

PARSHALL FLUME FLOW TABLE

GAGE READING (ft)	DISCHARGE FOR VARIOUS THROAT WIDTHS (cfs)									
	3 in.	6 in.	9 in.	12 in.	18 in.	24 in.	30 in.	36 in.	48 in.	60 in.
0.10	0.028	0.05	0.09	---	---	---	---	---	---	---
0.11	0.033	0.06	0.10	---	---	---	---	---	---	---
0.12	0.037	0.07	0.12	---	---	---	---	---	---	---
0.13	0.042	0.08	0.14	---	---	---	---	---	---	---
0.14	0.047	0.09	0.15	---	---	---	---	---	---	---
0.15	0.053	0.10	0.17	---	---	---	---	---	---	---
0.16	0.058	0.11	0.19	---	---	---	---	---	---	---
0.17	0.064	0.13	0.20	---	---	---	---	---	---	---
0.18	0.070	0.14	0.22	---	---	---	---	---	---	---
0.19	0.076	0.15	0.24	---	---	---	---	---	---	---
0.20	0.082	0.16	0.26	0.33	0.50	0.66	0.81	0.96	1.26	---
0.21	0.089	0.17	0.28	0.35	0.54	0.71	0.88	1.04	1.36	---
0.22	0.095	0.19	0.30	0.38	0.58	0.77	0.94	1.12	1.47	---
0.23	0.102	0.20	0.32	0.40	0.63	0.82	1.01	1.20	1.57	---
0.24	0.109	0.22	0.35	0.43	0.67	0.88	1.08	1.28	1.68	---
0.25	0.116	0.23	0.37	0.46	0.71	0.93	1.15	1.37	1.80	2.22
0.26	0.123	0.25	0.39	0.49	0.76	0.99	1.22	1.46	1.91	2.36
0.27	0.131	0.26	0.41	0.52	0.80	1.05	1.30	1.54	2.03	2.50
0.28	0.138	0.28	0.44	0.55	0.85	1.11	1.37	1.63	2.15	2.65
0.29	0.146	0.29	0.46	0.58	0.89	1.17	1.45	1.73	2.27	2.80
0.30	0.154	0.31	0.49	0.61	0.94	1.24	1.53	1.82	2.39	2.96
0.31	0.162	0.32	0.51	0.64	0.99	1.30	1.61	1.92	2.52	3.12
0.32	0.170	0.34	0.54	0.68	1.04	1.37	1.69	2.01	2.65	3.28
0.33	0.179	0.36	0.56	0.71	1.09	1.44	1.78	2.11	2.78	3.44
0.34	0.187	0.37	0.59	0.74	1.14	1.50	1.86	2.22	2.92	3.61
0.35	0.196	0.39	0.62	0.78	1.19	1.57	1.95	2.32	3.05	3.78
0.36	0.204	0.41	0.64	0.81	1.25	1.64	2.03	2.42	3.19	3.95
0.37	0.213	0.43	0.67	0.85	1.30	1.71	2.12	2.53	3.33	4.13
0.38	0.222	0.45	0.70	0.88	1.35	1.79	2.21	2.64	3.48	4.31
0.39	0.231	0.47	0.73	0.92	1.41	1.86	2.30	2.75	3.62	4.49
0.40	0.240	0.48	0.76	0.95	1.47	1.93	2.40	2.86	3.77	4.67
0.41	0.250	0.50	0.78	0.99	1.52	2.01	2.49	2.97	3.92	4.86
0.42	0.259	0.52	0.81	1.03	1.58	2.09	2.59	3.08	4.07	5.05
0.43	0.269	0.54	0.84	1.07	1.64	2.16	2.68	3.20	4.22	5.24
0.44	0.279	0.56	0.87	1.11	1.70	2.24	2.78	3.32	4.38	5.43
0.45	0.288	0.58	0.90	1.15	1.76	2.32	2.88	3.44	4.54	5.63
0.46	0.298	0.60	0.94	1.19	1.82	2.40	2.98	3.56	4.70	5.83
0.47	0.308	0.62	0.97	1.23	1.88	2.48	3.08	3.68	4.86	6.03
0.48	0.319	0.65	1.00	1.27	1.94	2.57	3.19	3.80	5.03	6.24
0.49	0.329	0.67	1.03	1.31	2.00	2.65	3.29	3.93	5.19	6.45
0.50	0.339	0.69	1.06	1.35	2.07	2.73	3.39	4.05	5.36	6.66
0.51	0.350	0.71	1.10	1.39	2.13	2.82	3.50	4.18	5.53	6.87
0.52	0.361	0.73	1.13	1.43	2.19	2.90	3.61	4.31	5.70	7.08
0.53	0.372	0.76	1.16	1.48	2.26	2.99	3.72	4.44	5.88	7.30
0.54	0.382	0.78	1.20	1.52	2.33	3.08	3.83	4.57	6.05	7.52
0.55	0.393	0.80	1.23	1.56	2.39	3.17	3.94	4.71	6.23	7.74
0.56	0.405	0.82	1.26	1.61	2.46	3.26	4.05	4.84	6.41	7.97
0.57	0.416	0.85	1.30	1.65	2.53	3.35	4.16	4.98	6.59	8.20
0.58	0.427	0.87	1.33	1.70	2.60	3.44	4.28	5.11	6.77	8.43
0.59	0.439	0.89	1.37	1.74	2.66	3.53	4.39	5.25	6.96	8.66
0.60	0.450	0.92	1.41	1.79	2.73	3.62	4.51	5.39	7.15	8.89
0.61	0.462	0.94	1.44	1.84	2.81	3.72	4.63	5.53	7.34	9.13
0.62	0.474	0.97	1.48	1.88	2.88	3.81	4.75	5.68	7.53	9.37
0.63	0.485	0.99	1.51	1.93	2.95	3.91	4.87	5.82	7.72	9.61
0.64	0.497	1.02	1.55	1.98	3.02	4.01	4.99	5.97	7.91	9.85
0.65	0.509	1.04	1.59	2.03	3.09	4.10	5.11	6.11	8.11	10.10

