

Flow information for Jamesbury™ ball and butterfly valves

The information provided in this section allows the user specifying valves to determine rates of flow through, or pressure drops across Jamesbury valves. To accurately determine the flow capacity of a valve, a valve constant (Cv*) value is customarily used. The Cv value, determined by experimental testing, represents the rate of water at 60 ° F in U.S. gallons per minute through the valve when the downstream pressure is 1 psi lower than the upstream pressure. The friction loss resulting from flow through a valve is expressed as Dp in terms of psi or can also be expressed in terms of the nominal size, schedule 40, straight pipe that creates the same friction loss as the valve.

Double-Seal™ ball valves

As shown in the product bulletins valves are venturi port or full-port design. As a rule of thumb, the venturi is a 25% reduction of the inside pipe diameter. This minor reduction has the characteristic of a venturi effect with very low friction loss. Series 6000, Series 9000, Series 6F and Series 4000 (marked full port) valves are full port design; all others are venturi design.

Valve Size		Series 100			
inch	DN	Port Diameter inch	Body Length inch	Cv	Equivalent Pipe Length feet
0.25	8	0.37	2.07	5	1.2
0.375	10	0.37	2.07	5	1.2
0.5	15	0.5	2.34	13	1.5
0.75	20	0.69	2.8	33	1.1
1	25	0.87	3.23	44	2.1
1.25	30	1	3.57	46	8.4
1.5	40	1.25	4.04	95	4.5
2	50	1.5	4.63	111	12.0

Valve Size		Series 3A & 3C			
inch	DN	Port Diameter inch	Body Length inch	Cv	Equivalent Pipe Length feet
0.5	15	0.5	2.38	13	1.52
0.75	20	0.69	2.89	33	1.1
1	25	0.87	3.48	44	2.1
1.25	30	1	3.69	48	8.4
1.5	40	1.25	4.04	95	4.5
2	50	1.5	4.64	111	12

* Cv = 1.167 Kv.

Valve Size		A-style				Steel CLINCHER™				ELIMINATOR™			
inch	DN	Port Diameter inch	Body Length inch	Cv	Eq. Pipe Length feet	Port Diameter inch	Body Length inch	Cv	Eq. Pipe Length feet	Port Diameter inch	Body Length inch	Cv	Eq. Pipe Length feet
0.25	8	0.44	2.94	8.3	1.1	0.44	2.5	11	0.13	0.43	2.16	6	0.33
0.375	10	0.44	2.94	8.3	1.1	0.5	2.5	16	0.3	0.43	2.16	10	0.6
0.5	15	0.44	3.44	8.3	3.7	0.5	2.5	16	1	0.5	2.62	13	1.5
0.75	20	0.56	3.81	14	6	0.69	2.81	37	0.8	0.69	3	33	1.1
1	25	0.81	4.5	35	3.3	0.88	3.41	49	1.7	0.88	3.55	44	2.1
1.25	30	1	4.44	55	5.9	1	3.75	49	7.4	1	4	46	8.4
1.5	40	1.25	4.56	94	4.6	1.25	4.03	100	4	1.25	4.38	95	4.5
2	50	1.5	5	115	11	1.5	4.38	115	11	1.5	5.5	111	12

Valve Size		Series 4000 Full Port				Series 5H			
inch	DN	Port Diameter inch	Body Length inch	Cv	Equivalent Pipe Length feet	Port Diameter inch	Body Length inch	Cv	Equivalent Pipe Length feet
0.25	8					0.45	2.73	6	0.33
0.375	10					0.5	2.73	16	0.3
0.5	15	0.5	2.59	13	1.52	0.5	2.73	13	0.3
0.75	20	0.88	3.69	40	0.61	0.68	3.5	44	3.0
1	25	1	4.22	65	1.9	0.89	3.6	44	2.1
1.25	30	1.25	4.58	90	2	1	3.93	48	8.4
1.5	40	1.5	5.11	135	3.2	1.25	4.55	95	4.5
2	50	2	6.19	261	3.2	1.5	4.94	111	12

