

Fittings and Valves	Fittings and Valves Expressed in Equivalent Feet of Pipe														
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12
45° elbow	x	1	1	1	2	2	3	3	3	4	5	7	9	11	13
90° standard elbow	1	2	2	3	4	5	6	7	8	10	12	14	18	22	27
90° long-turn elbow	0.5	1	2	2	2	3	4	5	5	6	8	9	13	16	18
Tee or cross (flow turned 90°)	3	4	5	6	8	10	12	15	17	20	25	30	35	50	60
Butterfly valve	x	x	x	x	x	6	7	10	x	12	9	10	12	19	21
Gate valve	x	x	x	x	x	1	1	1	1	2	2	3	4	5	6
Swing check*	x	x	5	7	9	11	14	16	19	22	27	32	45	55	65

*Due to the variation in design of swing check valves, the pipe equivalents indicated in this table are considered average.

TABLE B.1							
WATER FLOWING IN 1-INCH SCHEDULE 40 STEEL PIPE							
I.D. = 1.049							
Q (gpm)	Pf (psi/ft)		Velocity (fps)	Q (gpm)	Pf (psi/ft)		Velocity (fps)
	C=100	C=120			C=100	C=120	
10	0.051	0.036	3.71	44	0.784	0.56	16.34
11	0.060	0.043	4.08	45	0.817	0.583	16.71
12	0.071	0.051	4.46	46	0.851	0.608	17.08
13	0.082	0.059	4.83	47	0.886	0.632	17.45
14	0.094	0.067	5.20	48	0.921	0.657	17.82
15	0.107	0.076	5.57	49	9.57	0.683	18.19
16	0.121	0.086	5.94	50	0.993	0.709	18.56
17	0.135	0.096	6.31	51	1.03	0.735	18.93
18	0.150	0.107	6.68	52	1.068	0.762	19.31
19	0.166	0.182	7.05	53	1.106	0.79	19.68
20	1.820	0.130	7.43	54	1.145	0.817	20.05