

# Solar pumping System

## Note:

MAXIMA solar motor powers the new system for the supply of clean water based on the most widely available renewable energy, the sun. It is designed for easy use and requires no maintenance. It is the ideal solution for supplying water in remote areas, where the normal power supply of electricity from the power grid is inconsistent or completely unavailable

Nominal Flow	2.58 m <sup>3</sup> /hr @ 80 m
Flow Range	1.20 ~ 4.38 m <sup>3</sup> /hr
Head Range	40 ~ 100 m

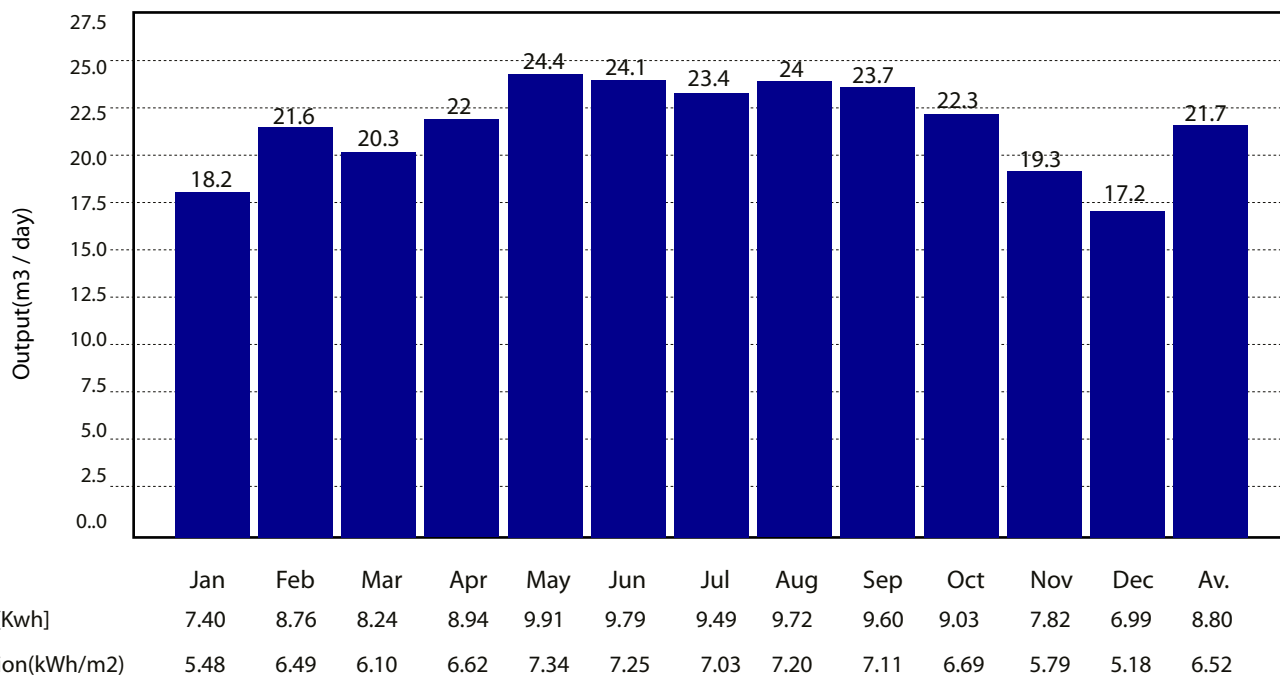
## Parameter

Location:	UAE	Water Temp:	25°C		
Required daily output:	10m <sup>3</sup> /day	Dirt loss:	3%	Motor length:	50
Pipe type:	Plastic	Static Head:	55m	Pipe length:	20m

