

Pump Sizing Worksheet

If you have any questions, email us at support@dripdepot.com

Bigger is **NOT** always better when it comes to irrigation pumps.



Irrigation System Gallons Per Minute (GPM)

Pumping Requirements

To size a pump, first figure total GPM needed. Add up the flow rate of all the emitters on the system (or zone). Emitter spec sheets will note emitter flow rates at the PSI you plan to operate them at.

Note: Drip emitters are often listed in GPH instead of GPM. Divide GPH by 60 to get GPM. Ex. $GPH \div 60 = GPM$

_____ GPM

Total Dynamic Head (TDH)

Suction Lift

To determine Suction Lift, measure the vertical distance between the water level at the lowest point and the pump inlet. (Total distance in feet).

- ? How to calculate this: This is the vertical distance between the water level and the pump inlet. (If using a submersible pump this will be zero.)

_____ Feet



Elevation Change

To figure Elevation Change, measure the vertical distance from the pump inlet to the highest point in the system. (Total distance in feet.)

- ? How to calculate this: This is the vertical distance between the pump inlet and the highest point in your system. The highest point can be an emitter or simply a run of tubing or pipe.

_____ Feet



Friction Loss

To determine Friction Loss you will need to know the pipe or tubing type, its inside diameter and the flow rate going through it. Once you have this information you can reference the manufacturer's friction loss charts on the following pages. Charts are available for Schedule 40 and 80 PVC, Oval Hose and Layflat. If you are using 1/2" to 1" poly tubing, you can input the variables into our Friction Loss Calculator [here](#).

- ? How to calculate this: Determine the total Friction Loss in PSI by referencing the charts or [friction loss calculator](#). You only need to know the material (PVC, Poly, etc), its inside diameter and the flow rate going through it in GPM or GPH. To convert this friction loss to head in feet, simply multiply it by 2.31. **Ex. Friction Loss PSI _____ x 2.31 = Head in Feet (or Feet of Head).**

_____ Feet



Required PSI

To determine the Required PSI, check the spec sheets for your emitters and find the ones with the highest optimal operating pressure. This will be your Required PSI.

- ? How to calculate this: Locate the highest operating pressure for your emitters and multiply that by 2.31 to convert it to head in feet.

Ex. PSI required on highest PSI zone _____ x 2.31 = _____ Feet.

_____ Feet



Total Dynamic Head (TDH)

Total the sum of Suction Lift, Elevation Change, Friction Loss, Required PSI. This total equals TDH.

_____ TDH

Take your **GPM and **TDH** and reference our Pump Chart to determine the right pump for you!**

Friction Loss Chart

If you have any questions, email us at support@dripdepot.com

Bigger is **NOT** always better when it comes to irrigation pumps.



Schedule 80 PVC Plastic Pipe

psi Loss per 100 Feet of Pipe (psi/100 ft.)

