

# TROUBLE SHOOTING CHART – CENTRIFUGAL PUMPS

## LIST OF PROBLEMS

PROBLEM	LIST OF POSSIBLE CAUSES
Lack of, or no flow and/or pressure	1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 17 - 25 - 40
Excessive flow and/or pressure	15 - 16 - 17 - 18
High power consumption	10 - 15 - 16 - 18 - 19 - 20 - 21 - 22 - 23
Excessive vibration and noise	8 - 18 - 19 - 20 - 23 - 24 - 25 - 26 - 27 - 28 - 36 - 37 - 40
Bearing overheating	19 - 20 - 28 - 29 - 30 - 36 - 38 - 39 - 42
Sealing malfunction	28 - 31 - 32 - 33 - 34 - 35 - 40 - 41

	CAUSES	SOLUTIONS
1	Pump is not primed	Repeat the priming procedure
2	Rotational speed is not adequate	Increase the motor speed in relation to the working conditions - Replace impeller with one having larger diameter.
3	Installation requires higher pressure than expected	Increase operating speed, if possible, (see point 2) or replace impeller with one of larger diameter - Change the pump or increase the number of stages in case of multistage pumps - Reduce the system pressure
4	Wrong direction of rotation	Change the motor direction of rotation
5	There are air pockets in the suction line	Modify the layout of suction piping
6	Air enters the suction line	Check the piping sealing areas
7	The pumped liquid is emulsified with air	Install a reservoir or tank before the pump to de-aerate the liquid
8	The suction lift or/and suction pressure is more than anticipated and therefore the pump cavitates	Reset the suction lift to the original value - Increase the piping diameter - Check the suction piping, the foot valve or non return valve, the filter - Open completely the isolating valve in the suction piping - Decrease the friction losses
9	The wear ring and/or impeller neck and/or the impeller and/or the diffusers are worn out or damaged	Overhaul the pump replacing and/or repairing the damaged components
10	Viscosity, density, or specific weight of liquid have higher values than expected	Re-establish the characteristics of the liquid as originally expected (if necessary contact Premier Fluid Systems)
11	Suction piping is not sufficiently submerged in the liquid, creating vortex	Increase the depth of piping or foot valve in the liquid
12	Impeller is plugged with scale deposit and/or foreign materials	Take out the impeller, clean it, free the vanes and cavities of any materials - Soften the pumped liquid
13	There is entrained air in the system	Adjust the packed stuffing box or repair/replace the mechanical seal
14	Piping is plugged	Clean piping and valves - clean the filters
15	Velocity is too high	If possible, decrease the pump rotational speed
16	The required pressure of system is lower than anticipated	Adjust the flow regulating valve in discharge piping - Decrease the impeller diameter (contact Premier Fluid Systems) - Decrease the number of stages in case of multistage pumps
17	Pump is not suitable for the application	Contact Premier Fluid Systems
18	Inlet pressure is too high	Reduce the pressure, but without adjusting the isolating valve at the suction side
19	Pump/motor coupling is misaligned	Realign the coupling
20	Bearings are defective or worn out	Replace bearings
21	The power supply voltage is wrong - Motor does not operate properly	Change the motor - Correct the power supply
22	The packing is too tight	Loosen the nuts of the packing gland
23	Pump seizing is experienced	Stop the pump and look for any rotor obstructions
24	The pump and/or piping are loose	Torque the bolts as required
25	Pump is worn out or damaged with excessive internal clearances	Overhaul the pump
26	The coupling rubber inserts are worn	Replace the coupling inserts
27	The impeller is out of balance due to wear, deposits and encrustation	Disassemble, clean, balance and/or replace the impeller - Soften the liquid
28	Forces, moments and piping misalignment are loading the pump	Realign and support the piping



**Premier Fluid Systems**  
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