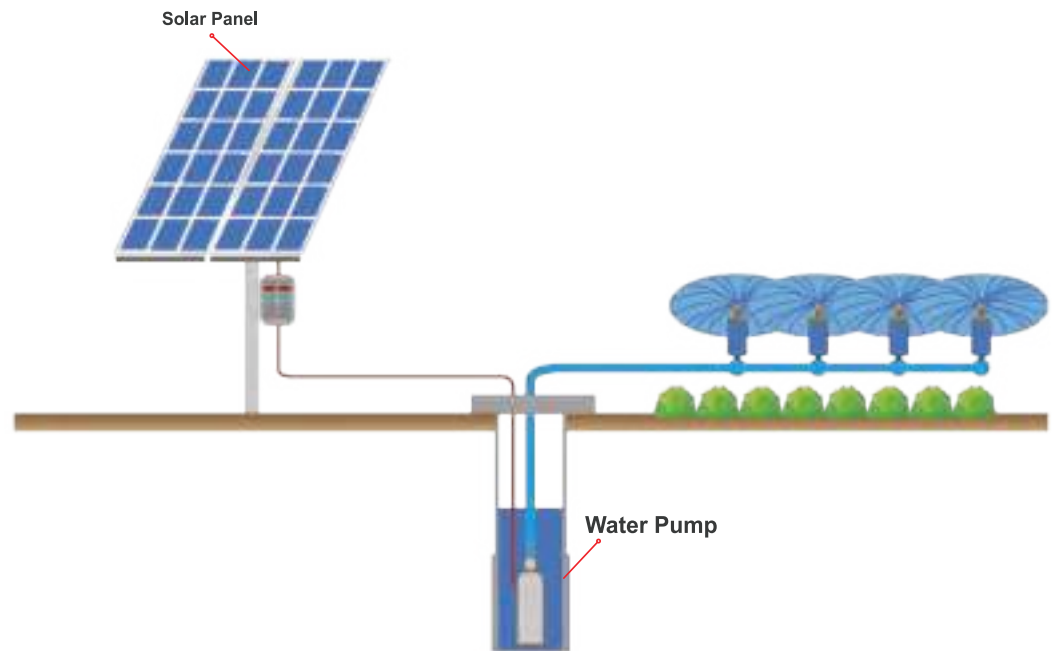
"Rudra originally comes from the Vedic period. It is the embodiment of the sun and regarded as the celestial form of 'Holy Fire'. This solar deity is the source of all splendour, one that gives liberation and Enjoyment. It is also regarded as the mightiest of the might."

The primary aim is to deliver systems and solutions from renewable energy sources. In line with this mission, Roto Energy has developed highly efficient solar pumping systems,



Solar pumping solutions are used in various applications -

- Drinking water supply from bore well
- Farming and Irrigation
- Livestock Watering
- Pond Management
- Community Water Supply
- Fisheries
- Gardening and Fountains etc



Solar Controller with Remote Monitoring



Infrastructure



State-of-Art Manufacturing Facility Spread Over 8,000 Sqm



Dedicated R&D Team for Product Innovation and Development



Superior Elastomer Technology Spanning More Than 55 Years of Stator Manufacturing Including In-House Compound Formulation, Preparation & Mould Designing Facility



Pan India and Global Presence with our Own Offices and Warehouses Spread Over 7 Locations - Australia, Germany, Malaysia, South Africa, UAE, UK, USA



International Quality & Management System

Continuous investment in precision measuring instruments, state-of-the-art testing facilities, and a dedicated team of engineers are testimony to Roto's commitment to maintain and constantly upgrade the quality of its products. The manufacturing unit are certified for conformance to the ISO9001:2015 quality surveillance systems, ISO14001:2015 for Environmental management systems and ISO 45001:2018 for Occupational Health and Safety Management systems





Icv

Certificate of Registration

This Certificate certify that the Management System of
ROTO ENERGY SYSTEMS LIMITED
Plot No. 06, Sector-Ecotech XII, Roja Jalalpur, Greater Noida,
Gautam Buddha Nagar, Uttar Pradesh-201308, India.

has been audited by ICV and found to be
in compliance with the requirements of the standard

ISO 9001: 2015

(Quality Management Systems)

This certificate is valid for
the following scope:

Manufacturer of Pumps - Solar, Positive Displacement and Centrifugal
Motors - Solar, PMSM and Induction, Solar Controller, Spare Parts of
the Pump, Motor and Controller.