Sizes 1/2" through 6" Flow 1 through 600 gpm

Nominal Size	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"		6"	
Flow (gpm)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)
1	1.47	0.97	0.78	0.21	0.47	0.06	0.26	0.01	0.19	0.01	0.11	0.00	0.08	0.00	0.05	0.00	0.03	0.00	0.01	0.00
2	2.95	3.50	1.57	0.75	0.93	0.21	0.52	0.05	0.37	0.02	0.22	0.01	0.16	0.00	0.10	0.00	0.06	0.00	0.03	0.00
3	4.42	7.42	2.35	1.59	1.40	0.45	0.78	0.11	0.56	0.05	0.33	0.01	0.23	0.01	0.15	0.00	0.09	0.00	0.04	0.00
4	5.90	12.64	3.13	2.71	1.87	0.77	1.04	0.18	0.75	0.08	0.45	0.02	0.31	0.01	0.20	0.00	0.11	0.00	0.05	0.00
5	7.37	19.11	3.91	4.09	2.33	1.16	1.30	0.28	0.94	0.13	0.56	0.04	0.39	0.01	0.25	0.01	0.14	0.00	0.06	0.00
6	8.85	26.78	4.70	5.74	2.80	1.63	1.56	0.39	1.12	0.18	0.67	0.05	0.47	0.02	0.30	0.01	0.17	0.00	0.08	0.00
7	10.32	35.63	5.48	7.63	3.27	2.17	1.82	0.52	1.31	0.24	0.78	0.07	0.55	0.03	0.35	0.01	0.20	0.00	0.09	0.00
8	11.80	45.63	6.26	9.77	3.73	2.78	2.08	0.67	1.50	0.30	0.89	0.09	0.62	0.04	0.40	0.01	0.23	0.00	0.10	0.00
9	13.27	56.75	7.04	12.15	4.20	3.45	2.34	0.83	1.69	0.37	1.00	0.11	0.70	0.04	0.45	0.01	0.26	0.00	0.11	0.00
10	14.75	68.98	7.83	14.77	4.67	4.20	2.59	1.01	1.87	0.46	1.11	0.13	0.78	0.05	0.50	0.02	0.28	0.00	0.13	0.00
11			8.61	17.62	5.13	5.01	2.85	1.20	2.06	0.54	1.23	0.15	0.86	0.06	0.55	0.02	0.31	0.01	0.14	0.00
12			9.39	20.70	5.60	5.88	3.11	1.41	2.25	0.64	1.34	0.18	0.93	0.08	0.60	0.03	0.34	0.01	0.15	0.00
14			10.96	27.55	6.53	7.83	3.63	1.88	2.62	0.85	1.56	0.24	1.09	0.10	0.70	0.03	0.40	0.01	0.18	0.00
16			12.52	35.27	7.47	10.03	4.15	2.40	3.00	1.09	1.78	0.31	1.25	0.13	0.80	0.04	0.46	0.01	0.20	0.00
18			14.09	43.87	8.40	12.47	4.67	2.99	3.37	1.35	2.01	0.38	1.40	0.16	0.90	0.05	0.51	0.01	0.23	0.00
20			15.65	53.32	9.33	15.16	5.19	3.63	3.75	1.64	2.23	0.47	1.56	0.19	0.99	0.07	0.57	0.02	0.25	0.00
22					10.27	18.08	5.71	4.33	4.12	1.96	2.45	0.56	1.71	0.23	1.09	0.08	0.63	0.02	0.28	0.00
24					11.20	21.24	6.23	5.09	4.49	2.30	2.68	0.65	1.87	0.27	1.19	0.09	0.68	0.02	0.30	0.00
26					12.13	24.64	6.75	5.91	4.87	2.67	2.90	0.76	2.02	0.32	1.29	0.11	0.74	0.03	0.33	0.00
28					13.07	28.26	7.26	6.77	5.24	3.06	3.12	0.87	2.18	0.36	1.39	0.12	0.80	0.03	0.35	0.00
30					14.00	32.12	7.78	7.70	5.62	3.48	3.34	0.99	2.34	0.41	1.49	0.14	0.85	0.04	0.38	0.00
35					16.33	42.73	9.08	10.24	6.55	4.63	3.90	1.31	2.73	0.55	1.74	0.18	1.00	0.05	0.44	0.01
40							10.38	13.11	7.49	5.93	4.46	1.68	3.11	0.70	1.99	0.24	1.14	0.06	0.50	0.01
45							11.68	16.31	8.43	7.38	5.02	2.09	3.50	0.87	2.24	0.29	1.28	0.08	0.56	0.01
50							12.97	19.83	9.36	8.97	5.57	2.54	3.89	1.06	2.49	0.36	1.42	0.09	0.63	0.01
55							14.27	23.65	10.30	10.70	6.13	3.03	4.28	1.27	2.74	0.43	1.57	0.11	0.69	0.01
60							15.57	27.79	11.24	12.57	6.69	3.56	4.67	1.49	2.98	0.50	1.71	0.13	0.75	0.02
65									12.17	14.58	7.25	4.13	5.06	1.72	3.23	0.58	1.85	0.15	0.81	0.02
70									13.11	16.73	7.80	4.74	5.45	1.98	3.48	0.66	1.99	0.17	0.88	0.02
75									14.05	19.01	8.36	5.38	5.84	2.25	3.73	0.76	2.13	0.19	0.94	0.03
80									14.98	21.42	8.92	6.06	6.23	2.53	3.98	0.85	2.28	0.22	1.00	0.03
85									15.92	23.96	9.48	6.78	6.62	2.83	4.23	0.95	2.42	0.24	1.06	0.03
90									10.03	7.54	7.01	3.15	4.48	1.06	2.56	0.27	1.13	0.04		
95									10.59	8.34	7.40	3.48	4.73	1.17	2.70	0.30	1.19	0.04		
100									11.15	9.17	7.79	3.83	4.97	1.29	2.85	0.33	1.25	0.04		
110									12.26	10.94	8.57	4.57	5.47	1.53	3.13	0.39	1.38	0.05		
120									13.38	12.85	9.34	5.37	5.97	1.80	3.42	0.46	1.50	0.06		
130									14.49	14.90	10.12	6.22	6.47	2.09	3.70	0.54	1.63	0.07		
140									15.61	17.09	10.90	7.14	6.96	2.40	3.98	0.62	1.75	0.08		
150											11.68	8.11	7.46	2.73	4.27	0.70	1.88	0.10		
160											12.46	9.14	7.96	3.07	4.55	0.79	2.00	0.11		
170											13.24	10.23	8.46	3.44	4.84	0.88	2.13	0.12		
180											14.02	11.37	8.95	3.82	5.12	0.98	2.25	0.13		
190											14.80	12.57	9.45	4.22	5.41	1.09	2.38	0.15		
200											15.57	13.82	9.95	4.64	5.69	1.19	2.50	0.16		
225													11.19	5.78	6.40	1.49	2.82	0.20		
250													12.44	7.02	7.12	1.81	3.13	0.24		
275													13.68	8.38	7.83	2.15	3.44	0.29		
300													14.92	9.84	8.54	2.53	3.76	0.34		
325													16.17	11.41	9.25	2.94	4.07	0.40		
350															9.96	3.37	4.38	0.46		
375															10.67	3.83	4.69	0.52		
400															11.39	4.31	5.01	0.58		
425															12.10	4.82	5.32	0.65		
450															12.81	5.36	5.63	0.73		
475															13.52	5.93	5.95	0.80		
500															14.23	6.52	6.26	0.88		
550																	6.88	1.05		
600																	7.51	1.24		