GAGE READING (ft)	DISCHARGE FOR VARIOUS THROAT WIDTHS (cfs)									
	3 in.	6 in.	9 in.	12 in.	18 in.	24 in.	30 in.	36 in.	48 in.	60 in.
0.65	0.509	1.04	1.59	2.03	3.09	4.10	5.11	6.11	8.11	10.10
0.66	0.522	1.07	1.63	2.07	3.17	4.20	5.23	6.26	8.31	10.34
0.67	0.534	1.09	1.66	2.12	3.24	4.30	5.36	6.41	8.51	10.59
0.68	0.546	1.12	1.70	2.17	3.32	4.40	5.48	6.56	8.71	10.84
0.69	0.559	1.15	1.74	2.22	3.39	4.50	5.61	6.71	8.91	11.10
0.70	0.571	1.17	1.78	2.27	3.47	4.60	5.74	6.86	9.11	11.36
0.71	0.584	1.20	1.82	2.32	3.54	4.71	5.86	7.02	9.32	11.61
0.72	0.597	1.23	1.86	2.37	3.62	4.81	5.99	7.17	9.53	11.87
0.73	0.610	1.25	1.90	2.43	3.70	4.91	6.12	7.33	9.74	12.14
0.74	0.623	1.28	1.94	2.48	3.78	5.02	6.25	7.49	9.95	12.40
0.75	0.636	1.31	1.98	2.53	3.85	5.12	6.39	7.65	10.16	12.67
0.76	0.649	1.34	2.02	2.58	3.93	5.23	6.52	7.81	10.38	12.94
0.77	0.662	1.36	2.06	2.63	4.01	5.34	6.65	7.97	10.59	13.21
0.78	0.675	1.39	2.10	2.69	4.09	5.44	6.79	8.13	10.81	13.48
0.79	0.689	1.42	2.14	2.74	4.18	5.55	6.93	8.30	11.03	13.76
0.80	0.702	1.45	2.18	2.80	4.26	5.66	7.06	8.46	11.25	14.04
0.81	0.716	1.48	2.22	2.85	4.34	5.77	7.20	8.63	11.47	14.32
0.82	0.730	1.51	2.27	2.90	4.42	5.88	7.34	8.79	11.70	14.60
0.83	0.744	1.53	2.31	2.96	4.50	5.99	7.48	8.96	11.92	14.88
0.84	0.757	1.56	2.35	3.01	4.59	6.11	7.62	9.13	12.15	15.17
0.85	0.771	1.59	2.39	3.07	4.67	6.22	7.76	9.30	12.38	15.45
0.86	0.786	1.62	2.44	3.13	4.76	6.33	7.91	9.48	12.61	15.74
0.87	0.800	1.65	2.48	3.18	4.84	6.45	8.05	9.65	12.84	16.03
0.88	0.814	1.68	2.52	3.24	4.93	6.56	8.19	9.82	13.08	16.33
0.89	0.828	1.71	2.57	3.30	5.02	6.68	8.34	10.00	13.31	16.62
0.90	0.843	1.74	2.61	3.35	5.10	6.79	8.49	10.17	13.55	16.92
0.91	0.857	1.77	2.66	3.41	5.19	6.91	8.63	10.35	13.79	17.22
