

# 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 electricity from the power grid is inconsistent or completely unavailable

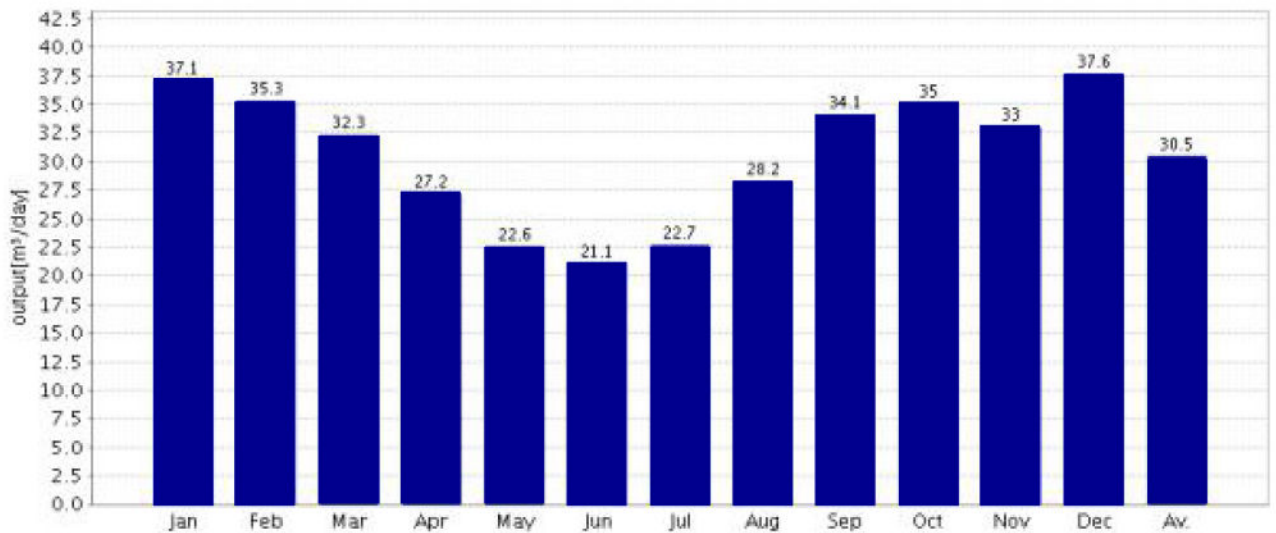
## Parameter

|                        |                       |                |      |               |     |
|------------------------|-----------------------|----------------|------|---------------|-----|
| Location:              | Dubai;UAE             | Du 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

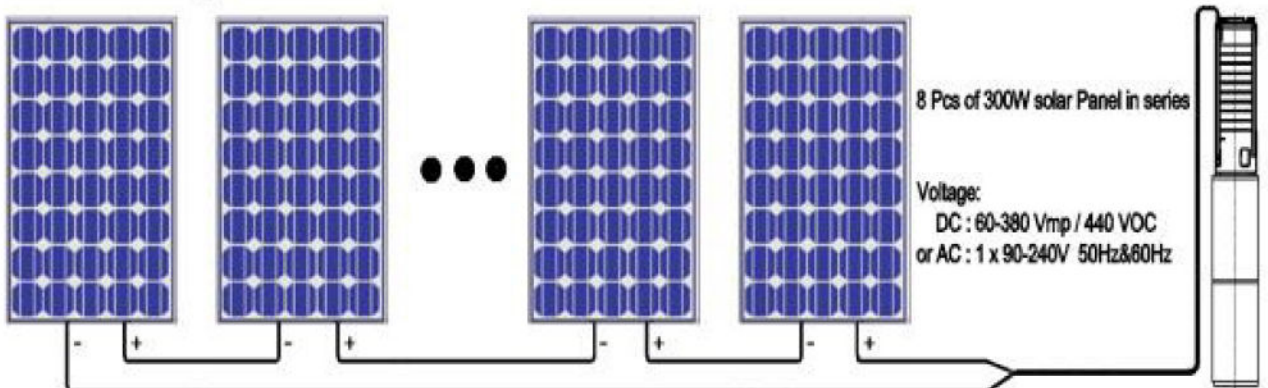
|                  |                          |
|------------------|--------------------------|
| Submersible pump | 1pc:4SP5-10 (2HP AC&DC)  |
| Solar panel      | 8pc; 2400Wp;300w x 5 pcs |
| Motor cable      | 50m*2.5mm <sup>2</sup>   |
| Pipeline         | 20m;Pipeline             |
| Accessories      |                          |

