

**USAGE:** The gauge reading column on the left of the table corresponds to the depth of water as measured by the staff gauge mounted on the flume inlet side wall. A flume with an 18-inch throat width and a gauge reading of .20 would have discharge rate of .51 C.F.S. At a .30 gauge reading, this same flume would have a discharge rate of .94 C.F.S.

# Free Flow Discharge Table

## CISCO Parshall Measuring Flume

GAUGE READING (FEET)	DISCHARGE IN C.F.S. FOR VARIOUS THROAT WIDTHS										
	3"	6"	9"	12"	18"	24"	30"	36"	48"	60"	72"
.10	.028										
.11	.033	.06	.10								
.12	.037	.07	.12								
.13	.042	.08	.14								
.14	.047	.09	.15								
.15	.053	.10	.17								
.16	.058	.11	.19								
.17	.064	.12	.20								
.18	.070	.14	.22								
.19	.076	.15	.24								
.20	.082	.16	.26	.35	.51	.66	.81	.97	1.26		
.21	.089	.18	.28	.37	.54	.71	.88	1.04	1.36		
.22	.095	.19	.30	.40	.58	.77	.94	1.12	1.47		
.23	.102	.20	.32	.43	.63	.82	1.01	1.20	1.58		
.24	.109	.22	.35	.46	.67	.88	1.08	1.28	1.69		
.25	.117	.23	.37	.49	.71	.93	1.15	1.37	1.80	2.22	2.83
.26	.124	.25	.39	.51	.75	.99	1.23	1.46	1.91	2.36	2.80
.27	.131	.26	.41	.54	.80	1.05	1.30	1.55	2.03	2.50	2.97
.28	.138	.28	.44	.58	.85	1.11	1.38	1.64	2.15	2.65	3.15
.29	.146	.29	.46	.61	.90	1.18	1.45	1.73	2.27	2.80	3.33
.30	.154	.31	.49	.64	.94	1.24	1.53	1.82	2.39	2.96	3.52
.31	.162	.32	.51	.68	.99	1.30	1.61	1.92	2.52	3.12	3.71
.32	.170	.34	.54	.71	1.04	1.37	1.69	2.02	2.65	3.28	3.90
.33	.179	.36	.56	.74	1.09	1.44	1.78	2.12	2.78	3.44	4.10
.34	.187	.38	.59	.77	1.14	1.50	1.86	2.22	2.92	3.61	4.30
.35	.196	.39	.62	.80	1.19	1.57	1.95	2.32	3.06	3.78	4.50
.36	.205	.41	.64	.84	1.24	1.64	2.03	2.42	3.19	3.95	4.71