Valve Size		Series 3000				Series 6F				Series 4000 Standard Port			
inch	DN	Port Diameter inch	Body Length inch	Cv	Eq. Pipe Length feet	Port Diameter inch	Body Length inch	Cv	Eq. Pipe Length feet	Port Diameter inch	Body Length inch	Cv	Eq. Pipe Length feet
0.25	8	0.31	2.8	3	7.6								
0.375	10	0.31	2.8	3	7.6								
0.5	15	0.31	2.8	3	7.6	0.5	2.57	13	1.52	0.5	2.59	13	1.5
0.75	20	0.5	3.05	9	13.1	0.88	3.38	40	0.61	0.69	3.01	33	1.1
1	25	0.63	3.75	14	19.7	1	3.76	65	1.9	0.88	3.69	44	2.1
1.25	30	0.81	3.85	19	44.9	1.25	4.24	90	2	1	4.22	46	8.4
1.5	40	1	4.12	33	34.7	1.5	4.77	135	3.2	1.25	4.58	95	4.5
2	50	1.25	4.67	52	61	2	5.04	251	3.2	1.5	5.11	111	12
2.5	65									2	6.47	216	8.2
3	80					2.99	7.36	1160	0.8				

Series 7000 Flanged Valves				Series 9000 Flanged Valves			
Type 7150, 730S		Type 7300		Type 9150		Type 9300	
Cv	Length of Equivalent Pipe (ft)	Cv	Length of Equivalent Pipe (ft)	Cv	Length of Equivalent Pipe (ft)	Cv	Length of Equivalent Pipe (ft)
9	3.5	9	3.5	9	3.5	9	3.5
19	4.6	19	4.6	50	0.4	50	0.4
45	2.0	45	2.0	100	0.4	100	0.4
125	2.6	125	2.6	270	0.5	270	0.5
165	5.4	165	5.4	490	0.6	490	0.6
350	9	350	9	1160	0.8	1160	0.8
550	14	550	14	2200	0.9	2200	0.9
765	61	765	61	5100	1.6	5100	1.6
1890	45	1890	45	9300	2.0	9300	2.0
3900	35	4400	35	15200	2.3	15200	2.3
5100	31	5400	31	22400	2.8	22400	2.8
6700	65	6100	65	27000	2.3	26000	2.5
8100	45	8500	45	37000	2.5	35000	2.8
11000	45	10000	45	47000	2.8	45000	3
16000	35	13000	35	60000	3	58000	3.3

Wafer-Sphere™ high-performance butterfly valves

Cv values and equivalent pipe lengths

Flow values for butterfly valves vary by disc design and pressure class. For details consult the bulletins.

Valve Size		Series 815W and 815L Valves		Series 830W and 830L Valves		Series 835 Valves		Series 860W and 860L Valves	
inches	DN	Cv	Length of Equivalent Pipe (ft)	Cv	Length of Equivalent Pipe (ft)	Cv	Length of Equivalent Pipe (ft)	Cv	Length of Equivalent Pipe (ft)
2.5	65	78	33						
3	80	165	24	165	25			155	28
4	100	400	20	400	20			260	40
5	125	650	23						
6	150	1050	24	1050	25			750	45
8	200	2200	23	1800	35			1350	58
10	250	3300	35	3150	39			2100	79
12	300	5100	37	4750	42			2900	102
14	350	5800	47	5200	58			4000	91
16	400	8000	49	6900	70			5100	112
18	450	10500	56	9300	69			5500	177
20	500	14000	55	11300	81			7950	154
24	600	21600	59	18500	81			11300	198
30	750	34000	84	29100	112	44000	52		
36	900	55500	82	47500		78000	43		
40	1000					93000	50		
42	1050	82650	81			102000	55		
48	1200	108300	98			137000	63		
54	1350	133500	122			181000	72		
60	1500	159000	161			219000	93		

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