10-Inch Palmer-Bowlus Flume Discharge Table
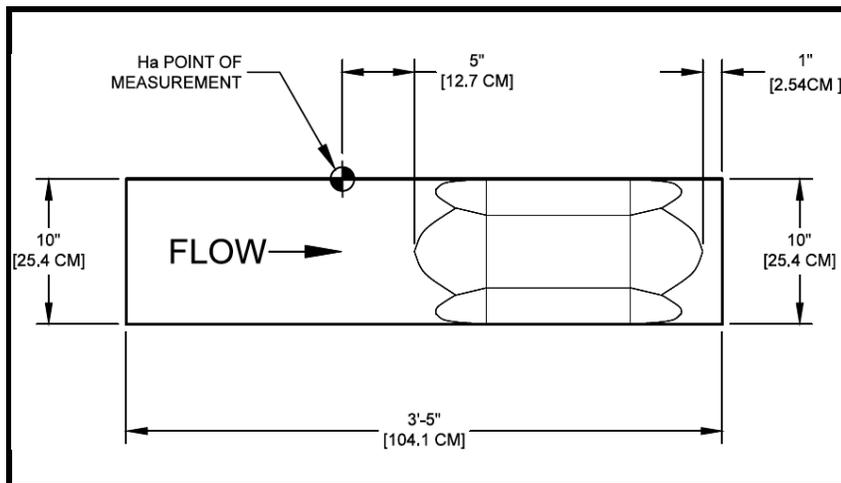
85% Submergence Transition

Formulas (H in feet): $CFS = 2.96\ H_{ft.}^{1.9}$ $GPM = 1328\ H_{ft.}^{1.9}$ $MGD = 1.93\ H_{ft.}^{1.9}$

Formulas (H in meters): $L/S = 749.9\ H_m^{1.9}$ $M3/HR = 2878\ H_m^{1.9}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.01	0.12	0.0030					
0.02	0.24	0.0061					
0.03	0.36	0.0091					
0.04	0.48	0.0122					
0.05	0.60	0.0152		Excessive error due to fluid-flow properties and boundary conditions			
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	0.0520	23.34	0.0336	1.473	5.299
0.12	1.44	0.0366	0.0601	26.97	0.0388	1.702	6.124
0.13	1.56	0.0396	0.0686	30.79	0.0443	1.943	6.990
0.14	1.68	0.0427	0.0776	34.83	0.0502	2.198	7.907
0.15	1.80	0.0457	0.0870	39.05	0.0562	2.464	8.865
0.16	1.92	0.0488	0.0969	43.49	0.0626	2.744	9.874
0.17	2.04	0.0518	0.1073	48.16	0.0693	3.039	10.93
0.18	2.16	0.0549	0.1181	53.00	0.0763	3.345	12.03
0.19	2.28	0.0579	0.1295	58.12	0.0837	3.667	13.20
0.20	2.40	0.0610	0.1413	63.42	0.0913	4.002	14.40
0.21	2.52	0.0640	0.1536	68.94	0.0993	4.350	15.65
0.22	2.64	0.0671	0.1664	74.68	0.1075	4.712	16.96
0.23	2.76	0.0701	0.1789	80.29	0.1156	5.066	18.23
0.24	2.88	0.0732	0.1938	86.98	0.1253	5.488	19.75
0.25	3.00	0.0762	0.2083	93.49	0.1346	5.899	21.23
0.26	3.12	0.0792	0.2234	100.3	0.1444	6.327	22.76
0.27	3.24	0.0823	0.2391	107.3	0.1545	6.771	24.36
0.28	3.36	0.0853	0.2554	114.6	0.1651	7.233	26.03
0.29	3.48	0.0884	0.2732	122.6	0.1766	7.737	27.84
0.30	3.60	0.0914	0.2900	130.2	0.1874	8.213	29.55

Note: Formulas fit data within 1% of full scale

Sources: Isco Open Channel Flow Measurement Handbook, 6th Edition

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Formulas (H in feet):   CFS = 2.96 $H_{ft.}^{1.9}$ GPM = 1328 $H_{ft.}^{1.9}$ MGD = 1.93 $H_{ft.}^{1.9}$

Formulas (H in meters):   L/S = 749.9 $H_{m}^{1.9}$ M3/HR = 2878 $H_{m}^{1.9}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.31	3.72	0.0945	0.3083	138.4	0.1993	8.731	31.42
0.32	3.84	0.0975	0.3272	146.8	0.2115	9.266	33.34
0.33	3.96	0.1006	0.3469	155.7	0.2242	9.824	35.35
0.34	4.08	0.1036	0.3673	164.8	0.2374	10.40	37.43
0.35	4.20	0.1067	0.3884	174.3	0.2510	11.00	39.58
0.36	4.32	0.1097	0.4102	184.1	0.2651	11.62	41.80
0.37	4.44	0.1128	0.4328	194.2	0.2797	12.26	44.10
0.38	4.56	0.1158	0.4560	204.7	0.2947	12.91	46.47
0.39	4.68	0.1189	0.4800	215.4	0.3102	13.59	48.91
0.40	4.80	0.1219	0.5047	226.5	0.3262	14.29	51.43
0.41	4.92	0.1250	0.5302	238.0	0.3427	15.02	54.03
0.42	5.04	0.1280	0.5563	249.7	0.3595	15.75	56.69
0.43	5.16	0.1311	0.5831	261.7	0.3769	16.51	59.42
0.44	5.28	0.1341	0.6106	274.0	0.3946	17.29	62.22
0.45	5.40	0.1372	0.6387	286.6	0.4128	18.09	65.08
0.46	5.52	0.1402	0.6675	299.6	0.4314	18.90	68.02
0.47	5.64	0.1433	0.6968	312.7	0.4503	19.73	71.00
0.48	5.76	0.1463	0.7268	326.2	0.4697	20.58	74.06
0.49	5.88	0.1494	0.7573	339.9	0.4894	21.45	77.17
0.50	6.00	0.1524	0.7883	353.8	0.5095	22.32	80.33
0.51	6.12	0.1554	0.8197	367.9	0.5298	23.21	83.53
0.52	6.24	0.1585	0.8517	382.2	0.5505	24.12	86.79
0.53	6.36	0.1615	0.8840	396.7	0.5713	25.03	90.08
0.54	6.48	0.1646	0.9167	411.4	0.5925	25.96	93.41
0.55	6.60	0.1676	0.9498	426.3	0.6139	26.90	96.78
0.56	6.72	0.1707	0.9832	441.3	0.6354	27.84	100.2
0.57	6.84	0.1737	1.017	456.4	0.6573	28.80	103.6
0.58	6.96	0.1768	1.051	471.7	0.6793	29.76	107.1
0.59	7.08	0.1798	1.085	486.9	0.7012	30.73	110.6
0.60	7.20	0.1829	1.119	502.2	0.7232	31.69	114.0

Note: Formulas fit data within 1% of full scale