.37	.213	.42	.67	.88	1.30	1.72	2.12	2.53	3.34	4.13	4.92
.38	.222	.45	.70	.92	1.36	1.79	2.21	2.64	3.48	4.31	5.13
.39	.231	.47	.73	.95	1.41	1.86	2.30	2.75	3.62	4.49	5.35
.40	.241	.48	.76	.99	1.46	1.93	2.40	2.86	3.77	4.68	5.57
.41	.250	.50	.78	1.03	1.52	2.01	2.49	2.97	3.92	4.86	5.80
.42	.260	.52	.81	1.07	1.58	2.09	2.59	3.08	4.07	5.05	6.02
.43	.269	.54	.84	1.11	1.64	2.16	2.68	3.20	4.22	5.24	6.25
.44	.279	.56	.87	1.15	1.70	2.24	2.78	3.32	4.38	5.43	6.48
.45	.289	.58	.90	1.19	1.76	2.32	2.88	3.44	4.54	5.63	6.72
.46	.299	.61	.94	1.23	1.82	2.40	2.98	3.56	4.70	5.83	6.96
.47	.309	.63	.97	1.27	1.88	2.48	3.08	3.68	4.86	6.03	7.20
.48	.319	.65	1.00	1.31	1.94	2.57	3.19	3.80	5.03	6.24	7.44
.49	.329	.67	1.03	1.35	2.00	2.65	3.29	3.92	5.20	6.45	7.69
.50	.339	.69	1.06	1.39	2.06	2.73	3.39	4.05	5.36	6.66	7.94
.51	.350	.71	1.10	1.44	2.13	2.82	3.50	4.18	5.53	6.87	8.20
.52	.361	.73	1.13	1.48	2.19	2.90	3.61	4.31	5.70	7.09	8.46
.53	.371	.76	1.16	1.52	2.26	2.99	3.72	4.44	5.88	7.30	8.72
.54	.382	.78	1.20	1.57	2.33	3.08	3.83	4.57	6.05	7.52	8.98
.55	.393	.80	1.23	1.62	2.40	3.17	3.94	4.70	6.23	7.74	9.25
.56	.404	.82	1.26	1.66	2.46	3.26	4.05	4.84	6.41	7.97	9.52
.57	.415	.85	1.30	1.70	2.52	3.35	4.16	4.98	6.59	8.20	9.79
.58	.427	.87	1.33	1.75	2.60	3.44	4.28	5.11	6.77	8.43	10.07
.59	.438	.89	1.37	1.80	2.66	3.53	4.39	5.25	6.96	8.66	10.35
.60	.450	.92	1.40	1.84	2.73	3.62	4.51	5.39	7.15	8.89	10.63
.61	.462	.94	1.44	1.88	2.80	3.72	4.63	5.53	7.34	9.13	10.92
.62	.474	.97	1.48	1.93	2.87	3.81	4.75	5.68	7.53	9.37	11.20
.63	.485	.99	1.51	1.98	2.95	3.91	4.87	5.82	7.72	9.61	11.49
.64	.497	1.02	1.55	2.03	3.02	4.01	4.99	5.97	7.91	9.85	11.78
.65	.509	1.04	1.59	2.08	3.10	4.11	5.11	6.12	8.11	10.10	12.08