Note: Dark shaded area of chart indicates velocities over 5' per second. Use with caution

The velocity values were derived using the following equation $V = \frac{0.408 \times Q_{gpm}}{d^2}$

Table are based upon the following Hazen-Williams equation: $H_f = 0.2083 \times \left(\frac{100}{C}\right)^{1.852} \times \frac{Q^{1.852}}{d^{4.8655}}$ for change in psi per foot of elevation. Pressure loss for uphill elevation and pressure gain for downhill elevation changes.

Source: Rain Bird Corporation.

Pump Sizing Worksheet

If you have any questions, email us at support@dripdepot.com

Bigger is **NOT** always better when it comes to irrigation pumps.



Schedule 40 PVC Plastic Pipe

psi Loss per 100 Feet of Pipe (psi/100 ft.)

Sizes 1/2" through 6" Flow 1 through 600 gpm

Nominal Size	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"		6"	
Flow (gpm)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)	Velocity (ft/s)	Loss (psi)
1	1.13	0.50	0.63	0.12	0.39	0.04	0.22	0.01	0.16	0.00	0.10	0.00	0.07	0.00	0.04	0.00	0.03	0.00	0.01	0.00
2	2.25	1.82	1.26	0.44	0.77	0.13	0.44	0.03	0.32	0.02	0.19	0.00	0.14	0.00	0.09	0.00	0.05	0.00	0.02	0.00
3	3.38	3.85	1.89	0.94	1.16	0.28	0.66	0.07	0.48	0.03	0.29	0.01	0.20	0.00	0.13	0.00	0.08	0.00	0.03	0.00
4	4.50	6.55	2.52	1.60	1.54	0.48	0.88	0.12	0.65	0.06	0.39	0.02	0.27	0.01	0.18	0.00	0.10	0.00	0.04	0.00
5	5.63	9.91	3.16	2.42	1.93	0.73	1.10	0.19	0.81	0.09	0.49	0.03	0.34	0.01	0.22	0.00	0.13	0.00	0.06	0.00
6	6.75	13.89	3.79	3.40	2.31	1.02	1.32	0.26	0.97	0.12	0.58	0.04	0.41	0.02	0.26	0.01	0.15	0.00	0.07	0.00
7	7.88	18.48	4.42	4.52	2.70	1.36	1.54	0.35	1.13	0.16	0.68	0.05	0.48	0.02	0.31	0.01	0.18	0.00	0.08	0.00
8	9.01	23.66	5.05	5.79	3.08	1.74	1.76	0.45	1.29	0.21	0.78	0.06	0.55	0.03	0.35	0.01	0.20	0.00	0.09	0.00
9	10.13	29.43	5.68	7.20	3.47	2.17	1.99	0.56	1.45	0.26	0.88	0.08	0.61	0.03	0.40	0.01	0.23	0.00	0.10	0.00
10	11.26	35.77	6.31	8.75	3.85	2.63	2.21	0.68	1.61	0.32	0.97	0.09	0.68	0.04	0.44	0.01	0.26	0.00	0.11	0.00
11	12.38	42.68	6.94	10.44	4.24	3.14	2.43	0.81	1.78	0.38	1.07	0.11	0.75	0.05	0.48	0.02	0.28	0.00	0.12	0.00
12	13.51	50.14	7.57	12.27	4.62	3.69	2.65	0.95	1.94	0.44	1.17	0.13	0.82	0.05	0.53	0.02	0.31	0.01	0.13	0.00
14	15.76	66.71	8.84	16.32	5.39	4.91	3.09	1.26	2.26	0.59	1.36	0.17	0.96	0.07	0.62	0.03	0.36	0.01	0.16	0.00
16	18.01	85.42	10.10	20.90	6.17	6.29	3.53	1.62	2.58	0.76	1.56	0.22	1.09	0.09	0.71	0.03	0.41	0.01	0.18	0.00
18	20.26	106.24	11.36	25.99	6.94	7.82	3.97	2.01	2.90	0.94	1.75	0.28	1.23	0.12	0.79	0.04	0.46	0.01	0.20	0.00
20			12.62	31.59	7.71	9.51	4.41	2.45	3.23	1.14	1.95	0.33	1.36	0.14	0.88	0.05	0.51	0.01	0.22	0.00
22			13.89	37.69	8.48	11.35	4.85	2.92	3.55	1.37	2.14	0.40	1.50	0.17	0.97	0.06	0.56	0.02	0.25	0.00
24			15.15	44.28	9.25	13.33	5.29	3.43	3.87	1.60	2.34	0.47	1.64	0.20	1.06	0.07	0.61	0.02	0.27	0.00
26			16.41	51.36	10.02	15.46	5.74	3.98	4.20	1.86	2.53	0.54	1.77	0.23	1.15	0.08	0.66	0.02	0.29	0.00
28			17.67	58.91	10.79	17.73	6.18	4.56	4.52	2.13	2.73	0.62	1.91	0.26	1.23	0.09	0.71	0.02	0.31	0.00
30			18.94	66.94	11.56	20.15	6.62	5.19	4.84	2.42	2.92	0.71	2.05	0.30	1.32	0.10	0.77	0.03	0.34	0.00
