

“SRS” SERIES - OPERATING CHARACTERISTICS FOR SIZING

The size of butterfly valve used for control purpose should be calculated on the basis of the operating characteristics.

In order to achieve optimum control, the flow coefficient (Cv, Kv) below need to be considered.

Flow Coefficient for “SRS” Series Butterfly Valves

SIZE		DISC OPENING															
		20°		30°		40°		50°		60°		70°		80°		90°	
		Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv
40	1½	2.6	3	4.3	5	9.5	11	16	18	22	26	39	45	60	70	69	80
50	2	6.7	8	7.8	9	16	18	24	28	48	55	62	72	95	110	116	135
65	2½	8.6	10	13	15	23	27	38	44	73	85	95	110	145	168	181	210
80	3	13	15	20	23	34	39	56	66	112	130	142	165	216	250	267	310
100	4	23	27	35	41	61	71	99	115	198	230	259	300	401	465	466	540
125	5	50	58	74	86	129	150	211	245	414	480	526	610	845	980	948	1100
150	6	83	96	121	140	211	245	345	400	677	785	871	1010	1392	1615	1647	1910
200	8	142	165	211	245	354	410	591	685	1099	1275	1478	1715	2302	2670	2746	3185
250	10	220	255	328	380	560	650	974	1130	1810	2100	2328	2700	3664	4250	4224	4900
300	12	319	370	466	540	819	950	1353	1570	2629	3050	3405	3950	5129	5950	6336	7350
350	14	388	450	647	750	1120	1300	1905	2210	3517	4080	4836	5610	6964	8078	9655	11200
400	16	552	640	776	900	1483	1720	2405	2790	4310	5000	6336	7650	9284	10770	1112	12900
450	18	630	730	1078	1250	1978	2295	3190	3700	6078	7050	7914	9180	11983	13900	15086	17500
500	20	785	910	1375	1595	2457	2850	3991	4630	7414	8600	9914	11500	15121	17540	19310	22400
600	24	1078	1250	1974	2290	3448	4000	5250	6090	10776	12500	14224	16600	20336	23590	24377	28300

▼ **Cv** is in Imperial units, the water flow rate in U.S. gallons per minute which passes through the valve giving a pressure drop of 1 psi at a temperature of 68°F.

In metric units the same coefficient is called **Kv** and correspond to the flow rate in m³/h passing through the valve giving a pressure drop of 1 bar at a temperature of 20°C

The approximate corresponding formulas are :

$$Q = C_v \cdot \sqrt{\frac{\Delta P \cdot 62.4}{D}}$$

where :

- Q** = valve flow rate in gpm (USGPM)
- ΔP** = pounds per square inch (psi) pressure drop through the valve
- 62.4** = conversion factor for fluids computed in relation to water
- D** = lb per cu.ft (pcf) fluid density

$$Q = K_v \cdot \sqrt{\frac{\Delta P \cdot 1000}{D}}$$

where :

- Q** = valve flow rate in m³/h
- ΔP** = pressure drop through the valve in bar
- 1000** = conversion factor for fluids computed in relation to water
- D** = kg/m³ fluid density

The relation between Cv and Kv, expressed in the above mentioned unit of measure is as follows :

$$C_v = 1.16 K_v$$