PRESSURE CONVERSION

PSI	FEET	METER	BAR	kPa
1	2.3090	0.7038	0.0689	6.8948
80	185	56	5.5	552
85	196	60	5.9	586
90	208	63	6.2	621
95	219	67	6.6	655
100	231	70	6.9	689
105	242	74	7.2	724
110	254	77	7.6	758
115	266	81	7.9	793
120	277	84	8.3	827
125	289	88	8.6	862
130	300	91	9.0	896
135	312	95	9.3	931
140	323	99	9.7	965
150	346	106	10.3	1034
160	369	113	11.0	1103
170	393	120	11.7	1172
180	416	127	12.4	1241
190	439	134	13.1	1310
200	462	141	13.8	1379

FLOW RATE CONVERSION

GPM	ft^3/s	m^3/h	l/s	acre-ft/day
1	0.0022	0.2271	0.0002	0.004419
100	0.22	22.7	6.3	0.442
250	0.56	56.8	15.8	1.105
500	1.11	113.6	31.5	2.210
750	1.67	170.3	47.3	3.314
1000	2.23	227.1	63.1	4.419
1500	3.34	340.7	94.6	6.629
2000	4.46	454.2	126.2	8.838
2500	5.57	567.8	157.7	11.048
3000	6.68	681.4	189.3	13.258
3500	7.80	794.9	220.8	15.467
4000	8.91	908.5	252.4	17.677
4500	10.03	1022.1	283.9	19.886
5000	11.14	1135.6	315.5	22.096
6000	13.37	1362.7	378.5	26.515
7000	15.60	1589.9	441.6	30.934
8000	17.82	1817.0	504.7	35.353
9000	20.05	2044.1	567.8	39.773
10000	22.28	2271.2	630.9	44.192

HORSEPOWER TO KILOWATTS

HORSEPOWER	KILOWATT	HORSEPOWER	KILOWATT
1	0.746	25	18.7
3	2.2	30	22.4
5	3.7	40	29.8
10	7.5	50	37.3
15	11.2	60	44.8
20	14.9	75	56.0

LAKE INTAKE BOX SCREEN SIZING

FLOW RATE IN GPM	BOX SCREEN SIZE
0 - 500	LIBS - 18"
501 - 1000	LIBS - 24"
1001 - 1800	LIBS - 30"
1801 - 2800	LIBS - 36"
2801 - 4000	LIBS - 42"
4001 - 5000	LIBS - 48"
5001 - 7000	LIBS - 54"
7001 - 8500	LIBS - 60"
8501 - 10000	LIBS - 66"

Based on screen velocities of less than 0.5 feet per second

WET WELL INTAKE PIPE SIZING

FLOW RATE IN GPM	PIPE DIAMETER
0 - 500	14"
501 - 1000	18"
1001 - 1500	22"
1501 - 2000	24"
2001 - 2500	26"
2501 - 3000	30"
3001 - 3500	32"
3501 - 4000	34"
4001 - 5000	36"
5001 - 6000	42"
6001 - 7000	48"
7001 - 8000	48"
8001 - 9000	54"
9001 - 10000	54"

The pipe diameters listed in this chart assume a total equivalent pipe length of less than or equal to 200', smooth plastic pipe material (i.e. PVC or HDPE), and water velocities of less than or equal to 1.5 feet per second.

WET WELL OPEN AREA SIZING

SIZE	SHAPE	NUMBER OF PUMPS
36" DIA	ROUND	1 - Vertical Turbine
48" DIA	ROUND	1 or 2 - Vertical Turbines
60" DIA	ROUND	1 or 2 - Vertical Turbines
72" DIA	ROUND	1 to 3 - Vertical Turbines
84" DIA	ROUND	1 to 5 - Vertical Turbines
96" DIA	ROUND	1 to 6 - Vertical Turbines
6' X 8'	RECTANGULAR	1 to 7 - Vertical Turbines

FULL LOAD AMPERAGE (FLA)

MOTOR HP	SINGLE PHASE A-C		THREE PHASE A-C INDUCTION TYPE SQUIRREL CAGE & WOUND ROTOR		
	115 VOLTS	230 VOLTS**	230 VOLTS**	460 VOLTS	575 VOLTS
1/2	9.8	4.9	2.0	1.0	.8
3/4	13.8	6.9	2.8	1.4	1.1
1	16	8	3.6	1.8	1.4
1 1/2	20	10	5.2	2.6	2.1
2	24	12	6.8	3.4	2.7
3	34	17	9.6	4.8	3.9
5	56	28	15.2	7.6	6.1
7 1/2	80	40	22	11	9
10	100	50	28	14	11
15			42	21	17
20			54	27	22
25			68	34	27
3			80	40	32
40			104	52	41
50			130	65	52
60			154	77	62
75			192	96	77
100			240	120	96
125			296	148	118
150			350	175	140
200			456	228	182
250			558	279	223

***For 208V applications, increase the FLA by 10%*

To calculate the FLA of a pump motor operating on a VFD, multiple the nominal FLA by 1.24

To estimate FLA, multiple the largest load by 1.25 and then add this to remaining component FLAs.