## Daily output in average month (30.5) m<sup>3</sup>/day

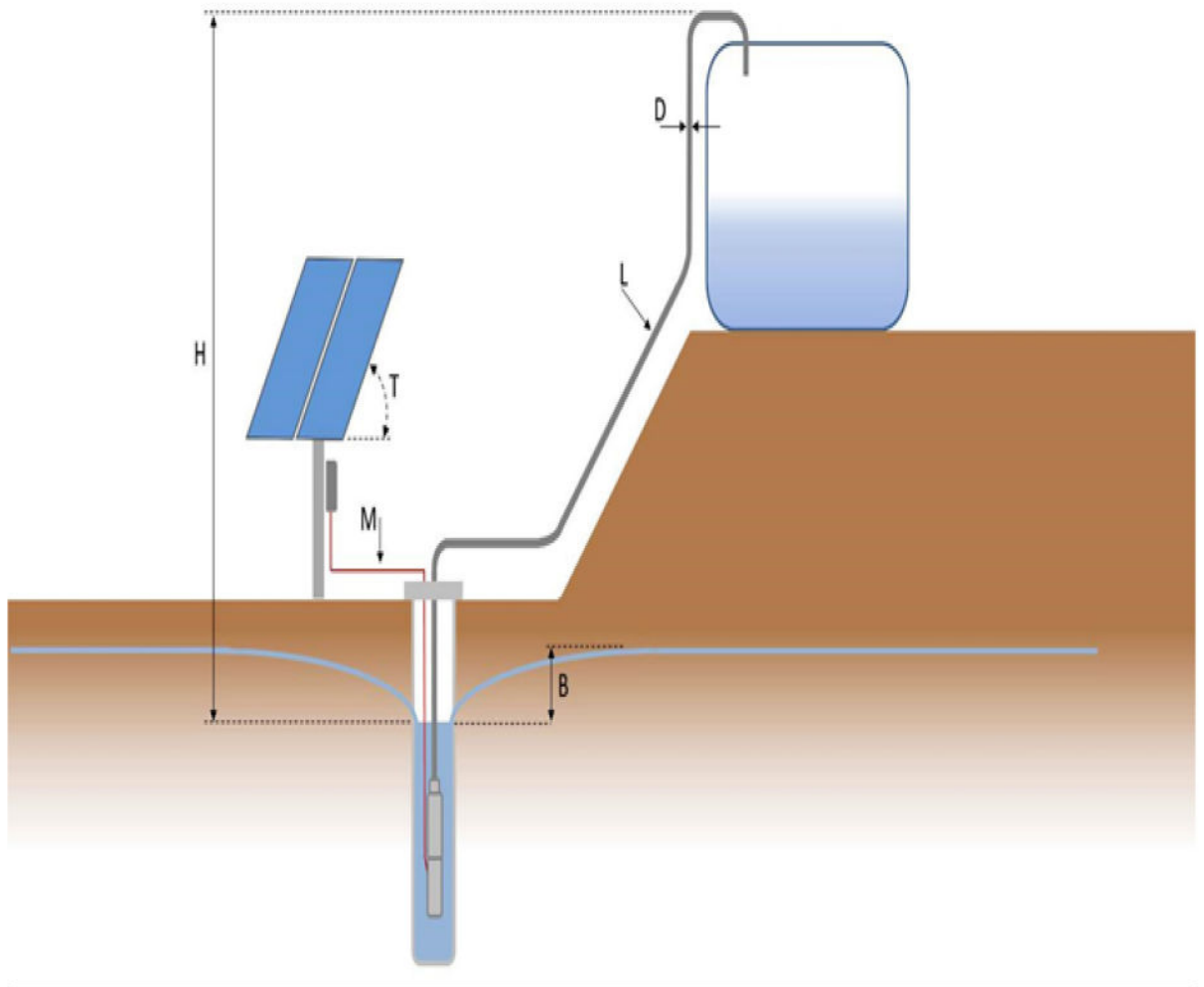


|                                  |       |       |       |       |      |      |      |       |       |       |       |       |       |
|----------------------------------|-------|-------|-------|-------|------|------|------|-------|-------|-------|-------|-------|-------|
| Energy[kWh]                      | 14.13 | 13.46 | 12.31 | 10.37 | 8.60 | 8.06 | 8.66 | 10.76 | 12.98 | 13.33 | 12.57 | 14.32 | 11.62 |
| Irradiation[kWh/m <sup>2</sup> ] | 6.54  | 6.23  | 5.70  | 4.80  | 3.98 | 3.73 | 4.01 | 4.98  | 6.01  | 6.17  | 5.82  | 6.63  | 5.38  |