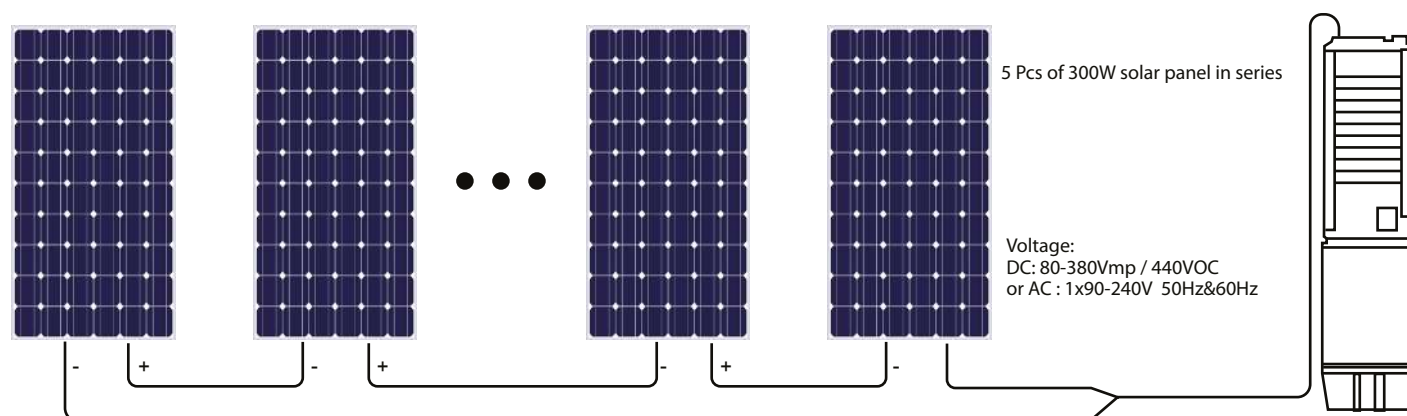
## Products

Submersible pump	1pc;4SP2-11 (1.5HP AC/DC)
Solar panel	5pc;1500Wp;300w × 5pcs
Motor cable	50m*2.5mm <sup>2</sup>
Pipeline	20m;Pipeline
Accessories	

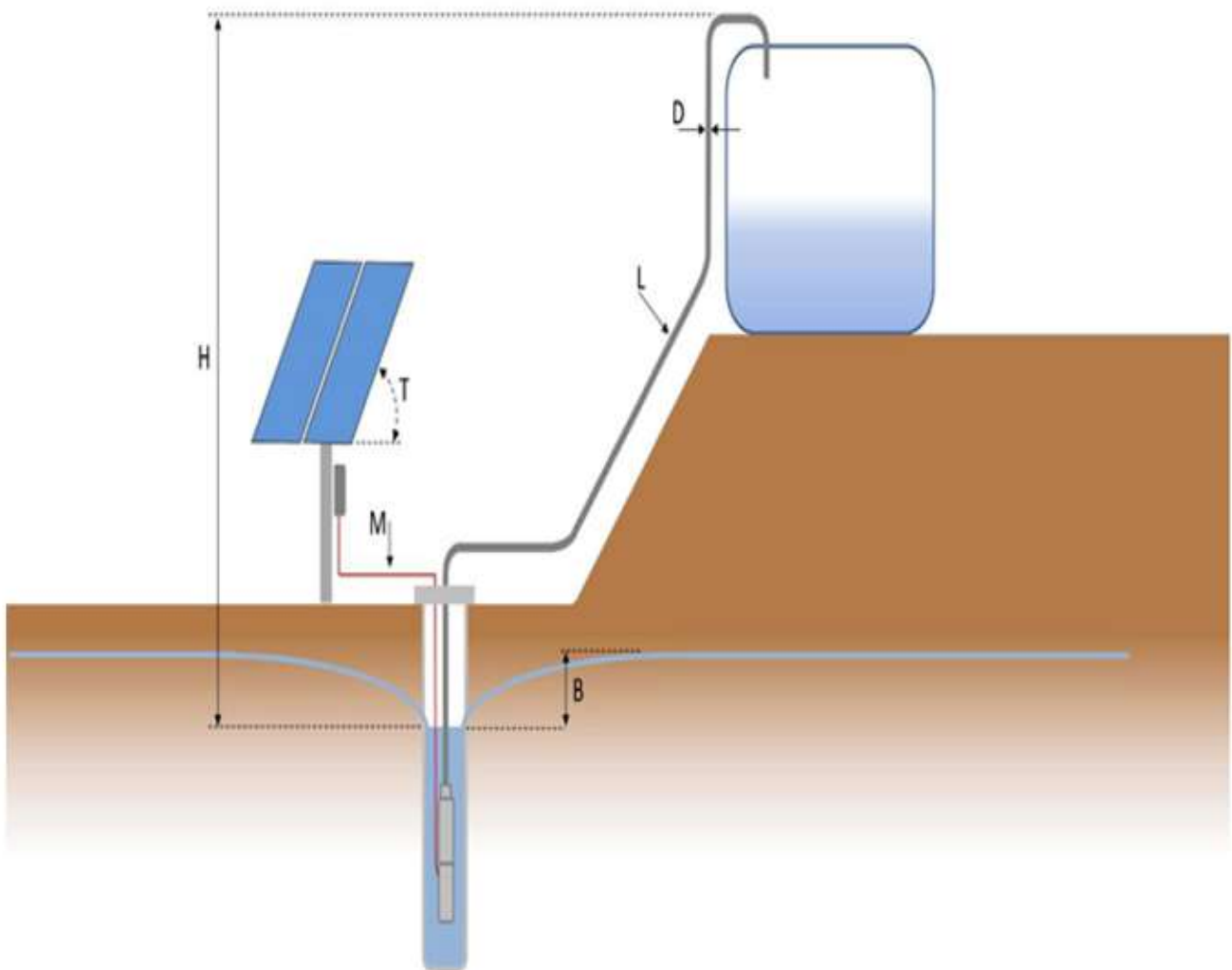
## Daily output in average month (21.7) m<sup>3</sup>/day



