

## Friction Loss (PSI per Linear Foot) and Velocity (Feet per second)

Nominal Pipe Size	3/4 inch		1 inch		1 1/4 inch		1 1/2 inch		2 inch		2 1/2 inch		3 inch	
Ave. ID inches	0.874		1.101		1.394		1.598		2.003		2.423		2.95	
GPM	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity
1	0.0008	0.5	0.0003	0.3	0.0001	0.2	0.0000	0.2	0.0000	0.1	0.0000	0.1	0.0000	0.0
2	0.0030	1.1	0.0010	0.7	0.0003	0.4	0.0002	0.3	0.0001	0.2	0.0000	0.1	0.0000	0.1
3	0.0063	1.6	0.0020	1.0	0.0006	0.6	0.0003	0.5	0.0001	0.3	0.0000	0.2	0.0000	0.1
4	0.0107	2.1	0.0035	1.3	0.0011	0.8	0.0006	0.6	0.0002	0.4	0.0001	0.3	0.0000	0.2
5	0.0161	2.7	0.0052	1.7	0.0017	1.1	0.0009	0.8	0.0003	0.5	0.0001	0.3	0.0000	0.2
6	0.0226	3.2	0.0073	2.0	0.0023	1.3	0.0012	1.0	0.0004	0.6	0.0002	0.4	0.0001	0.3
7	0.0300	3.7	0.0098	2.4	0.0031	1.5	0.0016	1.1	0.0005	0.7	0.0002	0.5	0.0001	0.3
8	0.0385	4.3	0.0125	2.7	0.0040	1.7	0.0020	1.3	0.0007	0.8	0.0003	0.6	0.0001	0.4
9	0.0478	4.8	0.0155	3.0	0.0049	1.9	0.0025	1.4	0.0008	0.9	0.0003	0.6	0.0001	0.4
10	0.0581	5.3	0.0189	3.4	0.0060	2.1	0.0031	1.6	0.0010	1.0	0.0004	0.7	0.0002	0.5
11	0.0693	5.9	0.0225	3.7	0.0071	2.3	0.0037	1.8	0.0012	1.1	0.0005	0.8	0.0002	0.5
12	0.0814	6.4	0.0264	4.0	0.0084	2.5	0.0043	1.9	0.0014	1.2	0.0006	0.8	0.0002	0.6
13	0.0944	7.0	0.0307	4.4	0.0097	2.7	0.0050	2.1	0.0017	1.3	0.0007	0.9	0.0003	0.6
14	0.1083	7.5	0.0352	4.7	0.0111	2.9	0.0057	2.2	0.0019	1.4	0.0008	1.0	0.0003	0.7
15	0.1230	8.0	0.0400	5.1	0.0127	3.2	0.0065	2.4	0.0022	1.5	0.0009	1.0	0.0003	0.7
16	0.1386	8.6	0.0450	5.4	0.0143	3.4	0.0073	2.6	0.0024	1.6	0.0010	1.1	0.0004	0.8
17	0.1551	9.1	0.0504	5.7	0.0160	3.6	0.0082	2.7	0.0027	1.7	0.0011	1.2	0.0004	0.8
18	0.1724	9.6	0.0560	6.1	0.0177	3.8	0.0091	2.9	0.0030	1.8	0.0012	1.3	0.0005	0.8
19	0.1905	10.2	0.0619	6.4	0.0196	4.0	0.0101	3.0	0.0034	1.9	0.0013	1.3	0.0005	0.9
20	0.2095	10.7	0.0680	6.7	0.0216	4.2	0.0111	3.2	0.0037	2.0	0.0015	1.4	0.0006	0.9
21	0.2293	11.2	0.0745	7.1	0.0236	4.4	0.0121	3.4	0.0040	2.1	0.0016	1.5	0.0006	1.0
22	0.2499	11.8	0.0812	7.4	0.0257	4.6	0.0132	3.5	0.0044	2.2	0.0017	1.5	0.0007	1.0
23	0.2713	12.3	0.0881	7.8	0.0279	4.8	0.0144	3.7	0.0048	2.3	0.0019	1.6	0.0007	1.1
24	0.2935	12.8	0.0953	8.1	0.0302	5.0	0.0155	3.8	0.0052	2.4	0.0020	1.7	0.0008	1.1
25	0.3165	13.4	0.1028	8.4	0.0326	5.3	0.0168	4.0	0.0056	2.5	0.0022	1.7	0.0008	1.2
26	0.3403	13.9	0.1106	8.8	0.0350	5.5	0.0180	4.2	0.0060	2.6	0.0024	1.8	0.0009	1.2
