

DC Submersible Solar Pump

Model: RS1200

Type	Description
RD010H020	DC Submersible Solar pump type: RD010H020
	Rated head: 20mtr., 1.0HP, Shut off head 25 mtr., With RS1200 controller
RD010H030	DC Submersible Solar pump type: RD010H030
	Rated head: 30mtr., 1.0HP, Shut off head 45 mtr., With RS1200 controller
RD010H050	DC Submersible Solar pump type: RD010H050
	Rated head: 50mtr., 1.0HP, Shut off head 70 mtr., With RS1200 controller

Type	RD010H020	RD010H030	RD010H050	
Rated head (mtr.)	20	30	50	Motor : Permanent Magnet Brushless DC Motor
Optimum Head range (mtr.)	10-30	20-40	40-60	
Discharge (LPD)	60,000 [#]	42,000 [#]	25,200 [#]	Pump : SS-304 material (In contact with water)
Shut Off head (mtr.)	25	45	70	
Array Rating	1200 Wp			Water output figures are on a clear sunny day with 3 times tracking of SPV panel, under "Average Daily Solar Radiation" condition of 7.15 KWh/sq.m on the surface of PV Array (i.e. coplanar with PV module)
Input Voltage (Vmp.)	≥ 144 V			
Input Max. Current	9 Adc			
Ambient Temperature Range	Up to 50° C			
MNRE test certificate reference (Report no.)	-			
				Standard Test Condition : AM=1.5, E=1000W/m ² , Cell Temperature : 25°C

[#] This water output is at STC conditions and testing as per MNRE's latest specifications for Solar water pumps.

Product Introduction

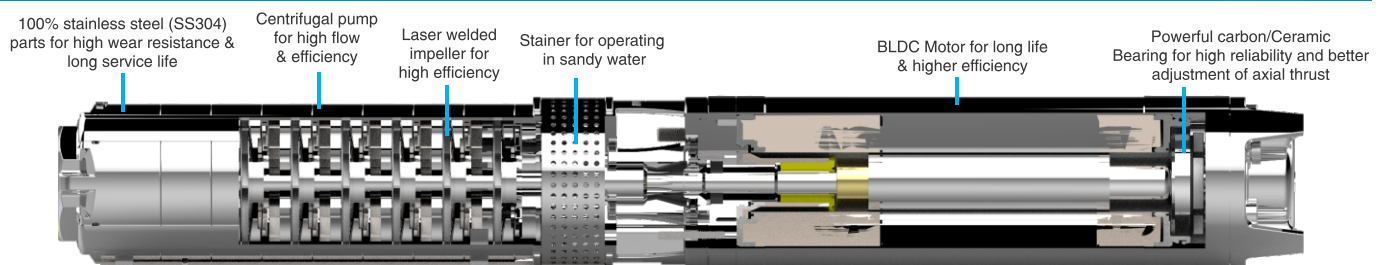
Rotosol solar submersible pump has a stainless steel SS-304 pump bowl and impellers which are precision laser welded. This ensures long life and high reliability against dust, sand and abrasive elements. The pump elements are driven by a sealed "Brushless DC motor" filled with oil/water. The motor is made from stainless steel 304 shell and sealed for life. Brushless DC motors has very high efficiency. The motor is driven by a controller which has in built MPPT (Maximum power point tracker), dry running protection and overheating protection. A special thrust bearing supports the rotor of the motor to withstand the axial thrust of the water column when the pump is switched off.



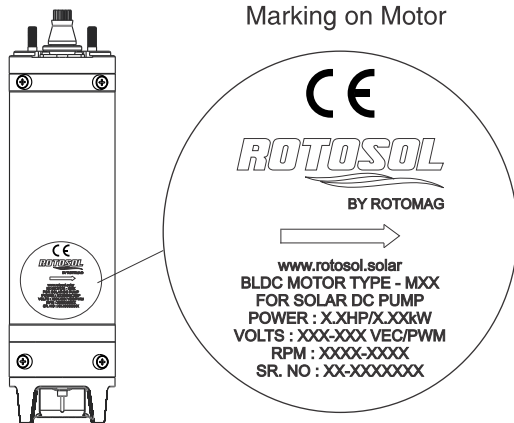
Application

- Drinking water supply
- Pond management
- Village water supply
- Livestock watering
- Irrigation

