

### Installation - General Information

#### 1 - Fluid recommendations

Premium quality hydraulic mineral oil fluids are recommended, like H-LP oils to DIN 51542 part 2. The oil viscosity range should be from 25 mm<sup>2</sup>/s to 50 mm<sup>2</sup>/s. Operating temperature from -10° C to 70° C are recommended. For other fluids such as phosphoric acid esters or for other operating conditions please consult our Tech.Dpt.

#### 2 - Seals

NB (Nitrile) seals are used for operation with hydraulic fluids based on mineral oil. For synthetic, as perhaps phosphoric acid ester, Fluorocarbon seals are required. For any assistance please consult our Tech.Dpt.

#### 3 - Filtration

Contamination of the hydraulic oil may cause trouble with the pump and shorten its life. For maximum pump and system component functionality and life, the system should be protected from contamination by effective filtration. Fluid cleanliness should be in accordance with classification ISO 4406. The quality of filter elements should be in accordance with ISO standards.

Minimum requirement for filtration rate:

General hydraulic system for satisfactory operation: Class 19/17/14 to ISO 4406 (Class 9 NAS 1638)

Hydraulic system with maximized component life and reliability: Class 17/15/12 to ISO 4406 (Class 7 NAS 1638)

It is recommended to use return or pressure line filter, a wide range of filters for all common application are available.

The use of suction filter should be avoided, especially with fast response pump.

Off-line filtration is a good choice for the best filtering efficiency.

#### 4 - Installation and mounting

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

Vertical mounting: Drive shaft vertically upward.

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 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 leadfree, as air in the suction line will cause cavitation, noise and damage the pump.

#### 5 - Allignment and installation

Pump and motor shaft must be aligned within 0,25 mm. T.I.R max. A floating coupling must be used.

Please follow the coupling manufacturer's installation instruction. Consult our Tech.Dpt. in event of radial load drives.

#### 6 - Start-up

Prior to start-up, the pump case must be filled with clean system hydraulic fluid (use case drain port).

Do not operate the pump at full speed right away. Instead, turn the motor input switch on - off several times so as to extract air from the piping, then operate it continuously.

Initial start-up should be at zero pressure with an unloaded circuit to enable the pump to prime.

Pressure should only be increased once the pump has been fully primed.

**Attention:** Check the 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 connected to the 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 reducing measures

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

- 1 - Floating and flexible coupling.
- 2 - Damping rails.
- 3 - Or silent block for mounting the electric motor or the foot mounting flange.
- 4 - Flexible tube connections (compensator) or hoses for inlet, outlet and drain port.
- 5 - Exclusive use of gas tight tube fittings for inlet connection to avoid air entry causing cavitation and excessive noise.

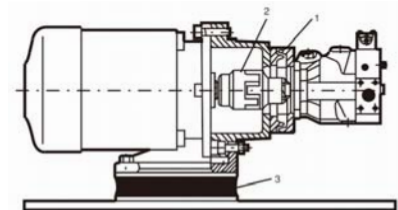
#### 7 - Drain line

The case pressure must not exceed 0,04 MPa (0,36 bar).

The drain line must be connected directly to the reservoir without restriction and 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 input line to ensure that the pump does not empty itself when not in operation and that the hot oil will not 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. For drain line size and length refer to the table below.



Pump model	AR 16 - AR 22
Pipe joint size	3/8"
Pipes internal diam.	> 12 mm.
Pipes lenght	< 1 m.