

Air Flow Through An Orifice

Pressure

Downstream Pressure = 14.7 psia

Cd (discharge coefficient) = 0.65

Air Temperature = 70 degrees F

Up Stream Pressure psig	Orifice Diameters										
	1/64	1/32	1/16	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1
1.00	0.02	0.07	0.29	1.1	4.6	10	18	29	41	56	73
2.00	0.03	0.10	0.40	1.6	6.4	14	26	40	58	79	103
3.00	0.03	0.12	0.49	2.0	7.9	18	31	49	71	96	126
4.00	0.04	0.14	0.57	2.3	9.1	20	36	57	82	111	145
5.00	0.04	0.16	0.63	2.5	10	23	40	63	91	124	162
6.00	0.04	0.17	0.69	2.8	11	25	44	69	99	135	177
7.00	0.05	0.19	0.74	3.0	12	27	48	74	107	146	190
8.00	0.05	0.20	0.79	3.2	13	29	51	79	114	156	203
9.00	0.05	0.21	0.84	3.4	13	30	54	84	121	165	215
10.00	0.06	0.22	0.88	3.5	14	32	57	88	127	173	226
15.00	0.07	0.27	1.1	4.3	17	39	69	107	154	210	275
20.00	0.08	0.31	1.3	5.0	20	45	80	125	180	246	321
25.00	0.09	0.36	1.4	5.7	23	52	92	143	206	281	367
30.00	0.10	0.40	1.6	6.5	26	58	103	161	232	316	413
35.00	0.11	0.45	1.8	7.2	29	65	115	179	258	352	459
40.00	0.12	0.49	2.0	7.9	32	71	126	198	284	387	506
45.00	0.13	0.54	2.2	8.6	34	78	138	216	310	423	552
50.00	0.15	0.58	2.3	9.3	37	84	150	234	336	458	598
60.00	0.17	0.67	2.7	11	43	97	173	270	388	529	691
70.00	0.19	0.76	3.1	12	49	110	196	306	440	600	783
80.00	0.21	0.85	3.4	14	55	123	219	342	492	670	876
90.00	0.24	0.95	3.8	15	60	136	242	378	544	741	968
100.00	0.26	1.0	4.1	17	66	149	265	414	596	812	1060

Vacuum

Up-Stream Pressure = 29.92 in Hg

Cd (discharge coefficient) = 0.65

Air Temperature = 70 Degrees F

Down Stream Vacuum Inches Hg	Orifice Diameters																			
	1/32	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3
0.50	0.035	0.14	0.56	1.3	2.2	3.5	5.1	6.9	9.0	14	20	36	56	81	110	144	182	225	272	324
1.00	0.049	0.20	0.79	1.8	3.1	4.9	7.1	9.6	13	20	28	50	79	113	154	202	255	315	381	453
2.00	0.068	0.27	1.1	2.5	4.4	6.8	9.8	13	17	27	39	70	109	157	214	280	354	437	529	629
3.00	0.082	0.33	1.3	3.0	5.2	8.2	11.81	16	21	33	47	84	131	189	257	336	425	525	635	756
4.00	0.093	0.37	1.5	3.3	5.9	9.3	13.36	18	24	37	53	95	148	214	291	380	481	594	718	855
5.00	0.10	0.41	1.6	3.7	6.5	10	14.62	20	26	41	58	104	162	234	318	416	526	650	786	936
6.00	0.11	0.44	1.7	3.9	7.0	11	15.66	21	28	44	63	111	174	251	341	446	564	696	842	1002
7.00	0.11	0.46	1.8	4.1	7.3	11	16.53	22	29	46	66	118	184	264	360	470	595	735	889	1058
8.00	0.12	0.48	1.9	4.3	7.7	12	17.25	23	31	48	69	123	192	276	376	491	621	766	927	1104
9.00	0.12	0.50	2.0	4.5	7.9	12	17.83	24	32	50	71	127	198	285	388	507	642	792	959	1141
10.00	0.13	0.51	2.0	4.6	8.1	13	18.29	25	33	51	73	130	203	293	398	520	659	813	984	1171
11.00	0.13	0.52	2.1	4.7	8.3	13	18.65	25	33	52	75	133	207	298	406	530	671	829	1003	1193
12.00	0.13	0.52	2.1	4.7	8.4	13	18.90	26	34	52	76	134	210	302	412	538	680	840	1016	1210
13.00	0.13	0.53	2.1	4.8	8.5	13	19.05	26	34	53	76	135	212	305	415	542	686	847	1025	1219
14.00	0.13	0.53	2.1	4.8	8.5	13	19.11	26	34	53	76	136	212	306	416	544	688	849	1028	1223
15.00	0.13	0.53	2.1	4.8	8.5	13	19.11	26	34	53	76	136	212	306	416	544	688	849	1028	1223

