

FLOW, KV VALUES AND ZETA VALUES FOR BUTTERFLY VALVES SERIES 756 / PLATE DISC

756 APPENDIX 1

Calculated flow (m³/hr) going through a nominal valve size (DN 200 = inside dia of 200 mm) at different flow velocities

Water velocity (m/sec)	DN 150	DN 200	DN 250	DN 300	DN 350	DN 400	DN 450	DN 500	DN 600	DN 700	DN 800	DN 900	DN 1000	DN 1200	DN 1400	DN 1500	DN 1600	DN 1800	DN 2000	DN 2200	DN 2400	DN 2600	DN 2800	DN 3000	DN 3200	DN 3600
1	64	113	177	254	346	452	573	707	1018	1385	1810	2290	2827	4072	5542	6362	7238	9161	11310	13685	16286	19113	22167	25447	28953	36644
1,5	95	170	265	382	520	679	859	1060	1527	2078	2714	3435	4241	6107	8313	9543	10857	13741	16965	20527	24429	28670	33251	38170	43429	54965
2	127	226	353	509	693	905	1145	1414	2036	2771	3619	4580	5655	8143	11084	12723	14476	18322	22619	27370	32572	38227	44334	50894	57906	73287
2,5	159	283	442	636	866	1131	1431	1767	2545	3464	4524	5726	7069	10179	13854	15904	18096	22902	28274	34212	40715	47784	55418	63617	72382	91609
3	191	339	530	763	1039	1357	1718	2121	3054	4156	5429	6871	8482	12215	16625	19085	21715	27483	33929	41054	48858	57340	66501	76341	86859	109931
3,5	223	396	619	891	1212	1583	2004	2474	3563	4849	6333	8016	9896	14250	19396	22266	25334	32063	39584	47897	57001	66897	77585	89064	101335	128252
4	254	452	707	1018	1385	1810	2290	2827	4072	5542	7238	9161	11310	16286	22167	25447	28953	36644	45239	54739	65144	76454	88668	101788	115812	146574
4,5	286	509	795	1145	1559	2036	2576	3181	4580	6234	8143	10306	12723	18322	24938	28628	32572	41224	50894	61581	73287	86011	99752	114511	130288	164896
5	318	565	884	1272	1732	2262	2863	3534	5089	6927	9048	11451	14137	20358	27709	31809	36191	45804	56549	68424	81430	95567	110835	127234	144765	183218

Hydraulic values, fully open valve

	DN 150	DN 200	DN 250	DN 300	DN 350	DN 400	DN 450	DN 500	DN 600	DN 700	DN 800	DN 900	DN 1000	DN 1200	DN 1400	DN 1500	DN 1600	DN 1800	DN 2000	DN 2200	DN 2400	DN 2600	DN 2800	DN 3000	DN 3200	DN 3600
Kv (m ³ /hr - 1 bar)	1385	2460	4360	6120	10195	13335	17320	22460	34330	37845	57665	69930	90720	133345	196585	207335	247675	332095	432320	524915	533425	688575	798585	916740	1043046	1320105
Cv (Usg/min - 1 psi)	1620	2878	5101	7160	11928	15602	20264	26278	40166	44279	67468	81818	106142	156014	230004	242582	289780	388551	505814	614151	624107	805633	934344	1072586	1220364	1544523
Zeta (K)	0,42	0,42	0,33	0,33	0,23	0,23	0,22	0,20	0,18	0,27	0,20	0,21	0,19	0,19	0,16	0,19	0,17	0,15	0,14	0,14	0,19	0,15	0,15	0,15	0,15	0,15

NOTE: Hydraulic figures are based on tests or calculations, depending on size. Value uncertainty as per ref EN1267

Definitions / formulas:

Kv-value: Actual flow of water (m³/hr) creating pressure loss of 1 bar.

Pressure loss coefficient Zeta (K) value: Ratio of static to dynamic pressure loss.

Zeta (K) = Diff pressure / (500 X V²)

