



FLOW RATE DATA SHEET BUTTERFLY VALVE 2" – 48" SERIES 700

Cv Value of Concentric Butterfly Valve

Size	Flow in Gpm @ 1PSI P @ Various Disc Angles								
	10°	20°	30°	40°	50°	60°	70°	80°	Full 90° Open
2"	0.1	5	12	24	45	64	90	125	135
2.5"	0.2	8	20	37	65	98	144	204	220
3"	0.3	12	22	39	70	116	183	275	302
4"	0.5	17	36	78	139	230	364	546	600
5"	0.8	29	61	133	237	392	620	930	1022
6"	2	45	95	205	366	605	958	1437	1579
8"	3	89	188	408	727	1202	1903	2854	3136
10"	4	151	320	694	1237	2047	3240	4859	5340
12"	5	234	495	1072	1911	3162	5005	7505	8250
14"	6	338	715	1549	2761	4568	7230	10844	11917
16"	8	464	983	2130	3797	6282	9942	14913	16388
18"	11	615	1302	2822	5028	8320	13168	19752	21705
20"	14	791	1674	3628	6465	10698	16931	25396	27908
24"	22	1222	2587	5605	9989	16528	26157	39236	43116
28"	30	1663	3522	7630	12599	20036	30482	46899	58696
30"	35	1912	4050	8142	13152	20411	31226	47562	63328
32"	45	2387	4791	8736	13788	20613	31395	48117	68250
34"	51	2697	5414	9872	15580	23293	35476	54372	77123
36"	60	3021	6063	11055	17449	26086	39731	60895	86375
40"	84	4183	8395	15307	24159	36166	55084	84425	119750
42"	93	4601	9235	16838	26575	39783	60592	92868	131725
48"	121	5981	12001	21890	34548	51718	78770	120728	171243

Rate of Flow Calculations

For Liquids:

To determine the flow rate of a liquid passing through a valve use the following formula:

$$QL = Cv \times \sqrt{\frac{\Delta P}{SL}}$$

Where: QL = Flow of liquid in GPM
Cv = Flow Coefficient
 ΔP = Pressure drop (psi)
SL = Specific gravity of liquid

For Gases:

For gases the relationship between flow in standard cubic feet per hour Qg and pressure drop is described by the following formula:

$$Qg \text{ 1360} = x \text{ Cv} \sqrt{\frac{\Delta P}{SgT}} \times \sqrt{\frac{P1 + P2}{2}}$$

Where:

Qg = Volumetric flow of gas (SCFH)

Sg = Specific gravity of gas (air @ 14.7PSIA and 60° F = 1)

P1 = Inlet pressure (PSIA)

T = Absolute temperature of flowing medium (° F + 460)

P2 = Outlet pressure (PSIA)

Cv + Flow in GPM of water @ 1PSI pressure drop. Flow coefficient.

ΔP = (P1 - P2) Pressure drop (PSIA)

Pressure Drop Calculation:

To determine the pressure drop of a liquid passing through a butterfly valve use the following formula:

$$\Delta P = SL \left(\frac{QL}{Cv} \right)^2$$