TROUBLESHOOTING TIPS

WARNING

Before you try to work on the pump or the system, turn the motor off and disconnect the power to the motor.

Problem	Possible Cause	Possible Solution
Pump is working below its capacity	• Inlet is clogged or restricted • Internal strainer is clogged or restricted	• Clean the inlet liner, inlet filter, or internal strainer. • Do not allow debris to fall into the pump from filter.
	Pump is rotating in the wrong direction	Change motor rotation by properly rewiring it.
	Low motor rpm	Make sure motor is working properly and is wired for the voltage and frequency you are using.
	Inside of the pump is wearing out, caused by a foreign material getting into the pump	• Send the pump to be rebuilt. • To prevent future failures, have an adequate filter on the inlet line.
	Relief valve setting is incorrect	Contact your PROCON representative about having the relief valve reset.
Pump is leaking	Mechanical shaft seal or rubber o-ring is failing	Have the pump rebuilt.
	Relief valve cap or strainer cap is loose	Tighten the cap on the relief valve or strainer.
	Relief valve cap or strainer cap o-ring or gasket are damaged	• Replace the damaged o-ring or gasket. • Contact PROCON for the parts.
	Inlet or outlet port fittings are loose or sealant failed	• Apply joint compound or tape and reinstall the fittings. • Do not allow sealant to fall into the pump.
Pump is noisy	Inlet is clogged or restricted internal strainer is clogged or restricted	• Clean the inlet line, inlet filter, or internal strainer. • Do not allow debris to fall into the pump from filter.
	Acorn nut on the relief valve or strainer cap is loose	Tighten the acorn nut on the relief valve or the strainer cap.
	Gasket or o-ring on the acorn nut or strainer cap is defective	• Replace the gasket or the o-ring on the acorn nut or the strainer cap. • Do not tamper with the relief valve setting. • Contact PROCON for parts.
	Coupling, mounting bolt, or V-band clamp is loose	• Turn off the motor and disconnect the power to the motor. • Properly align and tighten the loose component.
	The pump and motor are misaligned	• Turn off the motor and disconnect the power to the motor. • Remove the pump from the motor. • Remount the pump onto the motor, making sure you align it properly.

GEAR PUMP TROUBLESHOOTING GUIDE		
PROBLEM	**POSSIBLE CAUSE**	**CORRECTIVE ACTION**
NO DISCHARGE	PUMP NOT PRIMED	VERIFY SUCTION LINE IS SUBMERGED
		OPEN SUCTION VALVE
	WRONG DIRECTION OF ROTATION	REVERSE MOTOR LEADS OR REVERSE*
		SUCTION AND DISCHARGE PIPING
	VALVES CLOSED	OPEN ALL SUCTION AND DISCHARGE VALVES
	BYPASS VALVE OPEN	ADJUST BYPASS VALVE
	AIRLEAK IN SUCTION LINE	TIGHTEN CONNECTIONS
		APPLY SEALANT TO ALL THREADS
		VERIFY SUCTION LINE IS SUBMERGED
	CLOGGED FILTRATION	CLEAN OR REPLACE FILTRATION
	PUMP WORN OR DAMAGED	REBUILD OR REPLACE PUMP
	SUCTION PRESSURE TOO LOW	VERIFY SUCTION LINE IS NOT TOO LONG
		FULLY OPEN ANY SUCTION VALVES
	EXTERNAL BYPASS VALVE OPEN	CLOSE BYPASS VALVE
	PARTIALLY CLOGGED FILTRATION	CLEAN OR REPLACE FILTRATION
	SPEED TOO LOW	INCREASE CONTROLLER SPEED
		USE LARGER CAPACITY PUMP
	PUMP WORN OR DAMAGED	REBUILD OR REPLACE PUMP
LOSS OF SUCTION AFTER SATISFACTORY OPERATION	PUMP NOT PRIMED	REPRIME PUMP
	WRONG DIRECTION OF ROTATION	TIGHTEN CONNECTIONS
		APPLY SEALANT TO ALL THREADS
		VERIFY SUCTION LINE IS SUBMERGED
	AIR OR VAPOR IN SUCTION LINES	REARRANGE PIPPING AS NECESSARY
	INCREASE IN FLUID VISCOSITY	ADJUST BYPASS VALVE
		REDUCE PUMP SPEED
EXCESSIVE POWER CONSUMPTION	FLUID VISCOSITY TOO HIGH	WARM FLUID TO REDUCE VISCOSITY
		REDUCE PUMP SPEED
		INCREASE MOTOR HORSEPOWER
	DIFFERENTIAL PRESSURE TOO HIGH	INCREASE PIPE DIAMETER
		DECREASE PIPE RUN LENGTH
	GEAR CLEARANCE INSUFFICIENT FOR FLUID VISCOSITY	ADJUST BYPASS VALVE REDUCE PUMP SPEED
	GEAR CLEARANCE INSUFFICIENT FOR FLUID VISCOSITY	CHANGE GEAR CLEARANCES. CONSULT FACTORY
	PLASTIC GEAR CLEARANCE INSUFFICIENT FOR FLUID TEMPERATURE	CHANGE GEAR CLEARANCES. CONSULT FACTORY
	GEARS BINDING OR SEVERELY WORN	REPLACE GEARS
RAPID PUMP WEAR	ABRASIVES IN FLUID	INSTALL SUCTION FILTRATION
		LIMIT SOLIDS CONCENTRATION
		REDUCE PUMP SPEED
	CORROSION WEAR	USE MATERIALS OF CONSTRUCTION COMPATIBLE WITH FLUID
	DISCHARGE PRESSURE TOO HIGH	INCREASE PIPE DIAMETER
		DECREASE PIPE RUN LENGTH

