

**Table 3.1
Orifice Discharge Capacity**

Orifice Diameter (m) (in)	Orifice Area (m ²) (ft ²)	Discharge Capacity at Specific Head																									
		Head (m)																									
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5
(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	(m ³ /s) (gal/min.)	
0.01	7.85E-05	4.74E-05	6.70E-05	9.48E-05	1.16E-04	1.34E-04	1.34E-04	1.64E-04	1.77E-04	1.90E-04	2.01E-04	2.12E-04	2.22E-04	2.32E-04	2.42E-04	2.51E-04	2.60E-04	2.68E-04	2.68E-04	2.68E-04	2.68E-04	2.68E-04	2.68E-04	2.68E-04	2.68E-04	2.68E-04	2.68E-04
0.39	0.00	1.10	1.55	2.20	2.69	3.11	3.11	3.80	4.11	4.39	4.66	4.91	5.15	5.38	5.60	5.81	6.02	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21
0.02	3.14E-04	1.90E-04	2.68E-04	3.79E-04	4.64E-04	5.36E-04	5.36E-04	6.57E-04	7.09E-04	7.58E-04	8.04E-04	8.48E-04	8.89E-04	9.29E-04	9.67E-04	1.00E-03	1.04E-03	1.07E-03	1.07E-03	1.07E-03	1.07E-03	1.07E-03	1.07E-03	1.07E-03	1.07E-03	1.07E-03	1.07E-03
0.79	0.00	4.39	6.21	8.79	10.76	12.43	12.43	15.22	16.44	17.57	18.64	19.65	20.60	21.52	22.40	23.25	24.06	24.85	24.85	24.85	24.85	24.85	24.85	24.85	24.85	24.85	24.85
0.03	7.07E-04	4.27E-04	6.03E-04	8.53E-04	1.05E-03	1.21E-03	1.21E-03	1.48E-03	1.60E-03	1.71E-03	1.81E-03	1.91E-03	2.00E-03	2.09E-03	2.18E-03	2.26E-03	2.34E-03	2.41E-03	2.41E-03	2.41E-03	2.41E-03	2.41E-03	2.41E-03	2.41E-03	2.41E-03	2.41E-03	2.41E-03
1.18	0.01	9.88	13.98	19.77	24.21	27.96	27.96	34.24	36.96	39.54	41.93	44.20	46.36	48.42	50.40	52.30	54.14	55.91	55.91	55.91	55.91	55.91	55.91	55.91	55.91	55.91	55.91
0.04	1.26E-03	7.58E-04	1.07E-03	1.52E-03	1.86E-03	2.15E-03	2.15E-03	2.63E-03	2.84E-03	3.03E-03	3.22E-03	3.39E-03	3.56E-03	3.72E-03	3.87E-03	4.01E-03	4.15E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03	4.29E-03
1.57	0.01	17.57	24.85	35.14	43.04	49.70	49.70	60.87	65.75	70.29	74.55	78.58	82.42	86.08	89.60	92.98	96.24	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40	99.40
0.05	1.96E-03	1.19E-03	1.68E-03	2.37E-03	2.90E-03	3.35E-03	3.35E-03	4.11E-03	4.43E-03	4.74E-03	5.03E-03	5.30E-03	5.56E-03	5.81E-03	6.04E-03	6.27E-03	6.49E-03	6.70E-03	6.70E-03	6.70E-03	6.70E-03	6.70E-03	6.70E-03	6.70E-03	6.70E-03	6.70E-03	6.70E-03
1.97	0.02	27.46	38.83	54.91	67.25	77.66	77.66	95.11	102.73	109.82	116.49	122.79	128.78	134.51	140.00	145.28	150.38	155.31	155.31	155.31	155.31	155.31	155.31	155.31	155.31	155.31	155.31
0.06	2.83E-03	1.71E-03	2.41E-03	3.41E-03	4.18E-03	4.83E-03	4.83E-03	5.91E-03	6.39E-03	6.83E-03	7.24E-03	7.63E-03	8.00E-03	8.36E-03	8.70E-03	9.03E-03	9.35E-03	9.65E-03	9.65E-03	9.65E-03	9.65E-03	9.65E-03	9.65E-03	9.65E-03	9.65E-03	9.65E-03	9.65E-03
2.36	0.03	39.54	55.91	79.07	96.84	111.83	111.83	136.96	147.93	158.15	167.74	176.81	185.44	193.69	201.60	209.21	216.55	223.65	223.65	223.65	223.65	223.65	223.65	223.65	223.65	223.65	223.65
0.07	3.85E-03	2.32E-03	3.28E-03	4.65E-03	5.69E-03	6.57E-03	6.57E-03	8.05E-03	8.69E-03	9.29E-03	9.85E-03	10.38E-03	10.88E-03	11.35E-03	11.80E-03	12.23E-03	12.64E-03	13.03E-03	13.40E-03	13.40E-03	13.40E-03	13.40E-03	13.40E-03	13.40E-03	13.40E-03	13.40E-03	13.40E-03
2.76	0.04	53.81	76.10	107.63	131.82	152.21	152.21	186.42	201.35	215.26	228.31	240.66	252.41	263.63	274.40	284.76	294.75	304.42	304.42	304.42	304.42	304.42	304.42	304.42	304.42	304.42	304.42
0.08	5.02E-03	3.03E-03	4.29E-03	6.07E-03	7.43E-03	8.58E-03	8.58E-03	10.41E-03	11.15E-03	11.85E-03	12.51E-03	13.14E-03	13.74E-03	14.31E-03	14.86E-03	15.39E-03	15.90E-03	16.39E-03	16.39E-03	16.39E-03	16.39E-03	16.39E-03	16.39E-03	16.39E-03	16.39E-03	16.39E-03	16.39E-03
