OPENCHANNELFLOW

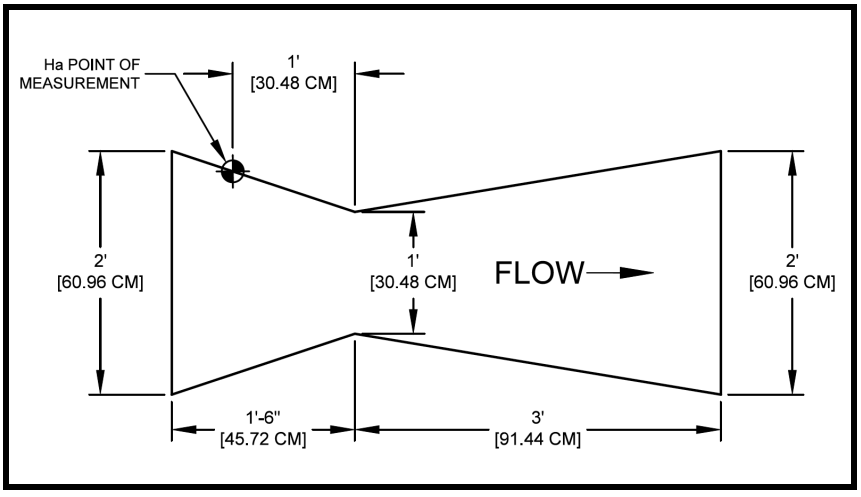
54-Inch L x 12-Inch W Cutthroat Flume Discharge Table

70% Submergence Transition ±3% Accuracy

Formulas (H in feet): CFS = 3.980 $H_{ft.}^{1.72}$ GPM = 1786 $H_{ft.}^{1.72}$ MGD = 2.572 $H_{ft.}^{1.72}$

Formulas (H in meters): L/S = 869.5 $H_{m}^{1.72}$ M3/HR = 3130 $H_{m}^{1.72}$

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	0.0758	34.04	0.0490	2.148	7.728
0.11	1.32	0.0335	0.0893	40.10	0.0577	2.530	9.104
0.12	1.44	0.0366	0.1038	46.57	0.0671	2.939	10.57
0.13	1.56	0.0396	0.1191	53.45	0.0770	3.373	12.14
0.14	1.68	0.0427	0.1353	60.71	0.0874	3.831	13.78
0.15	1.80	0.0457	0.1523	68.36	0.0984	4.314	15.52
0.16	1.92	0.0488	0.1702	76.39	0.1100	4.820	17.34
0.17	2.04	0.0518	0.1889	84.78	0.1221	5.350	19.25
0.18	2.16	0.0549	0.2084	93.54	0.1347	5.903	21.24
0.19	2.28	0.0579	0.2287	102.7	0.1478	6.478	23.31
0.20	2.40	0.0610	0.2498	112.1	0.1615	7.075	25.46
0.21	2.52	0.0640	0.2717	121.9	0.1756	7.695	27.69
0.22	2.64	0.0671	0.2943	132.1	0.1902	8.336	29.99
0.23	2.76	0.0701	0.3177	142.6	0.2053	8.998	32.38
0.24	2.88	0.0732	0.3419	153.4	0.2209	9.681	34.84
0.25	3.00	0.0762	0.3667	164.6	0.2370	10.39	37.37
0.26	3.12	0.0792	0.3923	176.1	0.2536	11.11	39.98
0.27	3.24	0.0823	0.4186	187.9	0.2706	11.86	42.66
0.28	3.36	0.0853	0.4457	200.0	0.2880	12.62	45.41
0.29	3.48	0.0884	0.4734	212.5	0.3059	13.41	48.24
0.30	3.60	0.0914	0.5018	225.2	0.3243	14.21	51.13



Note: Discharge is calculated to top of flume

Sources: Cutthroat Flume Discharge Relations, Water Management Technical Paper No. 16, Colorado State University, AER71-72RSB6, March 1972

Generalized Discharge Relations for Cutthroat Flumes, Journal of the Irrigation and Drainage Division, ASCE, Vol. 98, No. IR4, December 1974