Features and benefits



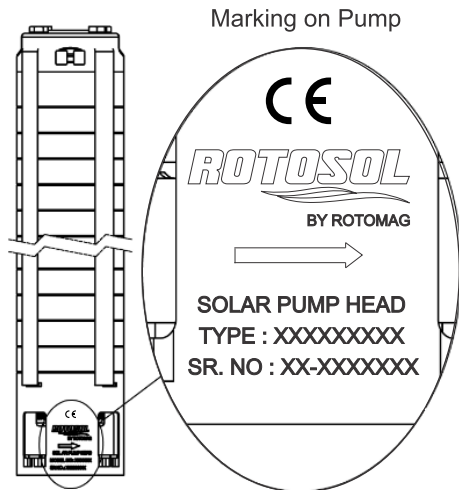
Specifications of BLDC Submersible motor:



BLDC motor type	M12
Power	1HP/0.75kW
Output VEC PWM	50-138
RPM	1800-3300

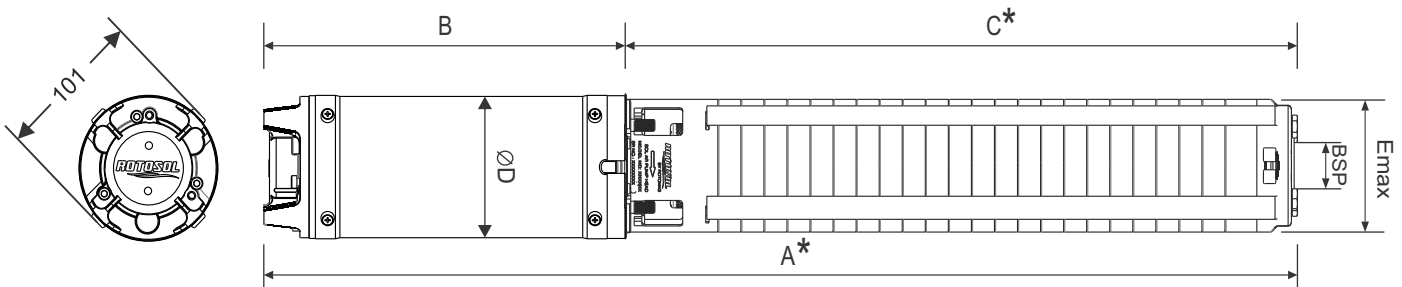
► Protection : IP68

Specifications of solar pump head:



Type	Rated head (mtr.)
RD010H020	20
RD010H030	30
RD010H050	50

Dimension of DC submersible solar pump head:



Model	Type	Dimensional Details						Module Details		Performance Curves No.	Approx. Net Weight in Kg. (± 1.5 kgs.)
		A (mm)	B (mm)	C (mm)	D (mm)	E max (mm)	BSP	Module Size (Wp)	No. of Module		
RS1200	RD010H020	605	270	335	96.4	92	2"	300	4	010H020	12
	RD010H030	565	270	295	96.4	92	1.5"	300	4	010H030	11
	RD010H050	670	270	400	96.4	92	1.5"	300	4	010H050	12

* The length is subject to change without notice as R&D is a continuous process and the modification may be required to suit the modification in I-V curves of the modules and the water output at varying heads.

Specifications of BLDC Submersible controller:

Input PV array	Input voltage (Vmp.)	Open circuit voltage (Voc)	Output VEC PWM
1000 - 1500 Wp	129-194 Vdc	148-222 Vdc	50-138 V

Features of Controller:

- ▶ Fully enclosed with IP54 protection as per IEC 60529:2013-08 Edition 2.2
- ▶ Multiple fault diagnosis indications.
- ▶ Integrated MPPT (Maximum Power Point Tracking).
- ▶ Tested as per IEC 60068-2-30, IEC 60068-2-14, IEC 60068-2-1, IEC 60068-2-2 for environment and IEC 61683 : 1999 for efficiency.*
- ▶ Option of "Tank Full" and "Source Empty" sensor for auto start and auto stop.

