

**How to use:**

1. Find the problem you have in the diagonal columns to the left.
2. Search the rows below for possible troubles you may be facing regarding your problem.
3. Can't find what you are looking for?

Contact Tri-Canada Today

**Problem**

Pump does not deliver water	Insufficient capacity delivered	Insufficient pressure delivered	Pump loses prime after starting	Pump requires excessive power	Stuffing box leaks excessively	Packing has short life	Pump vibrates or is noisy	Bearings have short life	Pump overheats and seizes
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**Possible Causes**

**Suction Troubles**

1	Pump not primed	●							●
2	Pump or suction pipe is not completely filled with liquid	●	●		●			●	
3	Suction pipe lift is too high	●	●		●			●	
4	Insufficient margin between suction and vapor pressure	●	●					●	●
5	Excessive amount of air or gas in liquid		●	●					
6	Air pocket in suction line	●	●		●				
7	Air leaks in suction line		●		●				
8	Air leaks into the pump through the stuffing box		●		●				
9	Foot valve is too small or partially clogged		●					●	
10	Inlet of suction pipe insufficiently submerged		●		●			●	
11	Water seal pipe plugged	●			●			●	
12	Seal cage improperly located in stuffing box, preventing sealing fluid entering space to form seal				●		●	●	

**System Troubles**

13	Speed too low		●	●					
14	Speed too high	●				●			
15	Wrong direction or rotation			●		●			
16	Total head of system higher than design head of pump	●	●	●		●			
17	Total head of system lower than design head of pump	●				●			
18	Specific gravity of liquid different from design					●			
19	Viscosity of liquid is different from design criteria		●	●		●			
20	Operation at a very low capacity							●	●
21	Parallel operation of pumps unsuitable for such operation		●	●					●

**Mechanical Troubles (continued on next page)**

22	Foreign matter in impeller	●	●			●		●	
23	Misalignment	●				●	●	●	●
24	Foundations not rigid							●	
25	Shaft bent					●	●	●	●
26	Rotating part rubbing on stationary part					●		●	●

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### Problem

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### Possible Causes

Mechanical Troubles (continued)		Pump does not deliver water	Insufficient capacity delivered	Insufficient pressure delivered	Pump loses prime after starting	Pump requires excessive power	Stuffing box leaks excessively	Packing has short life	Pump vibrates or is noisy	Bearings have short life	Pump overheats and seizes
27	Bearings worn								●	●	●
28	Wearing rings worn		●	●		●					
29	Impeller damaged		●	●						●	
30	Casing gasket defective permitting internal leakage		●	●							
31	Shaft or shaft sleeves worn or scored at the packing							●	●		
32	Packing improperly installed						●	●	●		
33	Incorrect type of packing for operating conditions						●	●	●		
34	Shaft running off-center because of worn bearings or misalignment							●	●	●	●
35	Rotor out of balance resulting in vibration							●	●	●	●
36	Gland too tight resulting in no flow of liquid to lubricate packing						●		●		
37	Failure to provide cooling liquid to water-cooled stuffing box							●	●		
38	Excessive clearance at the bottom of the stuffing box between the shaft and casing, causing packing to be forced into pump interior							●	●		
39	Dirt or grit in sealing liquid, leading to scoring of shaft or shaft sleeves							●	●		
40	Excessive thrust caused by a mechanical failure inside the pump or by the failure of the hydraulic balancing device, if any									●	●
41	Excessive grease or oil in the bearing housing or lack of cooling, causing excessive bearing temperature									●	●
42	Lack of lubrication									●	●
43	Improper installation of anti-friction bearings (damage during assembly, incorrect assembly of stacked bearings, use of unmatched bearings as a pair, etc.)									●	●
44	Dirt getting into the bearings									●	●
45	Rusting of bearings due to water getting into housing									●	●
46	Excessive cooling of water-cooled bearing resulting in condensation in the bearing housing from moisture in the atmosphere									●	●