35					13.49	26.81	7.72	6.90	5.65	3.23	3.41	0.94	2.39	0.40	1.54	0.14	0.89	0.04	0.39	0.00
40					15.41	34.33	8.82	8.84	6.46	4.13	3.89	1.21	2.73	0.51	1.76	0.18	1.02	0.05	0.45	0.01
45					17.34	42.70	9.93	10.99	7.26	5.14	4.38	1.50	3.07	0.63	1.98	0.22	1.15	0.06	0.50	0.01
50					19.27	51.90	11.03	13.36	8.07	6.25	4.87	1.83	3.41	0.77	2.20	0.27	1.28	0.07	0.56	0.01
55							12.13	15.94	8.88	7.45	5.36	2.18	3.75	0.92	2.42	0.32	1.40	0.08	0.62	0.01
60							13.24	18.72	9.68	8.75	5.84	2.56	4.09	1.08	2.65	0.37	1.53	0.10	0.67	0.01
65							14.34	21.72	10.49	10.15	6.33	2.97	4.44	1.25	2.87	0.43	1.66	0.11	0.73	0.02
70							15.44	24.91	11.30	11.65	6.82	3.41	4.78	1.43	3.09	0.50	1.79	0.13	0.79	0.02
75							16.54	28.31	12.10	13.23	7.30	3.87	5.12	1.63	3.31	0.56	1.91	0.15	0.84	0.02
80							17.65	31.90	12.91	14.91	7.79	4.36	5.46	1.84	3.53	0.63	2.04	0.17	0.90	0.02
85							18.75	35.69	13.72	16.69	8.28	4.88	5.80	2.06	3.75	0.71	2.17	0.19	0.95	0.03
90							19.85	39.67	14.52	18.55	8.76	5.43	6.14	2.29	3.97	0.79	2.30	0.21	1.01	0.03
95									15.33	20.50	9.25	6.00	6.48	2.53	4.19	0.87	2.42	0.23	1.07	0.03
100									16.14	22.55	9.74	6.59	6.82	2.78	4.41	0.96	2.55	0.25	1.12	0.03
110									17.75	26.90	10.71	7.87	7.51	3.31	4.85	1.14	2.81	0.30	1.23	0.04
120									19.37	31.60	11.68	9.24	8.19	3.89	5.29	1.34	3.06	0.36	1.35	0.05
130											12.66	10.72	8.87	4.52	5.73	1.56	3.32	0.41	1.46	0.06
140											13.63	12.30	9.55	5.18	6.17	1.79	3.57	0.47	1.57	0.06
150											14.61	13.97	10.24	5.89	6.61	2.03	3.83	0.54	1.68	0.07
160											15.58	15.75	10.92	6.63	7.05	2.29	4.08	0.61	1.79	0.08
170											16.55	17.62	11.60	7.42	7.50	2.56	4.34	0.68	1.91	0.09
180											17.53	19.58	12.28	8.25	7.94	2.85	4.59	0.75	2.02	0.10
190											18.50	21.65	12.97	9.12	8.38	3.15	4.85	0.83	2.13	0.11
200											19.47	23.80	13.65	10.03	8.82	3.46	5.11	0.92	2.24	0.12
225													15.36	12.47	9.92	4.31	5.74	1.14	2.52	0.15
250													17.06	15.16	11.02	5.24	6.38	1.39	2.80	0.19
275													18.77	18.09	12.12	6.25	7.02	1.65	3.08	0.22
300															13.23	7.34	7.66	1.94	3.37	0.26
325															14.33	8.51	8.30	2.25	3.65	0.30
350															15.43	9.76	8.93	2.58	3.93	0.35
375															16.53	11.09	9.57	2.93	4.21	0.40
400															17.64	12.50	10.21	3.31	4.49	0.45
425															18.74	13.99	10.85	3.70	4.77	0.50
450															19.84	15.55	11.49	4.11	5.05	0.56
475																	12.12	4.55	5.33	0.62
500																	12.76	5.00	5.61	0.68
550																	14.04	5.97	6.17	0.81
600																	15.32	7.01	6.73	0.95

Note: Dark shaded area of chart indicates velocities over 5' per second. Use with caution

The velocity values were derived using the following equation $V = \frac{0.408 \times Q_{gpm}}{d^2}$

Table are based upon the following Hazen-Williams equation: $H_f = 0.2083 \times \left(\frac{100}{C}\right)^{1.852} \times \frac{Q^{1.852}}{d^{4.8655}}$ for change in psi per foot of elevation. Pressure loss for uphill elevation and pressure gain for downhill elevation changes.

Source: Rain Bird Corporation.