## Solar Panel Wiring

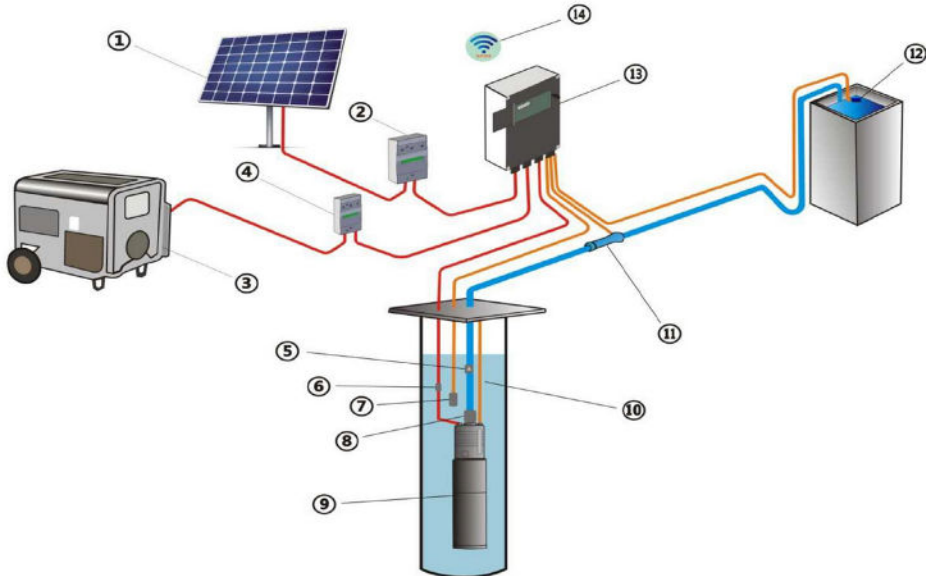


## Sizing Layout



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

## System Layout



- |  |                                |
|--|--------------------------------|
| 1、 Solar panels  | 8、 Sacrificial Anode(optional) |
| 2、 SPD(DC) Surge Protection Device(optional)   | 9、 Solar water pump            |
| 3、 Generator or Grid (optional)  | 10、 Traction rope              |
| 4、 SPD(AC) Surge Protection Device (optional)  | 11、 Flow meter(optional)       |
| 5、 Check valve (optional)  | 12、 Float Switch(For Tank)     |
| 6、 Wiring Package(Epoxy Resin Wiring Package or Heat Shrinkable Tube Wiring Package) | 13、 Monitor(optional)          |
| 7、 Float Switch (For Dry Protection, Optional)                                       | 14、 GPRS (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.

## 4SP5-10 (2HP AC&DC)

### Solar Submersible Pump System

#### System Overview

|                           |               |
|---------------------------|---------------|
| Head                      | max. 110m     |
| Flow                      | max. 166L/min |
| Recommend Max input Power | max. 2.5 kW   |
| Minimum well diameter     | min 4" inch   |
| Pump discharge            | Rp 1.5"       |
| Efficiency Max            | 45%           |

#### Product advantage

- .Stainless steel: AISI 304 (316 optional);
- .BLDC High Efficiency Motor;
- .MPPT Efficiency Max.99%;
- .Encapsulated water filled motor(No pollution risk );
- .Thrust bearing system;
- .Soft start running makes the system's life longer;
- .Hybrid Powered by AC/DC;50Hz&60Hz both working;
- .Wide voltage:1x90-240VAC;60-380Vmp/440VOC;
- .Built-in electronic make system more reliable;
- .Dry protection(No additional float sensor required);
- .Reverse protection(reverse + and - is fine );
- .Over-head protection(need monitor and flow meter);
- .Lighting and surge protection(need monitor);
- .Over voltage protection (need monitor )

#### Technical Data

##### Controller 4SP5-10 (2HP AC&DC)

- .Controller Built-in;
- .Losing -Phase protection;
- .Over-load/Over-current/Over-voltage/Over-power protection;
- .Over temperature protection.