0.92	0.872	1.81	2.70	3.47	5.28	7.03	8.78	10.53	14.03	17.52
0.93	0.887	1.84	2.75	3.53	5.37	7.15	8.93	10.71	14.27	17.82
0.94	0.901	1.87	2.79	3.59	5.46	7.27	9.08	10.89	14.51	18.13
0.95	0.916	1.90	2.84	3.65	5.54	7.39	9.23	11.07	14.76	18.44
0.96	0.931	1.93	2.88	3.71	5.63	7.51	9.38	11.26	15.00	18.75
0.97	0.946	1.96	2.93	3.77	5.73	7.63	9.54	11.44	15.25	19.06
0.98	0.961	2.00	2.98	3.83	5.82	7.75	9.69	11.63	15.50	19.37
0.99	0.977	2.03	3.02	3.89	5.91	7.88	9.84	11.81	15.75	19.68
1.00	0.992	2.06	3.07	3.95	6.00	8.00	10.00	12.00	16.00	20.00
1.01	1.007	2.09	3.12	4.01	6.09	8.12	10.16	12.19	16.25	20.32
1.02	1.023	2.13	3.16	4.07	6.19	8.25	10.31	12.38	16.51	20.64
1.03	1.038	2.16	3.21	4.14	6.28	8.37	10.47	12.57	16.76	20.96
1.04	1.054	2.19	3.26	4.20	6.37	8.50	10.63	12.76	17.02	21.28
1.05	1.070	2.23	3.31	4.26	6.47	8.63	10.79	12.95	17.28	21.61
1.06	1.086	2.26	3.36	4.32	6.56	8.76	10.95	13.15	17.54	21.94
1.07	1.101	2.29	3.40	4.39	6.66	8.88	11.11	13.34	17.80	22.27
1.08	1.117	2.33	3.45	4.45	6.75	9.01	11.27	13.54	18.07	22.60
1.09	1.133	2.36	3.50	4.51	6.85	9.14	11.44	13.73	18.33	22.93
1.10	1.150	2.39	3.55	4.58	6.95	9.27	11.60	13.93	18.60	23.27
1.11	1.166	2.43	3.60	4.64	7.04	9.40	11.77	14.13	18.86	23.60
1.12	1.182	2.46	3.65	4.71	7.14	9.54	11.93	14.33	19.13	23.94
1.13	1.198	2.50	3.70	4.77	7.24	9.67	12.10	14.53	19.40	24.28
1.14	1.215	2.53	3.75	4.84	7.34	9.80	12.27	14.73	19.67	24.62
1.15	1.231	2.57	3.80	4.91	7.44	9.93	12.43	14.94	19.95	24.97
1.16	1.248	2.60	3.85	4.97	7.54	10.07	12.60	15.14	20.22	25.31
1.17	1.265	2.64	3.90	5.04	7.64	10.20	12.77	15.35	20.50	25.66
1.18	1.281	2.68	3.95	5.11	7.74	10.34	12.94	15.55	20.77	26.01
1.19	1.298	2.71	4.01	5.17	7.84	10.48	13.11	15.76	21.05	26.36
1.20	1.315	2.75	4.06	5.24	7.94	10.61	13.29	15.97	21.33	26.71