Example: a 460V 2 x 50HP pump station with a 5HP PM pump would have an FLA of 173.4 Amps.

173.4 Amps = 1.24x1.25x65A + 65A + 7.6A

PIPELINE WATER VELOCITY IN FEET PER SECOND

Flow Rate in Gallons per Minute (GPM)	Pipe Diameter in Inches																				
	2	3	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	42	48
10	1.0	0.5	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	2.6	1.1	0.6	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	5.1	2.3	1.3	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	7.7	3.4	1.9	0.9	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	10.2	4.5	2.6	1.1	0.6	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
150	15.3	6.8	3.8	1.7	1.0	0.6	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
200	20.4	9.1	5.1	2.3	1.3	0.8	0.6	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
250	25.5	11.3	6.4	2.8	1.6	1.0	0.7	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0
300	30.6	13.6	7.7	3.4	1.9	1.2	0.9	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
400	40.9	18.2	10.2	4.5	2.6	1.6	1.1	0.8	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
500	51.1	22.7	12.8	5.7	3.2	2.0	1.4	1.0	0.8	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1
600	61.3	27.2	15.3	6.8	3.8	2.5	1.7	1.3	1.0	0.8	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1
700	71.5	31.8	17.9	7.9	4.5	2.9	2.0	1.5	1.1	0.9	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.1
800	81.7	36.3	20.4	9.1	5.1	3.3	2.3	1.7	1.3	1.0	0.8	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.1
900	91.9	40.9	23.0	10.2	5.7	3.7	2.6	1.9	1.4	1.1	0.9	0.8	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.2
1000	102.1	45.4	25.5	11.3	6.4	4.1	2.8	2.1	1.6	1.3	1.0	0.8	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.2	0.2
1100	112.3	49.9	28.1	12.5	7.0	4.5	3.1	2.3	1.8	1.4	1.1	0.9	0.8	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.2
1200	122.6	54.5	30.6	13.6	7.7	4.9	3.4	2.5	1.9	1.5	1.2	1.0	0.9	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.2
1300	132.8	59.0	33.2	14.8	8.3	5.3	3.7	2.7	2.1	1.6	1.3	1.1	0.9	0.8	0.7	0.6	0.5	0.5	0.4	0.3	0.2
1400	143.0	63.5	35.7	15.9	8.9	5.7	4.0	2.9	2.2	1.8	1.4	1.2	1.0	0.8	0.7	0.6	0.6	0.5	0.4	0.3	0.2
1500	153.2	68.1	38.3	17.0	9.6	6.1	4.3	3.1	2.4	1.9	1.5	1.3	1.1	0.9	0.8	0.7	0.6	0.5	0.5	0.3	0.3
1600	163.4	72.6	40.9	18.2	10.2	6.5	4.5	3.3	2.6	2.0	1.6	1.4	1.1	1.0	0.8	0.7	0.6	0.6	0.5	0.4	0.3
1700	173.6	77.2	43.4	19.3	10.9	6.9	4.8	3.5	2.7	2.1	1.7	1.4	1.2	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3
1800	183.8	81.7	46.0	20.4	11.5	7.4	5.1	3.8	2.9	2.3	1.8	1.5	1.3	1.1	0.9	0.8	0.7	0.6	0.6	0.4	0.3
1900	194.0	86.2	48.5	21.6	12.1	7.8	5.4	4.0	3.0	2.4	1.9	1.6	1.3	1.1	1.0	0.9	0.8	0.7	0.6	0.4	0.3