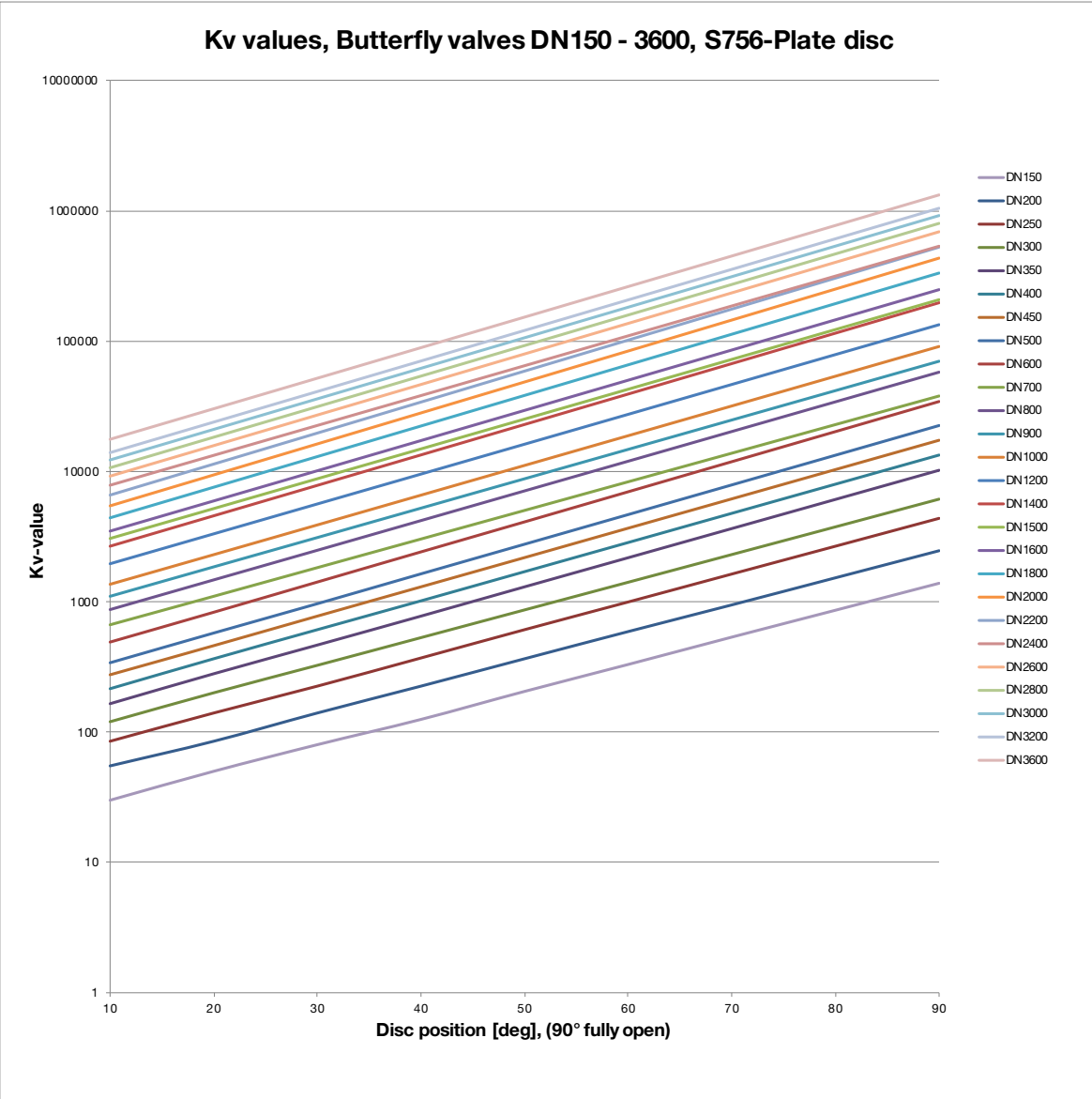
Diff pressure (Pa)

V: Water flow velocity (m/sec)

Actual diff pressure (bar) = (Q / Kv)²

Q: Actual water flow (m³/hr)