Certificate No. : IN/07810870/4143
Initial Registration Date : 02/12/2025
Certificate Issue Date : 02/12/2025
Certification Expiry/Re Certification Date : 01/12/2026





ICV
ICV ASSESSMENTS PVT. LTD.
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+91 - 11 41548315, info@icvassements.com, www.icvassements.com

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ISO 14001:2015

(Environmental Management Systems)

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the following scope:

Manufacturer of Pumps - Solar, Positive Displacement and Centrifugal
Motors - Solar, PMSM and Induction, Solar Controller, Spare Parts of
the Pump, Motor and Controller.

Certificate No. : IN/78101058/7001
Initial Registration Date : 02/12/2025
Certificate Issue Date : 02/12/2025
Certification Expiry/Re Certification Date : 01/12/2026





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ISO 45001 : 2018

(Occupational Health and Safety Management Systems)

This certificate is valid for
the following scope:

Manufacturer of Pumps - Solar, Positive Displacement and Centrifugal
Motors - Solar, PMSM and Induction, Solar Controller, Spare Parts of
the Pump, Motor and Controller.

Certificate No. : IN/60010880/4160
Initial Registration Date : 02/12/2025
Certificate Issue Date : 02/12/2025
Certification Expiry/Re Certification Date : 01/12/2026





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Certificate of Compliance

We hereby declare that technical final product complied with the requirement of directives
Low Voltage Directive (LVD) (2014/53/EU).

Applicants
Name : **ROTO ENERGY SYSTEMS LIMITED**
Address : PLOT NO. 06, SECTOR ECOTECH XII, ROJA JALALPUR, GREATER NOIDA,
GOVT. INDUSTRIAL AREA, UTTAR PRADESH, INDIA.

Product
MANUFACTURER OF PUMP/SOLAR, POSITIVE DISPLACEMENT AND CENTRIFUGAL, SOLAR
MOTOR AND CONTROLLER, SOLAR CONTROLLER, SPARE PARTS OF THE PUMP, MOTOR AND CONTROLLER.

Complies with the requirements applicable to it
The Certification body has performed an audit of the above product covering the design,
manufacture and final inspection of the certified product. The quality system has been assessed, and
is subject to continuous surveillance according to Technical Protective Equipment
(Voltage Directive (LVD) 2014/53/EU).

This certificate is issued under the following conditions:
1. If applicable to the quality system/manufacturer (the manufacturer of above-mentioned model and
2. Once the manufacturer/producer type/manufacturer procedure is requested.
3. The certificate is valid only until the manufacturing conditions or quality systems are changed.
4. After fulfilling the relevant EU legislation, the manufacturer shall affix the product
at the above-mentioned model.
5. The CE mark is shown above can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of conformity and compliance with all relevant EC Directives. The statement is based on a single evaluation of one sample of above-mentioned product. It does not imply an assessment of the whole production.

Certificate No. QVA-RES423-0230026

Date of Certification : 02nd DEC 2025
1st Surveillance Due : 01st DEC 2026
2nd Surveillance Due : 01st DEC 2028
Certificate Expiry : To the company maintaining its system
To the requirement(s)

Authorized Signatory





QVA Certification
CAB Address : Maryland Avenue, SW Washington, D.C. 20022
Validity of this certificate is subject to annual surveillance audits to be done successfully.
This certificate is the property of QVA Certification and shall be returned immediately on
QVA Certification is an Independent Systems Products and Personal
assessment Body. QVA Certification is a accredited by UKAS 18

Solar Submersible helical rotor pump-sets

RSSH SERIES

Rotor & Stator

- Optimized geometry to provide max. capacity at low torque
- Solid rotor design for stability and longer life
- Lower starting torque and effective sealing line (Zero Leakage) improves volumetric efficiency



Zero Leakage @ low torque

Pump Lantern

- Designed to suit NEMA frame motors

Dry Running Protection

- Dry running protection using Liquid level sensor

Non-Return Valve

- Designed for short closing time to avoid water hammer
- Can also be used for Horizontal installations

Flexible Shaft

- Designed for smooth transmission of load
- Optimized length for compact design and long life

PMSM Motor

- Unique 10 pole motor design for higher efficiency and longer life
- Robust and compact design
- Low torque ripple
- Low cogging torque ensures smooth start up
- Reduces current pulsations of source power
- Eliminates the use of LC filter up to 200m
- Pressure balanced for deep sub-mergence and dynamically balanced rotating parts
- Eliminates rotor losses resulting significant reduction in motor current & temperature rise



Product Details

Ideal choice for high head and low discharge applications.
It consumes low PV Power.



