

## Dimensional Data

### Theoretical Weight Plus Hydraulic Downpull Values For Cast Iron Slide Gates (6" x 6" & larger)

Gate Size (In.)	Effective Head of Water in Feet								
	5	10	15	20	25	30	40	50	60
	<i>(W + w + dp)</i> Factor for Given Head Above (In Pounds)								
6 x 6	—	—	—	—	—	—	98.8	130.8	170.1
8 x 8	—	—	—	—	—	—	128.2	171.0	223.2
10 x 10	68.2	80.4	101.1	130.1	167.5	213.4	330.2	480.6	664.7
12 x 12	98.3	12.9	137.5	172.3	217.1	272.0	412.1	592.4	813.1
14 x 14	138.2	155.1	183.8	224.3	276.5	340.5	503.6	713.8	971.1
15 x 15	157.0	175.1	205.8	249.1	305.0	373.5	548.2	773.3	1048.8
16 x 16	206.7	225.9	258.6	304.7	364.3	437.3	623.6	949.1	1280.7
18 x 18	210.0	234.3	275.7	334.1	409.6	502.2	738.5	1043.1	1415.9
20 x 20	210.1	240.0	291.1	363.3	456.6	571.0	863.2	1239.9	1701.2
21 x 21	231.2	262.5	316.0	391.7	489.6	609.7	916.3	1311.7	1795.8
24 x 24	307.3	341.9	401.2	485.2	593.8	727.2	1068.1	1507.7	2046.2
30 x 30	499.4	549.6	636.5	759.9	919.8	1116.4	1619.1	2268.1	3464.3
36 x 36	667.7	682.2	707.4	1104.1	1362.8	1681.0	2495.8	3548.5	4839.1
39 x 39	883.2	969.4	1120.0	1335.0	1614.5	1958.4	2839.5	3978.3	5374.9
42 x 42	1074.9	1153.3	1290.8	1487.5	1743.3	2058.3	3596.6	5062.2	6860.0
48 x 48	1482.5	1605.8	1824.1	2137.3	2545.3	3048.3	4338.9	6009.2	8059.0
54 x 54	2183.4	2356.8	2666.2	3111.7	3693.1	4410.6	6253.6	8640.6	11571.7
60 x 60	2844.7	3037.7	3385.0	3886.7	4542.8	5353.3	7437.4	10138.9	13458.0
63 x 63	4509.1	4637.9	4870.8	5207.7	5648.8	6193.9	7596.4	9415.2	11650.4
66 x 66	4105.0	4334.9	4752.5	5357.8	6150.8	7131.4	9655.8	12931.0	16956.9
72 x 72	4297.1	4552.2	5019.8	5699.9	6592.6	7697.9	10561.1	14244.1	19860.0
78 x 78	4819.7	5110.1	5647.7	6432.4	7464.3	8743.4	12043.0	16331.3	21608.2
84 x 84	6442.3	6779.8	7410.7	8335.2	9553.1	11064.5	14967.7	20044.8	26295.9
90 x 90	7895.5	8304.1	9075.9	10210.9	11709.0	13570.4	18382.6	24647.6	32365.3
96 x 96	12291.9	12689.4	13448.4	14568.7	16050.5	17893.6	22664.1	28880.2	36541.8
108 x 108	16037.9	16455.6	17271.1	18484.3	20095.4	22104.3	27315.5	34117.9	42511.5
120 x 120	20711.9	21153.9	22037.9	23363.9	25131.9	27431.9	33087.9	40601.9	49883.9
144 x 144	35084.9	35453.5	36231.5	37419.1	39016.1	41022.7	46264.3	53143.9	61661.5

To find lifting force (F):

$$F = 62.4 APf + (W + w + dp) \text{ [factor from table above]}$$

Example:

