OPENCHANNELFLOW

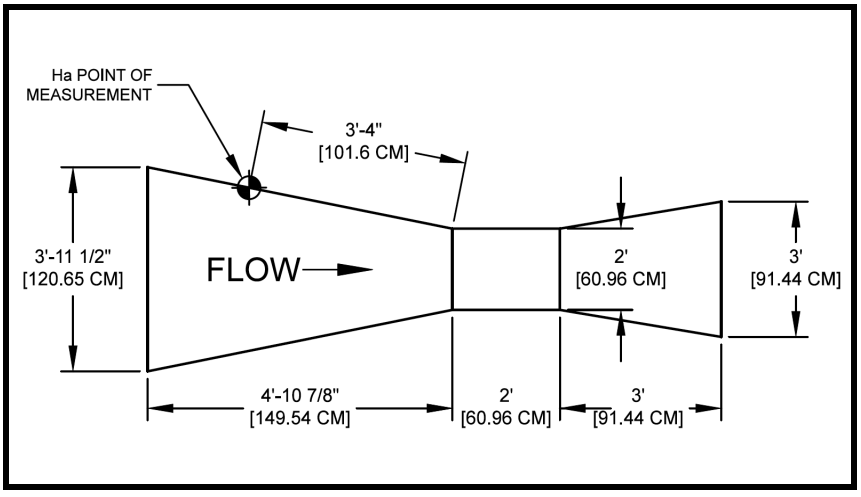
24-Inch Parshall Flume Discharge Table

70% Submergence Transition ±3-5% Accuracy

Formulas (H in feet): CFS = 8 $H_{ft.}^{1.55}$ GPM = 3590 $H_{ft.}^{1.55}$ MGD = 5.170 $H_{ft.}^{1.55}$

Formulas (H in meters): L/S = 1429 $H_{m}^{1.55}$ M3/HR = 5143 $H_{m}^{1.55}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.01	0.12	0.0030	Excessive error due to fluid-flow properties and boundary conditions				
0.02	0.24	0.0061					
0.03	0.36	0.0091					
0.04	0.48	0.0122					
0.05	0.60	0.0152					
0.06	0.72	0.0183					
0.07	0.84	0.0213					
0.08	0.96	0.0244					
0.09	1.08	0.0274					
0.10	1.20	0.0305					
0.11	1.32	0.0335					
0.12	1.44	0.0366					
0.13	1.56	0.0396					
0.14	1.68	0.0427					
0.15	1.80	0.0457	0.4227	189.7	0.2732	11.97	43.07
0.16	1.92	0.0488	0.4672	209.7	0.3019	13.23	47.60
0.17	2.04	0.0518	0.5132	230.3	0.3317	14.53	52.29
0.18	2.16	0.0549	0.5607	251.7	0.3624	15.88	57.14
0.19	2.28	0.0579	0.6098	273.7	0.3941	17.27	62.13
0.20	2.40	0.0610	0.6602	296.3	0.4267	18.70	67.28
0.21	2.52	0.0640	0.7121	319.6	0.4602	20.17	72.56
0.22	2.64	0.0671	0.7653	343.5	0.4946	21.67	77.99
0.23	2.76	0.0701	0.8199	368.0	0.5299	23.22	83.55
0.24	2.88	0.0732	0.8758	393.1	0.5660	24.80	89.25
0.25	3.00	0.0762	0.9330	418.7	0.6030	26.42	95.08
0.26	3.12	0.0792	0.9915	445.0	0.6408	28.08	101.0
0.27	3.24	0.0823	1.051	471.8	0.6794	29.77	107.1
0.28	3.36	0.0853	1.112	499.2	0.7188	31.50	113.3
0.29	3.48	0.0884	1.174	527.1	0.7590	33.26	119.7
0.30	3.60	0.0914	1.238	555.5	0.7999	35.05	126.1



Sources: Water Measurement Manual, 3rd Edition, United States Department of the Interior, Bureau of Reclamation

