TOPSFLO
Excellence in Micro Pump,DC Pump

TD5/PV Solar Pump Instruction

Solar DC Circulation Pump
Installation & Operation

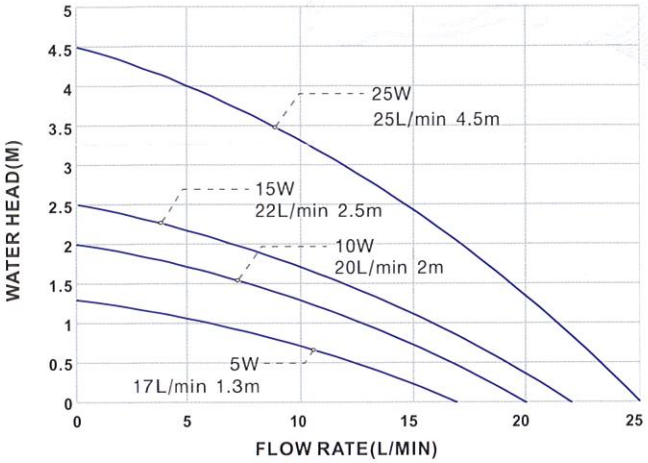
Areas of use
Hot Water Circulation
Radiant Floor Heating
Solar Applications
Liquid Transfer
General Purpose Pumping

PV operated easily
For solar system loops, the pump can be powered directly by a PV panel. The sun comes up, heat builds in the solar hot water panel and at the same time electricity is made in the PV panel. The pump slowly starts with the smallest amount of current and pushes the heated water to the storage tank. It's all too simple and eliminates all controllers, thermostats and sensors.

Main features
Voltage: 6V~24V DC (Rated:17V DC)
Max working temperature: 110°C (230°F)
Max system pressure: 10Bar
Low noise: ≤50dB(A) at 1m distance
Long life brushless pump with energy efficient technology
Soft start at very low in-rush current, convenient working directly with PV panel
Min start-up power consumption less than 2 watts
Advanced magnetic drive technology for static-sealed, without any leakage forever
High efficiency ECM brushless DC motor with long lifetime 30,000 hours
Heavy duty work, can sustain continuously 24 hours' work
Low power consumption, low or no maintenance

Motor protective functions:
a. Over voltage protection
The drive circuitry is protected against excessive voltage over 28V automatically.
b. Over load protection
The drive circuitry is protected against excessive current and load automatically.
c. Blocked protection
The drive circuitry is protected against the pump blocked automatically.
d. Polarity protection
The drive circuitry is protected against the wire in reverse polarity automatically .

TD5/PV-A17-2504 PERFORMANCE



Note: Performance data is based on pumping clear water at normal ambient temperature.

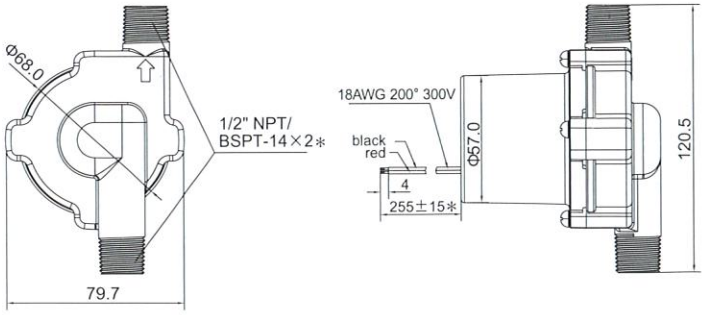
Power Consumption of Adjusting Code (17V DC rated voltage)

Item NO.	Power Consumption (W)	Max Head (m @ 0L/min)	Max Flow (L/min @ 0m)
TD5/PV-A17-2504	@ 5W	1.3	17
	@ 10W	2	20
	@ 15W	2.5	22
	@ 25W	4.5	25

a. Pump for direct PV operation, real PV output is affected by efficiency of PV and intensity of sunlight, the full load working of pump is subject to the sufficient power supply.
b. 5 5 means 2~25W automatic matching 17V rated PV panel directly driven. Pump factory preset 5 5, pump will in automatically matchable against solar panel power and different sun conditions.
c. 1 1, 2 2, 3 3, 4 4 means 5, 10, 15, 25W separate adjusted power consumption that suitable for the device which needed to set the power.

