

Turbi-Float Sizing

- Step #1 Determine nominal flow rate required in gallons per minute. _____ GPM
- Step #2 Calculate pipeline friction losses in feet of head. _____ Ft.
(see friction loss chart)
- Step #3 Calculate pressure required if any at point of discharge or delivery into system. _____ Ft.
(1 PSI = 2.31' of head)
- Step #4 Calculate elevation change between surface water source and delivery point in feet. Elevation drop to point of discharge is calculated as negative head. Be certain to note lowest level in water source which is particularly important in deep ponds, typical of effluent storage systems. ± _____ Ft.
- Step #5 Allow for miscellaneous losses in various fittings, valves, etc. typically found in a system. _____ 8 _____ Ft.
An allowance of 8 Ft. is usually adequate and will also cover the losses in a 50 Ft. length of appropriate diameter discharge hose between the pump and the shoreline connection. Long hose lengths must be calculated and added to the final head requirement.

**Sum of steps #2 thru #5, Total Dynamic Head = _____(T.D.H.)
Req.**

- Step #6 **With the T.H.D. calculated and the GPM, go to the Turbi-Float selection Guide (section #40) in the dealer catalog to identify the correct Turbi-Float model for your application.**

Turbi-Float Model # _____

Remember that all centrifugal pumps are head reactive and discharge flows will vary depending upon head against the pump. Field performance is a function of your system's head curve verses the pump's performance curve.

A pump that builds inadequate head at the designed flow rate will not deliver sufficient discharge volume. It is good practice to select a pump that delivers some additional head, typically 5-8% of that calculated. This additional head will allow for errors in system head calculations, pump performance losses with wear, etc.

Avoid selecting a model that is grossly oversized in terms of head it will deliver. Some models will "runout" on their performance curves and exhibit undesirable performance characteristics when operated against insufficient head or pressure.

Please consult the factory for assistance as required in selecting the Turbi-Float model that best suits your requirements.

Example

Customer desires a 600 GPM flow rate into a center pivot system that requires 35 PSI at the top of the pivot. The surface of the pond at its lowest point is about 27 ft. below the base of the pivot taken by an elevation survey. The pivot rises 12 ft. above grade. There is 1000 ft. of 8" 80 lb. P.I.P. plastic pipe between the pivot and the shoreline of the installation. Pipeline connections at each end are simple Z bends or "dogleg" risers from a buried depth to above grade connection. No complex valving or additional restrictions in system.

Step #1 Flow rate required 600 GPM

Step #2 Pipeline friction: 1000 ft. of 8" 80lbs. Plastic Irrigation Pipe (SDR51)
 (.60 Ft. of head loss per 100 Ft. of line) 1000 ft. / 100 ft. = 10 X .60 =
6 Ft.

Step #3 Pressure at point of delivery: Center pivot sprinkler
 Requires 35 PSI at top of pivot.
 35 X 2.31 = 80.85 Ft. (round to nearest whole number)
81 Ft.

Step #4 Elevation changes: ± 39
 Ft.

Pivot rise above grade	12'
Elevation from water surface to base of pivot.	<u>27'</u>
	39'

Step #5 Miscellaneous losses System has 50' of 6" discharge hose, 5
 Ft. two 2" risers to buried pipeline and one check valve at the shoreline.

Step #6 Ft. With the T.H.D. calculated and the GPM, go to the Turbi-Float Selection Guide (section #40) in the dealer catalog to identify the correct Turbi-Float model for your application. (T.D.H.) required = 131

Flow Rate required = 600

GPM

Turbi-Float model 7THC-2-25, is the correct selection, which is a 25 horsepower pump. This pump has a head capacity of 136 Ft. @ 600 GPM and is the appropriate size for this application.

All Turbi-Float models are designed to give maximum performance in every model horsepower range. Your calculated system head requirements will seldom match exactly a specific model's published performance.