FRICION LOSS CHARACTERISTICS
POLYETHYLENE (PE)
SDR-PRESSURE RATED TUBE
(2306, 3206, 3306) SDR 7, 9, 11.5, 15 C = 140
PSI loss per 100 feet of tube (PSI/100 FT)

Sizes 1/2" thru 6"

Flow GPM 1 thru 600

SIZE	1/2"			3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"		6"		SIZE	
ID	0.622			0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID	
FLOW G.P.M.	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	VELOCITY F.P.S.	PS.I. LOSS	FLOW G.P.M.
1	1.05	0.49	0.60	0.12	0.37	0.04	0.21	0.01	0.15	0.00	0.09	0.00											1
2	2.10	1.76	1.20	0.45	0.74	0.14	0.42	0.04	0.31	0.02	0.19	0.01											2
3	3.16	3.73	1.80	0.95	1.11	0.29	0.64	0.08	0.47	0.04	0.28	0.01	0.20	0.00									3
4	4.21	6.35	2.40	1.62	1.48	0.50	0.85	0.13	0.62	0.06	0.38	0.02	0.26	0.01									4
5	5.27	9.60	3.00	2.44	1.85	0.76	1.07	0.20	0.78	0.09	0.47	0.03	0.33	0.01	0.21	0.00							5
6	6.32	13.46	3.60	3.43	2.22	1.06	1.28	0.28	0.94	0.13	0.57	0.04	0.40	0.02	0.26	0.01							6
7	7.38	17.91	4.20	4.56	2.59	1.41	1.49	0.37	1.10	0.18	0.66	0.05	0.46	0.02	0.30	0.01							7
8	8.43	22.93	4.80	5.84	2.96	1.80	1.71	0.47	1.25	0.22	0.76	0.07	0.53	0.03	0.34	0.01							8
9	9.49	28.52	5.40	7.26	3.33	2.24	1.92	0.59	1.41	0.28	0.85	0.08	0.60	0.03	0.39	0.01							9
10	10.54	34.67	6.00	8.82	3.70	2.73	2.14	0.72	1.57	0.34	0.95	0.10	0.66	0.04	0.43	0.01							10
11	11.60	41.36	6.00	10.53	4.07	3.25	2.35	0.86	1.73	0.40	1.05	0.12	0.73	0.05	0.47	0.02	0.27	0.00					11
12	12.65	48.60	7.21	12.37	4.44	3.82	2.57	1.01	1.88	0.48	1.14	0.14	0.80	0.06	0.52	0.02	0.30	0.01					12
14	14.76	64.65	8.41	16.46	5.19	5.08	2.99	1.34	2.20	0.63	1.33	0.19	0.93	0.08	0.60	0.03	0.35	0.01					14
16	16.87	82.79	9.61	21.07	5.93	6.51	3.42	1.71	2.51	0.81	1.52	0.24	1.07	0.10	0.69	0.04	0.40	0.01					16
18	18.98	102.97	10.81	26.21	6.67	8.10	3.85	2.13	2.83	1.01	1.71	0.30	1.20	0.13	0.78	0.04	0.45	0.01					18
20			12.01	31.86	7.41	9.84	4.28	2.59	3.14	1.22	1.90	0.36	1.33	0.15	0.86	0.05	0.50	0.01					20
22			13.21	38.01	8.15	11.74	4.71	3.09	3.46	1.46	2.10	0.43	1.47	0.18	0.95	0.06	0.55	0.02					22
24			14.42	44.65	8.89	13.79	5.14	3.63	3.77	1.72	2.29	0.51	1.60	0.21	1.04	0.07	0.60	0.02					24
26			15.62	41.79	9.64	16.00	5.57	4.21	4.09	1.99	2.48	0.59	1.74	0.25	1.12	0.09	0.65	0.02					26
28			16.82	59.41	10.38	18.35	5.99	4.83	4.40	2.28	2.67	0.68	1.87	0.29	1.21	0.10	0.70	0.03					28
30			18.02	67.50	11.12	20.85	6.42	5.49	4.72	2.59	2.86	0.77	2.00	0.32	1.30	0.11	0.75	0.03	0.33	0.00			30
35					12.97	27.74	7.49	7.31	5.50	3.45	3.34	1.02	2.34	0.43	1.51	0.15	0.88	0.04	0.38	0.01			35
40					14.83	35.53	8.56	9.36	6.29	4.42	3.81	1.31	2.67	0.55	1.73	0.19	1.00	0.05	0.44	0.01			40