Air Flow Through An Orifice (in CFM)

- Downstream pressure = 14.7 psia (standard atmospheric pressure)
- Air Temperature = 70°F (21°C)
- Cd (discharge coefficient) = 0.65 (for sharp edge orifice — See drawing)



Up Stream Pressure

in. H ₂ O	Orifice Diameters (in Inches)																		
	1/32	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3
1.00	0.014	0.054	0.217	0.489	0.869	1.36	1.96	2.66	3.48	7.82	13.9	21.7	31.3	42.6	55.6	70.4	86.9	105	125
2.00	0.019	0.077	0.307	0.691	1.23	1.92	2.76	3.76	4.92	11.1	19.7	30.7	44.2	60.2	78.6	99.5	123	149	177
3.00	0.024	0.094	0.376	0.846	1.50	2.35	3.39	4.61	6.02	13.5	24.1	37.6	54.2	73.7	96.3	122	150	182	217
4.00	0.027	0.109	0.434	0.977	1.74	2.71	3.91	5.32	6.95	15.6	27.8	43.4	62.6	85.1	111	141	174	210	250
5.00	0.030	0.121	0.486	1.09	1.94	3.04	4.37	5.95	7.77	17.5	31.1	48.6	69.9	95.2	124	157	194	235	280
10.00	0.043	0.172	0.686	1.54	2.75	4.29	6.18	8.41	11.0	24.7	43.9	68.6	98.9	135	176	222	275	332	395
15.00	0.053	0.210	0.840	1.89	3.36	5.25	7.56	10.3	13.4	30.3	53.8	84.0	121	165	215	272	336	407	484
20.00	0.061	0.242	0.970	2.18	3.88	6.06	8.73	11.9	15.5	34.9	62.1	97.0	140	190	248	314	388	469	559
25.00	0.068	0.271	1.08	2.44	4.34	6.77	9.76	13.3	17.3	39.0	69.4	108	156	212	277	351	434	525	624
30.00	0.074	0.297	1.19	2.67	4.75	7.42	10.7	14.5	19.0	42.7	76.0	119	171	233	304	385	475	574	684
35.00	0.080	0.320	1.28	2.88	5.13	8.01	11.5	15.7	20.5	46.1	82.0	128	185	251	328	415	513	620	738
40.00	0.086	0.342	1.37	3.08	5.48	8.56	12.3	16.8	21.9	49.3	87.6	137	197	268	351	444	548	663	789
45.00	0.091	0.363	1.45	3.27	5.81	9.07	13.1	17.8	23.2	52.3	92.9	145	209	285	372	470	581	703	836
50.00	0.096	0.382	1.53	3.44	6.12	9.56	13.8	18.7	24.5	55.1	97.9	153	220	300	392	496	612	740	881
55.00	0.100	0.401	1.60	3.61	6.41	10.0	14.4	19.6	25.7	57.7	103	160	231	314	411	520	641	776	924
60.00	0.105	0.419	1.67	3.77	6.70	10.5	15.1	20.5	26.8	60.3	107	167	241	328	429	542	670	810	964
65.00	0.109	0.435	1.74	3.92	6.97	10.9	15.7	21.3	27.9	62.7	111	174	251	341	446	564	697	843	1003
70.00	0.113	0.452	1.81	4.06	7.23	11.3	16.3	22.1	28.9	65.0	116	181	260	354	463	585	723	874	1041
75.00	0.117	0.467	1.87	4.21	7.48	11.7	16.8	22.9	29.9	67.3	120	187	269	366	479	606	748	905	1077
80.00	0.121	0.482	1.93	4.34	7.72	12.1	17.4	23.6	30.9	69.5	124	193	278	378	494	625	772	934	1112
85.00	0.124	0.497	1.99	4.47	7.95	12.4	17.9	24.4	31.8	71.6	127	199	286	390	509	644	795	962	1145
90.00	0.128	0.511	2.04	4.60	8.18	12.8	18.4	25.1	32.7	73.6	131	204	294	401	524	663	818	990	1178
95.00	0.131	0.525	2.10	4.73	8.40	13.1	18.9	25.7	33.6	75.6	134	210	302	412	538	680	840	1016	1210
100.00	0.135	0.538	2.15	4.85	8.61	13.5	19.4	26.4	34.5	77.5	138	215	310	422	551	698	861	1042	1241
105.00	0.138	0.551	2.21	4.96	8.82	13.8	19.9	27.0	35.3	79.4	141	221	318	432	565	715	882	1068	1271
110.00	0.141	0.564	2.26	5.08	9.03	14.1	20.3	27.6	36.1	81.2	144	226	325	442	578	731	903	1092	1300