3.15	0.05	70.29	99.40	140.57	172.17	198.80	198.80	243.48	262.99	281.15	298.20	314.33	329.68	344.34	358.40	371.93	384.96	397.61	397.61	397.61	397.61	397.61	397.61	397.61	397.61	397.61	397.61
0.09	6.36E-03	3.84E-03	5.43E-03	7.68E-03	9.41E-03	10.91E-03	10.91E-03	13.21E-03	14.15E-03	15.05E-03	15.91E-03	16.74E-03	17.54E-03	18.31E-03	19.06E-03	19.79E-03	20.50E-03	21.19E-03	21.19E-03	21.19E-03	21.19E-03	21.19E-03	21.19E-03	21.19E-03	21.19E-03	21.19E-03	21.19E-03
3.54	0.07	88.96	125.80	177.91	217.90	251.61	251.61	308.16	332.85	355.83	377.41	397.83	417.25	435.80	453.60	470.72	487.24	503.22	503.22	503.22	503.22	503.22	503.22	503.22	503.22	503.22	503.22
0.10	7.85E-03	4.74E-03	6.70E-03	9.48E-03	1.16E-02	1.34E-02	1.34E-02	1.64E-02	1.77E-02	1.90E-02	2.01E-02	2.12E-02	2.22E-02	2.32E-02	2.42E-02	2.51E-02	2.60E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02	2.68E-02
3.94	0.08	109.82	155.31	219.65	269.01	310.63	310.63	380.44	410.92	439.30	465.94	491.15	515.12	538.03	559.99	581.13	601.53	621.26	621.26	621.26	621.26	621.26	621.26	621.26	621.26	621.26	621.26
0.11	9.50E-03	5.74E-03	8.11E-03	1.13E-02	1.38E-02	1.58E-02	1.58E-02	1.94E-02	2.09E-02	2.23E-02	2.36E-02	2.48E-02	2.59E-02	2.70E-02	2.80E-02	2.90E-02	2.99E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02
4.33	0.10	132.89	187.93	265.77	325.51	375.86	375.86	460.33	497.22	531.55	563.79	594.29	623.30	651.01	677.59	703.17	727.85	751.72	751.72	751.72	751.72	751.72	751.72	751.72	751.72	751.72	751.72
0.12	0.01	6.83E-03	9.65E-03	1.35E-02	1.64E-02	1.94E-02	1.94E-02	2.38E-02	2.57E-02	2.74E-02	2.90E-02	3.05E-02	3.19E-02	3.32E-02	3.44E-02	3.56E-02	3.67E-02	3.77E-02	3.77E-02	3.77E-02	3.77E-02	3.77E-02	3.77E-02	3.77E-02	3.77E-02	3.77E-02	3.77E-02
4.72	0.12	158.15	223.65	316.29	387.38	447.31	447.31	547.84	591.73	632.59	670.96	707.25	741.77	774.76	806.39	836.83	866.20	894.61	894.61	894.61	894.61	894.61	894.61	894.61	894.61	894.61	894.61
0.13	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5.12	0.14	185.60	262.48	371.21	454.63	524.96	524.96	642.95	694.46	742.41	787.45	830.04	870.55	909.26	946.39	982.12	1016.59	1049.93	1049.93	1049.93	1049.93	1049.93	1049.93	1049.93	1049.93	1049.93	1049.93
0.14	0.02	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
5.51	0.17	215.26	304.42	430.51	527.27	608.83	608.83	745.67	805.41	861.02	913.25	962.65	1009.64	1054.53	1097.59	1139.02	1179.00	1217.67	1217.67	1217.67	1217.67	1217.67	1217.67	1217.67	1217.67	1217.67	1217.67
0.15	0.02	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
5.91	0.19	247.10	349.46	494.21	605.28	698.92	698.92	855.99	924.58	988.42	1048.37	1105.08	1159.02	1210.56	1259.99	1307.55	1353.44	1397.83	1397.83	1397.83	1397.83	1397.83	1397.83	1397.83	1397.83	1397.83	1397.83
0.16	0.02	0.01	0.02	0.02	0.03	0.03	0.03	0.04	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
6.30	0.22	281.15	397.61	562.30	688.67	795.21	795.21	973.93	1051.97	1124.60	1192.82	1257.34	1318.71	1377.35	1433.59	1487.70	1539.92	1590.42	1590.42	1590.42	1590.42	1590.42	1590.42	1590.42	1590.42	1590.42	1590.42
0.17	0.02	0.01	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
6.69	0.24	317.39	448.86	634.78	777.45	897.72	897.72	1099.48	1187.57	1269.57	1346.58	1419.42	1488.70	1554.89	1618.38	1679.48	1738.42	1795.44	1795.44	1795.44	1795.44	1795.44	1795.44	1795.44	1795.44	1795.44	1795.44
0.18	0.03	0.02	0.02	0.03	0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
7.09	0.27	355.83	503.22	711.66	871.60	1006.44	1006.44	1232.63	1331.39	1423.32	1509.66	1591.32	1668.99	1743.20	1814.38	1882.87	1949.96	2									