OPENCHANNELFLOW

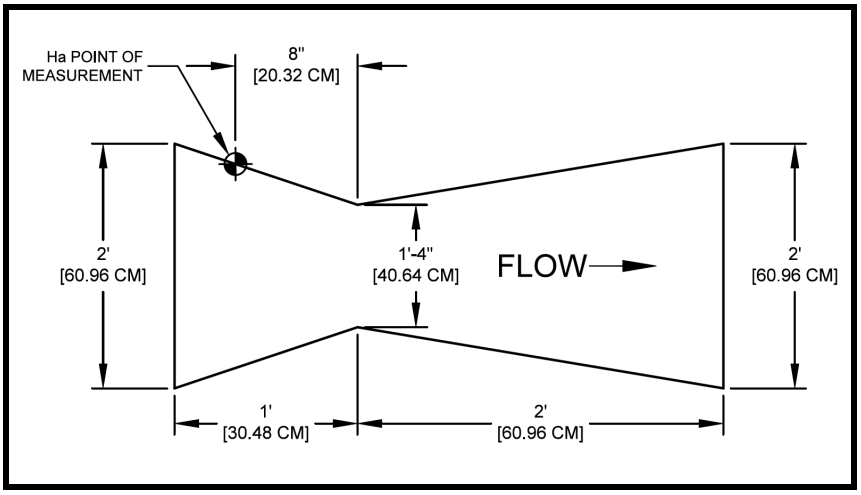
36-Inch L x 16-Inch W Cutthroat Flume Discharge Table

65% Submergence Transition ±3% Accuracy

Formulas (H in feet): CFS = 6.040 $H_{ft.}^{1.84}$ GPM = 2710 $H_{ft.}^{1.84}$ MGD = 3.904 $H_{ft.}^{1.84}$

Formulas (H in meters): L/S = 1522 $H_{m}^{1.84}$ M3/HR = 5478 $H_{m}^{1.84}$

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	0.0873	39.18	0.0564	2.472	8.896
0.11	1.32	0.0335	0.1040	46.69	0.0672	2.946	10.60
0.12	1.44	0.0366	0.1221	54.80	0.0789	3.458	12.44
0.13	1.56	0.0396	0.1415	63.50	0.0914	4.007	14.42
0.14	1.68	0.0427	0.1621	72.77	0.1048	4.592	16.52
0.15	1.80	0.0457	0.1841	82.62	0.1190	5.214	18.76
0.16	1.92	0.0488	0.2073	93.04	0.1340	5.871	21.12
0.17	2.04	0.0518	0.2318	104.0	0.1498	6.564	23.62
0.18	2.16	0.0549	0.2575	115.6	0.1664	7.292	26.24
0.19	2.28	0.0579	0.2844	127.6	0.1838	8.054	28.98
0.20	2.40	0.0610	0.3126	140.3	0.2020	8.852	31.85
0.21	2.52	0.0640	0.3419	153.5	0.2210	9.683	34.84
0.22	2.64	0.0671	0.3725	167.2	0.2407	10.55	37.95
0.23	2.76	0.0701	0.4042	181.4	0.2612	11.45	41.19
0.24	2.88	0.0732	0.4371	196.2	0.2825	12.38	44.55
0.25	3.00	0.0762	0.4712	211.5	0.3046	13.35	48.02
0.26	3.12	0.0792	0.5065	227.3	0.3274	14.34	51.61
0.27	3.24	0.0823	0.5429	243.7	0.3509	15.38	55.32
0.28	3.36	0.0853	0.5805	260.5	0.3752	16.44	59.15
0.29	3.48	0.0884	0.6192	277.9	0.4002	17.54	63.10
0.30	3.60	0.0914	0.6591	295.8	0.4260	18.67	67.16



