

# ACS-TS5

## ACS Solarsystems UK

### SOLAR PV-POWERED CIRCULATION PUMP

[www.acs-solarsystems.com](http://www.acs-solarsystems.com)



#### Specifications

Voltage: 8V~24V DC Standard:12V DC  
Max Flow Rate: 12 L/Min  
Max Water Head: 3M  
Brass 1/2" BSP / NPT male Inlet/Outlet  
Max Working pressure: 10Bar  
Max working temperature: 110°C (230° F)  
Min start-up power consumption less than 2 Watt



#### Application

The ACS-TS5 solar DC pump can be used for most circulation pump Applications without a mains power connection. The Highly efficient TS5 can be connected directly to a photovoltaic panel and is characterized by its small size, high efficiency, and extreme low power consumption. The long life brushless motor technology provides a maintenance free quiet service life. This pump is perfect for single family home thermal solar systems or any circulation pump application where conventional power is not available.

#### Features

- DC brushless motor with energy efficiency Technology and Micro processor control
- Soft start at very low in-rush current
- Directly powered from PV panel
- Durable permanent magnetic rotor/impeller with Ceramic shaft
- Advanced magnetic drive technology
- Static-impeller, no seal leakage
- Operating life of 30000 hours
- Heavy duty design for 24 Hr continuous duty
- Automatic overload protection
- Automatic over-temperature protection
- Automatic dry-running protection
- Low or no maintenance
- Low power consumption



#### Areas of use

- Hot Water Circulation
- Radiant Floor Heating
- Solar Applications
- Liquid Transfer
- General Purpose Pumping



## Soft start-up

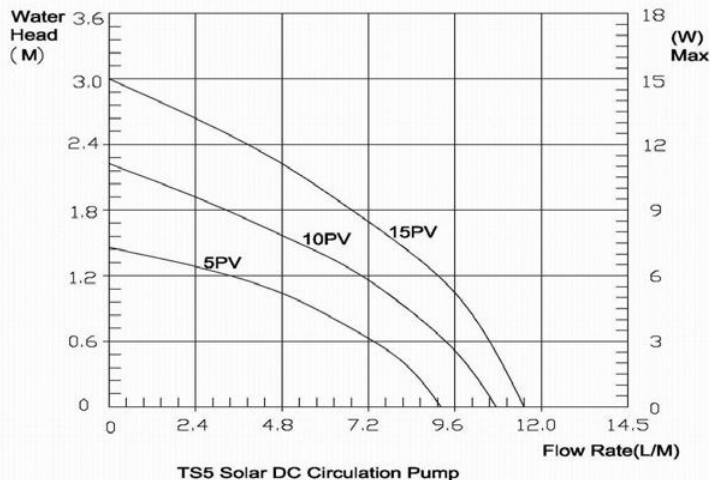
The ACS-TS5 Solar DC pump has a soft start-up feature which reduces high in-rush current. When the photovoltaic panel provides sufficient power, the pump goes through the alignment phase by turning the rotor into the position required for start-up. The processor then waits until the capacitor is sufficiently charged. This enables a start-up with minimal power (less than two watt). Cycling due to unsuccessful attempts is minimized. Even after prolonged shutdown, the pump will start reliably.



## Materials of Construction (Wetted Parts)

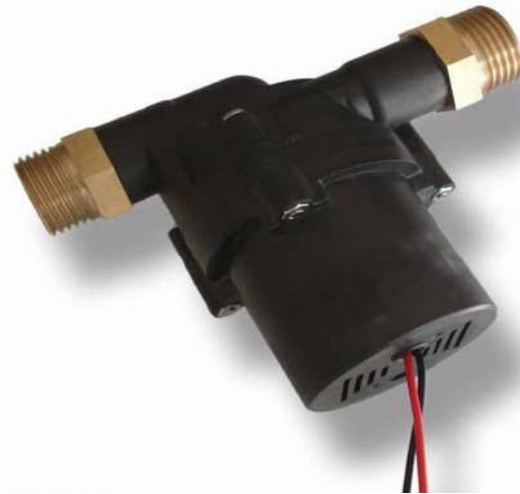
- Hi-Temp Ryton Plastic- PPS (food grade)
- Brass Inlet/Outlet
- Viton "O" Ring
- Hi-Temp Ryton (PPS) Impeller
- Ceramic Ferrite Magnet

## Pump Curves For 3 Versions:



## Over-temperature safety device

The ACS-TS5 Solar DC pump comes with an integrated over-temperature safety device which shuts off the pump electronics when reaching temperature over 110°C (230°F). When the temperature of the pumped fluid is below 95°C (203°F) the pump will function normally. The temperature of the electronic components is influenced by the temperature of the pumped media as well as by the speed setting. After reaching a critical temperature 95°C (203°F) the pump will lower its speed automatically in order to avoid a total shutdown. However, if the temperature continues to rise (e.g. caused by too hot pumped media), the pump will eventually shut down completely. After cooling down, the pump will restart automatically.



## PV operated

For solar system loops, the TS5 pump can be powered directly from 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 that simple and eliminates all controllers, thermostats and sensors.

## Note

ACS solar Systems only recommend using good quality Crystalline PV (Photovoltaic) Panels for direct connection to ACS-TS5-PV Pumps.

## Versions:

MODEL	PV MODULE WATTS (W)	MAX HEAD METERS (M)	MAX FLOW (L/M)
TS5 5PV	5	1.4	8.5
TS5 10PV	10	2.3	10
TS5 15PV	15	3	11.5

## Comparison Chart for PV Powered Pumps

Model	Max Working Pressure	Max Working Temp	Dry Running Protection	Automatic Temp Protection	Overload Protection	Wide Voltage Range	Pump Housing	O-Ring Type	Impeller Material	Magnet Type	Inlet & Outlet
ACS-TS5	10 Bar	110 C	YES	YES	YES	YES	RYTON	VITON	RYTON	CERAMIC FERRITE	BRASS
LAING D-5	10 Bar	110 C	YES	YES	NO	YES	BRONZE	EDPM	PPO	CERAMIC FERRITE	BRASS
EL-SID	10 Bar	120 C	NO	NO	YES	YES	BRONZE	VITON	RYTON	CERAMIC FERRITE	BRASS

**Ryton (PPS):** Is one of best engineering plastics which are superior in many ways to bronze and stainless steel, with high mechanical strength, high operating temperature and excellent chemical resistant properties. Other advantages are high thermal stability, excellent heat resistance and its ability for continuous use with temperatures up to 240°C.

**Viton (FKM):** has excellent an heat-resistance range from - 40F° (- 40°F) to +400°F ( 204°C) temperature, max operating temperature 600°F (315°C)and is suitable for a variety of oils, fuels, lubricants and most mineral acids.

### Dimensional drawings for ACS-TS5 - solar DC pumps

All dimensions in mm.