## Solar Panel Wiring

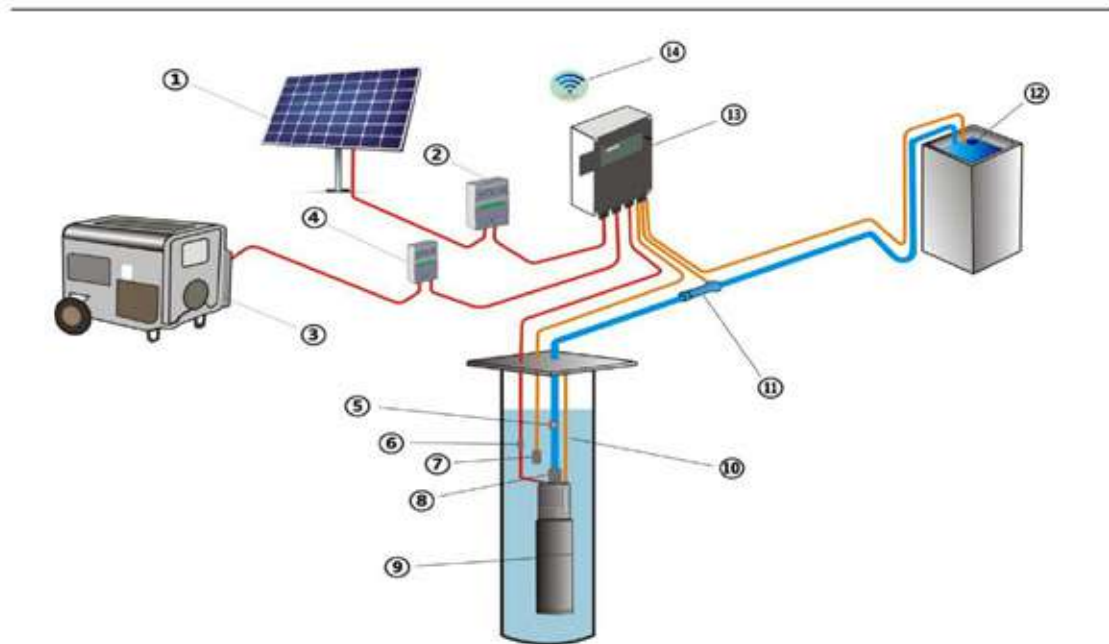


## Sizing Layout



H (Static head):	Vertical height from the dynamic water level to the highest point of delivery..
B (Drawdown):	Lowering of water level depending on flow rate and recovery rate of the well.
D (Pipeline inner diameter):	
L (Pipe length):	Entire pipeline from the pump outlet to the point of delivery. Ellbows and armatures must be added as an equivalent length of pipeline.
M (Motor cable):	The cable between controller and pump unit.
T (Tilt angle):	Angle of the PV generator surface from the horizontal plane.