45					16.68	44.19	9.64	11.64	7.08	5.50	4.29	1.63	3.01	0.69	1.95	0.24	1.13	0.06	0.49	0.01			45
50					18.53	53.71	10.71	14.14	7.87	6.68	4.77	1.98	3.34	0.83	2.16	0.29	1.25	0.08	0.55	0.01			50
55							11.78	16.87	8.65	7.97	5.25	2.36	3.68	1.00	2.38	0.35	1.38	0.09	0.61	0.01			55
60							12.85	19.82	9.44	9.36	5.72	2.78	4.01	1.17	2.60	0.41	1.51	0.11	0.66	0.01			60
65							13.92	22.99	10.23	10.86	6.20	3.22	4.35	1.36	2.81	0.47	1.63	0.13	0.72	0.02			65
70							14.99	26.37	11.01	12.46	6.68	3.69	4.68	1.56	3.03	0.54	1.76	0.14	0.77	0.02			70
75							16.06	29.97	11.80	14.16	7.16	4.20	5.01	1.77	3.25	0.61	1.88	0.16	0.83	0.02			75
80							17.13	33.77	12.59	15.95	7.63	4.73	5.35	1.99	3.46	0.69	2.01	0.18	0.88	0.03			80
85							18.21	37.79	13.37	17.85	8.11	5.29	5.68	2.23	3.68	0.77	2.13	0.21	0.94	0.03			85
90							19.28	42.01	14.16	19.84	8.59	5.88	6.02	2.48	3.90	0.86	2.26	0.23	0.99	0.03			90
95									14.95	21.93	9.07	6.50	6.35	2.74	4.11	0.95	2.39	0.25	1.05	0.03			95
100									15.74	24.12	9.54	7.15	6.69	3.01	4.33	1.05	2.51	0.28	1.10	0.04			100
110									17.31	28.77	10.50	8.53	7.36	3.59	4.76	1.25	2.76	0.33	1.22	0.05			110
120									18.88	33.80	11.45	10.02	8.03	4.22	5.20	1.47	3.02	0.39	1.33	0.05			120
130											12.41	11.62	8.70	4.90	5.63	1.70	3.27	0.45	1.44	0.06			130
140											13.36	13.33	9.37	5.62	6.06	1.95	3.52	0.52	1.55	0.07			140
150											14.32	15.15	10.03	6.38	6.50	2.22	3.77	0.59	1.66	0.08			150
160											15.27	17.08	10.70	7.19	6.93	2.50	4.02	0.67	1.77	0.09			160
170											16.23	19.11	11.37	8.05	7.36	2.80	4.27	0.75	1.88	0.10			170
180											17.18	21.24	12.04	8.95	7.08	3.11	4.53	0.83	1.99	0.11			180
190											18.14	23.48	12.71	9.89	8.23	3.44	4.78	0.92	2.10	0.12			190
200											19.09	25.81	13.38	10.87	8.66	3.78	5.03	1.01	2.21	0.14			200
225													15.05	13.52	9.75	4.70	5.66	1.25	2.49	0.17			225
250													16.73	16.44	10.83	5.71	6.29	1.52	2.77	0.21			250
275													18.40	19.61	11.92	6.82	6.92	1.82	3.05	0.25			275
300															13.00	8.01	7.55	2.13	3.32	0.29			300
325															14.08	9.29	8.18	2.48	3.60	0.34			325
350															15.17	10.65	8.81	2.84	3.88	0.39			350
375															16.25	12.10	9.43	3.23	4.15	0.44			375
400															17.33	13.64	10.06	3.64	4.43	0.50			400
425															18.42	15.26	10.69	4.07	4.71	0.55			425
450															19.50	16.97	11.32	4.52	4.99	0.62			450
475																	11.95	5.00	5.26	0.68			475
500																	12.58	5.50	5.54	0.75			500
550																	13.84	6.56	6.10	0.89			550
600																	15.10	7.70	6.65	1.05			600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Friction Loss of Layflat Hoses in (psi/100 ft.)