PARSHALL FLUME FLOW TABLE

GAGE READING (ft)	DISCHARGE FOR VARIOUS THROAT WIDTHS (cfs)								
	9 in.	12 in.	18 in.	24 in.	30 in.	36 in.	48 in.	60 in.	72 in.
1.20	4.06	5.24	7.94	10.61	13.29	15.97	21.33	26.71	32.10
1.21	4.11	5.31	8.04	10.75	13.46	16.17	21.61	27.07	32.53
1.22	4.16	5.38	8.15	10.89	13.63	16.38	21.90	27.42	32.95
1.23	4.21	5.44	8.25	11.03	13.81	16.60	22.18	27.78	33.39
1.24	4.27	5.51	8.35	11.17	13.98	16.81	22.47	28.14	33.82
1.25	4.32	5.58	8.46	11.30	14.16	17.02	22.75	28.50	34.26
1.26	4.37	5.65	8.56	11.45	14.34	17.23	23.04	28.86	34.69
1.27	4.43	5.72	8.67	11.59	14.51	17.45	23.33	29.23	35.13
1.28	4.48	5.79	8.77	11.73	14.69	17.66	23.62	29.59	35.58
1.29	4.53	5.86	8.88	11.87	14.87	17.88	23.91	29.96	36.02
1.30	4.59	5.93	8.98	12.01	15.05	18.10	24.21	30.33	36.47
1.31	4.64	6.00	9.09	12.16	15.23	18.32	24.50	30.70	36.92
1.32	4.69	6.07	9.20	12.30	15.41	18.54	24.80	31.07	37.37
1.33	4.75	6.15	9.30	12.45	15.60	18.76	25.09	31.45	37.82
1.34	4.80	6.22	9.41	12.59	15.78	18.98	25.39	31.82	38.27
1.35	4.86	6.29	9.52	12.74	15.96	19.20	25.69	32.20	38.73
1.36	4.91	6.36	9.63	12.88	16.15	19.42	25.99	32.58	39.19
1.37	4.97	6.43	9.74	13.03	16.33	19.65	26.29	32.96	39.65
1.38	5.03	6.51	9.85	13.18	16.52	19.87	26.60	33.34	40.11
1.39	5.08	6.58	9.96	13.33	16.71	20.10	26.90	33.73	40.58
1.40	5.14	6.65	10.07	13.48	16.90	20.33	27.21	34.11	41.04
1.41	5.19	6.73	10.18	13.62	17.08	20.55	27.51	34.50	41.51
1.42	5.25	6.80	10.29	13.77	17.27	20.78	27.82	34.89	41.98
1.43	5.31	6.88	10.40	13.93	17.46	21.01	28.13	35.28	42.45
1.44	5.36	6.95	10.51	14.08	17.65	21.24	28.44	35.67	42.93
1.45	5.42	7.03	10.63	14.23	17.85	21.47	28.76	36.07	43.40
1.46	5.48	7.10	10.74	14.38	18.04	21.71	29.07	36.46	43.88
1.47	5.54	7.18	10.85	14.53	18.23	21.94	29.38	36.86	44.36
1.48	5.59	7.25	10.97	14.69	18.42	22.17	29.70	37.26	44.84
1.49	5.65	7.33	11.08	14.84	18.62	22.41	30.02	37.66	45.33
1.50	5.71	7.41	11.19	15.00	18.81	22.64	30.34	38.06	45.81
1.51	5.77	7.48	11.31	15.15	19.01	22.88	30.66	38.47	46.30
1.52	5.83	7.56	11.42	15.31	19.21	23.12	30.98	38.87	46.79
1.53	5.88	7.64	11.54	15.46	19.40	23.36	31.30	39.28	47.28
1.54	5.94	7.71	11.66	15.62	19.60	23.60	31.62	39.69	47.78
1.55	6.00	7.79	11.77	15.78	19.80	23.84	31.95	40.10	48.27
1.56	6.06	7.87	11.89	15.94	20.00	24.08	32.27	40.51	48.77
1.57	6.12	7.95	12.01	16.09	20.20	24.32	32.60	40.92	49.27
1.58	6.18	8.03	12.13	16.25	20.40	24.56	32.93	41.33	49.77
1.59	6.24	8.11	12.24	16.41	20.60	24.81	33.26	41.75	50.28
1.60	6.30	8.18	12.36	16.57	20.80	25.05	33.59	42.17	50.78
1.61	----	8.26	12.48	16.73	21.01	25.30	33.92	42.59	51.29
1.62	----	8.34	12.60	16.90	21.21	25.54	34.25	43.01	51.80
1.63	----	8.42	12.72	17.06	21.42	25.79	34.59	43.43	52.31
1.64	----	8.50	12.84	17.22	21.62	26.04	34.92	43.85	52.82
1.65	----	8.58	12.96	17.38	21.83	26.29	35.26	44.28	53.33