## System Layout



- |                                                |                                        |
|------------------------------------------------|----------------------------------------|
| 1. Solar panels                                | 12. GPRS (Optional)                    |
| 2. SPD(DC), Surge Protection Device (Optional) | 13. Generator (Single Phase, Optional) |
| 3. Check valve (Optional)                      |                                        |
| 4. Wiring waterproof assembly                  |                                        |
| 5. The Low-Level Float (For Well, Optional)    |                                        |
| 6. Sacrificial Anode (Optional)                |                                        |
| 7. Water Pump End and BLDC Motor               |                                        |
| 8. Safety Rope                                 |                                        |
| 9. The High Level Float (For Tank, Optional)   |                                        |
| 10. External Controller                        |                                        |
| 11. Grounding pile (Optional)                  |                                        |

### NOTE

1. Please read the manual carefully for all installation accessories,  
Please contact factory if you need all the above accessories.
2. Float Switch for Dry Protection is Optional, Because the pump system has its own dry protection;
3. Monitor is not a necessary part of pump system .but it provides more functions and protections for pump system. Making the system more convenient and intelligent. For example intelligent switching of AC/DC power supply; Floating ball interface terminal etc.
4. The pump shall be installed at least 1.5m away from the bottom of the well:
5. It is recommended to install a check valve every 70m of the vertical height of the pipeline.

## 4SP2-11 (1.5HP AC&DC)

### Solar Submersible Pump System

#### System Overview

Head	max. 110m
Flow	max 90L/min
Recommend Max Input Power	max. 1.9 kW
Minimum well diameter	min 4 inch
Pump discharge	Rp 1.25"
Efficiency Max	45%

#### Product advantage

Stainless steel: AISI 304

BLDC High Efficiency Motor,

MPPT Efficiency Max.99%

Encapsulated water filled motor(No pollution risk):

Soft start running makes system's life longer:

Thrust bearing system

Reverse protection (reverse + and - is fine):

Over load protection/over current protection/over power protection:

Wide Voltage: 1x90-240VAC; 60-380Vmp/440VOC;

Hybrid Power by AC/DC 150-240V 50 Hz & 60 Hz both working:

Dry Protection (No additional float sensor required)

AC and DC intelligent switching

Loosing-Phase

Overvoltage and other protection

#### Technical Data:

##### Controller 4SP2-11 (1.5HP AC/DC)

Controller External

Over load ? Over Current / Over Voltage / Over Power Protection

Loosing-Phase protection

Over temperature protection;

##### Motor 4SP. (0.5-3HP AC&DC)

Voltage	AC 1x90-280V
	DC max. VOC 440V
	DC Vmp 60-380V

Current	max. AC 10A
	max. DC 12A

Motor Efficiency max 88%

WaterTemp max40°C

Insulation class F

Enclosure class IP X8

Submersion max. 150m

Required cooling flow 0.8L/s

Connect Standard 4"NEMA

Speed 500-4000

#### Pump End

Stainless steel: AISI 304 (316 Optional);

Non-return valve:

Centrifugal pump

#### Standards



#### Note:

\*AC / DC switching needs to wait 1 minute

\*Recommended 6 Pcs of 300W Solar Panel in Series;