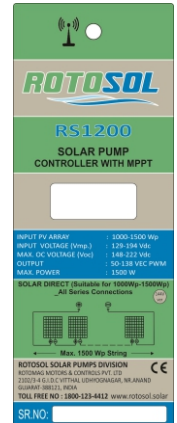
Protection against

Open Circuit

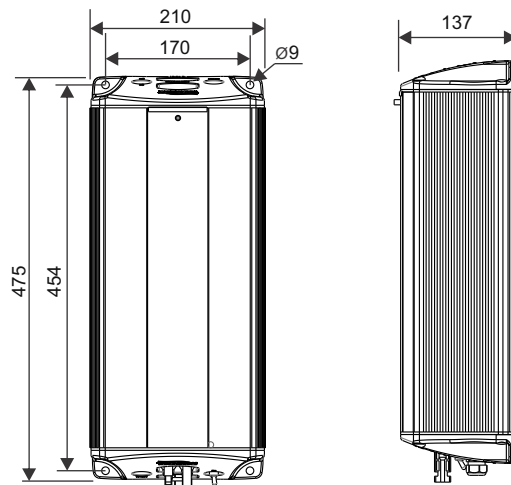
Accidental Short circuit
(2 min. max.)

Reverse Polarity

Dry run



Mounting Dimensions:



IEC certificate nos. for controller

- ▶ Power & Efficiency test certificate no. 19630144001, 19630145001*
- ▶ Environmental test certificate no. 19630150001
- ▶ I.P. test certificate RP-1718-063907

Controller Nett weight

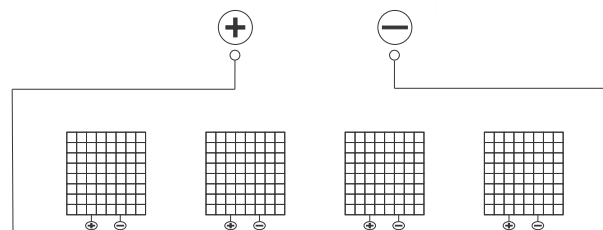
6.00 ± 1 kg.

Installation Requirements:

Preferred Solar PV Array:

300 Wp, 72 Cell x 4 Panels: 1200 W

Panel specifications	
Voltage at maximum power Vmax	38.88 V
Open circuit voltage Voc	44.56 V
Current at maximum power Imax	7.71 A
Short circuit current Isc	8.48 A