27	0.3649	14.4	0.1185	9.1	0.0376	5.7	0.0193	4.3	0.0064	2.7	0.0025	1.9	0.0010	1.3
28	0.3903	15.0	0.1268	9.4	0.0402	5.9	0.0207	4.5	0.0069	2.9	0.0027	1.9	0.0010	1.3
29	0.4165	15.5	0.1353	9.8	0.0429	6.1	0.0220	4.6	0.0073	3.0	0.0029	2.0	0.0011	1.4
30	0.4435	16.0	0.1441	10.1	0.0457	6.3	0.0235	4.8	0.0078	3.1	0.0031	2.1	0.0012	1.4
31	0.4712	16.6	0.1531	10.4	0.0485	6.5	0.0249	5.0	0.0083	3.2	0.0033	2.2	0.0013	1.5
32	0.4997	17.1	0.1623	10.8	0.0514	6.7	0.0265	5.1	0.0088	3.3	0.0035	2.2	0.0013	1.5
33	0.5290	17.6	0.1718	11.1	0.0545	6.9	0.0280	5.3	0.0093	3.4	0.0037	2.3	0.0014	1.5
34	0.5590	18.2	0.1816	11.5	0.0576	7.1	0.0296	5.4	0.0098	3.5	0.0039	2.4	0.0015	1.6
35	0.5898	18.7	0.1916	11.8	0.0607	7.4	0.0312	5.6	0.0104	3.6	0.0041	2.4	0.0016	1.6
36	0.6214	19.3	0.2018	12.1	0.0640	7.6	0.0329	5.8	0.0109	3.7	0.0043	2.5	0.0017	1.7
37	0.6537	19.8	0.2123	12.5	0.0673	7.8	0.0346	5.9	0.0115	3.8	0.0046	2.6	0.0017	1.7
38	0.6868	20.3	0.2231	12.8	0.0707	8.0	0.0364	6.1	0.0121	3.9	0.0048	2.6	0.0018	1.8
39	0.7206	20.9	0.2341	13.1	0.0742	8.2	0.0381	6.2	0.0127	4.0	0.0050	2.7	0.0019	1.8
40	0.7551	21.4	0.2453	13.5	0.0777	8.4	0.0400	6.4	0.0133	4.1	0.0053	2.8	0.0020	1.9
41	0.7904	21.9	0.2568	13.8	0.0814	8.6	0.0418	6.6	0.0139	4.2	0.0055	2.9	0.0021	1.9
42	0.8265	22.5	0.2685	14.2	0.0851	8.8	0.0437	6.7	0.0146	4.3	0.0058	2.9	0.0022	2.0
43	0.8632	23.0	0.2804	14.5	0.0889	9.0	0.0457	6.9	0.0152	4.4	0.0060	3.0	0.0023	2.0
44	0.9007	23.5	0.2926	14.8	0.0927	9.2	0.0477	7.0	0.0159	4.5	0.0063	3.1	0.0024	2.1
45	0.9390	24.1	0.3050	15.2	0.0967	9.5	0.0497	7.2	0.0165	4.6	0.0065	3.1	0.0025	2.1
46	0.9779	24.6	0.3177	15.5	0.1007	9.7	0.0518	7.4	0.0172	4.7	0.0068	3.2	0.0026	2.2
47	1.0176	25.1	0.3306	15.8	0.1048	9.9	0.0539	7.5	0.0179	4.8	0.0071	3.3	0.0027	2.2
48	1.0580	25.7	0.3437	16.2	0.1089	10.1	0.0560	7.7	0.0186	4.9	0.0074	3.3	0.0028	2.3
49	1.0992	26.2	0.3570	16.5	0.1132	10.3	0.0582	7.8	0.0194	5.0	0.0077	3.4	0.0029	2.3
50	1.1410	26.7	0.3706	16.8	0.1175	10.5	0.0604	8.0	0.0201	5.1	0.0080	3.5	0.0031	2.3
52	1.2269	27.8	0.3985	17.5	0.1263	10.9	0.0649	8.3	0.0216	5.3	0.0086	3.6	0.0033	2.4
54	1.3156	28.9	0.4274	18.2	0.1354	11.4	0.0696	8.6	0.0232	5.5	0.0092	3.8	0.0035	2.5
56	1.4072	29.9	0.4571	18.9	0.1449	11.8	0.0745	9.0	0.0248	5.7	0.0098	3.9	0.0038	2.6
58	1.5016	31.0	0.4878	19.5	0.1546	12.2	0.0795	9.3	0.0265	5.9	0.0105	4.0	0.0040	2.7