GAGE READING (ft)	DISCHARGE FOR VARIOUS THROAT WIDTHS (cfs)							
	12 in.	18 in.	24 in.	30 in.	36 in.	48 in.	60 in.	72 in.
1.65	8.58	12.96	17.38	21.83	26.29	35.26	44.28	53.33
1.66	8.66	13.08	17.55	22.03	26.54	35.60	44.70	53.85
1.67	8.75	13.20	17.71	22.24	26.79	35.94	45.13	54.37
1.68	8.83	13.33	17.88	22.45	27.04	36.28	45.56	54.89
1.69	8.91	13.45	18.04	22.66	27.29	36.62	45.99	55.41
1.70	8.99	13.57	18.21	22.87	27.55	36.96	46.43	55.93
1.71	9.07	13.69	18.37	23.08	27.80	37.30	46.86	56.46
1.72	9.16	13.82	18.54	23.29	28.06	37.65	47.30	56.99
1.73	9.24	13.94	18.71	23.50	28.31	37.99	47.73	57.52
1.74	9.32	14.07	18.87	23.71	28.57	38.34	48.17	58.05
1.75	9.40	14.19	19.04	23.92	28.83	38.69	48.61	58.58
1.76	9.49	14.31	19.21	24.14	29.09	39.04	49.05	59.12
1.77	9.57	14.44	19.38	24.35	29.34	39.39	49.50	59.65
1.78	9.65	14.57	19.55	24.57	29.60	39.74	49.94	60.19
1.79	9.74	14.69	19.72	24.78	29.87	40.09	50.39	60.73
1.80	9.82	14.82	19.89	25.00	30.13	40.45	50.83	61.27
1.81	9.91	14.94	20.06	25.21	30.39	40.80	51.28	61.82
1.82	9.99	15.07	20.24	25.43	30.65	41.16	51.73	62.36
1.83	10.08	15.20	20.41	25.65	30.92	41.52	52.19	62.91
1.84	10.16	15.33	20.58	25.87	31.18	41.88	52.64	63.46
1.85	10.25	15.46	20.75	26.09	31.45	42.24	53.09	64.01
1.86	10.34	15.58	20.93	26.31	31.72	42.60	53.55	64.56
1.87	10.42	15.71	21.10	26.53	31.98	42.96	54.01	65.12
1.88	10.51	15.84	21.28	26.75	32.25	43.32	54.47	65.67
1.89	10.60	15.97	21.45	26.97	32.52	43.69	54.93	66.23
1.90	10.68	16.10	21.63	27.20	32.79	44.05	55.39	66.79
1.91	10.77	16.23	21.81	27.42	33.06	44.42	55.85	67.35
1.92	10.86	16.36	21.98	27.64	33.33	44.78	56.32	67.91
1.93	10.94	16.50	22.16	27.87	33.60	45.15	56.78	68.48
1.94	11.03	16.63	22.34	28.09	33.88	45.52	57.25	69.05
1.95	11.12	16.76	22.52	28.32	34.15	45.89	57.72	69.61
1.96	11.21	16.89	22.70	28.55	34.43	46.27	58.19	70.18
1.97	11.30	17.02	22.88	28.77	34.70	46.64	58.66	70.76
1.98	11.39	17.16	23.06	29.00	34.98	47.01	59.14	71.33
1.99	11.48	17.29	23.24	29.23	35.25	47.39	59.61	71.90
2.00	11.57	17.43	23.42	29.46	35.53	47.76	60.09	72.48
2.10	12.47	18.78	25.26	31.79	38.35	51.59	64.92	78.35
2.20	13.41	20.18	27.15	34.18	41.25	55.52	69.90	84.38
2.30	14.36	21.60	29.08	36.63	44.23	59.55	75.01	90.58
2.40	15.34	23.07	31.07	39.14	47.27	63.69	80.25	96.94
2.50	16.35	24.56	33.10	41.71	50.40	67.92	85.62	103.46
2.60	----	----	----	44.34	53.59	72.26	91.12	110.13
2.70	----	----	----	47.03	56.85	76.69	96.74	116.96
2.80	----	----	----	49.77	60.18	81.22	102.49	123.95
2.90	----	----	----	52.57	63.58	85.85	108.36	131.08
3.00	----	----	----	55.42	67.05	90.56	114.35	138.36

FORMULAS USED TO COMPLETE THIS TABLE	
THROAT WIDTHS	FORMULAS
3"	$Q = 0.992h_a^{1.547}$
6"	$Q = 2.06h_a^{1.58}$
9"	$Q = 3.07h_a^{1.53}$
12"	$Q = 3.95h_a^{1.55}$
18" - 72"	$Q = 4.00Wh_a^{1.522(W^{0.026})}$
Where:	
Q = Discharge in cubic feet per second (cfs)	
h_a = Depth of water in flume inlet in feet (ft)	
W = Flume throat width in feet (ft)	
Source: Water Measurement Manual, U.S. Dept. of the Interior	

CHECKING FOR FLUME ACCURACY	✓
No water level drop through the flume throat?	
Level end to end?	
Level side to side?	
Entrance conditions?	
Exit conditions?	
Staff gage properly set?	

CONVERSIONS	
1 cfs	= 448.8 gpm
1 cfs/day	= 1.98 acre feet/day

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