

Loss of Pressure Through Screw Pipe Fittings - Steam, Air, Gas *
 Given in equivalent lengths (feet) of straight pipe, schedule 40

Nominal Pipe Size Inches	Actual I.D. Inches	Gate Valve	Long Radius ell or on run of standard tee	Standard ell or on run of tee reduced in size 50%	Angle Valve	Close return bend	Tee through side outlet	Globe Valve
1/2	0.622	0.36	0.62	1.55	8.65	3.47	3.10	17.3
3/4	0.824	0.48	0.82	2.06	11.4	4.60	4.12	22.9
1	1.049	0.61	1.05	2.62	14.6	5.82	5.24	29.1
1 1/4	1.380	0.81	1.38	3.45	19.1	7.66	6.90	38.3
1 1/2	1.610	0.94	1.61	4.02	22.4	8.95	8.04	44.7
2	2.067	1.21	2.07	5.17	28.7	11.5	10.3	57.4
2 1/2	2.469	1.44	2.47	6.16	34.3	13.7	12.3	68.5
3	3.068	1.79	3.07	6.16	42.6	17.1	15.3	85.2
4	4.026	2.35	4.03	7.67	56.0	22.4	20.2	112
5	5.047	2.94	5.05	10.1	70.0	28.0	25.2	140
6	6.065	3.54	6.07	15.2	84.1	33.8	30.4	168
8	7.981	4.65	7.98	20.0	111	44.6	40.0	222
10	10.020	5.85	10.0	25.0	139	55.7	50.0	278
12	11.940	6.96	11.0	29.8	166	66.3	59.6	332

* Adapted from Sabin Crocker, "Piping Handbook," 4th edition, McGraw-Hill Book Company Inc., New York, 1945.

Pipe Diameter (in inches) Required to Pass a Given Amount of Air at 100-lb Pressure
 (With Less than 1 lb Drop in Pressure)

Cubic Feet Free Air Per Minute	Length of Pipe in Feet										
	50	100	200	300	400	500	750	1000	2000	3000	5000
20	3/4	3/4	3/4	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2
40	3/4	1	1	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2
60	1	1	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2	2 1/2
80	1	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2	2	2	2 1/2	2 1/2
100	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2	2	2 1/2	2 1/2	3
125	1 1/4	1 1/2	1 1/2	2	2	2	2	2 1/2	2 1/2	3	3
150	1 1/4	1 1/2	2	2	2	2	2 1/2	2 1/2	3	3	3 1/2
175	1 1/4	2	2	2	2	2 1/2	2 1/2	2 1/2	3	3	3 1/2
200	1 1/2	2	2	2	2 1/2	2 1/2	2 1/2	3	3	3 1/2	3 1/2
250	1 1/2	2	2	2 1/2	2 1/2	2 1/2	3	3	3 1/2	3 1/2	4
300	2	2	2 1/2	2 1/2	3	3	3	3	3 1/2	4	5
400	2	2 1/2	2 1/2	3	3	3	3 1/2	3 1/2	4	4	5
500	2	2 1/2	3	3	3	3 1/2	3 1/2	4	5	5	5
600	2 1/2	3	3	3 1/2	3 1/2	3 1/2	4	5	5	5	6
800	2 1/2	3	3 1/2	3 1/2	4	4	5	5	5	6	6
1000	3	3	3 1/2	4	4	5	5	5	6	6	8