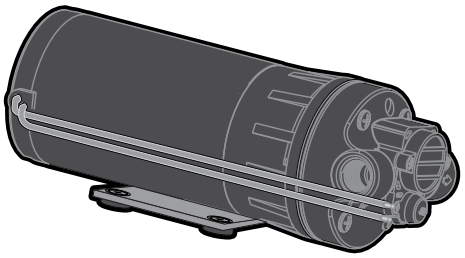
INSTALLATION INSTRUCTIONS

98-1902

Oil Cooler Pump

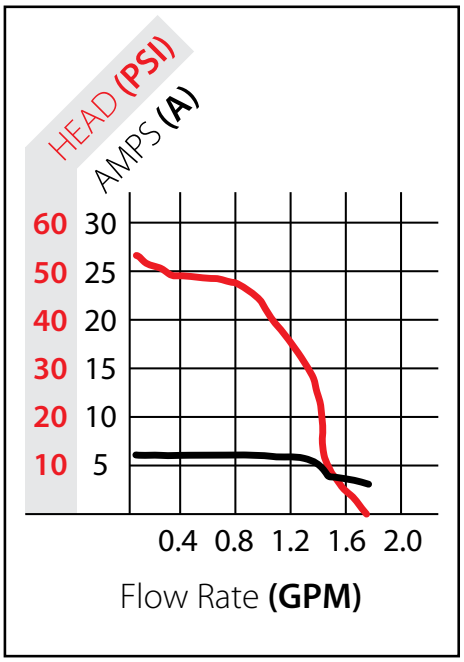
(40-527)

Flow: 1.9 GPM (7.2 LPM) MAX | ***Pressure:*** 50 PSI (3.4 BAR) MAX | ***Voltage:*** 12 VDC | ***Current:*** 8 AMPS
Temperature range: 40–160˚ F Continous; 265˚ F (MAX) Intermittent | ***Prime:*** Self-priming up 8.0 ft (2.6 m) vertical height



HOW IT WORKS

The Tilton Oil Cooler Pump is a positive displacement type of pump, so its output is directly proportional to the motor speed. If a lighter load increases the motor speed by 25%, then the flow rate increases by 25%. The flow rate vs. pressure is shown in **Graph 1** with a maximum available pressure of 50 PSI. A fluid system will only flow as much as the smallest restriction will allow. Larger diameter lines and fittings allow more flow and place less load on the pump. This pump is self-priming and can be placed up to 8 ft above the source from which it draws. The typical application for the pump is in a differential or transmission cooling system. A 12-volt DC, 8-amp power supply is required. The current draw is 6 amps under a maximum load condition with a more typical current draw between 3 and 4 amps. This pump weighs approximately 6 lbs and is rated for continuous duty. The diaphragm and other internal seals are made of BUNA and the pump head is Nylon. This pump is not designed to pump corrosive fluids including gasoline or diesel fuel.



Graph 1

INSTALLATION NOTES

The Tilton Oil Cooler Pump is placed inline with the cooling system as shown in **Diagram 1**. Placing the pump on the outlet side of the cooler exposes it to lower temperatures significantly increasing the life and reliability of the pump. A filter placed inline before the inlet of the pump is recommend to prevent foreign objects from damaging the pump. Heavy gear oil must be brought up to operating temperature before the pump is engaged. The cold fluid can be very thick and place an unusually large strain on the pump. Tilton recommends the use of an on/off switch so the pump can be turned off during warm-up periods. If the pump is mounted in a vertical position, mount the pump with the motor above the pump inlet and outlet to prevent damage to the motor in the event of a fluid leak. The pump head can be rotated in 180-degree increments, allowing a variety of hose positions. Be careful not to damage the plastic pump housing by over tightening the fittings. If a check valve is placed inline with the pump, the check valve must have an opening pressure of no more than 2 PSI. The electrical hook-up is simple. Con-nect the pump to a 12-volt DC supply with a 8-amp fuse inline with the (red) positive lead. The black lead is the chassis ground.

OPERATION

- Allow the pump to prime with the discharge line open to prevent airlock.
- The pump will not be harmed if it is allowed to run dry. It is self-priming.
- This pump has an internal pressure relief valve and will automatically recirculate the within the pump when 50 psi is reached.

PLUMBING

- For best results, use a flexible AN8 (10mm) steel braided hose.
- Use only 3/8" NPT aluminum fittings at the pump inlet and outlet. Be careful not to over-tighten the fittings and damage the pump housing.
- A filter should be used inline before the inlet of the pump.

ELECTRICAL

- Use a minimum of 16AWG stranded wire for power connections.
- Use a 10-amp inline fuse on the 12-volt DC (red) power connection.
- The IP class for the electronics is -5- which is for dust only (pump is NOT water proof).

ADDITIONAL INFO

- Fluid can only pass through pump head in the flow direction when pump is turned off. However, back flow of residual fluid in lines going to pump can occur.
- Use a 10-amp inline fuse on the 12-volt DC (red) power connection.