Discharge

13 LPM - 130 LPM
(0.8 m³/h - 8
m³/h)*



Head Range

Up to 300 m



Motor Power

0.5HP - 3 HP*



Borewell Sizes

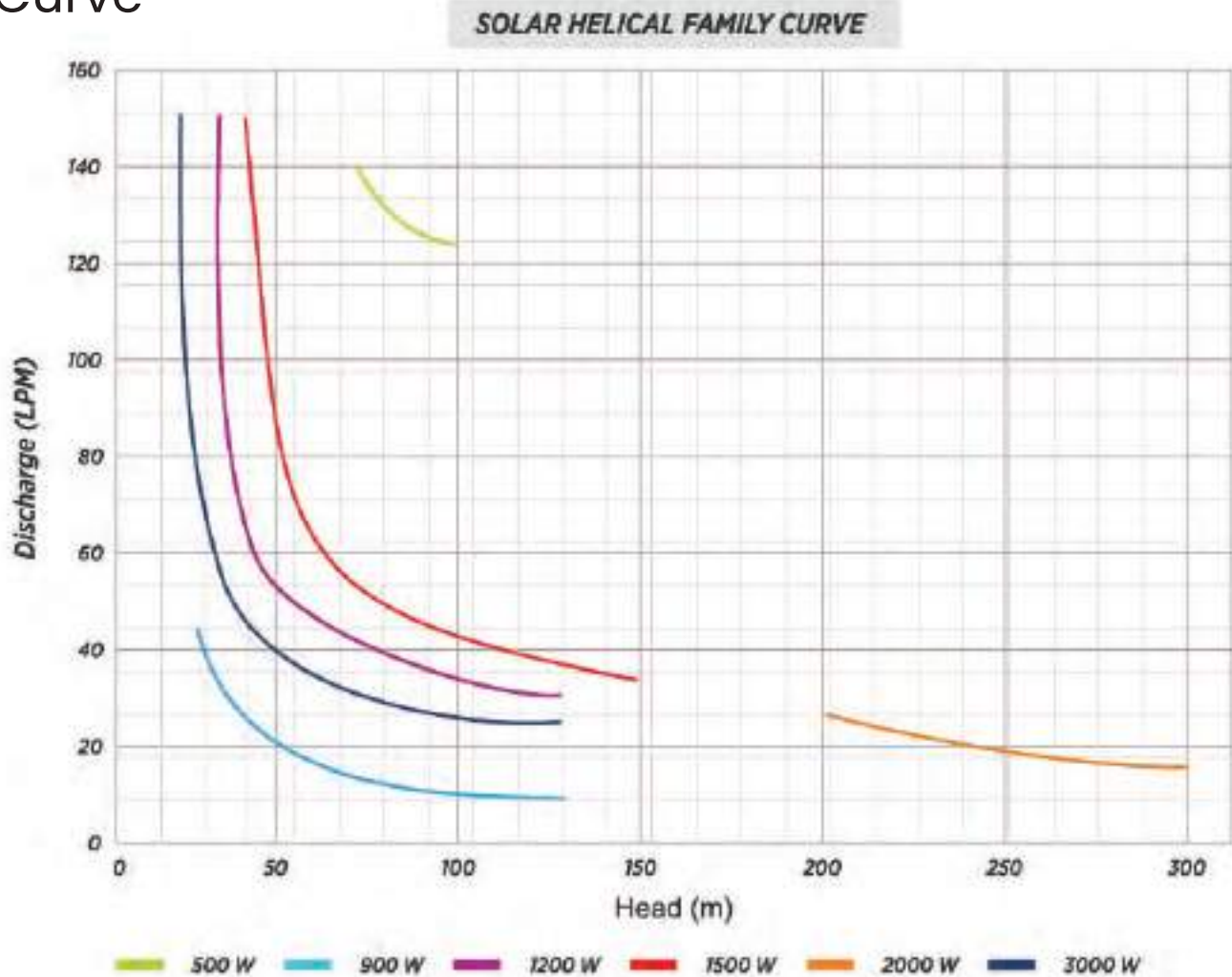
3" & above



MOC

SS 304 or
SS 316

Performance Curve



*Higher models can be provided based on request

Solar submersible centrifugal pump-sets

RSSC SERIES



Impeller & Diffuser

- Superior design gives higher hydraulic performance, greater efficiency and provide higher resistance against wear and tear

