



Technical features:

- Brushless DC pump
- Work environment: inline or submersible
- Maximum temp of liquid: $\leq 70^{\circ}\text{C}$
- Recommended solar panels: 12/18Volt, 60 Watt
- Working voltage range: 8-24 V DC
- Nominal voltage: 24 V DC
- Rated power / pump: $\sim 25\text{Watt}$
- Pump stops when V DC exceeds: 30 V DC
- Pump life time: 10.000 - 20.000 hrs
5-10 years at 5 h/day
- Noise level: 50 dB
- In and outlet connection: 1/2" NPT
- Pump diameter: 54 mm, length 116 mm
- Minimum inside diameter casing: 57 mm
- Outlet pipe diameter: 20 mm
- Electric cable per pump: 1,5 mm² if length < 30m
2,5 mm² if 30<length< 50m
- Can be installed vertical or horizontal

Performance

Max pump head: 8 meter at 18 Volt.

Pump volume (flow) with 1 pump and 1 panel of 60 Watt is variable: depending on voltage and pump head.

See graph. An indication:

- At head of 3 metre, 12 litre/min
- At head of 6 metre, 7 litre/min

Pump volume (flow) and/or pump head can be increased by adding an extra pump. Up to 4 pumps can be connected in series. For each additional pump add 1 panel of 60 Watt and adjust the electric cable..

Operation

Maximum pump capacity with full sun.

Avoid shade on solar panel. When used in cloudy conditions, increase the panel size (e.g. 100 Wp). The pump has a "run dry" protection hence the pump will switch off when the pumps runs dry. Pump stops when voltage exceeds 30V or drops below 15V. Avoid pumping of dirty water.

Maintenance

The pump should have a suction filter to avoid sand or dirt entering the pump. Sand will wear out the pump. When the pump volumes reduce the suction filter maybe clogged. If so clean the suction filter. The rotor/impeller and shaft can be replaced if worn out.

Pump graph ZL 38-13N with 60 Wp solar panel