FLOW, KV VALUES AND ZETA VALUES FOR BUTTERFLY VALVES, SERIES 756 / PLATE DISC

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	DN	Angle								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
Kv	150	30.38	64.13	113.06	176.06	280.13	455.63	730.69	1,064.25	1,384.31
Zeta		876.09	196.57	63.23	26.08	10.30	3.89	1.51	0.71	0.42
Kv	200	54.00	114.00	201.00	313.00	498.00	810.00	1,299.00	1,892.00	2,461.00
Zeta		876.09	196.57	63.23	26.08	10.30	3.89	1.51	0.71	0.42
Kv	250	85.00	179.00	315.00	490.00	779.00	1,266.00	2,038.00	2,956.00	4,361.00
Zeta		863.26	194.66	62.86	25.98	10.28	3.89	1.50	0.71	0.33
Kv	300	122.00	257.00	454.00	706.00	1,122.00	1,823.00	2,923.00	4,257.00	6,121.00
Zeta		868.93	195.81	62.75	25.95	10.27	3.89	1.51	0.71	0.35
Kv	350	166.00	350.00	618.00	962.00	1,527.00	2,481.00	4,298.00	6,658.00	10,193.00
Zeta		869.51	195.59	62.74	25.89	10.28	3.89	1.30	0.54	0.23
Kv	400	217.00	458.00	807.00	1,255.00	1,995.00	3,241.00	5,613.00	8,696.00	13,337.00
Zeta		868.04	194.86	62.76	25.95	10.27	3.89	1.30	0.54	0.23
Kv	450	275.00	575.00	1,021.00	1,588.00	2,525.00	4,102.00	7,185.00	11,007.00	17,320.00
Zeta		865.77	198.03	62.81	25.96	10.27	3.89	1.27	0.54	0.22
Kv	500	339.00	716.00	1,261.00	1,961.00	3,117.00	5,064.00	8,771.00	13,588.00	22,460.00
Zeta		868.36	194.66	62.76	25.95	10.27	3.89	1.30	0.54	0.20
Kv	600	489.00	1,031.00	1,816.00	2,824.00	4,489.00	7,292.00	12,631.00	19,971.00	34,328.00
Zeta		865.38	194.67	62.75	25.95	10.27	3.89	1.30	0.52	0.18
Kv	700	665.00	1,403.00	2,472.00	3,844.00	6,110.00	9,926.00	17,192.00	26,634.00	37,844.00
Zeta		866.89	194.76	62.74	25.94	10.27	3.89	1.30	0.54	0.27
Kv	800	869.00	1,833.00	3,229.00	5,021.00	7,980.00	12,964.00	22,455.00	34,787.00	57,667.00
Zeta		866.04	194.65	62.73	25.94	10.27	3.89	1.30	0.54	0.20
Kv	900	1,100.00	2,320.00	4,087.00	6,354.00	10,100.00	16,408.00	28,420.00	44,028.00	69,928.00
Zeta		865.77	194.63	62.72	25.95	10.27	3.89	1.30	0.54	0.21
Kv	1000	1,358.00	2,864.00	5,046.00	7,945.00	12,470.00	20,257.00	35,086.00	54,355.00	90,719.00
Zeta		865.80	194.66	62.71	25.29	10.27	3.89	1.30	0.54	0.19
Kv	1200	1,956.00	4,125.00	7,267.00	11,297.00	17,956.00	29,170.00	50,524.00	87,511.00	133,343.00
Zeta		865.38	194.58	62.69	25.94	10.27	3.89	1.30	0.43	0.19
Kv	1400	2,663.00	5,615.00	9,891.00	15,377.00	24,441.00	39,704.00	68,769.00	119,112.00	196,585.00
Zeta		864.94	194.55	62.70	25.94	10.27	3.89	1.30	0.43	0.16
Kv	1500	3,057.00	6,446.00	11,351.00	17,657.00	28,100.00	45,704.00	78,769.00	137,112.00	207,333.00
Zeta		864.95	194.54	62.74	25.93	10.24	3.87	1.30	0.43	0.19
Kv	1600	3,478.00	7,333.00	12,919.00	20,084.00	31,923.00	51,858.00	89,821.00	155,575.00	247,676.00
Zeta		865.04	194.60	62.70	25.94	10.27	3.89	1.30	0.43	0.17
Kv	1800	4,402.00	9,281.00	16,351.00	25,419.00	40,403.00	65,633.00	113,680.00	196,900.00	332,094.00
Zeta		864.98	194.59	62.69	25.94	10.27	3.89	1.30	0.43	0.15
Kv	2000	5,435.00	11,459.00	20,187.00	31,382.00	49,880.00	81,028.00	140,346.00	243,086.00	432,322.00
Zeta		864.85	194.56	62.69	25.94	10.27	3.89	1.30	0.43	0.14
Kv	2200	6,577.00	13,865.00	24,427.00	37,973.00	60,355.00	98,045.00	169,819.00	294,135.00	524,915.00
Zeta		864.67	194.57	62.69	25.94	10.27	3.89	1.30	0.43	0.14
Kv	2400	7,827.00	16,501.00	29,069.00	45,183.00	71,825.00	116,700.00	201,500.00	349,000.00	533,427.00
Zeta		864.71	194.55	62.69	25.95	10.27	3.89	1.30	0.43	0.19
Kv	2600	9,185.49	19,366.02	34,118.17	53,022.03	84,305.99	137,010.71	236,686.22	413,877.55	688,574.98
Zeta		864.78	194.55	62.68	25.95	10.27	3.89	1.30	0.43	0.15
Kv	2800	10,653.00	22,460.00	39,569.00	61,493.00	97,775.00	158,900.00	274,500.00	480,000.00	798,584.00
Zeta		864.78	194.55	62.68	25.95	10.27	3.89	1.30	0.43	0.15
Kv	3000	12,229.21	25,783.16	45,423.60	70,591.45	112,241.71	182,410.71	315,114.80	551,020.41	916,741.84
Zeta		864.78	194.55	62.68	25.95	10.27	3.89	1.30	0.43	0.15
Kv	3200	13,914.12	29,335.51	51,681.96	80,317.39	127,706.12	207,542.86	358,530.61	626,938.78	1,043,048.49
Zeta		864.78	194.55	62.68	25.95	10.27	3.89	1.30	0.43	0.15
Kv	3600	17,610.06	37,127.76	65,409.98	101,651.69	161,628.06	262,671.43	453,765.31	793,469.39	1,320,108.24
Zeta		864.78	194.55	62.68	25.95	10.27	3.89	1.30	0.43	0.15

NOTE: Above hydraulic figures are based on both tests and CFD calculations, depending on size. Value uncertainty, ref EN1267