GAUGE READING (FEET)	DISCHARGE IN C.F.S. FOR VARIOUS THROAT WIDTHS										
	3"	6"	9"	12"	18"	24"	30"	36"	48"	60"	72"
.66	.522	1.07	1.63	2.13	3.17	4.20	5.23	6.26	8.31	10.34	12.36
.67	.534	1.10	1.66	2.18	3.24	4.30	5.36	6.41	8.51	10.59	12.61
.68	.546	1.12	1.70	2.23	3.32	4.40	5.48	6.56	8.71	10.85	12.86
.69	.558	1.15	1.74	2.28	3.39	4.50	5.61	6.71	8.91	11.10	13.11
.70	.571	1.17	1.78	2.33	3.47	4.60	5.74	6.86	9.11	11.36	13.36
.71	.584	1.20	1.82	2.38	3.54	4.70	5.86	7.02	9.32	11.62	13.61
.72	.597	1.23	1.86	2.43	3.62	4.81	5.99	7.17	9.53	11.88	13.86
.73	.610	1.26	1.90	2.48	3.70	4.91	6.12	7.33	9.74	12.14	14.11
.74	.623	1.28	1.94	2.53	3.78	5.02	6.25	7.49	9.95	12.40	14.36
.75	.636	1.31	1.98	2.58	3.85	5.12	6.39	7.65	10.16	12.67	14.61
.76	.649	1.34	2.02	2.63	3.93	5.23	6.52	7.81	10.38	12.94	14.86
.77	.662	1.36	2.06	2.68	4.01	5.34	6.65	7.97	10.60	13.21	15.11
.78	.675	1.39	2.10	2.74	4.09	5.44	6.79	8.13	10.81	13.48	15.36
.79	.689	1.42	2.14	2.80	4.18	5.55	6.92	8.30	11.03	13.76	15.61
.80	.702	1.45	2.18	2.85	4.26	5.66	7.06	8.46	11.25	14.04	15.86
.81	.716	1.48	2.22	2.90	4.34	5.77	7.20	8.63	11.48	14.32	16.11
.82	.730	1.50	2.27	2.96	4.42	5.88	7.34	8.79	11.70	14.60	16.36
.83	.744	1.53	2.31	3.02	4.51	6.00	7.48	8.96	11.92	14.88	16.61
.84	.757	1.56	2.35	3.07	4.59	6.11	7.62	9.13	12.15	15.17	16.86
.85	.771	1.59	2.39	3.12	4.67	6.22	7.76	9.30	12.38	15.46	17.11
.86	.786	1.62	2.44	3.18	4.76	6.33	7.91	9.48	12.61	15.75	17.36
.87	.800	1.65	2.48	3.24	4.84	6.44	8.05	9.65	12.84	16.04	17.61
.88	.814	1.68	2.52	3.29	4.92	6.56	8.19	9.82	13.07	16.33	17.86
.89	.828	1.71	2.57	3.35	5.02	6.68	8.34	10.00	13.31	16.62	18.11
.90	.843	1.74	2.61	3.41	5.11	6.80	8.49	10.17	13.55	16.92	18.36
.91	.858	1.77	2.66	3.46	5.19	6.92	8.63	10.35	13.79	17.22	18.61
.92	.872	1.81	2.70	3.52	5.28	7.03	8.78	10.53	14.03	17.52	18.86