# PUMP SELECTION SPECIFICATIONS

Company: \_\_\_\_\_

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

New Application? Y / N If no, replacing what model? \_\_\_\_\_ Why? \_\_\_\_\_

## PLEASE SUPPLY ALL INFORMATION ON THE CURRENT PUMP

Liquids to be pumped: \_\_\_\_\_ Capacity required (GPM) \_\_\_\_\_

- Viscosity/Thickness \_\_\_\_\_ Size/Volume of Solids \_\_\_\_\_

- Specific Gravity \_\_\_\_\_ Abrasives \_\_\_\_\_

- Temperature ( F/C ) \_\_\_\_\_ P.H. \_\_\_\_\_

Sealing Preference \_\_\_\_\_ Mechanical Seal \_\_\_\_\_ Packing \_\_\_\_\_

Discharge Pressure/Head Required \_\_\_\_\_ Feet of head \_\_\_\_\_ PSI

### Discharge conditions of required unknown:

- Static Discharge Head (Feet) \_\_\_\_\_

(Distance vertically from pump to discharge pipe) \_\_\_\_\_

- Total length of piping (Feet) \_\_\_\_\_ Pipe Size/Diameter (Inches) \_\_\_\_\_

- Type of Pipe \_\_\_\_\_

- Elbows, Fittings, or other restrictions to discharge flow, list quantity & type \_\_\_\_\_

\_\_\_\_\_

### Suction Conditions:

- NPSH Available \_\_\_\_\_

- Static Suction Lift (Feet) \_\_\_\_\_

(Distance vertically from pump down to liquid surface) If applicable

- Static Suction Head \_\_\_\_\_

(Distance vertically from pump down to liquid surface) If applicable

- Pipe Size \_\_\_\_\_ Pipe Length \_\_\_\_\_

- Type of Pipe \_\_\_\_\_

- Elbows, Fittings, or other restrictions to discharge flow, list quantity & type \_\_\_\_\_

### Drive Information:

Specify if other than electric motor

- Enclosure \_\_\_\_\_ Cycles \_\_\_\_\_

- Coupling Preference \_\_\_\_\_

- Voltage \_\_\_\_\_ Phase \_\_\_\_\_

Manufacturer	Pump Type																		
	ANSI	CENTRIFUGAL	DIAPHRAGM	DOSING	DRUM PUMPS	FILTRATION	GEAR	LINE-SHAFT TURBINE	MULTI-STAGE	PERISTALTIC	PISTON	POSITIVE DISPLACEMENT	PROGRESSIVE CAVITY	REGENERATIVE TURBINE	SANITARY	SOLIDS HANDLING	SUBMERSIBLE	VANE	SUMP   SEWAGE   EFFLUENT
All-Flo			●																
American Marsh	●	●						●	●								●		●
Ampco Pumps		●	●									●				●			●
AMT		●							●								●	●	●
ARO/Ingersoll Rand			●								●								
Barnes		●														●	●		●
Berkeley		●							●							●			●
Burks		●														●			
Cat Pumps		●									●						●		
Continental												●	●						
Deming	●	●						●	●										●
Fill-Rite											●	●						●	
Finish Thompson		●									●								●
Fluid-o-Tech				●			●		●		●							●	
Flux		●	●		●						●					●			
Global Filter						●													
Graco			●		●				●	●	●					●			
Gusher	●	●							●								●		
Hydro Systems				●		●													
Little Giant		●							●								●		●
MP Pumps		●														●			●
MTH Pumps		●							●					●				●	
Myers		●							●							●	●		●
Oberdorfer		●					●				●								
Pump Components	●	●														●			●
Pumper Parts																			
Roper							●				●	●							
Sethco		●		●															
Sotera			●								●								
Standard Pump			●		●						●				●				
Sta-Rite		●														●	●		●
Tricom	●	●														●			●
Tuthill							●				●								●
Versa-Matic			●		●										●				
Weinman		●							●										●
Wright Flow											●				●				
Xylem/Goulds		●							●							●	●		●