INSTALLATION AND SERVICE INSTRUCTIONS

atlantic fluidics®

OSR75, 100 & 130

Oil sealed liquid ring vacuum pump system

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1. GENERAL DESCRIPTION

The OSR75, 100 & 130 oil sealed vacuum pump system are designed to operate over the full vacuum range from 0-29" Hg. Because of the unique axial flow design the pump operates at constant horsepower throughout the full vacuum range.

The package consists of an A75, A100 or A130 atlantic fluidics® liquid ring vacuum pump, close coupled to a 7.5, 10 or 15 HP motor, an oil separator tank with level gauge, "low" oil shut off switch, and seal flow control valve. The oil is cooled by an air-cooled heat exchanger with copper tubes and aluminum fins. All components are supplied mounted on a horizontal receiver tank.

2. INSTALLATION

2.1 ELECTRICAL

- **MOTOR:** Provide 208, 230 or 460 Vac, 3Ø, 60Hz power. Jog motor to check rotation. When looking at front of pump, rotation is counterclockwise.
- **SOLENOID:** Provide 120 Vac, 1Ø, 60Hz power. The solenoid is normally closed (NC) when de-energized. Solenoid should be energized when motor is energized.
- **LOW OIL SWITCH:** Provide 120 Vac, 1Ø, 60Hz power. The switch is mounted normally open (NO) when tank is dry.

2.2 PRIMING THE SYSTEM

Oil has been provided (shipped separately for on-site filling). A 2" plug on the top of the oil reservoir allows access to fill the system.

When charging the system for the first time, add oil until the level reaches the top of the oil gauge. Oil will fill the piping up to the solenoid valve but not the heat exchanger or the atlantic fluidics® pump. Replace the plug. Start the pump and allow it to run for 15 seconds. Stop the pump. This allows the oil to enter the pump. Add more oil to the tank, this time filling it to approximately halfway up the gauge. Start the pump again and allow it to run long enough for the thermostatic valve to open (140° F) and divert the oil to the heat exchanger. When this happens the oil level will drop in the tank as the heat exchanger tubes are filled. Stop the pump and add more oil until the level is halfway up the gauge. The system is ready to operate.

2.3 PIPING

Inlet connection is 2” NPT made at the ball valve. The air discharge is 2” NPT on top of the oil separator tank.

3. NORMAL OPERATION

Connection to the process is made at the inlet ball valve. When energized, the liquid ring vacuum pump creates a vacuum by recirculation of the oil in the reservoir tank. The oil temperature is maintained by diverting the flow to an air-cooled heat exchanger.

A ¾” vent valve is provided to allow the tank to be vented while the vacuum pump is running. The by-pass valve must be closed first.

The system is designed to operate continuously with little maintenance. (See Preventative Maintenance).

4. START UP

Supplemental start up instructions for the atlantic fluidics® liquid ring vacuum pump are outlined in detail in the appended “Installation and Service Manual”.

Start the atlantic fluidics® pump. The pump will immediately turn; it will clear the oil already in the pump head and begin to draw fresh oil from the tank.

On start-up when the oil is below the operating temperature, the viscosity will cause the motor to overload. This is normal. Within five (5) minutes, the oil will be warm enough to lower the load on the motor.

A 3-way thermostatic valve is installed on the return line from the oil separator. This is preset to open at 140°F and allow the oil to divert through the heat exchanger. This valve operates automatically without electrical equipment.

No other adjustments are necessary for normal operation.

5. MINOR REPAIR AND OVERHAUL

Refer to appended Installation and Service Manual.

TOOLS REQUIRED FOR FIELD REPAIR

15/16”	Open End Wrench	(Flange Bolts)
3/4”	Socket w/ 5” extension	(Lock Bolt)
1/2”	Open End Wrench	(Port Cylinder)
9/16”	Socket w/ 5” extension	(Pump mounting)
Ø13”	Two Jaw gear-puller	(Rotor)
18”	Pipe Wrench	(Motor shaft)
	Flat Head Screwdriver	(Fan & Fan Cover)

SPECIAL TOOLS

Extension Screw for gear-puller

Jacking Bolts & Plates for removing
Cover when scaled and locked

Dial Indicator for Runnout

6. PREVENTATIVE MAINTENANCE

6.1 Coalescing filter

The oil separator tank includes a filter in the final stage, which is designed to coalesce the remaining oil in the vapor stream prior to exiting. If this filter becomes loaded with particles and other material that restricts the flow of air, there will be a noticeable pressure increase in the oil tank. This is indicated by a pressure gauge (item 4). When the pressure exceeds 2 psi, the filter element should be replaced.

Replacement filter element: Consult factory for P/N

6.2 Oil

The oil used as the sealant should be clear and free from contaminants, including particles and other debris, which could affect the pump's performance. Although the frequency oil changes will depend on the application, regular monitoring the color and clarity of the oil in the sight gauge will give the user a baseline to work from.

Although the oil separator tank is designed with maximum efficiency for reclaiming the oil, some emissions are to be expected. This will require the user to "top up" the level in the oil tank on a periodic basis. The frequency will depend on many factors, including the number of hours of operation, the vacuum level, the oil temperature and the type of oil used.

Standard LR oil (5 gallons): 203040 0000

Low Temp LR oil (5 gallons): 203094 0000

Note: The low temp oil should be used when starting in 55F or lower temps.

7. TROUBLE SHOOTING GUIDE

7.1 atlantic fluidics® pump will not start.

Check power to control panel with a voltmeter.

If power is available at control panel, check power at motor terminal box.

Check wiring connections in control panel.

Check voltage supplied by transformer for control circuit. It should be approximately 120 Vac.

7.2 atlantic fluidics® pump motor turns when "start" button is pressed, but stops when button is released. Cause: control circuit is open.

Check oil tank to see if it has enough oil to float the "low oil" switch.

Check fuse on transformer.

7.3 atlantic fluidics® pump runs but kicks out on overload.

Check the amperage setting on the overload protector. Ensure it is set to match the nameplate full load amps.

While pump is running, check amps on each leg of the power supply. If amp draw is significantly higher (high leg more than 10% higher than average of 3 legs) there may be a loose or poor connection or the incoming power source is unbalanced.

Check oil flow to pump. Flow regulator adjusts flow rate. Establish whether reducing the flow also reduces the current draw.

Check pressure gauge on oil tank. Excessive backpressure will cause motor to overload.

Note: The AF "pump manual" has more details on the pump itself.