Theoretical Discharge through Circular Orifices
U.S. Gallons (231 cu. In.) Per Minute

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

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

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

C = nozzle or outlet coefficient d = accurate diameter of the outlet in inches

p = pressure recorded on the pitot tube

Note: These figures represent the theoretical flow without applying the applicable flow coefficient. As examples, for an Underwriters playpipe a .97 coefficient would be applied and for a smooth outlet hydrant a .90 multiplier/coefficient would be applied.

Theoretical Discharge through Circular Orifices
U.S. Gallons (231 cu. In.) Per Minute

Pitot PSI	Velocity Discharge Ft. per Sec.	Diameter Orifices (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	895	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

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

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

C = nozzle or outlet coefficient d = accurate diameter of the outlet in inches

p = pressure recorded on the pitot tube

Note: These figures represent the theoretical flow without applying the applicable flow coefficient. As examples, for an Underwriters playpipe a .97 coefficient would be applied and for a smooth outlet hydrant a .90 multiplier/coefficient would be applied.