OPENCHANNELFLOW

54-Inch L x 12-Inch W Cutthroat Flume Discharge Table

70% Submergence Transition ±3% Accuracy

Formulas (H in feet): CFS = 3.980 $H_{ft.}^{1.72}$ GPM = 1786 $H_{ft.}^{1.72}$ MGD = 2.572 $H_{ft.}^{1.72}$

Formulas (H in meters): L/S = 869.5 $H_{m}^{1.72}$ M3/HR = 3130 $H_{m}^{1.72}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.31	3.72	0.0945	0.5309	238.3	0.3431	15.04	54.10
0.32	3.84	0.0975	0.5607	251.6	0.3624	15.88	57.14
0.33	3.96	0.1006	0.5912	265.3	0.3821	16.74	60.24
0.34	4.08	0.1036	0.6223	279.3	0.4022	17.62	63.42
0.35	4.20	0.1067	0.6542	293.6	0.4228	18.53	66.66
0.36	4.32	0.1097	0.6866	308.2	0.4438	19.45	69.97
0.37	4.44	0.1128	0.7198	323.0	0.4652	20.38	73.34
0.38	4.56	0.1158	0.7535	338.2	0.4870	21.34	76.79
0.39	4.68	0.1189	0.7880	353.6	0.5093	22.32	80.29
0.40	4.80	0.1219	0.8231	369.4	0.5319	23.31	83.87
0.41	4.92	0.1250	0.8588	385.4	0.5550	24.32	87.51
0.42	5.04	0.1280	0.8951	401.7	0.5785	25.35	91.21
0.43	5.16	0.1311	0.9321	418.3	0.6024	26.40	94.98
0.44	5.28	0.1341	0.9697	435.2	0.6267	27.46	98.81
0.45	5.40	0.1372	1.008	452.3	0.6514	28.54	102.7
0.46	5.52	0.1402	1.047	469.8	0.6765	29.64	106.7
0.47	5.64	0.1433	1.086	487.5	0.7020	30.76	110.7
0.48	5.76	0.1463	1.126	505.4	0.7279	31.89	114.8
0.49	5.88	0.1494	1.167	523.7	0.7541	33.05	118.9
0.50	6.00	0.1524	1.208	542.2	0.7808	34.21	123.1
0.51	6.12	0.1554	1.250	561.0	0.8079	35.40	127.4
0.52	6.24	0.1585	1.292	580.0	0.8353	36.60	131.7
0.53	6.36	0.1615	1.335	599.4	0.8631	37.82	136.1
0.54	6.48	0.1646	1.379	618.9	0.8913	39.06	140.5
0.55	6.60	0.1676	1.423	638.8	0.9199	40.31	145.0
0.56	6.72	0.1707	1.468	658.9	0.9489	41.58	149.6
0.57	6.84	0.1737	1.514	679.3	0.9782	42.86	154.2
0.58	6.96	0.1768	1.559	699.9	1.008	44.16	158.9
0.59	7.08	0.1798	1.606	720.8	1.038	45.48	163.7
0.60	7.20	0.1829	1.653	741.9	1.068	46.82	168.5
0.61	7.32	0.1859	1.701	763.3	1.099	48.17	173.3
0.62	7.44	0.1890	1.749	785.0	1.130	49.53	178.2
0.63	7.56	0.1920	1.798	806.9	1.162	50.91	183.2
0.64	7.68	0.1951	1.847	829.0	1.194	52.31	188.2
0.65	7.80	0.1981	1.897	851.4	1.226	53.73	193.3
0.66	7.92	0.2012	1.948	874.1	1.259	55.16	198.5
0.67	8.04	0.2042	1.999	897.0	1.292	56.60	203.7
0.68	8.16	0.2073	2.050	920.1	1.325	58.06	208.9
0.69	8.28	0.2103	2.102	943.5	1.359	59.54	214.2
0.70	8.40	0.2134	2.155	967.2	1.393	61.03	219.6
0.71	8.52	0.2164	2.208	991.1	1.427	62.54	225.0
0.72	8.64	0.2195	2.262	1015	1.462	64.06	230.5
0.73	8.76	0.2225	2.316	1040	1.497	65.60	236.0
0.74	8.88	0.2256	2.371	1064	1.532	67.15	241.6
0.75	9.00	0.2286	2.427	1089	1.568	68.72	247.3
0.76	9.12	0.2316	2.482	1114	1.604	70.30	253.0
0.77	9.24	0.2347	2.539	1139	1.641	71.90	258.7
0.78	9.36	0.2377	2.596	1165	1.678	73.52	264.5
0.79	9.48	0.2408	2.653	1191	1.715	75.14	270.4
0.80	9.60	0.2438	2.711	1217	1.752	76.79	276.3