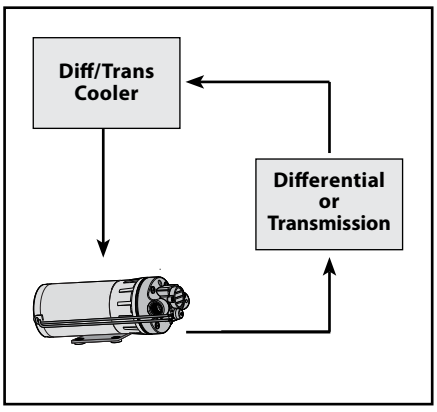
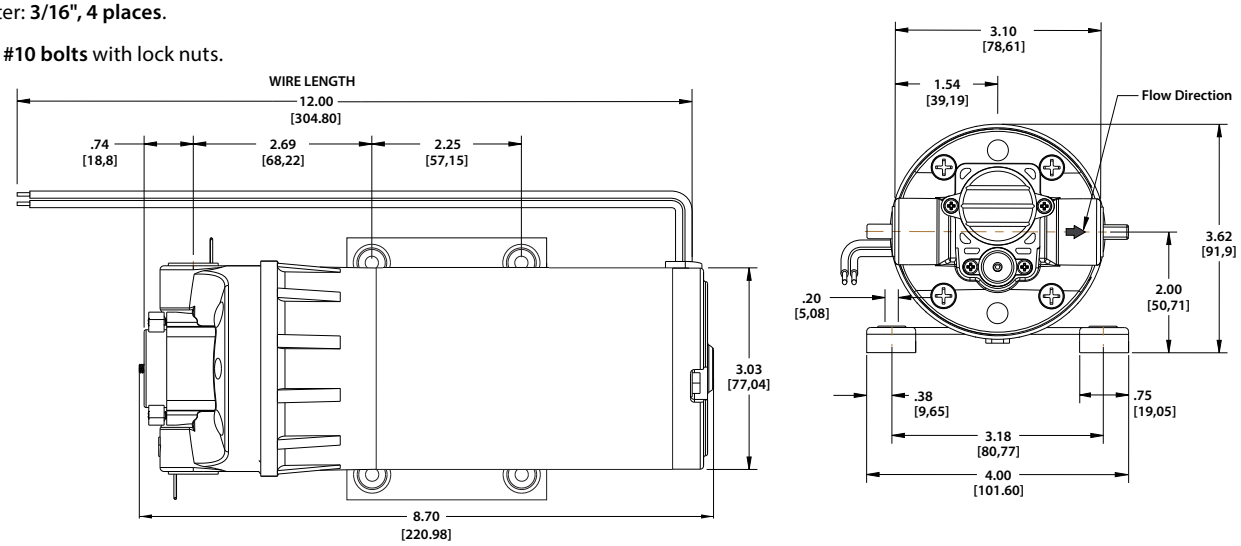


Diagram 1

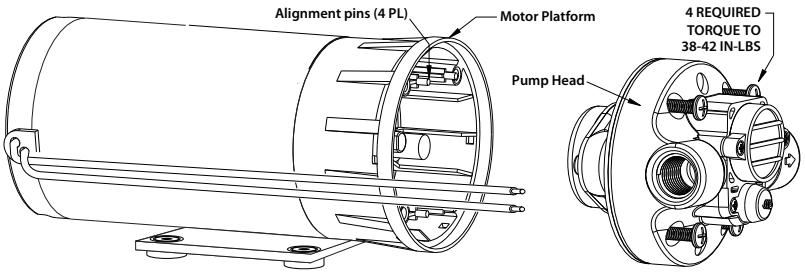
MOUNTING HOLE DIMENSIONS

- **2.25"** vertical centers x **3.18"** horizontal centers.
- Drill hole diameter: **3/16", 4 places**.
- Use high quality **#10 bolts** with lock nuts.



ROTATING PUMP HEAD

- Disconnect power.
- Remove the four phillip screws used to secure the pump head to the motor.
- Pull the head away from the motor and rotate 180°.
- Re-align the four pins on the motor housing with the holes in the pump head plate and the cam bearing with the "D" shaped motor shaft.
- Re-install the four phillip screws and torque to between **38 in-lbs** and **42 in-lbs**.



TROUBLESHOOTING

Symptom	Possible Causes	Action to Take
Motor runs, no discharge	Restricted intake or discharge lines	Check lines for restrictions
	Air leak in intake line	Check for leaks
	Punctured pump diaphragm	Disassemble and inspect
	Crack in pump housing	Inspect for cracks
	Power polarity	Check fuse, power switch and polarity
Motor fails to turn on	Pump or equipment not wired correctly	Check fuse, power switch and polarity
	Blown fuse or switch is off	Check fuse and power
	Defective motor	Check for motor rotation
Low flow and pressure	Air leak in intake line	Check for leaks
	Accumulated debris inside pump/plumbing	Disassemble and inspect
	Worn pump bearing	Disassemble and inspect
	Punctured pump diaphragm	Disassemble and inspect
	Insufficient voltage to pump	Measure supply voltage, must be greater than 12-volt DC
	Defective motor	Check for motor rotation
Pulsating flow-pumping cycle on/off	Restricted pump delivery	Check discharge lines, fittings for blockage
	Undersized line to intake of pump	Use only 3/8" NPT fittings