GEAR PUMP TROUBLESHOOTING GUIDE		
PROBLEM	**POSSIBLE CAUSE**	**CORRECTIVE ACTION**
EXCESSIVE NOISE AND VIBRATION	SUCTION OR DISCHARGE PIPING NOT ANCHORED	ANCHOR PIPING PER HYDRAULIC INSTITUTE STANDARDS
	BASE NOT ISOLATED	ISOLATE MOUNTING BASE
	PUMP CAVITATION	INCREASE NPSH AVAILABLE
EXCESSIVE PRODUCT LEAKAGE	STATIC SEAL FAILURE DUE TO FLUID INCOMPATIBILITY OR THERMAL BREAKDOWN	USE ORINGS COMPATIBLE WITH FLUID AND TEMPERATURE
	STATIC SEAL FAILURE DUE TO IMPROPER INSTALLATION	INSPECT ORINGS FOR TWISTED SEGMENT
		INSPECT ORINGS ARE NOT CUT
		TORQUE HOUSING ASSEMBLY BOLTS
	DYNAMIC SEAL WORN OR DAMAGED	FILTER ABRASIVE MATERIAL FROM FLUID
		REPLACE DYNAMIC SEAL
		PRIME PUMP AVOID DRY RUNNING
	PUMP PORT CONNECTIONS NOT SEALED	USE TEFLON TAPE OR OTHER COMPATIBLE PLUMBING SEALANT

* On direct current motors only. Consult factory for wiring diagram

ORDERING

Must include the following elements in your order number:

- Product classification
- Food grade classification
- Series
- Mounting and drive configuration
- Flow rate
- Elastomer / seal configuration
- Rotation / slinger
- Clearances
- Valve type and configuration
- Pressure range (relief valve spring)

Follow these steps to select the appropriate model number*:

1. **Select a product and food grade classification**
   - The first character position specifies the product category. All PROCON rotary vane model numbers will begin with the digit "1".
   - The second character specifies if the pump is NSF listed for use with potable water. If it were not, the second digit would be a "0". For more details, please contact the factory.
2. **Select a series number**
   - The third character specifies the series number. There are six series offered within our rotary vane product line.
   - Select a mounting and drive configuration
   - The fourth position specifies the mounting and drive configuration. The three most common mounting styles are "A", "B", and "C". Check the Content page to find mounting styles under your choice of pump.
3. **Select a flow rate**
   - The fifth through the seventh character positions represent flow rate of the pump. The flow rates available range form 15 to 660 gallons per hour.
4. **Select an elastomer / seal configuration**
   - The eighth character position specifies the type of elastomer used in the construction of the mechanical shaft seal assembly and o-rings. For most applications Nitrile is appropriate. This seal is appropriate for clean tap water at moderate temperatures. Other options are Fluorocarbon, Ethylene Propylene, and Neoprene. Applications which involve a fluid other than clean tap water at moderate temperates should be discussed with a PROCON sales engineer.
5. **Select a rotation and slinger configuration**
   - The ninth character specifies the rotation and slinger configuration. The majority of pumps manufactured by PROCON operate in a clockwise manner when viewed from the nameplate. Pumps which are designed to operate in a counter clockwise manner are also available.
   - The slinger is standard in our series 3 and series 5 pumps, and is also available as an option in our series 1, 2, and series 4 pumps. As a general rule, slingers are not necessary. If you desire a brass pump with a slinger, please discuss your requirements with a PROCON sales engineer.
6. **Select a clearance**
   - The tenth character position specifies the internal clearances. For pumps operating with fluid temperatures less than 150 degrees Fahrenheit, standard clearances are appropriate so a "1' would be used in this position. Applications which require pumping a fluid between 150 degrees and 190 degrees Fahrenheit require special clearances (and special seals) so a "2" would be used in this position. Applications requiring elevated temperature capabilities would be discussed with a PROCON sales engineer.
7. **Select a valve type and configuration, pressure range and pressure setting**
   - The eleventh character position specifies the valve type and configuration. The operation of the relief valve is discussed in detail on page 15 and the different valve types are referenced beginning on page 75.
   - The twelfth and final character position specifies the pressure range.
   - Although not officially part of the model number, the last three digits following the model number specify the desired relief valve setting. This number will be stamped into the housing for identification purposes. A pump with no relief valve is designated by an "X" in the eleventh and twelfth positions.

*Applicable to Rotary Vane Pump. Refer to sell sheets for model numbers of Mag Drive, Micro Vane and Gear Pump or consult the manufacturer