Sources: Cutthroat Flume Discharge Relations, Water Management Technical Paper No. 16, Colorado State University, AER71-72RSB6, March 1972

Generalized Discharge Relations for Cutthroat Flumes, Journal of the Irrigation and Drainage Division, ASCE, Vol. 98, No. IR4, December 1974

OPENCHANNELFLOW

54-Inch L x 12-Inch W Cutthroat Flume Discharge Table

70% Submergence Transition ±3% Accuracy

Formulas (H in feet): CFS = 3.980 $H_{ft.}^{1.72}$ GPM = 1786 $H_{ft.}^{1.72}$ MGD = 2.572 $H_{ft.}^{1.72}$

Formulas (H in meters): L/S = 869.5 $H_{m}^{1.72}$ M3/HR = 3130 $H_{m}^{1.72}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.81	9.72	0.2469	2.770	1243	1.790	78.45	282.3
0.82	9.84	0.2499	2.829	1270	1.828	80.12	288.3
0.83	9.96	0.2530	2.889	1296	1.867	81.81	294.4
0.84	10.08	0.2560	2.949	1323	1.906	83.51	300.5
0.85	10.20	0.2591	3.009	1351	1.945	85.23	306.7
0.86	10.32	0.2621	3.071	1378	1.985	86.96	312.9
0.87	10.44	0.2652	3.132	1406	2.024	88.71	319.2
0.88	10.56	0.2682	3.194	1434	2.065	90.47	325.5
0.89	10.68	0.2713	3.257	1462	2.105	92.24	331.9
0.90	10.80	0.2743	3.320	1490	2.146	94.03	338.3
0.91	10.92	0.2774	3.384	1519	2.187	95.84	344.8
0.92	11.04	0.2804	3.448	1548	2.229	97.65	351.4
0.93	11.16	0.2835	3.513	1577	2.270	99.49	358.0
0.94	11.28	0.2865	3.578	1606	2.313	101.3	364.6
0.95	11.40	0.2896	3.644	1635	2.355	103.2	371.3
0.96	11.52	0.2926	3.710	1665	2.398	105.1	378.1
0.97	11.64	0.2957	3.777	1695	2.441	107.0	384.9
0.98	11.76	0.2987	3.844	1725	2.484	108.9	391.7
0.99	11.88	0.3018	3.912	1756	2.528	110.8	398.6
1.00	12.00	0.3048	3.980	1786	2.572	112.7	405.6
1.01	12.12	0.3078	4.049	1817	2.617	114.7	412.6
1.02	12.24	0.3109	4.118	1848	2.661	116.6	419.6
1.03	12.36	0.3139	4.188	1879	2.706	118.6	426.7
1.04	12.48	0.3170	4.258	1911	2.752	120.6	433.9
1.05	12.60	0.3200	4.328	1943	2.797	122.6	441.1
1.06	12.72	0.3231	4.400	1975	2.843	124.6	448.3
1.07	12.84	0.3261	4.471	2007	2.890	126.6	455.6
1.08	12.96	0.3292	4.543	2039	2.936	128.7	463.0
1.09	13.08	0.3322	4.616	2072	2.983	130.7	470.4
1.10	13.20	0.3353	4.689	2104	3.030	132.8	477.8
1.11	13.32	0.3383	4.763	2137	3.078	134.9	485.3
1.12	13.44	0.3414	4.837	2171	3.126	137.0	492.8
1.13	13.56	0.3444	4.911	2204	3.174	139.1	500.4
1.14	13.68	0.3475	4.986	2238	3.223	141.2	508.1
1.15	13.80	0.3505	5.062	2272	3.271	143.3	515.8
1.16	13.92	0.3536	5.137	2306	3.320	145.5	523.5
1.17	14.04	0.3566	5.214	2340	3.370	147.7	531.3
1.18	14.16	0.3597	5.291	2375	3.419	149.8	539.1
1.19	14.28	0.3627	5.368	2409	3.469	152.0	547.0
1.20	14.40	0.3658	5.446	2444	3.520	154.2	554.9
1.21	14.52	0.3688	5.524	2479	3.570	156.4	562.9
1.22	14.64	0.3719	5.603	2515	3.621	158.7	570.9
1.23	14.76	0.3749	5.682	2550	3.672	160.9	579.0
1.24	14.88	0.3780	5.762	2586	3.724	163.2	587.1
1.25	15.00	0.3810	5.842	2622	3.776	165.4	595.3
1.26	15.12	0.3840	5.923	2658	3.828	167.7	603.5
1.27	15.24	0.3871	6.004	2695	3.880	170.0	611.8
1.28	15.36	0.3901	6.085	2731	3.933	172.3	620.1
1.29	15.48	0.3932	6.167	2768	3.986	174.7	628.5
1.30	15.60	0.3962	6.250	2805	4.039	177.0	636.9

