Solar Powered DC Circulation Pump
Model HS-17
Installation & Operating Instructions

General Information

This pump has been designed to provide versatility and performance not available in any other high temperature DC operated pump. It can be powered from any fixed (12V - 30V) source or directly from a PV Solar Panel. The pump can automatically optimize power draw from a PV panel for maximum flow rate using advanced MPPT (maximum power point tracking) technology. It is completely waterproof and submersible.

When powered from fixed sources it is suitable for a host of applications in cars, boats, and RV's that require high temperature capability. In Solar Water Heating systems this pump can be connected directly to a PV panel eliminating the need for any controllers and sensors.

Areas of Use:

- Solar Water Heating Systems
- Hot Water Circulation
- Radiant Floor Heating
- Heat Transfer Applications
- Cooling Systems
- Food Grade Liquid Transfer
- General High Temperature Pumping

Main Features

- Waterproof and Submersible to IP68
- Brushless and Sealless, nothing to wear out
- Advanced Magnetic Drive Technology
- Durable Permanent Magnet Rotor
- Ceramic Shaft
- Designed for Continuous Operation, Rated for 20,000 hours
- All Food Grade Materials
- Quiet

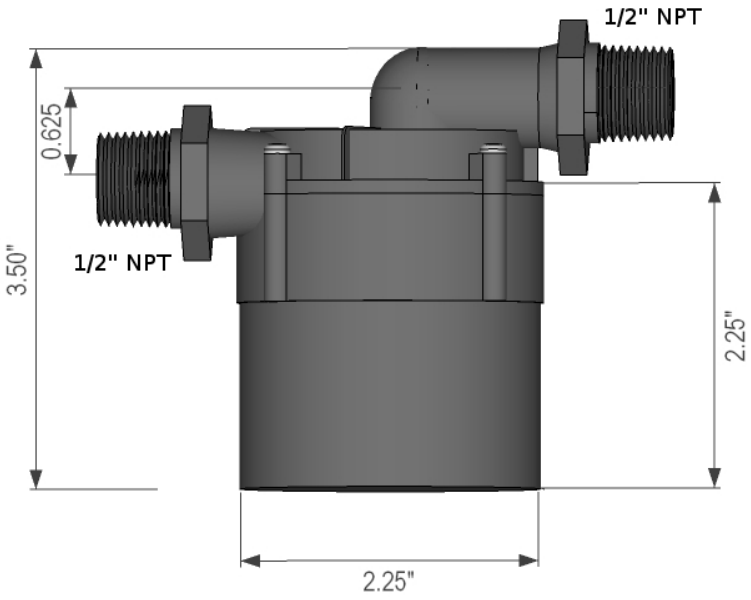
Built-In Protective Functions

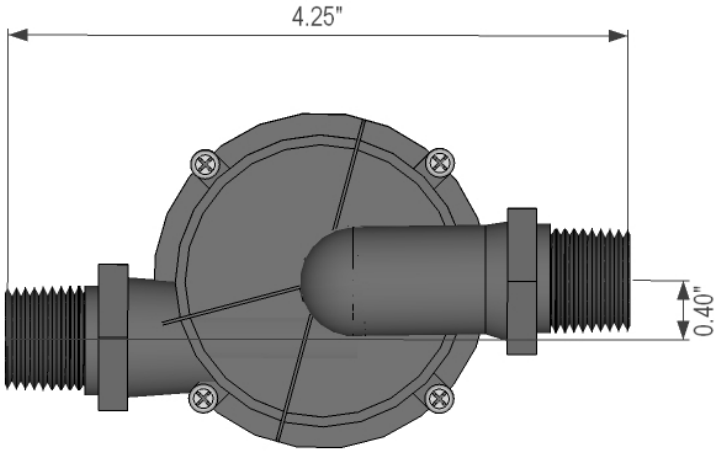
- Drive Circuitry will sense dry operation and shut down to prevent damage
- Will slow operation or stop completely when an overtemperature condition is detected. This can arise due to excessive fluid temperature or excessive ambient temperatures. The pump will automatically recover when temperatures return to a safe level.
- Protected against overload conditions, such as can arise if the impeller is stuck due to debris.