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Formulas (H in meters): L/S = 1429 $H_{m}^{1.55}$ M3/HR = 5143 $H_{m}^{1.55}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.31	3.72	0.0945	1.302	584.5	0.8417	36.88	132.7
0.32	3.84	0.0975	1.368	613.9	0.8841	38.74	139.4
0.33	3.96	0.1006	1.435	643.9	0.9273	40.63	146.2
0.34	4.08	0.1036	1.503	674.4	0.9712	42.56	153.1
0.35	4.20	0.1067	1.572	705.4	1.016	44.51	160.2
0.36	4.32	0.1097	1.642	736.9	1.061	46.50	167.3
0.37	4.44	0.1128	1.713	768.9	1.107	48.52	174.6
0.38	4.56	0.1158	1.785	801.3	1.154	50.56	181.9
0.39	4.68	0.1189	1.859	834.2	1.201	52.64	189.4
0.40	4.80	0.1219	1.933	867.6	1.249	54.75	197.0
0.41	4.92	0.1250	2.009	901.5	1.298	56.89	204.7
0.42	5.04	0.1280	2.085	935.8	1.348	59.05	212.5
0.43	5.16	0.1311	2.163	970.6	1.398	61.24	220.4
0.44	5.28	0.1341	2.241	1006	1.448	63.47	228.4
0.45	5.40	0.1372	2.320	1041	1.500	65.71	236.5
0.46	5.52	0.1402	2.401	1078	1.552	67.99	244.6
0.47	5.64	0.1433	2.482	1114	1.604	70.30	252.9
0.48	5.76	0.1463	2.565	1151	1.657	72.63	261.3
0.49	5.88	0.1494	2.648	1188	1.711	74.99	269.8
0.50	6.00	0.1524	2.732	1226	1.766	77.37	278.4
0.51	6.12	0.1554	2.817	1264	1.821	79.78	287.1
0.52	6.24	0.1585	2.903	1303	1.876	82.22	295.8
0.53	6.36	0.1615	2.990	1342	1.933	84.69	304.7
0.54	6.48	0.1646	3.078	1382	1.989	87.18	313.7
0.55	6.60	0.1676	3.167	1421	2.047	89.69	322.7
0.56	6.72	0.1707	3.257	1462	2.105	92.23	331.9
0.57	6.84	0.1737	3.347	1502	2.163	94.80	341.1
0.58	6.96	0.1768	3.439	1543	2.222	97.39	350.4
0.59	7.08	0.1798	3.531	1585	2.282	100.0	359.8
0.60	7.20	0.1829	3.624	1627	2.342	102.6	369.3
0.61	7.32	0.1859	3.718	1669	2.403	105.3	378.9
0.62	7.44	0.1890	3.813	1711	2.465	108.0	388.6
0.63	7.56	0.1920	3.909	1754	2.526	110.7	398.3
0.64	7.68	0.1951	4.006	1798	2.589	113.4	408.2
0.65	7.80	0.1981	4.103	1841	2.652	116.2	418.1
0.66	7.92	0.2012	4.201	1886	2.715	119.0	428.1
0.67	8.04	0.2042	4.300	1930	2.779	121.8	438.2
0.68	8.16	0.2073	4.400	1975	2.844	124.6	448.4
0.69	8.28	0.2103	4.501	2020	2.909	127.5	458.6
0.70	8.40	0.2134	4.602	2066	2.975	130.3	469.0
0.71	8.52	0.2164	4.705	2112	3.041	133.2	479.4
0.72	8.64	0.2195	4.808	2158	3.107	136.2	489.9
0.73	8.76	0.2225	4.912	2204	3.174	139.1	500.5
0.74	8.88	0.2256	5.016	2251	3.242	142.1	511.2
0.75	9.00	0.2286	5.122	2299	3.310	145.1	521.9
0.76	9.12	0.2316	5.228	2346	3.379	148.1	532.8
0.77	9.24	0.2347	5.335	2394	3.448	151.1	543.7
0.78	9.36	0.2377	5.443	2443	3.518	154.1	554.6
0.79	9.48	0.2408	5.552	2492	3.588	157.2	565.7
0.80	9.60	0.2438	5.661	2541	3.659	160.3	576.8

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70% Submergence Transition ±3-5% Accuracy

Formulas (H in feet): CFS = 8 $H_{ft.}^{1.55}$ GPM = 3590 $H_{ft.}^{1.55}$ MGD = 5.170 $H_{ft.}^{1.55}$

