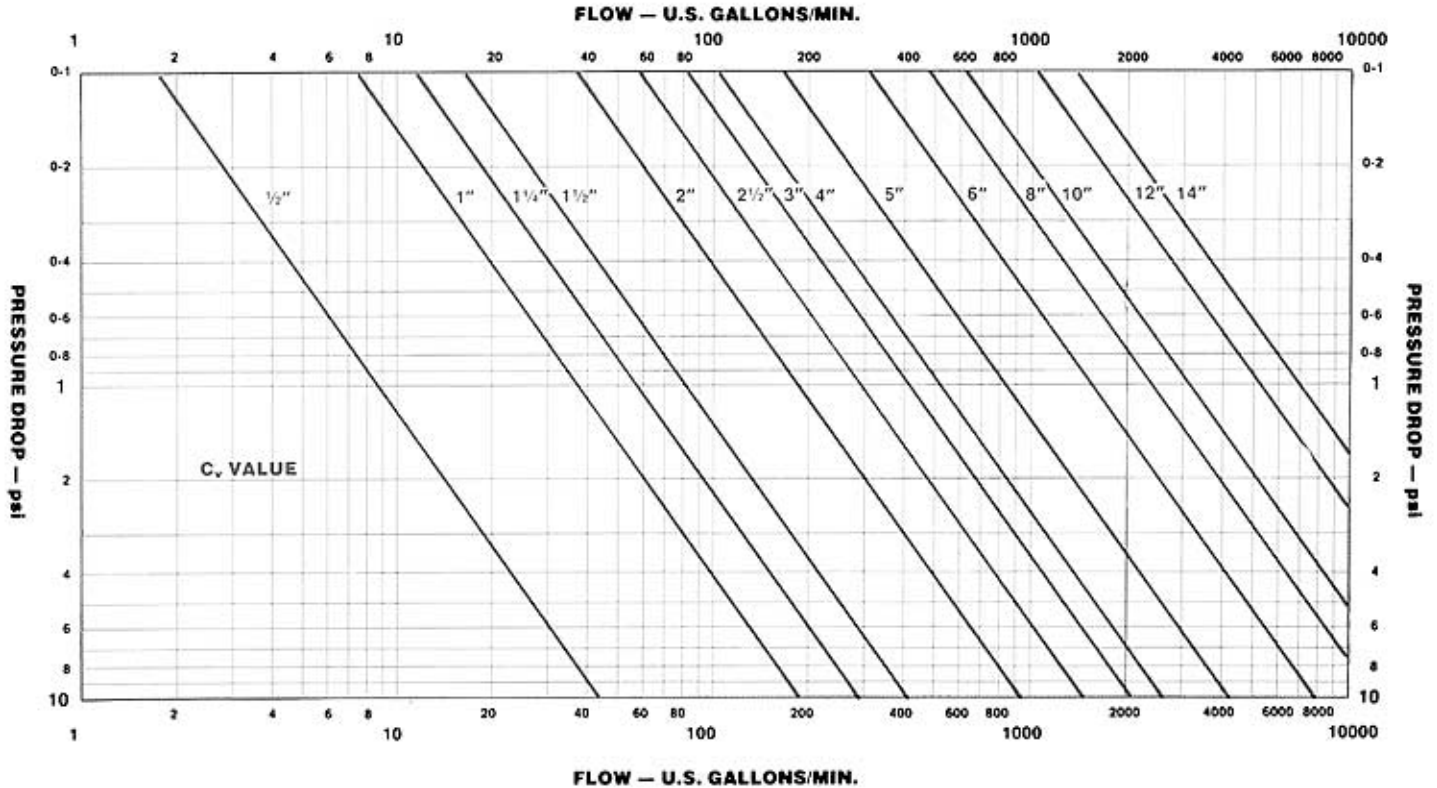


# STRAIGHT THRU PERFORMANCE DATA

## FLOW COEFFICIENT — C<sub>v</sub> — OF STRAIGHT THRU DIAPHRAGM VALVE

By definition the valve flow coefficient C<sub>v</sub> is "the number of gallons per minute of water which will pass through a given flow restriction with a pressure drop of 1 psi".