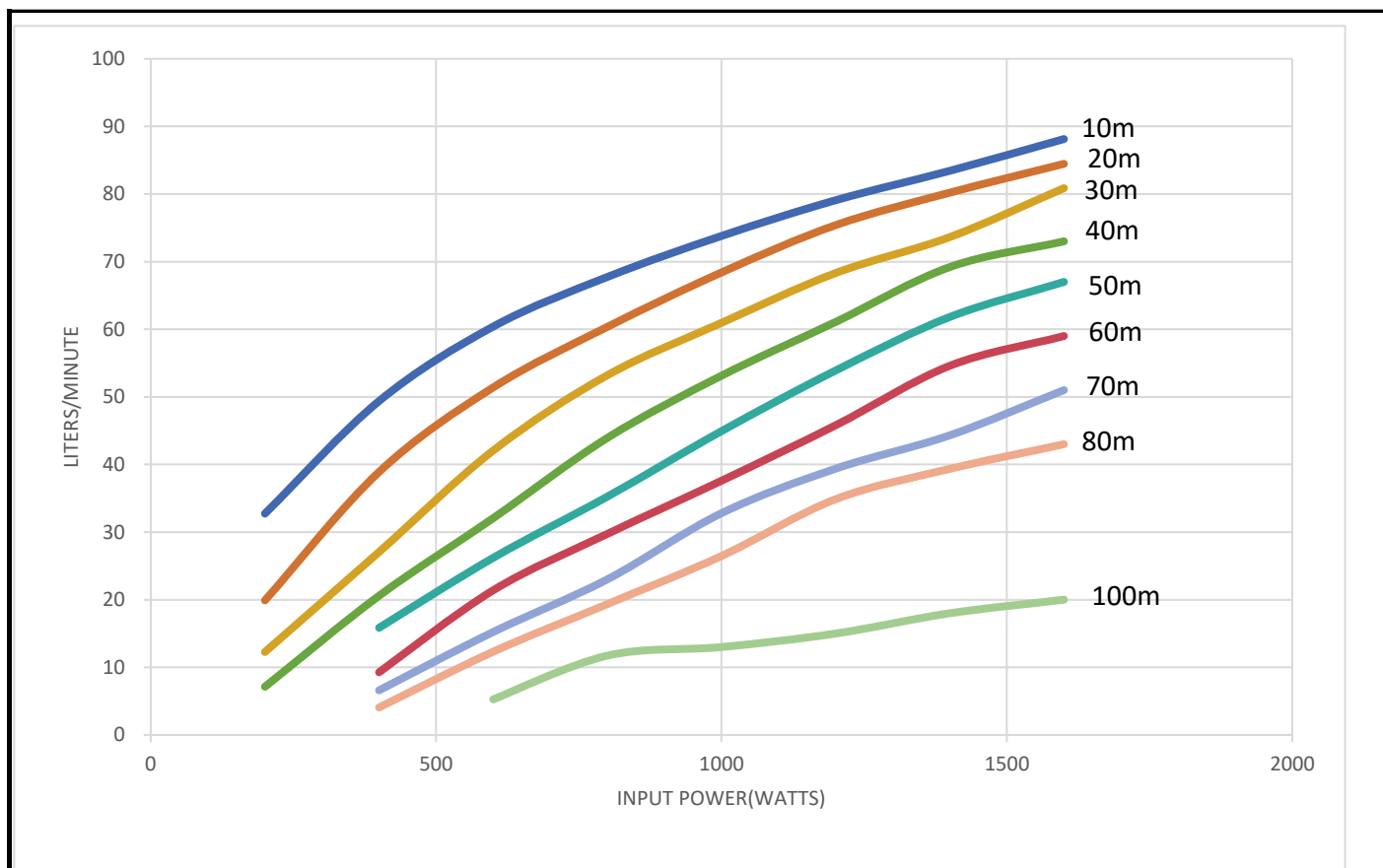
\*VOC (V) Volts open circuit nothing connected;Vmp (V) Volts maximum power point under load;Exceeding limits may cause serious harm or irreparable damage.



## 4SP2-11 (1.5HP AC&DC)

### Solar Pumping Project

### Pump Chart



	INPUT POWER (WATTS)							
	200	400	600	800	1000	1200	1400	1600
HEAD (M)	FLOW RATE (LITERS/MINUTE)							
10	33	49	60	68	74	79	83	88
20	20	39	51	60	68	75	80	84
30	12	27	42	53	61	68	74	81
40	7	21	32	44	53	61	69	73
50		16	26	35	45	54	62	67
60		9	21	30	38	46	55	59
70		7	15	23	33	39	44	51
80		4	12	19	26	35	39	43
100			5	12	13	15	18	20

## 4SP2-11 (1.5HP AC&DC)

### Dimensions and Weights