Formulas (H in meters): L/S = 1429 $H_{m}^{1.55}$ M3/HR = 5143 $H_{m}^{1.55}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.81	9.72	0.2469	5.771	2590	3.730	163.43	588.1
0.82	9.84	0.2499	5.882	2640	3.801	166.57	599.3
0.83	9.96	0.2530	5.993	2690	3.873	169.73	610.7
0.84	10.08	0.2560	6.106	2740	3.946	172.91	622.2
0.85	10.20	0.2591	6.219	2791	4.019	176.11	633.7
0.86	10.32	0.2621	6.332	2842	4.093	179.33	645.3
0.87	10.44	0.2652	6.447	2893	4.167	182.57	656.9
0.88	10.56	0.2682	6.562	2945	4.241	185.84	668.7
0.89	10.68	0.2713	6.678	2997	4.316	189.12	680.5
0.90	10.80	0.2743	6.795	3049	4.391	192.42	692.4
0.91	10.92	0.2774	6.912	3102	4.467	195.75	704.3
0.92	11.04	0.2804	7.030	3155	4.544	199.09	716.4
0.93	11.16	0.2835	7.149	3208	4.620	202.46	728.5
0.94	11.28	0.2865	7.268	3262	4.698	205.84	740.6
0.95	11.40	0.2896	7.389	3316	4.775	209.24	752.9
0.96	11.52	0.2926	7.509	3370	4.853	212.67	765.2
0.97	11.64	0.2957	7.631	3425	4.932	216.11	777.6
0.98	11.76	0.2987	7.753	3480	5.011	219.58	790.1
0.99	11.88	0.3018	7.876	3535	5.090	223.06	802.6
1.00	12.00	0.3048	8.000	3590	5.170	226.56	815.2
1.01	12.12	0.3078	8.124	3646	5.251	230.08	827.9
1.02	12.24	0.3109	8.249	3702	5.332	233.62	840.6
1.03	12.36	0.3139	8.375	3759	5.413	237.18	853.4
1.04	12.48	0.3170	8.501	3815	5.494	240.76	866.3
1.05	12.60	0.3200	8.628	3872	5.577	244.36	879.2
1.06	12.72	0.3231	8.756	3930	5.659	247.97	892.3
1.07	12.84	0.3261	8.885	3987	5.742	251.61	905.3
1.08	12.96	0.3292	9.014	4045	5.825	255.26	918.5
1.09	13.08	0.3322	9.143	4103	5.909	258.9	931.7
1.10	13.20	0.3353	9.274	4162	5.994	262.6	945.0
1.11	13.32	0.3383	9.405	4221	6.078	266.3	958.3
1.12	13.44	0.3414	9.536	4280	6.163	270.1	971.7
1.13	13.56	0.3444	9.669	4339	6.249	273.8	985.2
1.14	13.68	0.3475	9.801	4399	6.335	277.6	998.8
1.15	13.80	0.3505	9.935	4459	6.421	281.4	1012
1.16	13.92	0.3536	10.07	4519	6.508	285.2	1026
1.17	14.04	0.3566	10.20	4580	6.595	289.0	1040
1.18	14.16	0.3597	10.34	4640	6.683	292.8	1054
1.19	14.28	0.3627	10.48	4702	6.771	296.7	1067
1.20	14.40	0.3658	10.61	4763	6.859	300.5	1081
1.21	14.52	0.3688	10.75	4825	6.948	304.4	1095
1.22	14.64	0.3719	10.89	4887	7.037	308.3	1109
1.23	14.76	0.3749	11.03	4949	7.127	312.3	1124
1.24	14.88	0.3780	11.17	5011	7.217	316.2	1138
1.25	15.00	0.3810	11.31	5074	7.307	320.2	1152
1.26	15.12	0.3840	11.45	5137	7.398	324.2	1166
1.27	15.24	0.3871	11.59	5200	7.489	328.2	1181
1.28	15.36	0.3901	11.73	5264	7.581	332.2	1195
1.29	15.48	0.3932	11.87	5328	7.673	336.2	1210
1.30	15.60	0.3962	12.01	5392	7.765	340.2	1224