30 x 30 Gate, 20 Ft Head

$$F = 62.4 (2.5) (2.5) (20.0) (0.35) + 759.9 = 3489.9 \text{ lbs.}$$

## Dimensional Data *continued*

### Theoretical Weight Plus Hydraulic Downpull Values For Cast Iron Slide Gates (18" X 24" & larger)

Gate Size (In.)	Effective Head of Water in Feet								
	5	10	15	20	25	30	40	50	60
	<i>(W + w + dp)</i> Factor for Given Head Above (In Pounds)								
18 x 24	277.1	283.3	328.9	393.5	477.2	579.9	842.2	1180.7	1595.1
18 x 36	317.5	343.2	387.9	451.6	534.3	636.0	896.4	1233.0	1645.5
24 x 30	413.0	453.2	522.7	621.4	749.4	906.6	1308.8	1828.0	2464.2
24 x 36	505.9	545.4	614.1	712.1	839.3	995.8	1396.6	1914.3	2549.0
39 x 96	3407.9	3486.2	3635.6	3856.3	4148.1	4511.1	5450.6	6674.8	8183.7
42 x 30	1103.7	1252.3	1307.1	1506.8	1765.6	2083.5	2896.8	3946.7	5233.2
42 x 48	1146.1	1223.0	1359.1	1554.3	1808.6	2122.1	2926.5	3967.6	5245.2
42 x 60	1704.9	1808.7	1995.5	2265.4	2618.3	3054.2	4175.2	5628.4	7413.7
48 x 36	1189.2	1352.4	1636.5	2041.5	2567.4	3214.3	4870.6	7010.5	9634.0
48 x 60	2033.9	2133.1	2311.5	2569.2	2906.2	3322.6	4393.1	5780.9	7485.8
48 x 96	3938.7	4071.6	4325.5	4700.3	5196.0	5812.6	7408.5	9488.0	12051.0
54 x 48	2397.2	2604.4	2971.1	3497.2	4182.6	5027.5	7195.5	10001.2	13044.5
54 x 60	2400.1	2570.1	2876.1	3318.2	3896.2	4610.3	6446.5	8826.7	11751.0
60 x 24	546.7	649.1	824.6	1073.2	1394.9	1789.8	2798.9	4100.6	5694.7
60 x 36	694.3	828.1	1061.0	1393.1	1824.3	2354.6	3712.6	5467.1	7618.1
60 x 72	4064.4	4249.6	4589.2	5083.2	5731.6	6534.4	8603.0	11289.1	14592.7
60 x 84	4009.4	4205.6	4572.4	5109.9	5818.0	6696.7	8966.0	11917.8	15552.1
60 x 96	5090.5	5285.3	5657.3	6206.4	6932.6	7835.9	10174.0	13220.5	16975.6
66 x 42	2417.2	2694.3	3180.6	3876.0	4780.5	5894.2	8748.9	12440.2	16968.0
74 x 48	3025.3	3261.0	3678.1	4276.6	5056.4	6017.6	8483.9	11675.7	15592.8
72 x 60	3556.4	3788.0	4204.8	4806.9	5594.2	6566.7	9067.6	12309.5	16292.4
72 x 96	5699.3	5924.6	6354.5	6989.3	7828.7	8873.0	11575.7	15097.4	19438.1
84 x 96	5943.3	6105.0	6847.5	7943.1	8846.3	10436.0	12706.9	16904.3	26437.7
96 x 48	4952.5	5388.5	6159.9	7266.8	8709.0	10486.6	15048.0	20951.1	28195.7
96 x 60	3647.0	4001.2	4638.9	5559.3	6764.4	8252.2	12078.1	17037.6	23130.7
96 x 72	7862.9	8228.0	8897.2	9870.6	11148.3	12730.1	16806.4	22099.5	28609.4
108 x 120	19494.2	19871.5	20626.2	21758.2	23267.5	25154.1	30059.3	36473.8	44397.7
120 x 96	16452.5	16938.7	17866.9	19237.1	21049.3	23303.5	29137.9	36740.3	46110.7

To find lifting force (*F*):  
 $F = 62.4 APf + (W + w + dp)$  [factor from table above]

Example:  
 54 x 60 Gate, 50 Ft Head  
 $F = 62.4 (4.5) (5) (50) (0.35) + 8826.7 = 33,397$  lbs.