Sources: Cutthroat Flume Discharge Relations, Water Management Technical Paper No. 16, Colorado State University, AER71-72RSB6, March 1972

Generalized Discharge Relations for Cutthroat Flumes, Journal of the Irrigation and Drainage Division, ASCE, Vol. 98, No. IR4, December 1974

OPENCHANNELFLOW

54-Inch L x 12-Inch W Cutthroat Flume Discharge Table

70% Submergence Transition ±3% Accuracy

Formulas (H in feet): CFS = 3.980 $H_{ft.}^{1.72}$ GPM = 1786 $H_{ft.}^{1.72}$ MGD = 2.572 $H_{ft.}^{1.72}$

Formulas (H in meters): L/S = 869.5 $H_{m}^{1.72}$ M3/HR = 3130 $H_{m}^{1.72}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
1.31	15.72	0.3993	6.333	2842	4.093	179.3	645.3
1.32	15.84	0.4023	6.416	2880	4.147	181.7	653.8
1.33	15.96	0.4054	6.500	2917	4.201	184.1	662.3
1.34	16.08	0.4084	6.584	2955	4.255	186.5	670.9
1.35	16.20	0.4115	6.669	2993	4.310	188.9	679.6
1.36	16.32	0.4145	6.754	3031	4.365	191.3	688.2
1.37	16.44	0.4176	6.840	3070	4.421	193.7	697.0
1.38	16.56	0.4206	6.926	3108	4.476	196.1	705.7
1.39	16.68	0.4237	7.012	3147	4.532	198.6	714.6
1.40	16.80	0.4267	7.099	3186	4.588	201.1	723.4
1.41	16.92	0.4298	7.187	3225	4.645	203.5	732.3
1.42	17.04	0.4328	7.275	3265	4.702	206.0	741.3
1.43	17.16	0.4359	7.363	3305	4.759	208.5	750.3
1.44	17.28	0.4389	7.452	3344	4.816	211.0	759.3
1.45	17.40	0.4420	7.541	3384	4.874	213.6	768.4
1.46	17.52	0.4450	7.631	3425	4.932	216.1	777.6
1.47	17.64	0.4481	7.721	3465	4.990	218.7	786.8
1.48	17.76	0.4511	7.811	3506	5.049	221.2	796.0
1.49	17.88	0.4542	7.902	3547	5.107	223.8	805.3
1.50	18.00	0.4572	7.994	3588	5.166	226.4	814.6

Sources: Cutthroat Flume Discharge Relations, Water Management Technical Paper No. 16, Colorado State University, AER71-72RSB6, March 1972

Generalized Discharge Relations for Cutthroat Flumes, Journal of the Irrigation and Drainage Division, ASCE, Vol. 98, No. IR4, December 1974