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Formulas (H in meters): L/S = 1429 $H_{m}^{1.55}$ M3/HR = 5143 $H_{m}^{1.55}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
1.31	15.72	0.3993	12.16	5456	7.858	344.3	1239
1.32	15.84	0.4023	12.30	5521	7.951	348.4	1254
1.33	15.96	0.4054	12.45	5586	8.044	352.5	1268
1.34	16.08	0.4084	12.59	5651	8.138	356.6	1283
1.35	16.20	0.4115	12.74	5717	8.233	360.7	1298
1.36	16.32	0.4145	12.88	5783	8.327	364.9	1313
1.37	16.44	0.4176	13.03	5849	8.423	369.1	1328
1.38	16.56	0.4206	13.18	5915	8.518	373.2	1343
1.39	16.68	0.4237	13.33	5982	8.614	377.4	1358
1.40	16.80	0.4267	13.48	6048	8.710	381.7	1373
1.41	16.92	0.4298	13.63	6116	8.807	385.9	1389
1.42	17.04	0.4328	13.78	6183	8.904	390.1	1404
1.43	17.16	0.4359	13.93	6250	9.001	394.4	1419
1.44	17.28	0.4389	14.08	6318	9.099	398.7	1435
1.45	17.40	0.4420	14.23	6387	9.197	403.0	1450
1.46	17.52	0.4450	14.38	6455	9.295	407.3	1466
1.47	17.64	0.4481	14.54	6524	9.394	411.6	1481
1.48	17.76	0.4511	14.69	6592	9.494	416.0	1497
1.49	17.88	0.4542	14.84	6662	9.593	420.4	1513
1.50	18.00	0.4572	15.00	6731	9.693	424.7	1528
1.51	18.12	0.4602	15.15	6801	9.794	429.1	1544
1.52	18.24	0.4633	15.31	6871	9.894	433.6	1560
1.53	18.36	0.4663	15.47	6941	9.995	438.0	1576
1.54	18.48	0.4694	15.62	7011	10.10	442.4	1592
1.55	18.60	0.4724	15.78	7082	10.20	446.9	1608
1.56	18.72	0.4755	15.94	7153	10.30	451.4	1624
1.57	18.84	0.4785	16.10	7224	10.40	455.9	1640
1.58	18.96	0.4816	16.26	7296	10.51	460.4	1656
1.59	19.08	0.4846	16.42	7367	10.61	464.9	1673
1.60	19.20	0.4877	16.58	7439	10.71	469.4	1689
1.61	19.32	0.4907	16.74	7511	10.82	474.0	1705
1.62	19.44	0.4938	16.90	7584	10.92	478.6	1722
1.63	19.56	0.4968	17.06	7657	11.03	483.1	1738
1.64	19.68	0.4999	17.22	7729	11.13	487.7	1755
1.65	19.80	0.5029	17.39	7803	11.24	492.4	1772
1.66	19.92	0.5060	17.55	7876	11.34	497.0	1788
1.67	20.04	0.5090	17.71	7950	11.45	501.6	1805
1.68	20.16	0.5121	17.88	8024	11.55	506.3	1822
1.69	20.28	0.5151	18.04	8098	11.66	511.0	1839
1.70	20.40	0.5182	18.21	8172	11.77	515.7	1855
1.71	20.52	0.5212	18.38	8247	11.88	520.4	1872
1.72	20.64	0.5243	18.54	8322	11.98	525.1	1889
1.73	20.76	0.5273	18.71	8397	12.09	529.9	1906
1.74	20.88	0.5304	18.88	8472	12.20	534.6	1924
1.75	21.00	0.5334	19.05	8548	12.31	539.4	1941
1.76	21.12	0.5364	19.21	8624	12.42	544.2	1958
1.77	21.24	0.5395	19.38	8700	12.53	549.0	1975
1.78	21.36	0.5425	19.55	8776	12.64	553.8	1993
1.79	21.48	0.5456	19.72	8852	12.75	558.6	2010
1.80	21.60	0.5486	19.90	8929	12.86	563.5	2027