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

|                       |                 |
|-----------------------|-----------------|
| Voltage               | AC 1×90-240V    |
|                       | DC max.VOC 440V |
|                       | DC Vmp 60-380V  |
| Current               | max.AC 10A      |
|                       | max.DC 12A      |
|                       | max.88%         |
| Motor Efficiency      | max.88%         |
| Water Temp            | max.40°C        |
| Insulation class      | F               |
| Enclosure class       | IP X8           |
| Submersion            | max.150m        |
| Required cooling flow | 0.8L/s          |
| Connect Standard      | 4"NEMA          |
| Speed                 | 500-3600        |

#### Pump End

- .Stainless steel: AISI 304 (316 optional);
- .Non-return valve;
- .Centrifugal pump

#### Standards



#### Note:

- \*AC/DC switching needs to wait 1 minute;
- \*Recommended 7 Pcs of 300W Solar Panels 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.

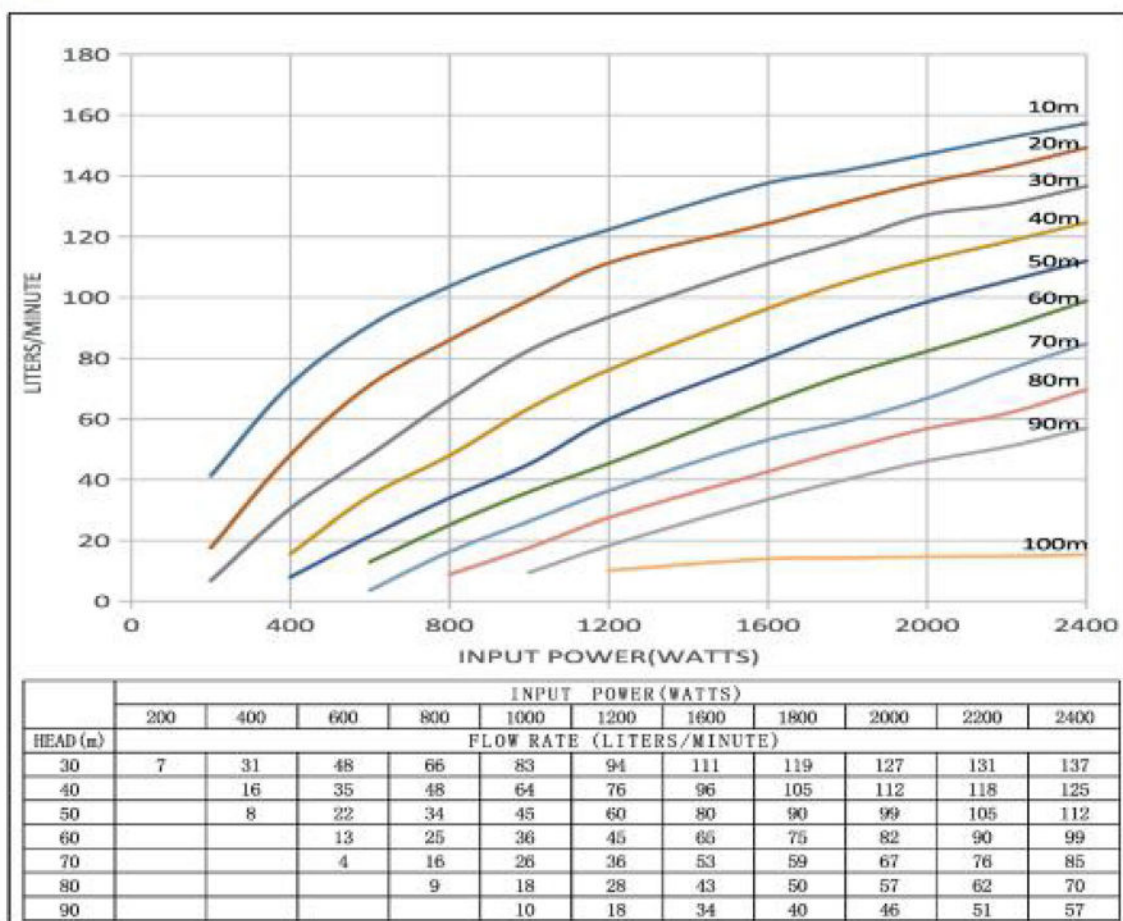




## 4SP5-10 (2HP AC&DC)

Solar Pumping project

Pump chart



## Dimensions and Weights