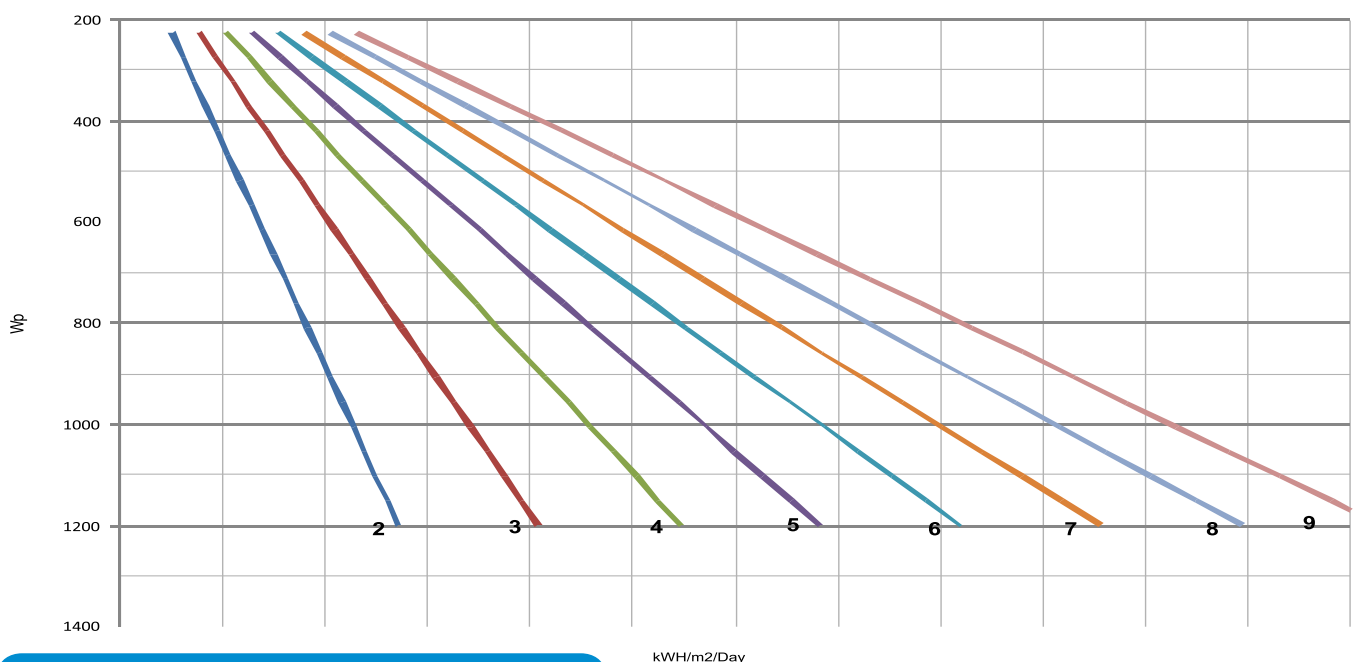
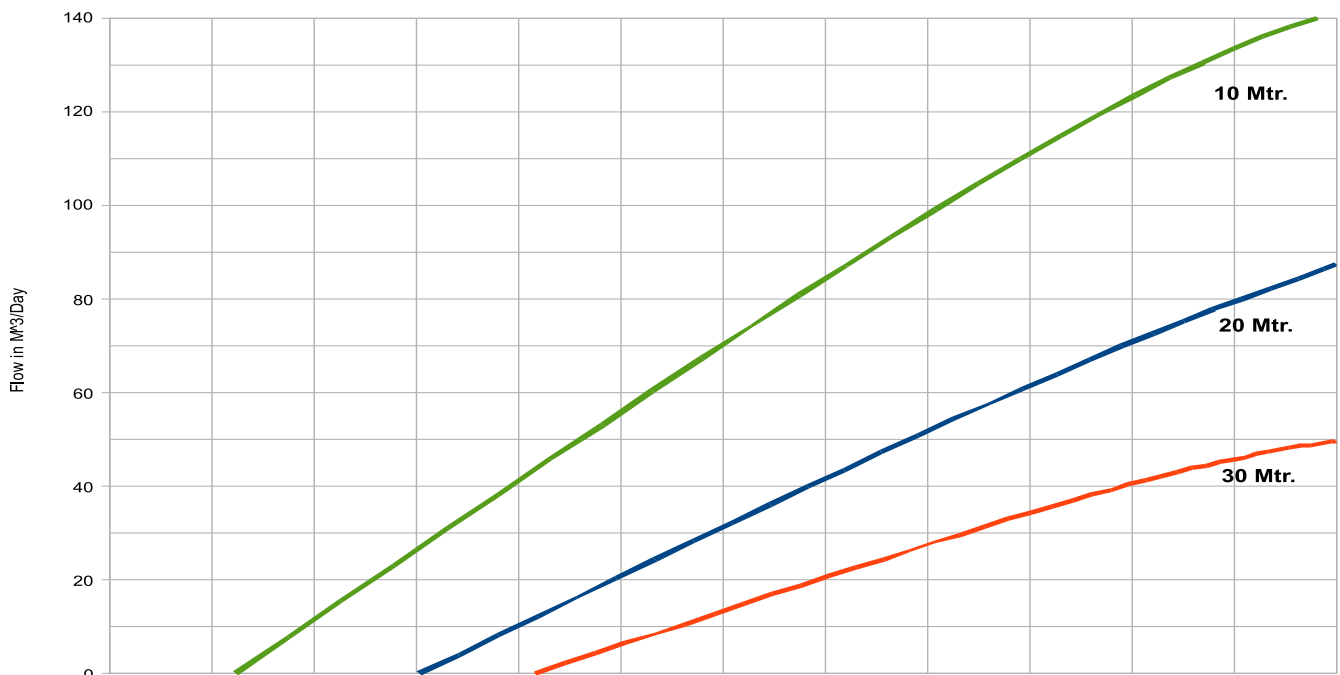


4 Series

Performance characteristics of type RD010H020 (No. :- 010H020)

This curves show the performance range of model RS1200 series of pumps with solar PV array.