.93	.887	1.84	2.75	3.58	5.37	7.15	8.93	10.71	14.27	17.82	19.11
.94	.902	1.87	2.79	3.64	5.46	7.27	9.08	10.89	14.51	18.13	19.36
.95	.916	1.90	2.84	3.70	5.55	7.39	9.23	11.07	14.76	18.44	19.61
.96	.931	1.93	2.88	3.76	5.64	7.51	9.38	11.26	15.00	18.75	19.86
.97	.946	1.97	2.93	3.82	5.73	7.63	9.54	11.44	15.25	19.06	20.11
.98	.961	2.00	2.98	3.88	5.82	7.75	9.69	11.63	15.50	19.37	20.36
.99	.977	2.03	3.02	3.94	5.91	7.88	9.85	11.82	15.75	19.68	20.61
1.00	.992	2.06	3.07	4.00	6.00	8.00	10.00	12.00	16.00	20.00	20.86
1.01	1.01	2.09	3.12	4.06	6.09	8.12	10.16	12.19	16.25	20.32	21.11
1.02	1.02	2.12	3.17	4.12	6.18	8.25	10.31	12.38	16.51	20.64	21.36
1.03	1.04	2.16	3.21	4.18	6.28	8.38	10.47	12.57	16.76	20.96	21.61
1.04	1.05	2.19	3.26	4.25	6.38	8.50	10.63	12.76	17.02	21.28	21.86
1.05	1.07	2.22	3.31	4.31	6.47	8.63	10.79	12.96	17.28	21.61	22.11
1.06	1.09	2.26	3.36	4.37	6.57	8.76	10.95	13.15	17.54	21.94	22.36
1.07	1.10	2.29	3.40	4.43	6.66	8.88	11.10	13.34	17.80	22.27	22.61
1.08	1.12	2.32	3.45	4.50	6.76	9.01	11.27	13.54	18.07	22.60	22.86
1.09	1.13	2.36	3.50	4.56	6.85	9.14	11.44	13.74	18.34	22.93	23.11
1.10	1.15	2.40	3.55	4.62	6.95	9.27	11.60	13.93	18.60	23.26	23.36
1.11	.....	2.43	3.60	4.68	7.04	9.40	11.77	14.13	18.86	23.60	23.61
1.12	.....	2.46	3.65	4.75	7.14	9.54	11.93	14.33	19.13	23.94	23.86
1.13	.....	2.50	3.70	4.82	7.24	9.67	12.10	14.53	19.40	24.28	24.11
1.14	.....	2.53	3.75	4.88	7.34	9.80	12.27	14.73	19.67	24.62	24.36
1.15	.....	2.57	3.80	4.94	7.44	9.94	12.43	14.94	19.94	24.96	24.61
1.16	.....	2.60	3.85	5.01	7.54	10.07	12.60	15.14	20.22	25.31	24.86
1.17	.....	2.64	3.90	5.08	7.64	10.20	12.77	15.34	20.50	25.66	25.11
1.18	.....	2.68	3.95	5.15	7.75	10.34	12.94	15.55	20.78	26.01	25.36
1.19	.....	2.71	4.01	5.21	7.85	10.48	13.12	15.76	21.05	26.36	25.61
1.20	.....	2.75	4.06	5.28	7.95	10.61	13.29	15.96	21.33	26.71	25.86