2000	204.3	90.8	51.1	22.7	12.8	8.2	5.7	4.2	3.2	2.5	2.0	1.7	1.4	1.2	1.0	0.9	0.8	0.7	0.6	0.5	0.4
2100	214.5	95.3	53.6	23.8	13.4	8.6	6.0	4.4	3.4	2.6	2.1	1.8	1.5	1.3	1.1	1.0	0.8	0.7	0.7	0.5	0.4
2200	224.7	99.9	56.2	25.0	14.0	9.0	6.2	4.6	3.5	2.8	2.2	1.9	1.6	1.3	1.1	1.0	0.9	0.8	0.7	0.5	0.4
2300	234.9	104.4	58.7	26.1	14.7	9.4	6.5	4.8	3.7	2.9	2.3	1.9	1.6	1.4	1.2	1.0	0.9	0.8	0.7	0.5	0.4
2400	245.1	108.9	61.3	27.2	15.3	9.8	6.8	5.0	3.8	3.0	2.5	2.0	1.7	1.5	1.3	1.1	1.0	0.8	0.8	0.6	0.4
2500	255.3	113.5	63.8	28.4	16.0	10.2	7.1	5.2	4.0	3.2	2.6	2.1	1.8	1.5	1.3	1.1	1.0	0.9	0.8	0.6	0.4
2600	265.5	118.0	66.4	29.5	16.6	10.6	7.4	5.4	4.1	3.3	2.7	2.2	1.8	1.6	1.4	1.2	1.0	0.9	0.8	0.6	0.5
2700	275.7	122.6	68.9	30.6	17.2	11.0	7.7	5.6	4.3	3.4	2.8	2.3	1.9	1.6	1.4	1.2	1.1	1.0	0.9	0.6	0.5
2800	286.0	127.1	71.5	31.8	17.9	11.4	7.9	5.8	4.5	3.5	2.9	2.4	2.0	1.7	1.5	1.3	1.1	1.0	0.9	0.6	0.5
2900	296.2	131.6	74.0	32.9	18.5	11.8	8.2	6.0	4.6	3.7	3.0	2.4	2.1	1.8	1.5	1.3	1.2	1.0	0.9	0.7	0.5
3000	306.4	136.2	76.6	34.0	19.1	12.3	8.5	6.3	4.8	3.8	3.1	2.5	2.1	1.8	1.6	1.4	1.2	1.1	0.9	0.7	0.5
3250	331.9	147.5	83.0	36.9	20.7	13.3	9.2	6.8	5.2	4.1	3.3	2.7	2.3	2.0	1.7	1.5	1.3	1.1	1.0	0.8	0.6
3500	357.4	158.9	89.4	39.7	22.3	14.3	9.9	7.3	5.6	4.4	3.6	3.0	2.5	2.1	1.8	1.6	1.4	1.2	1.1	0.8	0.6
3750	383.0	170.2	95.7	42.6	23.9	15.3	10.6	7.8	6.0	4.7	3.8	3.2	2.7	2.3	2.0	1.7	1.5	1.3	1.2	0.9	0.7
4000	408.5	181.6	102.1	45.4	25.5	16.3	11.3	8.3	6.4	5.0	4.1	3.4	2.8	2.4	2.1	1.8	1.6	1.4	1.3	0.9	0.7
4250	434.0	192.9	108.5	48.2	27.1	17.4	12.1	8.9	6.8	5.4	4.3	3.6	3.0	2.6	2.2	1.9	1.7	1.5	1.3	1.0	0.8
4500	459.6	204.3	114.9	51.1	28.7	18.4	12.8	9.4	7.2	5.7	4.6	3.8	3.2	2.7	2.3	2.0	1.8	1.6	1.4	1.0	0.8
4750	485.1	215.6	121.3	53.9	30.3	19.4	13.5	9.9	7.6	6.0	4.9	4.0	3.4	2.9	2.5	2.2	1.9	1.7	1.5	1.1	0.8
5000	510.6	226.9	127.7	56.7	31.9	20.4	14.2	10.4	8.0	6.3	5.1	4.2	3.5	3.0	2.6	2.3	2.0	1.8	1.6	1.2	0.9
5500	561.7	249.6	140.4	62.4	35.1	22.5	15.6	11.5	8.8	6.9	5.6	4.6	3.9	3.3	2.9	2.5	2.2	1.9	1.7	1.3	1.0
6000	612.8	272.3	153.2	68.1	38.3	24.5	17.0	12.5	9.6	7.6	6.1	5.1	4.3	3.6	3.1	2.7	2.4	2.1	1.9	1.4	1.1
6500	663.8	295.0	166.0	73.8	41.5	26.6	18.4	13.5	10.4	8.2	6.6	5.5	4.6	3.9	3.4	3.0	2.6	2.3	2.0	1.5	1.2
7000	714.9	317.7	178.7	79.4	44.7	28.6	19.9	14.6	11.2	8.8	7.1	5.9	5.0	4.2	3.6	3.2	2.8	2.5	2.2	1.6	1.2
7500	765.9	340.4	191.5	85.1	47.9	30.6	21.3	15.6	12.0	9.5	7.7	6.3	5.3	4.5	3.9	3.4	3.0	2.7	2.4	1.7	1.3
8000	817.0	363.1	204.3	90.8	51.1	32.7	22.7	16.7	12.8	10.1	8.2	6.8	5.7	4.8	4.2	3.6	3.2	2.8	2.5	1.9	1.4
9000	919.1	408.5	229.8	102.1	57.4	36.8	25.5	18.8	14.4	11.3	9.2	7.6	6.4	5.4	4.7	4.1	3.6	3.2	2.8	2.1	1.6
10000	1021.3	453.9	255.3	113.5	63.8	40.9	28.4	20.8	16.0	12.6	10.2	8.4	7.1	6.0	5.2	4.5	4.0	3.5	3.2	2.3	1.8

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