- ▶ Ambient Temperature 50°C max.
- ▶ Based on 11 hours standard day.
- ▶ The water output is with continuous tracking, without tracking water output may reduce by 10-25% depending on angle of incidence.
- ▶ The actual output of PV array may be lower up to 30% depending on heat, dust and other losses.
- ▶ Irradiance measured on an inclined plane.



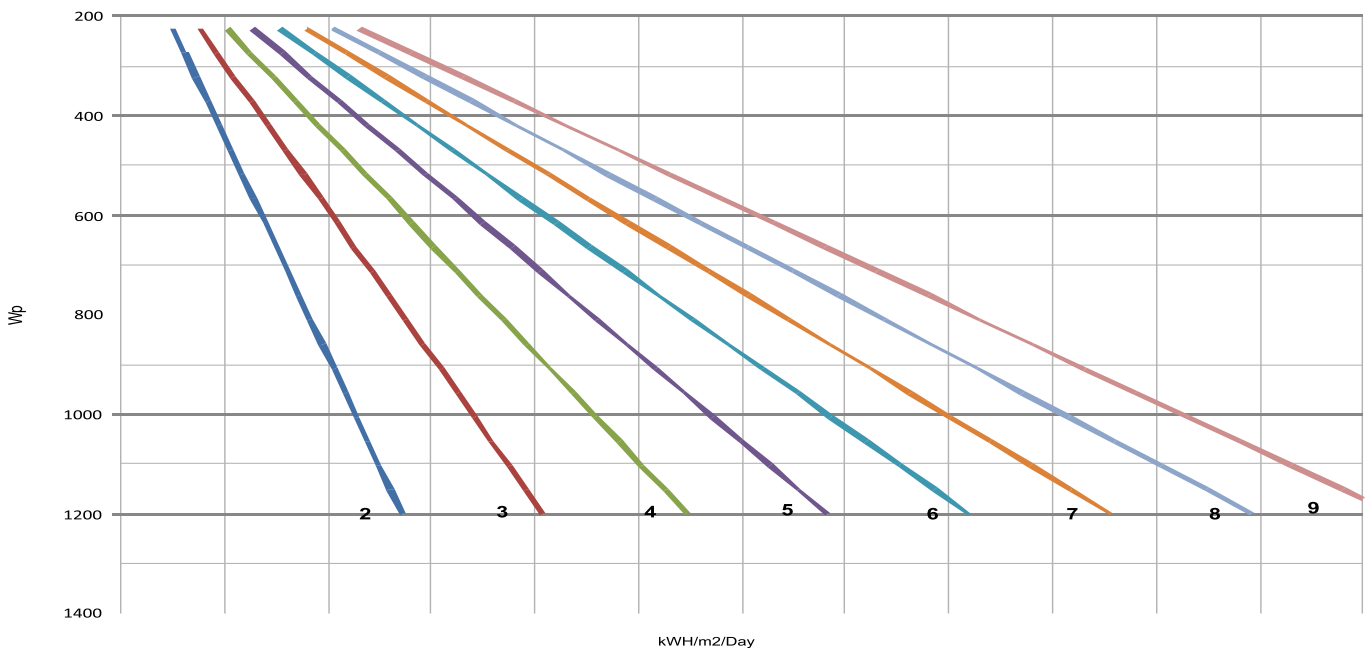
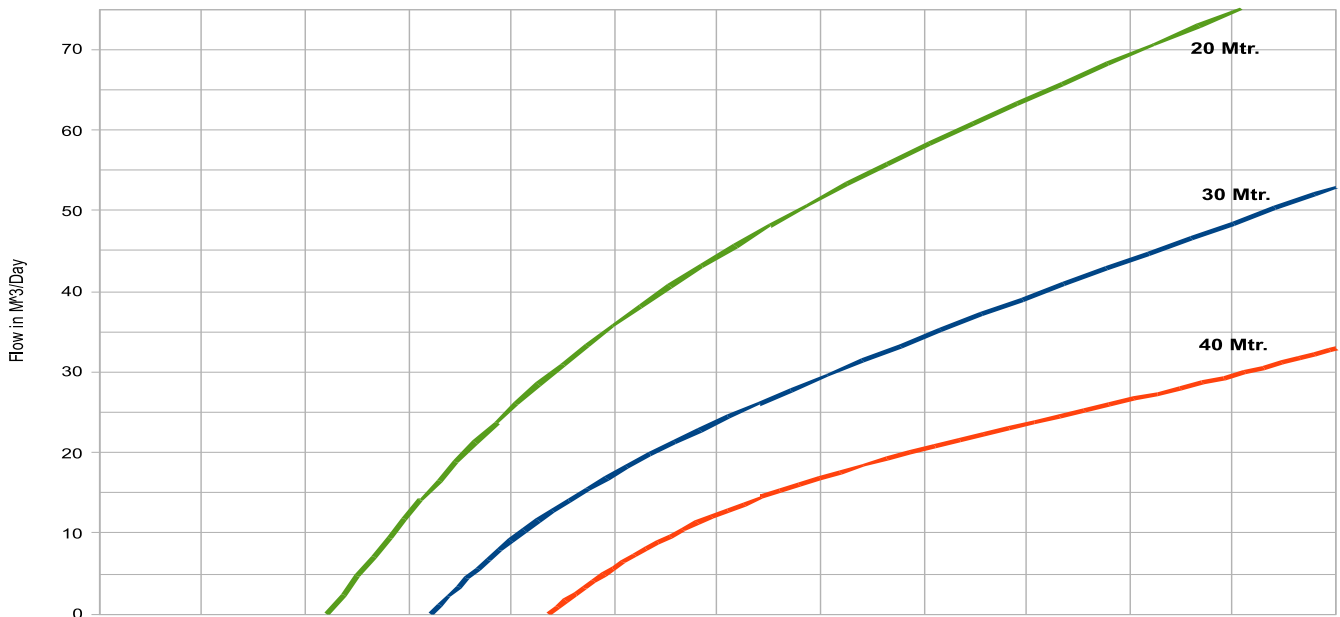
Explanation on above Charts:

An irradiance value and the required head in meters are given for a certain solar pumping system. Connect the point for the power output in Wp of the Solar array with an irradiance value, move vertical upwards to the intersection with the required head curve, then horizontal to the left to find the daily quantity of water that can be pumped (m³/day).

Performance characteristics of type RD010H030 (No. :- 010H030)

This curves show the performance range of model RS1200 series of pumps with solar PV array.

- ▶ Ambient Temperature 50°C max.
- ▶ Based on 11 hours standard day.
- ▶ The water output is with continuous tracking, without tracking water output may reduce by 10-25% depending on angle of incidence.
- ▶ The actual output of PV array may be lower up to 30% depending on heat, dust and other losses.
- ▶ Irradiance measured on an inclined plane.



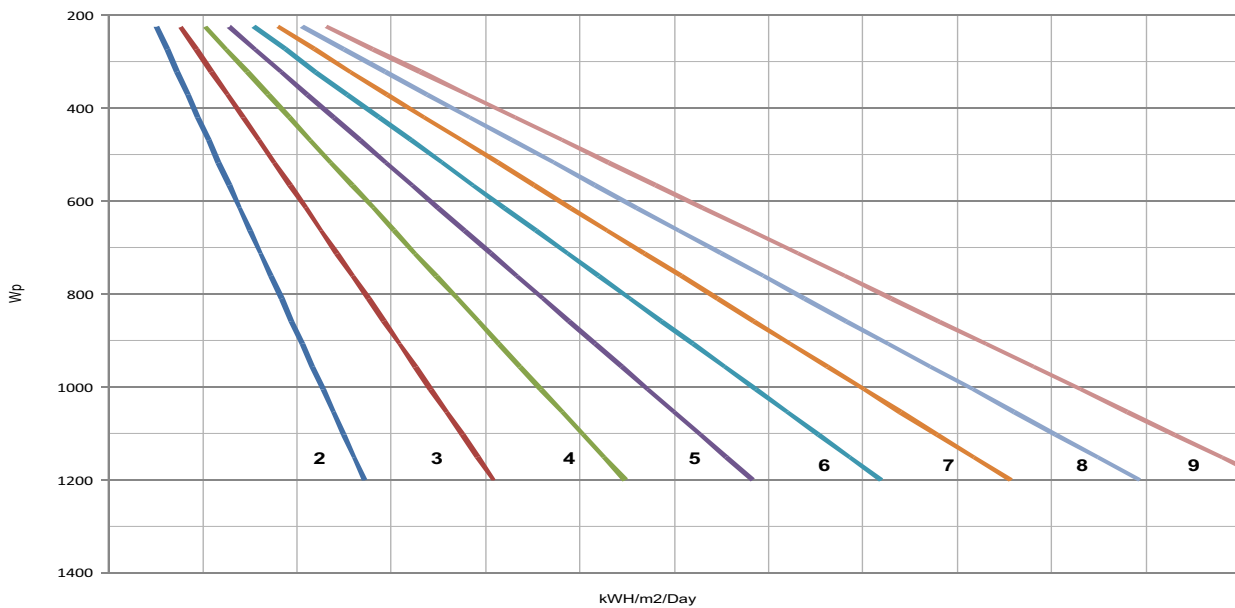