General Specifications

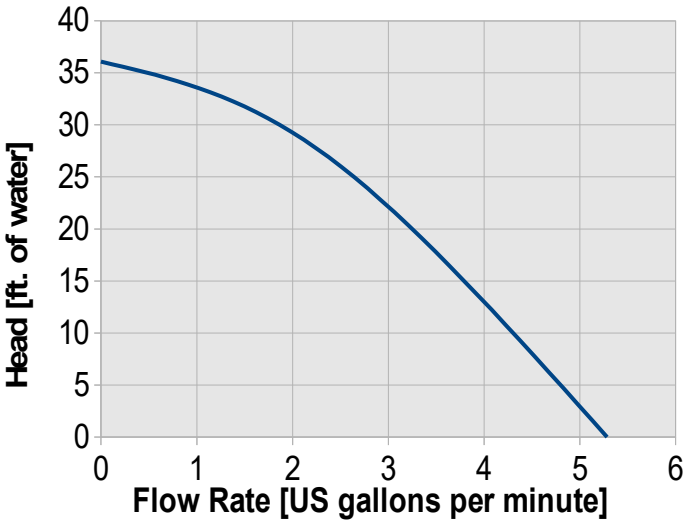
Voltage Range	12V-30V
Nominal Operating Voltage	20V
Maximum Fluid Temperature	221ºF
Maximum Fluid Pressure	115 psi
Operating Noise	≤ 45dB
Maximum Head	33 ft.
Maximum Flow Rate	5.25 gpm
Weight	14 oz.

Dimensions



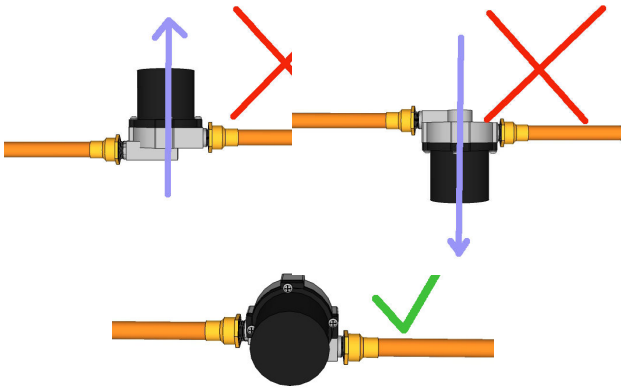


Performance Characteristics



Installation

- The pump shaft should be horizontal. A shaft that is vertical will cause premature pump failure.



- Do not allow water inside the pump to freeze. The expansion of the ice will crack the pump housing
- There is a powerful magnet inside the pump. If your water contains small particles of iron or other magnetic materials they will eventually collect on the magnet and prevent the pump from operating at full efficiency.
- The pump will not work if it has air in it. Also it cannot prime itself. For initial operation thoroughly purge the system of all air.

Observe POLARITY!

The BLUE wire must be connected to the positive side of the power supply.

The BROWN wire to the negative.

Reversing polarity will IMMEDIATELY DESTROY the electronics in the pump

Startup Hints

- Make sure the system is purged of all air. Sometimes small bubbles will remain in the pump and cause noisy operation. Turning the pump off and on several times will usually purge the bubbles out of the pump.
- If you are running the pump from a PV panel it will take some time before the pump starts in the morning. PV panels will not produce enough power to run the pump until they receive full sun.

Troubleshooting

Symptom	Cause	Solution
Noisy operation	Air bubbles in the pump, Running Dry	Purge the air from the pump
Pump runs intermittently	dry running protection active	purge air from pump
	overtemperature protection active	wait until pump cools down
Pump won't run	Incorrect polarity	complete replacement
	input power insufficient	provide specified power supply
	dirt in the pump	clean inside of pump housing