Continues next column

**USAGE:** The gauge reading column on the left of the table corresponds to the depth of water as measured by the staff gauge mounted on the flume inlet side wall. A flume with an 18-inch throat width and a gauge reading of .20 would have discharge rate of .51 C.F.S. At a .30 gauge reading, this same flume would have a discharge rate of .94 C.F.S.

# Free Flow Discharge Table

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	3"	6"	9"	12"	18"	24"	30"	36"	48"	60"	72"
.10	.028										
.11	.033	.06	.10								
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.13	.042	.08	.14								
.14	.047	.09	.15								
.15	.053	.10	.17								
.16	.058	.11	.19								
.17	.064	.12	.20								
.18	.070	.14	.22								
.19	.076	.15	.24								
.20	.082	.16	.26	.35	.51	.66	.81	.97	1.26		
.21	.089	.18	.28	.37	.54	.71	.88	1.04	1.36		
.22	.095	.19	.30	.40	.58	.77	.94	1.12	1.47		
.23	.102	.20	.32	.43	.63	.82	1.01	1.20	1.58		
.24	.109	.22	.35	.46	.67	.88	1.08	1.28	1.69		
.25	.117	.23	.37	.49	.71	.93	1.15	1.37	1.80	2.22	2.63
.26	.124	.25	.39	.51	.75	.99	1.23	1.46	1.91	2.36	2.80
.27	.131	.26	.41	.54	.80	1.05	1.30	1.55	2.03	2.50	2.97
.28	.138	.28	.44	.58	.85	1.11	1.38	1.64	2.15	2.65	3.15
.29	.146	.29	.46	.61	.90	1.18	1.45	1.73	2.27	2.80	3.33
.30	.154	.31	.49	.64	.94	1.24	1.53	1.82	2.39	2.96	3.52
.31	.162	.32	.51	.68	.99	1.30	1.61	1.92	2.52	3.12	3.71
.32	.170	.34	.54	.71	1.04	1.37	1.69	1.92	2.65	3.28	3.90
.33	.179	.36	.56	.74	1.09	1.44	1.78	2.12	2.78	3.44	4.10
.34	.187	.38	.59	.77	1.14	1.50	1.86	2.22	2.92	3.61	4.30
.35	.196	.39	.62	.80	1.19	1.57	1.95	2.32	3.06	3.78	4.50
.36	.205	.41	.64	.84	1.24	1.64	2.03	2.42	3.19	3.95	4.71
.37	.213	.42	.67	.88	1.30	1.72	2.12	2.53	3.34	4.13	4.92
.38	.222	.45	.70	.92	1.36	1.79	2.21	2.64	3.48	4.31	5.13
.39	.231	.47	.73	.95	1.41	1.86	2.30	2.75	3.62	4.49	5.35
.40	.241	.48	.76	.99	1.46	1.93	2.40	2.86	3.77	4.68	5.57
.41	.250	.50	.78	1.03	1.52	2.01	2.49	2.97	3.92	4.86	5.80
.42	.260	.52	.81	1.07	1.58	2.09	2.59	3.08	4.07	5.05	6.02
.43	.269	.54	.84	1.11	1.64	2.16	2.68	3.20	4.22	5.24	6.25
.44	.279	.56	.87	1.15	1.70	2.24	2.78	3.32	4.38	5.43	6.48
.45	.289	.58	.90	1.19	1.76	2.32	2.88	3.44	4.54	5.63	6.72
.46	.299	.61	.94	1.23	1.82	2.40	2.98	3.56	4.70	5.83	6.96
.47	.309	.63	.97	1.27	1.88	2.48	3.08	3.68	4.86	6.03	7.20
.48	.319	.65	1.00	1.31	1.94	2.57	3.19	3.80	5.03	6.24	7.44
.49	.329	.67	1.03	1.35	2.00	2.65	3.29	3.92	5.20	6.45	7.69
.50	.339	.69	1.06	1.39	2.06	2.73	3.39	4.05	5.36	6.66	7.94
.51	.350	.71	1.10	1.44	2.13	2.82	3.50	4.18	5.53	6.87	8.20
.52	.361	.73	1.13	1.48	2.19	2.90	3.61	4.31	5.70	7.09	8.46
.53	.371	.76	1.16	1.52	2.26	2.99	3.72	4.44	5.88	7.30	8.72
.54	.382	.78	1.20	1.57	2.33	3.08	3.83	4.57	6.05	7.52	8.98
.55	.393	.80	1.23	1.62	2.40	3.17	3.94	4.70	6.23	7.74	9.25
.56	.404	.82	1.26	1.66	2.46	3.26	4.05	4.84	6.41	7.97	9.52
.57	.415	.85	1.30	1.70	2.52	3.35	4.16	4.98	6.59	8.20	9.79
.58	.427	.87	1.33	1.75	2.60	3.44	4.28	5.11	6.77	8.43	10.07
.59	.438	.89	1.37	1.80	2.66	3.53	4.39	5.25	6.96	8.66	10.35
.60	.450	.92	1.40	1.84	2.73	3.62	4.51	5.39	7.15	8.89	10.63
.61	.462	.94	1.44	1.88	2.80	3.72	4.63	5.53	7.34	9.13	10.92
.62	.474	.97	1.48	1.93	2.87	3.81	4.75	5.68	7.53	9.37	11.20
.63	.485	.99	1.51	1.98	2.95	3.91	4.87	5.82	7.72	9.61	11.49
.64	.497	1.02	1.55	2.03	3.02	4.01	4.99	5.97	7.91	9.85	11.78
.65	.509	1.04	1.59	2.08	3.10	4.11	5.11	6.12	8.11	10.10	12.08