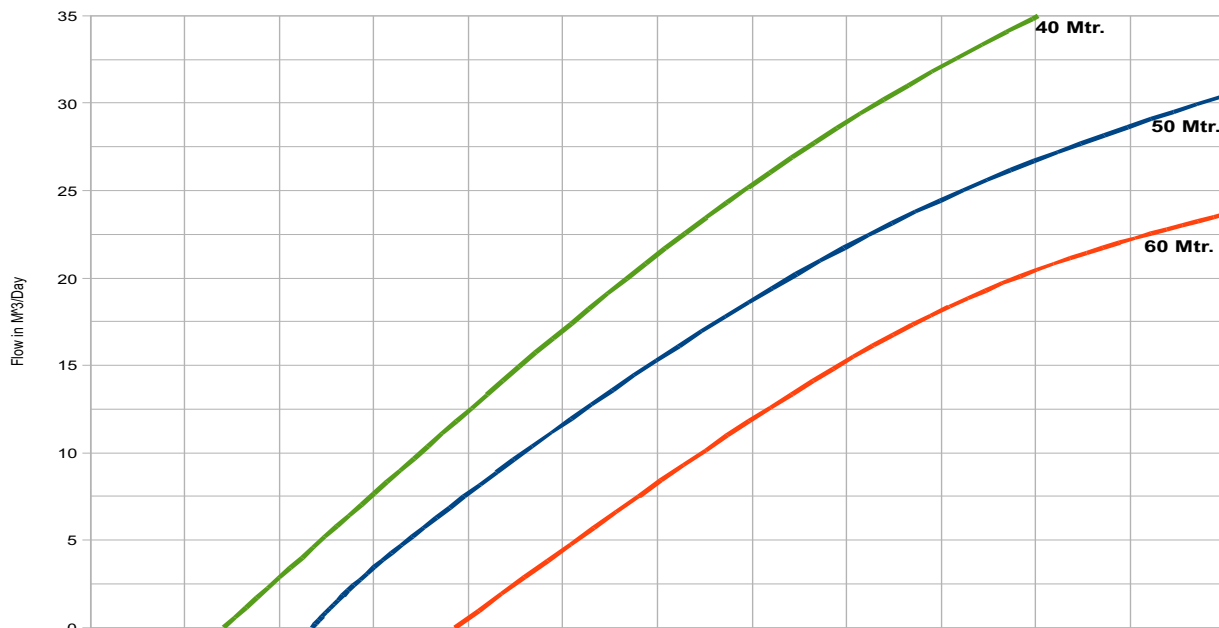
Explanation on above Charts:

An irradiation value and the required head in meters are given for a certain solar pumping system. Connect the point for the power output in Wp of the Solar array with an irradiation value, move vertical upwards to the intersection with the required head curve, then horizontal to the left the find the daily quantity of water that can be pumped (m³/day).

Performance characteristics of type RD010H050 (No. :- 010H050)

This curves show the performance range of model RS1200 series of pumps with solar PV array.

- ▶ Ambient Temperature 50°C max.
- ▶ Based on 11 hours standard day.
- ▶ The water output is with continuous tracking, without tracking water output may reduce by 10-25% depending on angle of incidence.
- ▶ The actual output of PV array may be lower up to 30% depending on heat, dust and other losses.
- ▶ Irradiance measured on an inclined plane.