Materials of Construction (Wetted Parts)
- Food grade stainless steel pump head, pump chamber
- PPE+ 30%GF impeller
- EPDM "O" ring
- Ferrite rotor
- Food grade stainless steel pump shaft

Dimension



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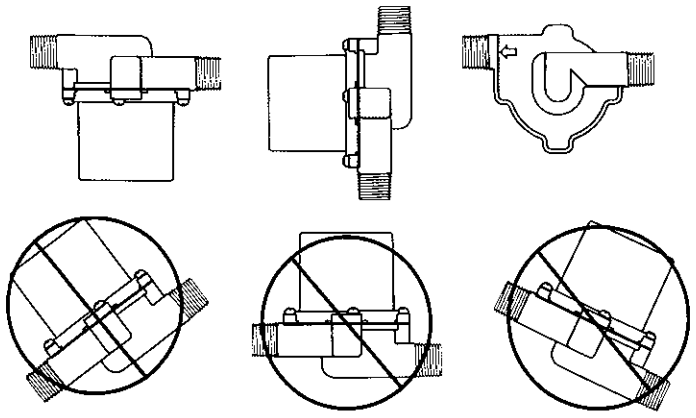
CAUTION!

- Make certain that the system is filled with liquid and that all air have been purged before starting the pump.
- Be sure the power source conform to the requirements of pump.
- There is a powerful magnet inside the pump liquid end, do not use any liquid that contains metallic substances such as iron, nickel, etc.
- To avoid the enter of water into the electronics, keep the pump body dry.
- Pump should be drained when subjected to freezing temperatures.

Installation & direction

- It is preferred that the pump always remains in a horizontal direction and pumping upward. (as shown in the following illustration)
- It is acceptable for the pump to be mounted under the piping in a vertical direction.
- The pump cannot be mounted over the piping in a vertical direction and any position of the motor is over the pump chamber, this can cause the pump to run dry leading to premature failure of the pump.
- It is recommended that the pump shall be installed in a position lower than the liquid level of the tank by at least 12 inches (30 cm). If this distance is too short, air may enter the pump, causing damage.
- To minimize frictional resistance, the shortest piping possible with a minimum number of bends should be utilized on the inlet or suction side of the pump.
- Install a water conditioner if you have hard water.

Installation



Trouble Shooting

Noise in the System

The pump should run smoothly and quietly, the virtual noise intensity is relative to the pump consumption. During normal operation, an occasional air bubble may pass through the pump housing causing a momentary gurgling noise. However, if noise at the pump persists for any prolonged period, correct the problem (see below).

- The check valve/non-return valve is mistakenly installed on the inlet side of pump or in the wrong direction.
- The inlet side shut-off valve is closed or clogged.
- There is air trapped in the pump housing, turn the pump on and off several times to see if the air pocket can be "bumped" out of the pump and if not, then open a faucet for manual venting until all the air in the line has escaped.
- The untight pipe connections permit air into the loop.
- The pump was mounted over the piping in a vertical direction, the rotor maybe be surrounded by air and no liquid lubricate the bearing, dry running virtually (change installation direction and purge of air)
- There is sediment or crimps blocking the rotor/impeller.
- The rotor bearing has worn due to dry running causing the rotor to wobble during operation.

Before start the pump:

- Install the pump in correct direction and position.
- Make certain that the power source conforms to the requirement of pump.
- Be sure the check valve is installed in the proper direction of flow.
- Make certain that the system is filled with liquid and that the air has been purged.

Start the pump

- Open the isolation valves and any other valves that may have been closed during the pump installation
- Plug the pump on
- Power cycling the pump several times accelerates the air removal. If you hear noise initially, this should abate after a short while as air is purged from around the impeller
  If the pump is noisy there may be air trapped in the system. To purge the air from the pump, turn the pump off and on several times.To purge the air from the system open a faucet until all the air in the line has escaped.
- If the noise does not disappear or decrease substantially, change the pump's installation direction or position, and purge the system once again.

Pump Operating Intermittently or Not at All

- No or insufficient power to the pump.
- The bearing of rotor is worn or damaged, need replace the rotor/impeller.
- There are sediment or crimps in the recirculation line that would restrict the flow, please clean the impeller.
  If above reason can not resolve the problem, please unplug the pump several times.