GAUGE READING (FEET)	DISCHARGE IN C.F.S. FOR VARIOUS THROAT WIDTHS									
	3"	6"	9"	12"	18"	24"	30"	36"	48"	
.66	.522	1.07	1.63	2.13	3.17	4.20	5.23	6.26	8.31	
.67	.534	1.10	1.66	2.18	3.24	4.30	5.36	6.41	8.51	
.68	.546	1.12	1.70	2.23	3.32	4.40	5.48	6.56	8.71	
.69	.558	1.15	1.74	2.28	3.39	4.50	5.61	6.71	8.91	
.70	.571	1.17	1.78	2.33	3.47	4.60	5.74	6.86	9.11	
.71	.584	1.20	1.82	2.38	3.54	4.70	5.86	7.02	9.32	
.72	.597	1.23	1.86	2.43	3.62	4.81	5.99	7.17	9.53	
.73	.610	1.26	1.90	2.48	3.70	4.91	6.12	7.33	9.74	
.74	.623	1.28	1.94	2.53	3.78	5.02	6.25	7.49	9.95	
.75	.636	1.31	1.98	2.58	3.85	5.12	6.39	7.65	10.16	
.76	.649	1.34	2.02	2.63	3.93	5.23	6.52	7.81	10.38	
.77	.662	1.36	2.06	2.68	4.01	5.34	6.65	7.97	10.60	
.78	.675	1.39	2.10	2.74	4.09	5.44	6.79	8.13	10.81	
.79	.689	1.42	2.14	2.80	4.18	5.55	6.92	8.30	11.03	
.80	.702	1.45	2.18	2.85	4.26	5.66	7.06	8.46	11.25	
.81	.716	1.48	2.22	2.90	4.34	5.77	7.20	8.63	11.48	
.82	.730	1.50	2.27	2.96	4.42	5.88	7.34	8.79	11.70	
.83	.744	1.53	2.31	3.02	4.51	6.00	7.48	8.96	11.92	
.84	.757	1.56	2.35	3.07	4.59	6.11	7.62	9.13	12.15	
.85	.771	1.59	2.39	3.12	4.67	6.22	7.76	9.30	12.38	
.86	.786	1.62	2.44	3.18	4.76	6.33	7.91	9.48	12.61	
.87	.800	1.65	2.48	3.24	4.84	6.44	8.05	9.65	12.84	
.88	.814	1.68	2.52	3.29	4.92	6.56	8.19	9.82	13.07	
.89	.828	1.71	2.57	3.35	5.02	6.68	8.34	10.00	13.31	
.90	.843	1.74	2.61	3.41	5.11	6.80	8.49	10.17	13.55	
.91	.858	1.77	2.66	3.46	5.19	6.92	8.63	10.35	13.79	
.92	.872	1.81	2.70	3.52	5.28	7.03	8.78	10.53	14.03	
.93	.887	1.84	2.75	3.58	5.37	7.15	8.93	10.71	14.27	
.94	.902	1.87	2.79	3.64	5.46	7.27	9.08	10.89	14.51	
.95	.916	1.90	2.84	3.70	5.55	7.39	9.23	11.07	14.76	
.96	.931	1.93	2.88	3.76	5.64	7.51	9.38	11.26	15.00	1
.97	.946	1.97	2.93	3.82	5.73	7.63	9.54	11.44	15.25	1
.98	.961	2.00	2.98	3.88	5.82	7.75	9.69	11.63	15.50	1
.99	.977	2.03	3.02	3.94	5.91	7.88	9.85	11.82	15.75	1
1.00	.992	2.06	3.07	4.00	6.00	8.00	10.00	12.00	16.00	2
1.01	1.01	2.09	3.12	4.06	6.09	8.12	10.16	12.19	16.25	2
1.02	1.02	2.12	3.17	4.12	6.18	8.25	10.31	12.38	16.51	2
1.03	1.04	2.16	3.21	4.18	6.28	8.38	10.47	12.57	16.76	2
1.04	1.05	2.19	3.26	4.25	6.38	8.50	10.63	12.76	17.02	2
1.05	1.07	2.22	3.31	4.31	6.47	8.63	10.79	12.96	17.28	2
1.06	1.09	2.26	3.36	4.37	6.57	8.76	10.95	13.15	17.54	2
1.07	1.10	2.29	3.40	4.43	6.66	8.88	11.10	13.34	17.80	2
1.08	1.12	2.32	3.45	4.50	6.76	9.01	11.27	13.54	18.07	2
1.09	1.13	2.36	3.50	4.56	6.85	9.14	11.44	13.74	18.34	2
1.10	1.15	2.40	3.55	4.62	6.95	9.27	11.60	13.93	18.60	2
1.11	.....	2.43	3.60	4.68	7.04	9.40	11.77	14.13	18.86	2
1.12	.....	2.46	3.65	4.75	7.14	9.54	11.93	14.33	19.13	2
1.13	.....	2.50	3.70	4.82	7.24	9.67	12.10	14.53	19.40	2
1.14	.....	2.53	3.75	4.88	7.34	9.80	12.27	14.73	19.67	2
1.15	.....	2.57	3.80	4.94	7.44	9.94	12.43	14.94	19.94	2
1.16	.....	2.60	3.85	5.01	7.54	10.07	12.60	15.14	20.22	2
1.17	.....	2.64	3.90	5.08	7.64	10.20	12.77	15.34	20.50	2
1.18	.....	2.68	3.95	5.15	7.75	10.34	12.94	15.55	20.78	2
1.19	.....	2.71	4.01	5.21	7.85	10.48	13.12	15.76	21.05	2
1.20	.....	2.75	4.06	5.28	7.95	10.61	13.29	15.96	21.33	2

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