Explanation on above Charts:

An irradiance value and the required head in meters are given for a certain solar pumping system. Connect the point for the power output in Wp of the Solar array with an irradiance value, move vertical upwards to the intersection with the required head curve, then horizontal to the left to find the daily quantity of water that can be pumped (m³/day).

Pump Controller With Integrated Remote Monitoring System

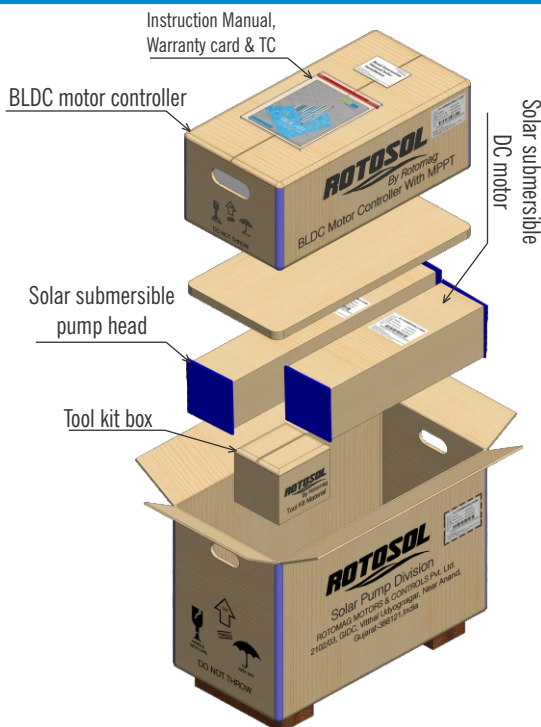
Remote monitoring system has been integrated with pump controller so that actual field information about voltage, current, temperature and error conditions are available with time on desktop computer as well as on mobile application.

Description of system:

The remote monitoring system integrated with the DC solar pump controller comprises of GPRS based data transmission modem in an IP54 enclosure. SIM card and SD card are to be separately inserted for remote monitoring system to start transmitting data to our server.

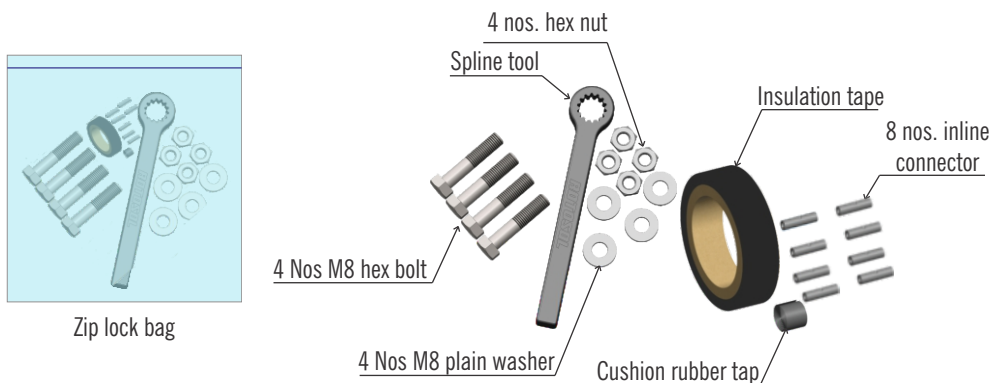
The operational data including Input DC voltage, Input DC current, Power (kW), Pump on hour, Number and nature of faults are processed and summarized reports are available. The reports show pump performance and faults in daily, monthly and user configurable periods. This data is transmitted to our server accessed by individual users or corporate users using mobile device or on desktop using appropriate login credentials.

Pump Set Packing Dimensions & Weight:



Type	L (mm)	W (mm)	H (mm)	Approx. packing weight (kgs)
RD010H020	700	350	450	23
RD010H030				23
RD010H050				24

Supplied Tool Kit Parts:



The BLDC Motor & Pump head cannot be used separately. They are uncoupled only for transportation convenience. They can be operated only if coupled together. Do not attempt to use them separately with any other device or parts, otherwise they will be damaged.

Technical specifications/details mentioned in this datasheet are subject to change without prior notice. Please contact our sales/marketing team for any updated information or any change done.

Solar Pumps Division

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