60	1.5988	32.1	0.5193	20.2	0.1646	12.6	0.0846	9.6	0.0282	6.1	0.0111	4.2	0.0043	2.8
62	1.6988	33.2	0.5518	20.9	0.1749	13.0	0.0899	9.9	0.0299	6.3	0.0118	4.3	0.0045	2.9
64	1.8015	34.2	0.5852	21.6	0.1855	13.5	0.0954	10.2	0.0317	6.5	0.0126	4.5	0.0048	3.0
66	1.9071	35.3	0.6195	22.2	0.1963	13.9	0.1010	10.6	0.0336	6.7	0.0133	4.6	0.0051	3.1
68	2.0153	36.4	0.6546	22.9	0.2075	14.3	0.1067	10.9	0.0355	6.9	0.0141	4.7	0.0054	3.2
70	2.1264	37.4	0.6907	23.6	0.2189	14.7	0.1126	11.2	0.0375	7.1	0.0148	4.9	0.0057	3.3
GPM														
72	0.7277	24.3	0.2306	15.1	0.1186	11.5	0.0395	7.3	0.0156	5.0	0.0060	3.4	0.0060	3.4
74	0.7655	24.9	0.2426	15.6	0.1247	11.8	0.0415	7.5	0.0164	5.1	0.0063	3.5	0.0063	3.5
76	0.8042	25.6	0.2549	16.0	0.1311	12.2	0.0436	7.7	0.0173	5.3	0.0066	3.6	0.0066	3.6
78	0.8438	26.3	0.2674	16.4	0.1375	12.5	0.0458	7.9	0.0181	5.4	0.0069	3.7	0.0069	3.7
80	0.8843	27.0	0.2802	16.8	0.1441	12.8	0.0480	8.1	0.0190	5.6	0.0073	3.8	0.0073	3.8
82	0.9256	27.6	0.2933	17.2	0.1508	13.1	0.0502	8.3	0.0199	5.7	0.0076	3.8	0.0076	3.8
84	0.9678	28.3	0.3067	17.7	0.1577	13.4	0.0525	8.6	0.0208	5.8	0.0080	3.9	0.0080	3.9
86	1.0109	29.0	0.3204	18.1	0.1647	13.8	0.0548	8.8	0.0217	6.0	0.0083	4.0	0.0083	4.0
88	1.0548	29.7	0.3343	18.5	0.1719	14.1	0.0572	9.0	0.0226	6.1	0.0087	4.1	0.0087	4.1
90	1.0995	30.3	0.3485	18.9	0.1792	14.4	0.0596	9.2	0.0236	6.3	0.0091	4.2	0.0091	4.2
92	1.1452	31.0	0.3629	19.3	0.1866	14.7	0.0621	9.4	0.0246	6.4	0.0094	4.3	0.0094	4.3
94	1.1917	31.7	0.3777	19.8	0.1942	15.0	0.0646	9.6	0.0256	6.5	0.0098	4.4	0.0098	4.4
96	1.2390	32.3	0.3927	20.2	0.2019	15.4	0.0672	9.8	0.0266	6.7	0.0102	4.5	0.0102	4.5
98	1.2872	33.0	0.4079	20.6	0.2098	15.7	0.0698	10.0	0.0276	6.8	0.0106	4.6	0.0106	4.6
100	1.3362	33.7	0.4235	21.0	0.2177	16.0	0.0725	10.2	0.0287	7.0	0.0110	4.7	0.0110	4.7
110	1.5938	37.1	0.5051	23.1	0.2597	17.6	0.0864	11.2	0.0342	7.7	0.0131	5.2	0.0131	5.2
120	1.8722	40.4	0.5933	25.2	0.3051	19.2	0.1015	12.2	0.0402	8.3	0.0154	5.6	0.0154	5.6
130	2.1710	43.8	0.6880	27.3	0.3538	20.8	0.1178	13.2	0.0466	9.0	0.0179	6.1	0.0179	6.1
GPM														
140	0.7891	29.4	0.4058	22.4	0.1351	14.3	0.0534	14.3	0.0534	9.7	0.0205	6.6	0.0205	6.6
150	0.8966	31.5	0.4610	24.0	0.1534	15.3	0.0607	15.3	0.0607	10.4	0.0233	7.0	0.0233	7.0
160	1.0103													

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**Friction Loss Table**

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