GPM	1	1 1/4	1 1/2	1 3/4	2	2 1/2	2 3/4	3	3 1/2	4	4 1/2	5	6	8	10	12
1	0.04	0.01	0.01													
2	0.15	0.05	0.02	0.01												
5	0.82	0.28	0.11	0.05	0.03	0.01	0.01									
7	1.53	0.52	0.21	0.10	0.05	0.02	0.01	0.01								
10	2.96	1.00	0.41	0.19	0.10	0.03	0.02	0.01	0.01							
15	6.27	2.11	0.87	0.41	0.21	0.07	0.05	0.03	0.01	0.01						
20	10.67	3.60	1.48	0.70	0.36	0.12	0.08	0.05	0.02	0.01	0.01					
25	16.13	5.44	2.24	1.06	0.55	0.19	0.12	0.08	0.04	0.02	0.01	0.01				
30	22.59	7.62	3.14	1.48	0.77	0.26	0.16	0.11	0.05	0.03	0.01	0.01				
35	30.05	10.14	4.17	1.97	1.03	0.35	0.22	0.14	0.07	0.04	0.02	0.01	0.00			
40	38.47	12.98	5.34	2.52	1.32	0.44	0.28	0.18	0.09	0.04	0.03	0.02	0.01			
45	47.84	16.14	6.64	3.13	1.64	0.55	0.35	0.23	0.11	0.06	0.03	0.02	0.01			
50	58.13	19.61	8.07	3.81	1.99	0.67	0.42	0.28	0.13	0.07	0.04	0.02	0.01			
60	81.45	27.48	11.31	5.34	2.79	0.94	0.59	0.39	0.18	0.10	0.05	0.03	0.01			
70	108.33	36.54	15.04	7.10	3.70	1.25	0.79	0.51	0.24	0.13	0.07	0.04	0.02	0.00		
80		46.78	19.25	9.09	4.74	1.60	1.01	0.66	0.31	0.16	0.09	0.05	0.02	0.01		
90		58.17	23.94	11.30	5.90	1.99	1.25	0.82	0.39	0.20	0.11	0.07	0.03	0.01		
100		70.69	29.09	13.73	7.17	2.42	1.52	0.99	0.47	0.25	0.14	0.08	0.03	0.01		
125		106.82	43.96	20.75	10.83	3.65	2.30	1.50	0.71	0.37	0.21	0.12	0.05	0.01		
150			61.59	29.07	15.17	5.12	3.22	2.11	0.99	0.52	0.29	0.18	0.07	0.02	0.01	
175			81.92	38.67	20.18	6.81	4.28	2.80	1.32	0.69	0.39	0.23	0.10	0.02	0.01	
200			104.87	49.50	25.84	8.71	5.48	3.59	1.69	0.88	0.50	0.30	0.12	0.03	0.01	
225				61.56	32.13	10.84	6.81	4.46	2.10	1.10	0.62	0.37	0.15	0.04	0.01	
250				74.60	39.04	13.17	8.28	5.42	2.56	1.33	0.75	0.45	0.19	0.05	0.02	
275				89.23	46.57	15.71	9.88	6.46	3.05	1.59	0.90	0.54	0.22	0.05	0.02	
300				104.81	54.70	18.45	11.60	7.59	3.58	1.87	1.05	0.63	0.26	0.06	0.02	
350					72.75	24.54	15.43	10.10	4.77	2.49	1.40	0.84	0.35	0.09	0.03	
400					93.14	31.42	19.75	12.93	6.10	3.18	1.79	1.07	0.44	0.11	0.04	
450						39.07	24.56	16.08	7.59	3.96	2.23	1.34	0.55	0.14	0.05	
500						47.47	29.84	19.54	9.22	4.81	2.71	1.62	0.67	0.16	0.06	0.02
600						66.52	41.82	27.37	12.92	6.74	3.80	2.27	0.94	0.23	0.08	0.03
700						88.47	55.62	36.41	17.18	8.97	5.05	3.03	1.24	0.31	0.10	0.04
800						113.26	71.20	46.61	22.00	11.48	6.47	3.87	1.59	0.39	0.13	0.05
1000							107.59	70.43	33.24	17.35	9.78	5.85	2.41	0.59	0.20	0.08
1200								98.68	46.58	24.31	13.70	8.20	3.37	0.83	0.28	0.12
1400								131.24	61.95	32.33	18.22	10.91	4.49	1.11	0.37	0.15
1600									79.31	41.39	23.32	13.96	5.75	1.42	0.48	0.20
1800									98.62	51.47	29.00	17.36	7.14	1.76	0.59	0.24
2000										62.55	35.24	21.10	8.68	2.14	0.72	0.30
2500										94.51	53.26	31.88	13.12	3.23	1.09	0.45
3000											74.62	44.67	18.38	4.53	1.53	0.63
3500											99.24	59.41	24.45	6.02	2.03	0.84
4000												76.06	31.30	7.71	2.60	1.07
4500												94.58	38.92	9.59	3.23	1.33
5000													47.30	11.65	3.93	1.62
5500													56.42	13.90	4.69	1.93
6000													66.27	16.33	5.51	2.27
6500													76.84	18.93	6.39	2.63
7000													88.14	21.71	7.32	3.01
7500													100.14	24.67	8.32	3.42
8000														27.80	9.38	3.86

