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Northwest INDUSTRIAL REPAIR

Additional Locations
Eastern Washington: (509) 949-3368
Idaho & Montana: (208) 360-3833
Oregon: (503) 708-9609

Centrifugal Style Pump Troubleshooting Guide

PROBLEM	PROBABLE CAUSE	SOLUTION
Pump not delivering liquid	Pump not primed.	Re-prime pump, verify suction line is full of liquid.
	Wrong direction of rotation.	Change rotation to concur with direction indicated by arrow on bearing housing or pump casing; swap motor connections if necessary.
	Valves closed.	Open all suction and discharge valves.
	Suction and/or discharge lines clogged.	Unclog lines. Confirm that any suction/discharge valves or control valves are not stuck shut.
	Clogged impeller.	Disassemble and clear blockage from impeller or back-flush pump.
	Clogged strainer.	Clean strainer.
	Foot valve or suction pipe has inadequate submergence.	Check suction source for vortexing, correct if necessary.
	Impeller worn or damaged.	Disassemble and replace impeller.
	Suction lift too high.	Check with a gauge at pump inlet suction. Review/revise level of suction. Install shorter suction pipe.
Pump not delivering rated flow or head	Air leak in suction line.	Locate and seal air leak; replace gaskets. Tighten connections.
	Air leak though stuffing box.	Inspect packaging/mechanical seal; replace or adjust packing
	Pump speed to low.	Check driver speed.
	Impeller partially clogged.	Remove obstruction or back-flush pump.
	Clogged strainer.	Clean strainer.
	Impeller worn or damaged.	Disassemble and replace impeller.
	Wrong direction of rotation.	Change rotation to concur with direction indicated by arrow on bearing housing or pump casing; swap motor connections if necessary.
	Insufficient suction head, NPSH.	Review/revise design. Ensure suction line shutoff valve is fully open and suction line is obstructed.
	Head requirement higher than anticipated/undersized impeller.	Increase impeller size or motor speed.
Pump is noisy or vibrates	Partly clogged impeller is unbalanced.	Open pump and clear blockage from impeller.
	Improper alignment.	Realign pump and motor.
	Broken or bent impeller or shaft.	Replace as necessary or call Northwest Industrial Repair for service and repair.
	Base not rigid enough.	Tighten hold-down bolts of base, pump and motor. Recheck alignment.
	Worn bearings.	Replace as necessary or call Northwest Industrial Repair for service and repair.
	Pump cavitation.	Review suction system. Increase NPSH available.

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Pump clogs frequently	Discharge flow too slow.	Open discharge valve fully to increase flow rate and run power source at maximum governed power.
	Suction check valve or foot valve clogged or binding.	Clean valve.
Excessive stuffing box leakage	Packing gland improperly adjusted.	Tighten gland bolts.
	Stuffing box not packaged properly.	Check, re-pack as necessary.
	Wrong type of packing.	Install correct packing.
	Mechanical seal worn or damaged.	Replace mechanical seal.
	Overheating mechanical seal.	Check lubrication and cooling lines.
	Broken or bent impeller or shaft.	Replace as necessary or call Northwest Industrial Repair for service and repair.
	Shaft sleeve scored.	Re-machine or replace as required or call Northwest Industrial Repair for service and repair.
Rapid pump wear	Abrasives in fluid.	Install suction strainer.
		Limit solids concentration.
		Reduce pump speed or use larger pump running at lower speed.
	Corrosion wear.	Use materials of construction that are acceptable for fluid being pumped.
	Extended dry running.	Install power sensor to stop pump.
	Discharge pressure too high (Total Head greater than specified).	Increase pipe diameter.
		Decrease pipe run.
Pump requires too much power	Total head lower than specified, pumping higher flow than expected.	Adjust discharge valve slightly.
		Trim impeller diameter.
		Review design.
	Total head greater than specified.	Increase pipe diameter.
		Decrease pipe run.
	Total head higher than rating with flow at rating.	Install impeller with correct diameter
	Liquid heavier than expected.	Check specific gravity and viscosity
		Verify the actual power consumption is correct.
	Stuffing box is incorrectly packaged.	Readjust packing. Replace if worn.
	Internal parts worn.	Check internal wearing parts for proper clearances.
		Replace worn parts.