CV VALUES for KVC 1000, 2000 & 4000 SERIES BUTTERFLY VALVES

CV is the flow coefficient for valves: expresses flow rate in US gallons per minute of 60° F clean water with a 1.0 psi pressure drop across the valve.

Size		Disc Position (in degrees)								
in	mm	10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	0.1	5	12	24	45	64	90	125	135
2 ½	65	0.2	8	20	37	65	98	144	204	220
3	80	0.3	12	22	39	70	116	183	275	302
4	100	0.5	17	36	78	139	230	364	576	600
5	125	0.8	29	61	133	237	392	620	930	1022
6	150	2	45	95	205	366	605	958	1437	1579
8	200	3	89	188	408	727	1202	1903	2854	3136
10	250	4	151	320	694	1237	2047	3240	4859	5340
12	300	5	234	495	1072	1911	3162	5005	7507	8250
14	350	6	338	715	1549	2761	4568	7230	10844	11917
16	400	8	464	983	2130	3797	6282	9942	14913	16388
18	450	11	615	1302	2822	5028	8320	13168	19752	21705
20	500	14	791	1674	3628	6465	10698	16931	25396	27908
24	600	22	1222	2587	5605	9989	16528	26157	39236	43116
36	900	60	3021	6063	11055	17449	26086	39731	60895	86375
48	1200	134	6188	12426	22675	35794	53424	80945	124531	176640

$$C_V = Q\sqrt{\frac{G}{\Delta P}} \qquad Q = C_V\sqrt{\frac{\Delta P}{G}} \qquad \Delta P = \frac{Q^2 \times G}{C_V^2} \qquad V = \frac{Q \times 0.321}{A}$$

CV = Valveflowcoefficient

Q = Flow in U.S.gpm

G = Specific gravity (water=1.0)

ΔP = Pressure Drop(psi)

V = Velocity in feetpersecond

A = Area of pipe in squareinches

W = Flow in pounds perhour

$$Q = \frac{W}{500 \times G}$$

Sample problem:

Q = 5500 gpm (kerosene) @ 150psi
ΔP = 2ps
G =0.824

$$C_V = Q\sqrt{\frac{G}{\Delta P}} = 5500\sqrt{\frac{0.824}{2.0}}$$

=5500 x 0.6419 = 3530

A 10” KVC Series 1000 has a C_V of 5340 at 90° open and would be suitable. If a smaller size was requested then the following calculation becomes important:

For on/off service, an 8” KVC 1000 series has a C_V of 3136 at 90° open. Checking the liquid velocity of an 8” valve, where A = 50.0 sq. in., V = Q x 0.321/A = 35 fps which is above the velocity limits of the 1000 series (30 fps). Therefore a 10” model 1000 would be required.