Note: These calculations are theoretical and based on straight lines. Liquid is water at 68°F.

Source: Oroflex

Recommended maximum velocity for constant work: 11.5 ft/s (3.5m/s).

Maximum recommended velocity for non constant work: 16.4 ft/s (5 m/s)

Values in red match with flows given 16.4 ft/s (5 m/s).

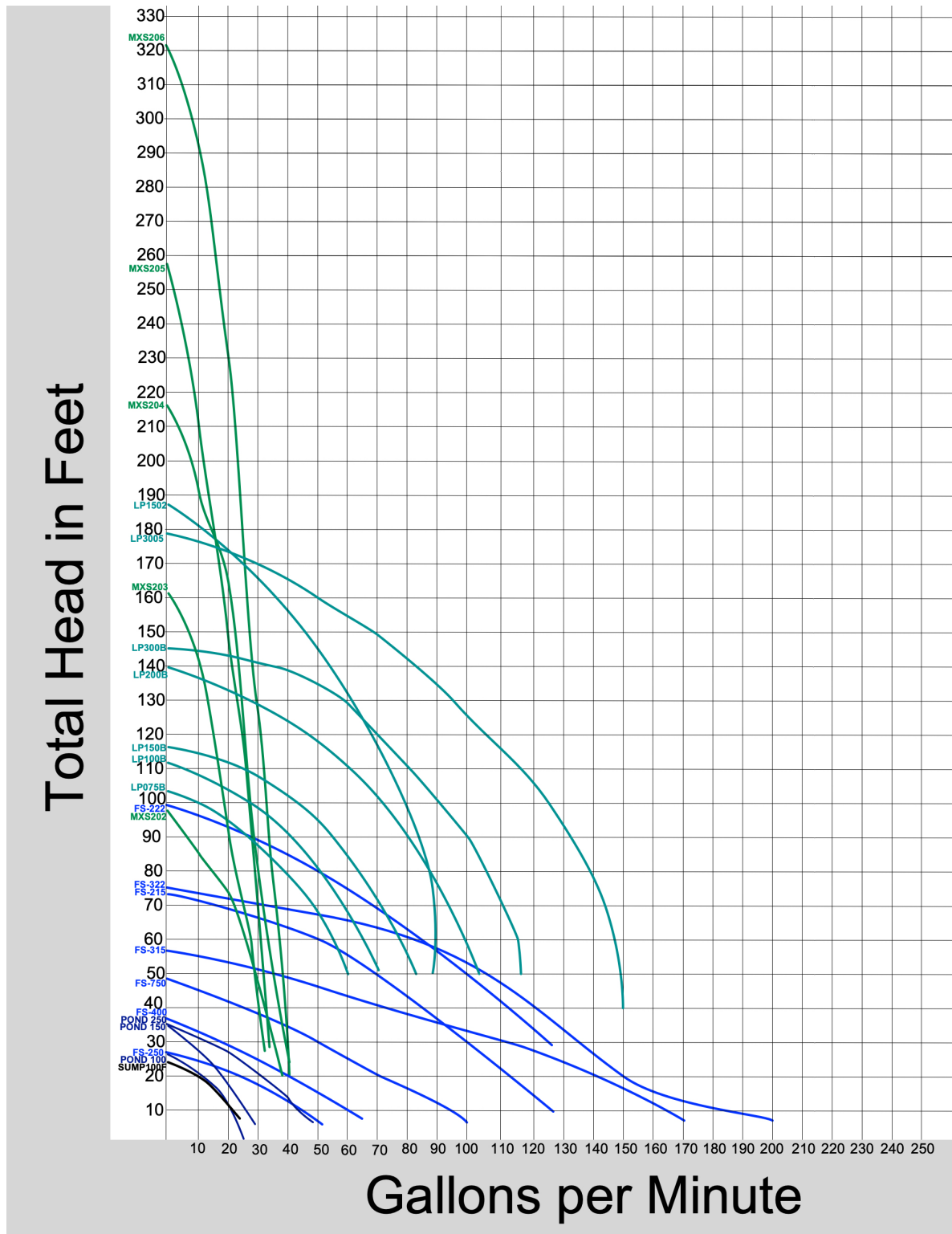
Pump Sizing Worksheet

If you have any questions, email us at support@dripdepot.com

Bigger is **NOT** always better when it comes to irrigation pumps.



Pump Chart



Pump Sizing Worksheet

If you have any questions, email us at support@dripdepot.com

[Shop our Pump Selection](#)

Bigger is **NOT** always better when it comes to irrigation pumps.



Submersible Pumps						
Pump	HP	GPM Range	Head Ft Range	Max Head Ft	Max GPM Capacity	MFR Part Number
Munro Pond-Residential Submersible Pump	1/7	0 - 21	8 - 25'	25'	21	POND100
	1/5	0 - 28	12 - 34'	34'	28	POND150
	1/3	0 - 47	4 - 34'	34'	47	POND250
Munro MXS 5" Multistage Submersible Pumps	3/4	0 - 37	10 - 95'	95'	37	MXS202
	1	0 - 30	20 - 160'	160'	30	MXS203
	1.2	0 - 38	20 - 210'	210'	38	MXS204
	1.5	0 - 30	20 - 255'	255'	30	MXS205
	2	0 - 40	10 - 325'	325'	40	MXS206
Munro FS Series Pumps	1/3	0 - 50	7 - 28'	28'	50	FS-250
	1/2	0 - 60	7 - 35'	35'	60	FS-400
	1	0 - 90	4 - 50'	50'	90	FS-750
	2	0 - 125	10 - 70'	70'	125	FS-215
	2	0 - 175	9 - 55'	55'	175	FS-315
Munro Submersible Sump 1/7 hp	1/7	0 - 21	8 - 25'	25'	21	Sump100 F

Pump Sizing Worksheet

If you have any questions, email us at support@dripdepot.com

[Shop our Pump Selection](#)

Bigger is **NOT** always better when it comes to irrigation pumps.



Centrifugal Pumps						
Pump	HP	GPM Range	Head Ft Range	Max Head Ft	Max GPM Capacity	MFR Part Number
Munro LP Series Centrifugal Booster Pump	3/4	0 - 60	50 - 105'	105'	60	LP075B
	1	0 - 70	50 - 110'	110'	70	LP100B
	1.5	0 - 75	50 - 115'	115'	75	LP150B
	2	0 - 103	50 - 140'	140'	103	LP200B
	3	0 - 115	50 - 145'	145'	115	LP300B
Munro Centrifugal LP 1502 Pump	2.5	0 - 80	60 - 185'	185'	80	LP1502B