Tips & Troubleshooting

We hope you will find the following suggestions and comments regarding pump installation to be helpful. We do not claim that any of these suggestions are the only way to accomplish your job, but in general they will solve many of the commonly found problems and help you prevent many others.

Please note that ReeFlo pumps are external pumps. Do not submerge!

1. ***Locate the pump as close to the source as possible****. It is best to have your main (longest) run of pipe on the discharge side of the pump. The pump is designed to push water, not pull it.*

2. ***Always have your inlet pipe diameter*** *equal to, or larger than, the discharge line. This helps prevent cavitation.*

3. ***Never run a pump dry****. This may damage the mechanical seal and impeller. They are designed to pump fluid, not air. Insure the pump is full of water before you turn it on, and that it doesn't out pump the supply.*

4. ***If your pump is producing too much flow****, you can reduce the flow by partially closing a valve on the discharge line. Never restrict the inlet!!! Surprisingly, this will make the motor work less and use less electricity!! This "valving back" simply causes the pump to operate further back on its performance curve.*

5. ***If your pump is not producing enough flow.*** *The easiest step is to widen the line especially on the intake. As illustrated on the chart the narrowness of the line has great bearing on "friction loss"....think bar straw vs. regular straw.*

6. ***If more flow is required than a single pump can produce,*** *consider using two or more pumps in parallel. This will double the flow. If more pressure is required consider using two pumps in series (one feeding into the other). This will have the effect of doubling the pressure. We have found that using two pumps instead of one larger pump uses an average of 30% less electricity.*

*7. Choose a pump that can give you the required flows at the lowest possible power consumption. Since pumps often operate continuously, t****he power consumption (watts - not amps),*** *and its effect on your monthly utility bill can be very significant.*

8. Check to be sure the motor electrical connections are set up to match the supply voltage.

9. Install shut off valves before and after the pump, so you can easily remove it from the line without having to drain your system. Be sure to use ball valves, as they have low friction loss characteristics.

10. Use Teflon paste (not tape) for sealing threaded joints.

11. Make sure all your pipe joints are airtight. This is especially important on the suction side.

There are two elements that cause pressure requirements in your system; vertical lift and "FRICTION LOSS". Simply stated it is the pressure created by trying to squeeze large flows through a narrow opening (think bar straw). There are two important aspects 1) ***It matters the length of the narrow line (1" bar straw vs. 10" bar straw)*** *and 2) Friction loss increases at an increasing rate when either flow is increased or pipe is narrowed. The narrower the line the more the pump has to work (think clogged ateries and your heart).*

*Minimize friction losses by using large diameter pipe. First determine the approximate flow rate you want, and the total length of your pipe. The Friction Loss chart will allow you determine the amount of extra "head pressure" will be added to your systemdue to the diameter of your piping. (The size of the pump's suction and discharge ports does not indicate your proper pipe size.) Choose a pipe diameter that keeps your friction loss below about five feet per hundred feet of pipe. Even if you have a section of small diameter pipe that you can't change, as with a through the wall fitting, it is still beneficial to use larger pipe on the majority of the run. It matter how much wide pipe you use.*Friction loss chart- The narrowness of the pipe increases friction loss in a geometric manner.EXAMPLE: At 2700 gph using 1.5" instead of 1" pipe reduces friction loss from 97.75' per 100' to 11.73' per 100'. A big reduction in "head pressure"

Friction Loss Per 100 Feet of Pipe of plastic pipe

Pipe Diameter	3/4"	1"	1.5"	2"	2.5"	3"
USgph						
120	1.22	0.55	0.07	-	-	-
300	3.79	1.72	0.22	0.066	0.038	0.015
420	7.40	3.17	0.38	0.11	0.051	0.021
600	14.09	6.02	0.72	0.21	0.09	0.03
900	29.84	12.77	1.53	0.45	0.19	0.07
1200	50.75	21.75	2.61	0.76	0.32	0.11
1500	76.64	32.88	3.95	1.15	0.49	0.17
1800	107.51	46.08	5.53	1.62	0.68	0.23
2100		61.54	7.36	2.15	0.91	0.31
2400		78.71	9.43	2.75	1.16	0.4
2700		97.75	11.73	3.43	1.44	0.5
3000		118.62	14.25	4.16	1.75	0.6
3600		166.49	19.98	5.84	2.46	0.85
4200		-	-	7.76	3.27	1.13
4500		-	-	8.82	3.71	1.28
4800		-	-	9.94	4.19	1.44
5400		-	-	12.37	5.21	1.8
6000		-	-	15.03	6.33	2.18
7500		-	-	15.03	9.58	3.31
9000		-	-	15.03	13.41	4.63
10500		-	-		-	6.16
12000		-	-	-	-	7.88
15000		-	-	-	-	11.93
18000		-	-	-	-	-
21000		-	-	-	-	-
24000		-	-	-	-	-

This chart gives friction losses for your given flow rate per 100 feet of pipe. Example: If you have 3600 gallons per hour and you're using 2 inch schedule 40 pipe and you have a 100 feet of pipe, your friction loss is 5.84 x 1 = 5.84 feet.
Note: It is best to keep your friction loss (per 100 feet of pipe) to less than five feet.

PIPE SIZE FOR RECOMMENDED FLOW

	USgpm	*USgph*
1"	*10*	*600*
1 1/4"	*20*	*1,200*
1 1/2"	*30*	*1,800*
2"	*60*	*3,600*
2 1/2"	*90*	*5,400*
3"	*175*	*10,500*