This graph applies to water and to unlined valves. **Liquid Flow Formula**  $Q = C_v \sqrt{\frac{\Delta P}{G}}$

Where Q = Flow (US gallons/minute)  $\Delta P$  = Pressure drop.  
C<sub>v</sub> = Flow coefficient from graph. G = Specific Gravity

**Gas Flow Formula**  $Q = 1360 C_v \sqrt{\frac{\Delta P}{GT} \frac{P_1 + P_2}{2}}$

$\Delta P = (P_1 - P_2)$  Pressure Drop — psi.  
C<sub>v</sub> = Flow in GPM (water) at 1 psi Pressure Drop.  
Q = Volumetric Flow (SCFH).

G = Specific Gravity of Gas (Air @ 14.7 and 60°F = 1.0)  
T = Absolute Temperature of Flowing Medium (°F + 460).

P<sub>1</sub> = Inlet pressure — psia.  
P<sub>2</sub> = Outlet pressure — psia.

Screwed End Metal				
% Open	1/2"	1"	1 1/2"	2"
10	1.4	3	9.4	14.8
20	2.8	6	18.7	30
30	4.3	9.3	28.9	46
40	5.8	12.5	39	62
50	7	15	47	74
60	8.2	17.5	55	86
70	9	19.3	60	95
80	9.9	21.3	66	105
90	10.9	23.3	73	114
100	11.7	25	78	123

Flanged End—Unlined													
% Open	1/2"	1"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"
10	1	4.5	9	15	29	40	71	111	202	310	482	727	1236
20	2.1	9.1	18	31	57	79	141	222	403	619	965	1454	2472
30	3.2	14	28	47	88	122	216	342	622	955	1487	2242	3811
40	4.3	18.9	38	64	119	165	294	462	840	1290	2010	3030	5150
50	5.2	22.7	45	77	143	198	353	554	1008	1548	2412	3636	6180
60	6	26.5	52	90	167	231	412	647	1176	1806	2814	4242	7210
70	6.6	29.1	58	99	183	254	453	711	1294	1987	3095	4666	7931
80	7.3	32.1	64	109	202	281	500	785	1428	2193	3417	5151	8755
90	8	35.1	70	119	221	307	547	859	1562	2399	3739	5636	9579
100	8.6	37.8	75	128	238	330	588	924	1680	2580	4020	6060	10300

Flanged End—Rubber Lined												
% Open	1"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	14"	
10	3.7	7.9	12.8	23	32	58	86	151	264	410	586	1194
20	7.3	15.8	26	47	63	115	173	302	527	821	1172	2388
30	11.3	24.4	40	72	98	178	266	466	813	1265	1807	3681
40	15.3	33	53	97	132	240	360	630	1098	1710	2442	4975
50	18.4	40	64	117	158	288	432	756	1318	2052	2930	5970
60	21.4	46	75	136	185	336	504	882	1537	2394	3419	6965
70	23.6	51	82	150	203	370	554	970	1691	2633	3761	7661
80	26	56	91	166	224	408	612	1071	1867	2907	4151	8457
90	28.4	61	99	181	246	446	670	1172	2042	3181	4542	9253
100	30.6	66	107	195	264	480	720	1260	2196	3420	4884	9950

Flanged End—Glass/Plastic Lined											
% Open	1/2"	1"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"
10	1.1	4.7	9.5	16.6	30	41	74	115	216	327	516
20	2.2	9.4	18.9	33	61	82	148	230	432	653	1031
30	3.3	14.4	29.2	51	94	127	229	355	666	1008	1590
40	4.5	19.5	40	69	127	171	309	480	900	1362	2148
50	5.4	23.4	47	83	152	205	371	576	1080	1634	2578
60	6.3	27.3	55	97	178	239	433	672	1260	1907	3007
70	6.9	30	61	106	196	263	476	739	1386	2097	3308
80	7.7	33	67	117	216	291	525	816	1530	2315	3652
90	8.4	36	73	128	236	318	575	893	1674	2533	3995
100	9	39	79	138	254	342	618	960	1800	2724	4296