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
1.81	21.72	0.5517	20.07	9006	12.97	568.3	2045
1.82	21.84	0.5547	20.24	9084	13.08	573.2	2062
1.83	21.96	0.5578	20.41	9161	13.19	578.1	2080
1.84	22.08	0.5608	20.59	9239	13.30	583.0	2098
1.85	22.20	0.5639	20.76	9317	13.42	587.9	2115
1.86	22.32	0.5669	20.93	9395	13.53	592.8	2133
1.87	22.44	0.5700	21.11	9473	13.64	597.8	2151
1.88	22.56	0.5730	21.28	9552	13.76	602.7	2169
1.89	22.68	0.5761	21.46	9631	13.87	607.7	2187
1.90	22.80	0.5791	21.64	9710	13.98	612.7	2205
1.91	22.92	0.5822	21.81	9789	14.10	617.7	2223
1.92	23.04	0.5852	21.99	9869	14.21	622.7	2241
1.93	23.16	0.5883	22.17	9948	14.33	627.8	2259
1.94	23.28	0.5913	22.35	10028	14.44	632.8	2277
1.95	23.40	0.5944	22.52	10109	14.56	637.9	2295
1.96	23.52	0.5974	22.70	10189	14.67	643.0	2313
1.97	23.64	0.6005	22.88	10270	14.79	648.0	2332
1.98	23.76	0.6035	23.06	10351	14.91	653.2	2350
1.99	23.88	0.6066	23.24	10432	15.02	658.3	2369
2.00	24.00	0.6096	23.43	10513	15.14	663.4	2387
2.01	24.12	0.6126	23.61	10595	15.26	668.6	2406
2.02	24.24	0.6157	23.79	10677	15.38	673.7	2424
2.03	24.36	0.6187	23.97	10759	15.49	678.9	2443
2.04	24.48	0.6218	24.16	10841	15.61	684.1	2461
2.05	24.60	0.6248	24.34	10923	15.73	689.3	2480
2.06	24.72	0.6279	24.52	11006	15.85	694.5	2499
2.07	24.84	0.6309	24.71	11089	15.97	699.7	2518
2.08	24.96	0.6340	24.89	11172	16.09	705.0	2537
2.09	25.08	0.6370	25.08	11256	16.21	710.2	2556
2.10	25.20	0.6401	25.27	11339	16.33	715.5	2575
2.11	25.32	0.6431	25.45	11423	16.45	720.8	2594
2.12	25.44	0.6462	25.64	11507	16.57	726.1	2613
2.13	25.56	0.6492	25.83	11591	16.69	731.4	2632
2.14	25.68	0.6523	26.02	11676	16.81	736.8	2651
2.15	25.80	0.6553	26.20	11760	16.94	742.1	2670
2.16	25.92	0.6584	26.39	11845	17.06	747.5	2689
2.17	26.04	0.6614	26.58	11930	17.18	752.8	2709
2.18	26.16	0.6645	26.77	12016	17.30	758.2	2728
2.19	26.28	0.6675	26.96	12101	17.43	763.6	2748
2.20	26.40	0.6706	27.15	12187	17.55	769.0	2767
2.21	26.52	0.6736	27.35	12273	17.67	774.4	2787
2.22	26.64	0.6767	27.54	12359	17.80	779.9	2806
2.23	26.76	0.6797	27.73	12446	17.92	785.3	2826
2.24	26.88	0.6828	27.92	12532	18.05	790.8	2845
2.25	27.00	0.6858	28.12	12619	18.17	796.3	2865
2.26	27.12	0.6888	28.31	12706	18.30	801.8	2885
2.27	27.24	0.6919	28.51	12793	18.42	807.3	2905
2.28	27.36	0.6949	28.70	12881	18.55	812.8	2925
2.29	27.48	0.6980	28.90	12968	18.68	818.3	2944
2.30	27.60	0.7010	29.09	13056	18.80	823.9	2964

Sources: Water Measurement Manual, 3rd Edition, United States Department of the Interior, Bureau of Reclamation

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OPENCHANNELFLOW

24-Inch Parshall Flume Discharge Table

70% Submergence Transition ±3-5% Accuracy

Formulas (H in feet): CFS = 8 $H_{ft.}^{1.55}$ GPM = 3590 $H_{ft.}^{1.55}$ MGD = 5.170 $H_{ft.}^{1.55}$

Formulas (H in meters): L/S = 1429 $H_{m}^{1.55}$ M3/HR = 5143 $H_{m}^{1.55}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
2.31	27.72	0.7041	29.29	13144	18.93	829.4	2984
2.32	27.84	0.7071	29.48	13233	19.06	835.0	3004
2.33	27.96	0.7102	29.68	13321	19.18	840.6	3025
2.34	28.08	0.7132	29.88	13410	19.31	846.2	3045
2.35	28.20	0.7163	30.08	13499	19.44	851.8	3065
2.36	28.32	0.7193	30.28	13588	19.57	857.4	3085
2.37	28.44	0.7224	30.48	13677	19.70	863.1	3105
2.38	28.56	0.7254	30.67	13767	19.83	868.7	3126
2.39	28.68	0.7285	30.87	13857	19.95	874.4	3146
2.40	28.80	0.7315	31.08	13947	20.08	880.1	3167
2.41	28.92	0.7346	31.28	14037	20.21	885.7	3187
2.42	29.04	0.7376	31.48	14127	20.34	891.5	3208
2.43	29.16	0.7407	31.68	14218	20.47	897.2	3228
2.44	29.28	0.7437	31.88	14309	20.61	902.9	3249
2.45	29.40	0.7468	32.08	14400	20.74	908.6	3269
2.46	29.52	0.7498	32.29	14491	20.87	914.4	3290
2.47	29.64	0.7529	32.49	14582	21.00	920.2	3311
2.48	29.76	0.7559	32.70	14674	21.13	925.9	3332
2.49	29.88	0.7590	32.90	14766	21.26	931.7	3353
2.50	30.00	0.7620	33.11	14858	21.40	937.5	3373

Sources: Water Measurement Manual, 3rd Edition, United States Department of the Interior, Bureau of Reclamation

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