Pump Shaft

- Dynamically balanced to ensure minimum noise and vibration free operations

PMSM Motors

- Unique 10 pole motor design for higher efficiency and longer life
- Robust and compact design
- Low torque ripple
- Low cogging torque ensures smooth start up
- Reduces current pulsations of source power
- Eliminates the use of LC filter up to 200m
- Pressure balanced for deep submergence and dynamically balanced rotating parts
- Eliminates rotor losses resulting significant reduction in motor current & temperature rise

Non-Return Valve

- Designed for short closing time to avoid water hammer
- Can also be used for Horizontal installations

Pump Lantern

- Designed to suit NEMA frame motors
- Inbuilt strainer protects pump from external damage
- Strainer is placed inside the pump lantern, no worry of misplacement during operation

Dry Running Protection

- Sensor less dry running protection

Product Details

Mainly used for high discharge applications suitable for minimum 4" bore well size



Discharge

33 LPM - 1000 LPM (2 m³/h - 60 m³/h)*



Head Range

Up to 250 m



Motor Power

1HP - 10 HP*



Borewell Sizes

4" & above

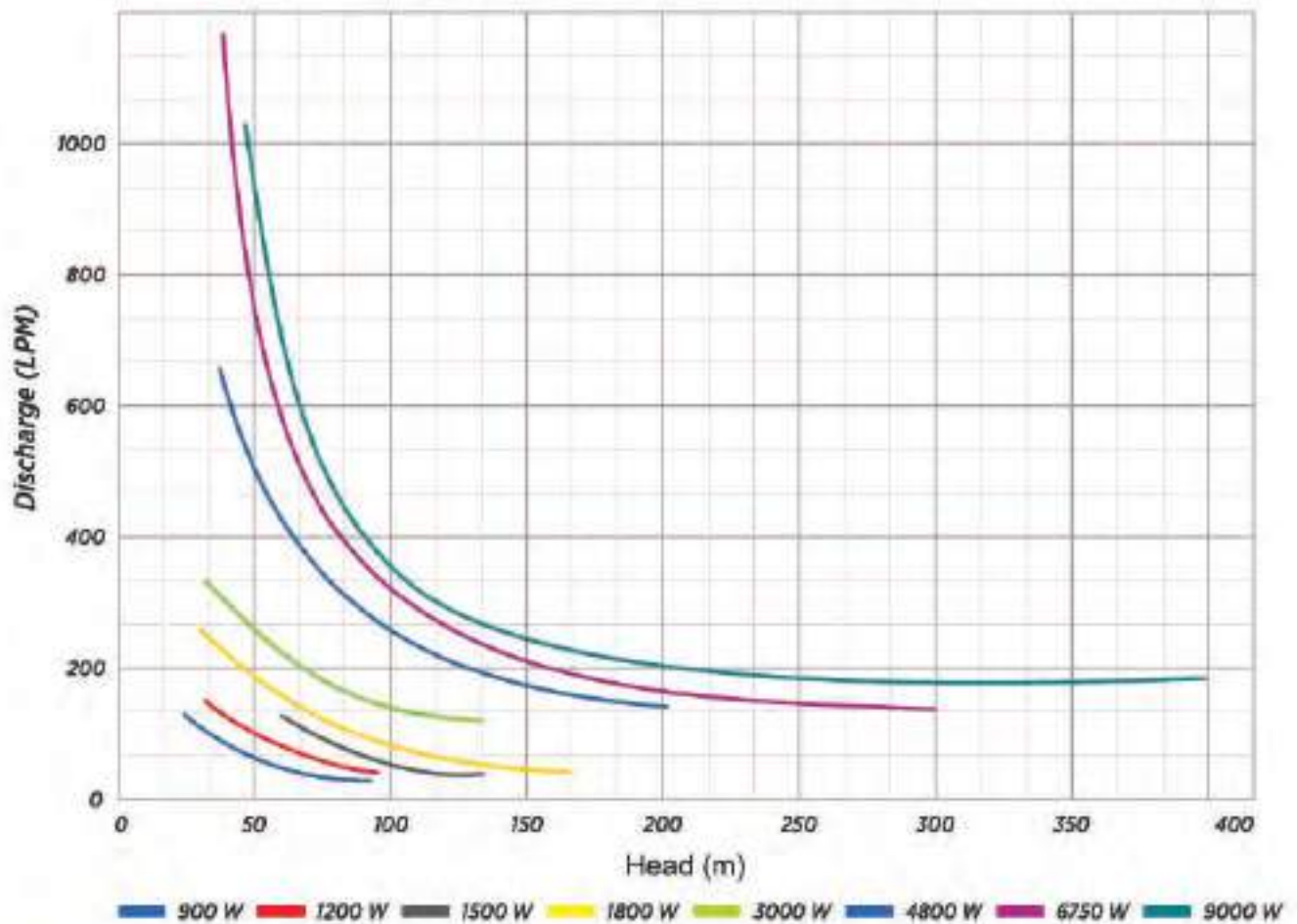


MOC

SS 304 or SS 316

Performance Curve

SOLAR CENTRIFUGAL PUMPS FAMILY CURVE



*Higher models can be provided based on request

Solar submersible motors

(UNIQUE 10-POLE DESIGN)



PMSM Motors

- Robust and compact design
- Low torque ripple
- Low cogging torque ensures smooth start up
- Reduces current pulsations of source power
- Eliminates the use of LC filter up to 200m
- Unique 10 pole motor design for higher efficiency and longer life
- Pressure balanced for deep submergence and dynamically balanced rotating parts
- Eliminates rotor losses resulting significant reduction in motor current & temperature rise



Solar controller

RR VERSION 1.0

Roto Rudra solar controller has been designed to optimize performance for solar pumping systems. Variable speed control allows smooth pump flow under varying sun intensities

Technical Data:

- Power size: 0.5 HP to 10 HP
- IEC 61683, IEC 60068-2(6,30) compliance



Oil Filled PMSM Submersible Motor

