

PD Pump Installation & Operation Advice Sheet

Installation of Pump, Motor and Base

- The foundation area should be rigid and level for maintaining pump alignment.
- The pump and motor assembly must be securely fastened to the base, and the base must be securely attached to the ground.
- For long-coupled pumps, the pump is coupled to the motor via a mechanical coupling. To prevent excessive radial loads from being applied to the pump – which can cause vibration and lead to premature pump failure – the pump and motor shafts must be manually aligned after final installation. On larger machines laser alignment is recommended.
- The pump inlet should be as close to the liquid source as practical and preferably below it.
- The pump and motor should be accessible for servicing and inspection.
- The pump and motor should be cleaned periodically to prevent the build-up of dust.
- Whenever possible, install suction and discharge pressure gauges as close to the pump ports for condition monitoring and for checking hydraulic conditions.

General Piping Requirements

- All piping must be supported independently and must line up naturally with pump ports. Flexible hoses on the suction/discharge connections will guard against pipework misalignment.
- DO NOT make final connection of piping to the pump until the grout has hardened and the pump and motor hold-down bolts have been tightened.
- Piping that handles both hot and cold liquids require proper installation of expansion loops and joints so that thermal expansion of the piping will not cause misalignment.
- Gasket installation and materials must be suitable for the service.
- Piping runs should be designed to minimize friction losses.
- Suction and discharge piping should be the same size or larger than the inlet and outlet ports.
- The piping should be arranged to allow the pump to be flushed and drained prior to the removal of the pump for servicing. Valves and unions should be installed to allow the pump to be isolated during maintenance.
- The piping system should be thoroughly cleaned prior to installation of the pump.

Positive Displacement Pump Requirements

- A positive displacement pump should have a pressure relief valve installed in the discharge line. The relief valve should be the closest valve to the discharge port of the pump and should bypass the discharge line back to the supply tank.
- When pumping fluids containing suspended solids, a filter should be installed in the suction line.

- In the case of reciprocating positive displacement pumps, the use of pulsation dampeners should be considered especially where there is a long discharge line and/or where tight bends and elbows are present.

Motor Selection

- The speed and power output rating of the motor must be sufficient for the conditions of service. The power output rating of the motor should exceed the maximum power that will be required by the pump over its operating range.

Precautions Prior to Starting Pump

- Verify that the pump and motor are suitable for the conditions of service.
- Verify that all suction and discharge valves are open before starting the pump.
- Prime the pump and jog the motor to check the rotation.

Operating Requirements

- Do not operate the pump without fluid inside it.
- The pump should be operated with at least 1.5 Bar or 20 PSI differential pressure to ensure that internal components are properly lubricated by the pumped fluid.
- Adequate suction pressure must be available for the pump to function properly (check NPSH or NIP required by the pump)
- Do not operate the pump outside of its design specifications.

General Precautions

- **Never** operate the pump without safety devices installed
- **Never** operate the pump with suction and/or discharge valves closed
- **Never** operate the pump out of its design specifications
- Inspect the entire system before start-up
- Monitor the system during operation and perform maintenance periodically or as required by the application