

[WARRANTY]

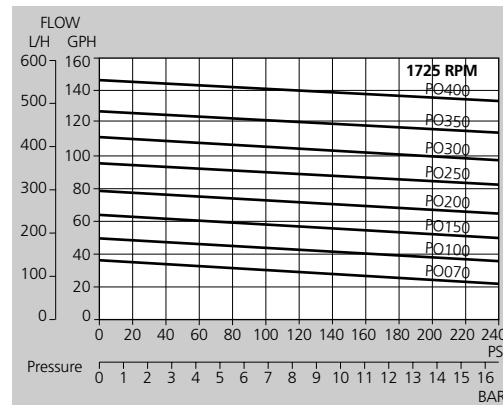
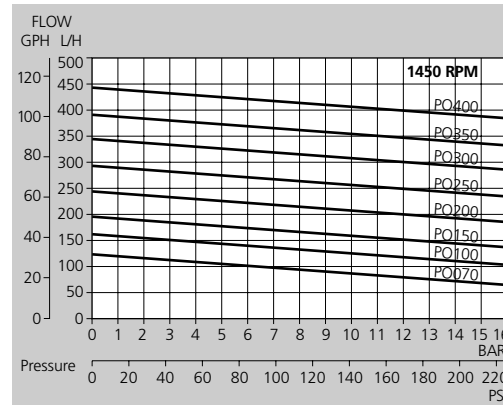
Every pump is guaranteed to be free of defects for a period of twelve months from the production date, stamped on the pump housing. The repairs are guaranteed for six months. The warranty is not recognised if:

- The directions on how to use the product are disregarded.
- The pump has been disassembled by anyone other than a **Fluid-o-Tech** technician.
- The pump worked without water or in cavitation (undersized inlet or undersized/clogged filter)
- Solid extraneous particles bigger than 0.1 mm were found in the pump.
- Differential pressure higher than 16 bar (230 psi) (high pressure may compromise the integrity of the internal parts of the pump and cause leaking)
- Working pressure too close-in the pump with the by pass-to the set value of the bypass (approximately 2 bar lower than this pressure value the liquid recirculates continuously, the temperature raises and the internal parts wear faster, with the result that the performances drop significantly)
- The pump itself, without the motor, is not to be considered as a machine, but only a component, therefore the mark "CE" is not requested. May be requested anyway a conformity declaration to state the essential safety features (which regard it as far as the stated utilizes established by the "Direttiva Macchine" 89/392/CEE). The complete Pump-Motor unit is instead considered as a machine ready to be used and is supplied with the mark "CE" that grants its conformity.

[LISTINGS]

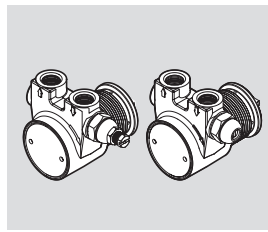
NSF Listed Pumps are marked PA/MA instead of PO/MO
WRAS listed pumps are marked POW.

The "Compact" series pumps are not equipped with weep holes, therefore the normal condensation may not evaporate. In this case it is necessary coupling the pump to a motor equipped with 4 90° holes in the coupling area. Please find here below, for your quick reference, the performance curves of the pumps 070 - 400 series:



The above figures refer to measurements with by pass fully closed.
Water temperature 20°C.
Figures of flow are averages
For High Volume and Compact pump flowrate refer to the main leaflet.

POSITIVE DISPLACEMENT ROTARY VANE PUMPS PO032-PO1000 SERIES



INSTRUCTION MANUAL



INSTALLATION

The pump has to be installed exclusively by authorized staff. Handle with care.

It's recommended not to pull out the two protection sponge caps placed on the inlet and outlet of the pump before mounting the fittings and the pipes, to avoid the incidental entrance of any solid extraneous object which might damage the internal components of the pump.

The Fluid-o-Tech rotary vane pumps look identical in their exterior aspect, within each range, although the flow rates are different. For this reason, when replacing just the pump, it is necessary to check the model of the new pump.

Changing the pump with a model of different capacity may damage the system, the motor and the pump itself.

If continuous operation is needed, the pump has to be mounted in an airy space in order to dissipate the heat produced from the motor.

The pump must be mounted horizontally.

To avoid vibrations of mechanical parts and noise, it's advisable mounting the motor on rubber shock-absorbing supports.

The use of the dumper coupling kit for 48YZ frame motors (3000300 for the parallel shaft type, 3000310 for the splined shaft type) is suggested in order to avoid any misalignment between pump and motor.

[WIRING THE MOTOR TO THE POWER SUPPLY]

- The power supply must be consistent with the electrical data stamped on the motor plate, with particular regard to voltage and frequency. The power supply needs to be switched off during installation.
- The motor rotation must be clockwise (looking the motor in front). If operated counter-clockwise, the pump won't work. In case the rotation is counter-clockwise, proceed according to the scheme generally enclosed in the electrical wiring box.
- If the pump fails or some estraneous object enters it, the pump-motor unit may stop or work in critical conditions; for this reason the motor should have a thermal protection to avoid overheating or a current protection to avoid overloading.

[MOUNTING THE PUMP ONTO THE MOTOR]

When mounting the pump onto the motor, it's advisable to pay maximum attention in order to avoid shocks against the shaft, checking the correct alignment and verifying, after mounting, that the shaft turns free.