Range	: 3" (0.5 HP -2 HP) 4" (1 HP-5 HP)
Voltage	: 30V to 230V
Construction	: SS 304
Mounting type	: NEMA

Features:

- Potable and Hygienic grade oil filled motors facilitates use of anti-friction bearing resulting in smooth running and trouble-free operation
- Anti-friction bearing reduces axial/ radial loads, providing better life to motor
- Suitable for Vertical and Horizontal installations



Water Filled PMSM Submersible Motor

Range	: 3" (0.5 HP -2 HP) 4" (1 HP-5 HP) 6" (7.5 HP - 10 HP)
Voltage	: 30V to 380V
Construction	: SS 304
Mounting type	: NEMA

Features:

- Lubricated bearings for years of service
- Non-overloading power characteristics to protect the motor



Resin Filled PMSM Submersible Motor

Range	: 4" (1 HP - 5 HP) 6" (7.5 HP - 10 HP)
Voltage	: 50V to 380V
Construction	: SS 304
Mounting type	: NEMA

Features:

- Hermetically sealed stator
- Resin filled anti-track stator, prevents motor burn out

Features:

- **MPPT (Maximum Powerpoint Tracking):**
Designed to minimise the power losses and maximise the capacity of PV panels thereby ensuring maximum input power
- **RMS (Remote Monitoring System) for connectivity through mobile and laptop**
To provide real-time data of performance, Roto Rudra controller is equipped with Remote Monitoring System. The controller has in-built RMS port which is pre-enabled to sync with Local network to provide running data over laptop or Mobile portal
- **Visual LED & LCD based indications (Faults are descriptive and self-explanatory)**
- **Over and under Voltage protection**
Configured for rated voltages so in case of any malfunction arising due to over and under voltage conditions, error notification appears on the controller screen
- **Dry run protection**
This feature ensures system shut down when water level falls below suction point
- **PV Surge Protection**
- **Reverse Polarity protection**
- **Thermal overload protection for controller**
- **Operational in Gird connectivity (Optional)**
- **IP 65 enclosure class allows both outdoor and indoor installation**



Roto Energy Systems Limited

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