

The amount of water (gpm) flowed is determined by the following formula:

$$\text{GPM} = 29.83 C d^2 \sqrt{p}$$

C = nozzle or outlet coefficient      d = accurate diameter of the outlet in inches  
 p = pressure recorded on the pitot tube

**THEORETICAL DISCHARGE THROUGH CIRCULAR ORIFICES**  
**U.S. Gallons (231 cu. in.) per Minute**

Head Lb./Sq. In.	Velocity Discharge Ft. per Sec.	Diameter Orifice (Inches)							
		1 1/8	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	
1	12.20	37.8	46.7	67.2	91.4	119	151	187	
2	17.25	53.4	66.0	95.0	129	169	214	264	604
3	21.13	65.4	80.8	116	158	207	262	323	854
4	24.39	75.6	93.3	134	183	239	302	373	1045
5	27.26	84.5	104	150	204	267	338	417	1210
6	29.87	92.5	114	164	224	292	370	457	1350
7	32.26	99.9	123	178	242	316	400	494	1480
8	34.49	107	132	190	259	338	427	528	1600
9	36.58	113	140	201	274	358	453	560	1710
10	38.56	119	148	212	289	378	478	590	1815
11	40.45	125	155	223	303	396	501	619	1910
12	42.24	131	162	233	317	414	524	646	2010
13	43.97	136	168	242	330	431	545	673	2100
14	45.63	141	175	251	342	447	566	698	2180
15	47.22	146	181	260	354	463	586	722	2260
16	48.78	151	187	269	366	478	605	746	2340
17	50.28	156	192	277	377	493	623	769	2420
18	51.73	160	198	285	388	507	642	791	2500
19	53.15	165	203	293	399	521	659	813	2570
20	54.54	169	209	300	409	534	676	834	2640
22	57.19	177	219	315	429	560	709	875	2710
24	59.74	185	229	329	448	585	741	914	2840
26	62.18	193	238	343	466	609	771	951	2970
28	64.52	200	247	356	484	632	800	987	3090
30	66.79	207	256	368	501	654	828	1022	3210
32	68.98	214	264	380	517	676	856	1055	3320
34	71.10	220	272	392	533	697	882	1088	3430
36	73.16	226	280	403	548	717	908	1119	3540
38	75.17	233	288	414	563	736	932	1150	3640
40	77.11	239	295	425	578	755	956	1180	3740
42	79.03	245	303	435	592	774	980	1209	3840
44	80.88	251	310	445	606	792	1003	1237	3935
46	82.70	256	317	455	620	810	1025	1265	4030
48	84.48	262	324	465	633	828	1047	1293	4120
50	86.22	267	330	475	646	845	1069	1319	4205
52	87.93	272	337	485	659	861	1091	1345	4290
54	89.61	277	343	494	672	878	1111	1371	4375
56	91.20	283	350	503	684	894	1132	1396	4460
58	92.87	288	356	512	696	909	1152	1421	4540
60	94.45	293	362	520	708	925	1171	1445	4620

Head Lb./Sq. In.	Velocity Discharge Ft. per Sec.	Diameter Orifice (Inches)							
		2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/2	
1	12.20	226	269	315	366	420	478	604	
2	17.25	319	380	446	517	594	676	854	
3	21.13	391	465	546	633	727	827	1045	
4	24.39	452	537	631	731	840	955	1210	
5	27.26	505	601	705	817	938	1068	1350	
6	29.87	553	658	772	806	1028	1170	1480	
7	32.26	597	711	834	967	1111	1263	1600	
8	34.49	638	760	892	1034	1187	1351	1710	
9	36.58	677	806	946	1097	1259	1433	1815	
10	38.56	714	850	997	1156	1327	1510	1910	
11	40.45	749	891	1046	1213	1392	1584	2010	
12	42.24	782	931	1092	1267	1454	1655	2100	
13	43.97	814	969	1137	1318	1515	1722	2180	
14	45.63	845	1005	1180	1368	1572	1787	2260	
15	47.22	874	1040	1221	1416	1626	1849	2340	
16	48.78	903	1075	1261	1463	1679	1910	2420	
17	50.28	931	1108	1300	1508	1731	1969	2500	
18	51.73	958	1140	1338	1551	1781	2026	2570	
19	53.15	984	1171	1374	1594	1830	2082	2640	
20	54.54	1010	1201	1410	1635	1877	2136	2710	
22	57.19	1059	1260	1479	1715	1969	2240	2840	
24	59.74	1106	1316	1545	1791	2056	2340	2970	
26	62.18	1151	1370	1608	1864	2140	2435	3090	
28	64.52	1194	1422	1668	1935	2221	2527	3210	
30	66.79	1236	1472	1727	2003	2299	2616	3320	
32	68.98	1277	1520	1784	2069	2375	2702	3430	
34	71.10	1316	1566	1838	2132	2448	2785	3540	
36	73.16	1354	1612	1892	2194	2519	2866	3640	
38	75.17	1392	1656	1944	2254	2588	2944	3740	
40	77.11	1428	1699	1994	2313	2655	3021	3840	
42	79.03	1463	1741	2043	2370	2721	3095	3935	
44	80.88	1497	1782	2091	2426	2785	3168	4030	
46	82.70	1531	1822	2138	2480	2847	3239	4120	
48	84.48	1564	1861	2184	2533	2908	3309	4205	
50	86.22	1596	1900	2229	2586	2968	3377	4290	
52	87.93	1628	1937	2274	2637	3027	3444	4375	
54	89.61	1659	1974	2317	2687	3085	3510	4460	
56	91.20	1689	2010	2359	2736	3141	3574	4540	
58	92.87	1719	2046	2401	2785	3197	3637	4620	
60	94.45	1749	2081	2442	2832	3252	3700	4700	

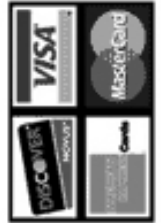
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