- a) Motor with clamp mounting (type 48YZ)
 - Make sure the motor is unplugged from the electric line

- Insert the clamp on the pump (shaft side)
- Clamp the pump to the motor by inserting the pump shaft into the motor shaft and pushing it till it stops
- Turn the pump to the position desired
- Position the clamp in order to surmount the pump and the motor rings
- Tighten the clamp using 1 - 1,5 Nm torque maximum.
- Make sure that the clamp screw is tight enough to prevent the rotation of the pump on the motor.
- Should the pump during the startup be noisy, it is necessary to untighten the clamp screw, reposition the pump and tighten again the clamp screw.

b) Motor with B14 or NEMA 56C mounting

- Make sure that the motor is unplugged from the electric line
- Mount the motor side of the coupling on the motor
- Tighten the set screw (only for the couplings equipped with the set screw)
- Insert the shock absorber in the coupling on the motor side
- Insert the pump side of the coupling in the shock absorber
- Mount the adapter on the motor flange and tighten the screws
- Insert the shaft of the pump into the slot of the coupling (pump side)
- Position the clamp in order to surmount the pump and the adapter rings
- Turn the pump to the desired position
- Tighten the clamp using 1 - 1,5 Nm maximum torque.
- Make sure that the clamp screw is tight enough to prevent the rotation of the pump on the motor.

[CONNECTING THE PUMP TO THE CIRCUIT]

The pumps - although identical in their aspect - may have GAS or NPT threaded ports. The

thread of the fitting should match the thread of the pump port. If the pump has GAS threads the sealing is provided by an o-ring which is pressed against the flat surface of the port.

With the NPT thread, the sealing is provided by the contact between the threads. In this case a few turns of PTFE tape around the fittings are needed. Do not exceed in using PTFE tape as pieces of it may fall into the pump (especially on the Inlet side) and cause the pump to fail.

The use of pipe dope (liquid sealant) should be avoided.

A particular care is needed while mounting the fittings, to avoid liquid leaks.

Hold the pump with a wrench in the area marked with the arrows indicating the inlet-outlet ports and the rotation sense, without over-tightening. It is suggested to use aluminium sheet on each side of the pump to avoid damages to the ports.

Do not use the motor as pump support when tightening the fittings, in order to avoid a possible misalignment and stress of the shafts.

If the pump is made of stainless steel the fittings have to be made of stainless steel or plastic, not in brass, to avoid problems of corrosion.

- The circuit should be carefully flushed before starting the pump.

[OPERATING CONDITIONS]

Make sure that the pumped fluid is compatible with the materials of the pump.

For particular applications, please contact the nearest authorized Fluid-o-Tech distributor.

- Avoid as well to use liquids with higher temperature than 60 °C (140 °F).
- It's strongly recommended to use, on the inlet port of the pump, pipes and connections of suitable size for the pump capacity, **8 mm for "Compact" pumps** with capacities up to 150 l/h, **10 mm for "70-400" series pumps** with capacities up to 500 l/h, **15 mm for "High Volume" pumps** with capacities up to 1000 l/h. This precaution avoids the possibility of cavitation and consequent damage of the pump.

- The **maximum differential pressure** must not exceed **16 bar (230 psi)**.
- The **maximum system pressure** must not exceed **20 bar (290 psi)**.
- A circuit layout with elbows and sudden changes in the diameter of the pipes, causes turbulence in the water and resonance in the machine. This is also worsened when the pump is not fed by the main water line.
- Although **Fluid-o-Tech** may give technical support for pump's use, the final approval of the pumps is responsibility of the Customer, in fact the performances and reliability may be affected by particular operating conditions and/or hydraulic circuit layout.

[USEFUL TIPS FOR A LONG LASTING OF THE ROTOFLOW PUMPS]

The Rotoflow pump is designed to handle clean fluids only, therefore any particle bigger than 10 µ wears the graphite components out in a short time.

It is recommended for this reason to install before the pump a filter capable of keeping out particles bigger than 10 µ and with a filtering area big enough, in order not to cause flow-pressure losses in the circuit.

Place the filter at least 50 cm before the inlet port of the pump in order to avoid cavitation. It is also important checking periodically the filter cartridge.

In order to keep the filter under control, it is advisable installing a vacuum gauge before and after the filter. In case the vacuum increases more than 0,1 bar, the cartridge should be cleaned or changed.

A dirt filter or an insufficient supply of water causes cavitation and fast wear of the internal components of the pump.

The rotary vane pumps are self-priming, but dry running causes overheating and fast wear of the mechanical seal and of the internal components.

As a consequence of prolonged dry running, some fluid leak may occur.

If the line is subject to scarce pressure or flow it is necessary to fit a low pressure switch before the pump in order to switch the motor off.

In order to avoid cavitation, if the tank is at atmospheric pressure, do not install the pump more than 1 m above the maximum liquid level of the tank.

It is also necessary to protect the system from incidental overpressures with safety devices such as a pressure relief valve or a pressure switch connected to the motor.

If possible it's advisable to install the pump the closest possible to the tank.

The bypass valve is set from the factory at 12 bar (170 psi) unless otherwise requested.

The by pass is not and must not be used as a flow regulator.

If used as a flow regulator, the water in excess will recirculate inside the pump through the by pass and the pump will fail.

The maximum differential pressure should be at least 2 bar (30 psi) lower than the by-pass setting in order to avoid operation with the bypass valve open.

The maximum differential pressure must not exceed anyway 16 bar (230 psi).

[STANDARD MAINTENANCE, SUBSTITUTION OF PARTS SUBJECT TO WEAR]

The Rotary vane pumps maintenance, and the replacement of the parts subject to wear has to be done by a qualified technician.

For the pump with built-in filter it's recommended the periodic cleaning of the filter with alcohol and compressed air.

If the filter is external it's necessary to clean it or to change it periodically.

A dirty filter doesn't allow the flow of the liquid through it and causes cavitation and fast wear of the internal parts of the pump.

- A few drops of water from the drain holes of the pump are normal during the first hours of operation.

In case the leaking persists, contact Fluid-o-Tech.