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

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Formulas (H in meters): L/S = 1522 $H_{m}^{1.84}$ M3/HR = 5478 $H_{m}^{1.84}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.31	3.72	0.0945	0.7001	314.2	0.4525	19.83	71.34
0.32	3.84	0.0975	0.7422	333.1	0.4797	21.02	75.63
0.33	3.96	0.1006	0.7854	352.5	0.5076	22.24	80.03
0.34	4.08	0.1036	0.8298	372.4	0.5363	23.50	84.55
0.35	4.20	0.1067	0.8752	392.8	0.5657	24.79	89.19
0.36	4.32	0.1097	0.9218	413.7	0.5958	26.11	93.93
0.37	4.44	0.1128	0.9695	435.1	0.6266	27.45	98.79
0.38	4.56	0.1158	1.018	457.0	0.6581	28.84	103.8
0.39	4.68	0.1189	1.068	479.3	0.6903	30.25	108.8
0.40	4.80	0.1219	1.119	502.2	0.7232	31.69	114.0
0.41	4.92	0.1250	1.171	525.5	0.7568	33.16	119.3
0.42	5.04	0.1280	1.224	549.4	0.7911	34.67	124.7
0.43	5.16	0.1311	1.278	573.7	0.8261	36.20	130.3
0.44	5.28	0.1341	1.333	598.5	0.8618	37.76	135.9
0.45	5.40	0.1372	1.390	623.7	0.8982	39.36	141.6
0.46	5.52	0.1402	1.447	649.5	0.9353	40.98	147.5
0.47	5.64	0.1433	1.506	675.7	0.9730	42.64	153.4
0.48	5.76	0.1463	1.565	702.4	1.011	44.32	159.5
0.49	5.88	0.1494	1.626	729.5	1.051	46.04	165.6
0.50	6.00	0.1524	1.687	757.2	1.090	47.78	171.9
0.51	6.12	0.1554	1.750	785.3	1.131	49.55	178.3
0.52	6.24	0.1585	1.813	813.8	1.172	51.35	184.8
0.53	6.36	0.1615	1.878	842.9	1.214	53.19	191.4
0.54	6.48	0.1646	1.944	872.4	1.256	55.05	198.1
0.55	6.60	0.1676	2.011	902.3	1.299	56.94	204.9
0.56	6.72	0.1707	2.078	932.7	1.343	58.86	211.8
0.57	6.84	0.1737	2.147	963.6	1.388	60.81	218.8
0.58	6.96	0.1768	2.217	994.9	1.433	62.78	225.9
0.59	7.08	0.1798	2.288	1027	1.479	64.79	233.1
0.60	7.20	0.1829	2.360	1059	1.525	66.82	240.4
0.61	7.32	0.1859	2.432	1092	1.572	68.89	247.9
0.62	7.44	0.1890	2.506	1125	1.620	70.98	255.4
0.63	7.56	0.1920	2.581	1158	1.668	73.10	263.0
0.64	7.68	0.1951	2.657	1193	1.717	75.25	270.8
0.65	7.80	0.1981	2.734	1227	1.767	77.43	278.6
0.66	7.92	0.2012	2.812	1262	1.817	79.63	286.5
0.67	8.04	0.2042	2.891	1297	1.868	81.87	294.6
0.68	8.16	0.2073	2.971	1333	1.920	84.13	302.7
0.69	8.28	0.2103	3.052	1370	1.972	86.42	311.0
0.70	8.40	0.2134	3.133	1406	2.025	88.74	319.3
0.71	8.52	0.2164	3.216	1443	2.079	91.08	327.7
0.72	8.64	0.2195	3.300	1481	2.133	93.46	336.3
0.73	8.76	0.2225	3.385	1519	2.188	95.86	344.9
0.74	8.88	0.2256	3.471	1558	2.243	98.29	353.7
0.75	9.00	0.2286	3.558	1597	2.299	100.7	362.5
0.76	9.12	0.2316	3.645	1636	2.356	103.2	371.5
0.77	9.24	0.2347	3.734	1676	2.413	105.7	380.5
0.78	9.36	0.2377	3.824	1716	2.471	108.3	389.6
0.79	9.48	0.2408	3.914	1757	2.530	110.9	398.9
0.80	9.60	0.2438	4.006	1798	2.589	113.5	408.2

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.81	9.72	0.2469	4.099	1840	2.649	116.1	417.7
0.82	9.84	0.2499	4.192	1882	2.709	118.7	427.2
0.83	9.96	0.2530	4.287	1924	2.771	121.4	436.8
0.84	10.08	0.2560	4.382	1967	2.832	124.1	446.6
0.85	10.20	0.2591	4.479	2010	2.895	126.8	456.4
0.86	10.32	0.2621	4.576	2054	2.958	129.6	466.3
0.87	10.44	0.2652	4.675	2098	3.021	132.4	476.4
0.88	10.56	0.2682	4.774	2143	3.085	135.2	486.5
0.89	10.68	0.2713	4.874	2188	3.150	138.0	496.7
0.90	10.80	0.2743	4.976	2233	3.216	140.9	507.0
0.91	10.92	0.2774	5.078	2279	3.282	143.8	517.4
0.92	11.04	0.2804	5.181	2325	3.348	146.7	527.9
0.93	11.16	0.2835	5.285	2372	3.416	149.7	538.5
0.94	11.28	0.2865	5.390	2419	3.484	152.6	549.2
0.95	11.40	0.2896	5.496	2467	3.552	155.6	560.0
0.96	11.52	0.2926	5.603	2515	3.621	158.7	570.9
0.97	11.64	0.2957	5.711	2563	3.691	161.7	581.9
0.98	11.76	0.2987	5.820	2612	3.761	164.8	593.0
0.99	11.88	0.3018	5.929	2661	3.832	167.9	604.2
1.00	12.00	0.3048	6.040	2711	3.904	171.1	615.5

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