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A piston pump is a type of positive displacement pump that uses a reciprocating piston to move and pressurize fluid. These pumps are known for their ability to handle high pressures and their versatility in moving a wide range of liquids, including abrasive and viscous substances.

Fluid Recommendation

Premium quality hydraulic mineral oil fluids are recommended, like H-LP oils to DIN 51524. The viscosity range should be 25 to 50 mm²/s (cSt) at 50° C. Operating temperatures-to to +70°C. For other fluids such as phosphoric acid esters or for other operating conditions consult us.

Seals

NBR (Nitrite) seals are used for operation with hydraulic fluids based on mineral oil. For synthetic fluids, as perhaps phosphoric acid esters, Fluorocarbon seals are required.

Filtration

For maximum pump and system component function ability and life, the system should be protected from contamination by effective filtration.

Fluid cleanliness should be in accordance with ISO classification ISO 4406. The quality of filter elements should be in accordance with ISO standards.

General hydraulic systems for satisfactory operation:
Class 19/15, to ISO 4406

It is recommended to use return line or pressure filters. The use of suction filters should be avoided, especially with fast response pumps. Bypass filtration is a good choice for best filter efficiency.



Installation and Mounting

Horizontal mounting: Outlet port side or top. Inlet port side or bottom, drain port always uppermost.

Vertical mounting: Shaft pointing upwards.

Install pump and suction line in such a way that the maximum inlet vacuum never exceeds 0.8 bar absolute. The inlet line should be as short and as straight as possible. A short suction line cut to 45° is recommended when the pump is mounted inside the reservoir, to improve the inlet conditions. All connections to be leak-free, as air in the suction line will cause cavitations, noise, and damage to the pump.

Shaft Rotation and Alignment

Pump and motor shafts must be aligned within 0.25mm T. I. R. maximum. A floating coupling must be used. Bellhousings and couplings can be ordered at from us. Please follow the coupling manufacturer's installation instructions.

Start Up

Prior to start up, the pump case must be filled with hydraulic fluid (use case drain port). Initial start up should be at zero pressure with an open circuit to enable the pump to prime. Pressure should only be increased once the pump has been fully primed. Attention: Check motor rotation direction.

Operating noise of pumps

The normal operating noise of a pump and consequently the operating noise of the entire hydraulic system is largely determined by where and how the pump is mounted and how it is connected to the down stream hydraulic system. Also size, style and installation of the hydraulic tubing have a major influence on the overall noise emitted by a hydraulic system.



Noise Reduction Measures

Flexible elements help to prevent pump body vibration being transmitted to other construction elements, where possible amplification may occur. Such elements can be:

1. Bell housing with elastic dampening flange with vulcanized labyrinth
2. Floating and flexible coupling
3. Damping rails or silent blocks for mounting the electric motor or the foot mounting flange
4. Flexible tube connections (compensators) or hoses on inlet, outlet and drain port of the pump.
5. Exclusive use of gas tight tube fittings for inlet connections to avoid ingression of air causing cavitations and excessive noise.

Drain Line

The drain line must lead directly to the reservoir without restriction. The drain line must not be connected to any other return line. The end of the drain line must be below the lowest fluid level in the reservoir and as far away as possible from the pump inlet line. This ensures that the pump does not empty itself when not in operation and that hot airyated oil will not be recirculated.

For the same reason, when the pump is mounted inside the reservoir, the drain line should be arranged in such a way that a siphon is created. This ensures that the pump is always filled with fluid. The drain pressure must not exceed 1 bar. Drain line length should not exceed 2 meters. Minimum diameter should be selected according to the port size and a straight low pressure fitting with maximized bore should be used.

	PV16 PV20 PV23	PV32 PV40 PV46	PV63-PV92
Size of pipe joints	3/8" Ø 8.5 or more	1/2" Ø 12 or more	3/4" Ø 16 or more
LD of Pipes	Ø 12 or more	Ø 15 or more	Ø 19 or more
Length of draining piping	Under 1m	Under 1m	Under 1m