

**FRICION LOSS CHARACTERISTICS
TYPE K COPPER
PRESSURE LOSS PER 100 FT OF PIPE (PSI/100FT)**

C= 140
SIZE 1/2" 5/8" 3/4" 1" 1-1/4" 1-1/2" 2" 2-1/2" 3"
OD 0.625 0.75 0.875 1.125 1.375 1.625 2.125 2.625 3.125
ID 0.527 0.652 0.745 0.995 1.245 1.481 1.959 2.435 2.907
WALL 0.049 0.049 0.065 0.065 0.065 0.072 0.083 0.095 0.109
THK

FLOW GPM	1/2"		5/8"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		FLOW GPM
	VELOCIT Y ft/sec	PSI LOSS	VELOCIT Y ft/sec	PSI LOSS	VELOCIT Y ft/sec	PSI LOSS	VELOCIT Y ft/sec	PSI LOSS	VELOCIT Y ft/sec	PSI LOSS	VELOCIT Y ft/sec	PSI LOSS	VELOCIT Y ft/sec	PSI LOSS	VELOCIT Y ft/sec	PSI LOSS	VELOCIT Y ft/sec	PSI LOSS	
1	1.469	1.09	0.960	0.39	0.735	0.20	0.412	0.05	0.263	0.02									1
2	2.938	3.94	1.920	1.40	1.470	0.73	0.824	0.18	0.526	0.06	0.372	0.03							2
3	4.407	8.35	2.879	2.97	2.205	1.55	1.236	0.38	0.790	0.13	0.558	0.05	0.319	0.01					3
4	5.876	14.23	3.839	5.05	2.940	2.64	1.648	0.65	1.053	0.22	0.744	0.09	0.425	0.02					4
5	7.345	21.51	4.799	7.64	3.676	3.99	2.061	0.98	1.316	0.33	0.930	0.14	0.532	0.04	0.344	0.01			5
6	8.814	30.15	5.759	10.70	4.411	5.59	2.473	1.37	1.579	0.46	1.116	0.20	0.638	0.05	0.413	0.02			6
7	10.283	40.12	6.718	14.24	5.146	7.44	2.885	1.82	1.843	0.61	1.302	0.26	0.744	0.07	0.482	0.02			7
8	11.752	51.37	7.678	18.24	5.881	9.53	3.297	2.33	2.106	0.78	1.488	0.34	0.851	0.09	0.550	0.03			8
9	13.222	63.90	8.638	22.68	6.616	11.85	3.709	2.90	2.369	0.97	1.674	0.42	0.957	0.11	0.619	0.04			9
10	14.691	77.66	9.598	27.57	7.351	14.41	4.121	3.52	2.632	1.18	1.860	0.51	1.063	0.13	0.688	0.05			10
11	16.160	92.66	10.557	32.89	8.086	17.19	4.533	4.21	2.895	1.41	2.046	0.61	1.169	0.16	0.757	0.05			11
12	17.629	108.86	11.517	38.64	8.821	20.20	4.945	4.94	3.159	1.66	2.232	0.71	1.276	0.18	0.826	0.06	0.579	0.03	12
14	20.567	144.83	13.437	51.41	10.291	26.87	5.770	6.57	3.685	2.21	2.604	0.95	1.488	0.24	0.963	0.08	0.676	0.04	14
16	23.505	185.46	15.356	65.83	11.762	34.41	6.594	8.42	4.212	2.83	2.976	1.22	1.701	0.31	1.101	0.11	0.772	0.05	16
18	26.443	230.67	17.276	81.88	13.232	42.80	7.418	10.47	4.738	3.52	3.348	1.51	1.914	0.39	1.239	0.13	0.869	0.06	18
20	29.381	280.37	19.195	99.52	14.702	52.02	8.242	12.72	5.264	4.28	3.720	1.84	2.126	0.47	1.376	0.16	0.966	0.07	20
22			21.115	118.74	16.172	62.06	9.066	15.18	5.791	5.10	4.092	2.19	2.339	0.56	1.514	0.19	1.062	0.08	22
24			23.034	139.50	17.642	72.91	9.891	17.84	6.317	5.99	4.464	2.58	2.552	0.66	1.651	0.23	1.159	0.10	24
26			24.954	161.79	19.113	84.56	10.715	20.69	6.844	6.95	4.836	2.99	2.764	0.77	1.789	0.27	1.255	0.11	26
28			26.873	185.59	20.583	97.00	11.539	23.73	7.370	7.97	5.208	3.43	2.977	0.88	1.927	0.30	1.352	0.13	28
30			28.793	210.89	22.053	110.22	12.363	26.96	7.897	9.06	5.580	3.89	3.189	1.00	2.064	0.35	1.448	0.15	30
35					25.729	146.64	14.424	35.87	9.213	12.05	6.511	5.18	3.721	1.33	2.408	0.46	1.690	0.19	35
40					29.404	187.78	16.484	45.94	10.529	15.43	7.441	6.63	4.253	1.70	2.752	0.59	1.931	0.25	40
45					33.080	233.55	18.545	57.13	11.845	19.20	8.371	8.25	4.784	2.11	3.097	0.73	2.173	0.31	45
50					36.755	283.88	20.606	69.44	13.161	23.33	9.301	10.03	5.316	2.57	3.441	0.89	2.414	0.38	50
55					22.666	82.85	14.477	27.84	14.477	27.84	10.231	11.96	5.847	3.07	3.785	1.06	2.655	0.45	55
60					24.727	97.34	15.793	32.70	11.161	14.05	6.379	3.60	4.129	1.25	2.897	0.53	2.897	0.53	60
65					26.787	112.89	17.109	37.93	12.091	16.30	6.910	4.18	4.473	1.45	3.138	0.61	3.138	0.61	65
70					28.848	129.50	18.426	43.51	13.021	18.70	7.442	4.79	4.817	1.66	3.380	0.70	3.380	0.70	70
75					30.908	147.15	19.742	49.44	13.951	21.24	7.974	5.45	5.161	1.89	3.621	0.80	3.621	0.80	75
80					32.969	165.83	21.058	55.72	14.881	23.94	8.505	6.14	5.505	2.13	3.862	0.90	3.862	0.90	80
85					35.029	185.53	22.374	62.34	15.811	26.79	9.037	6.87	5.849	2.38	4.104	1.01	4.104	1.01	85
90					37.090	206.25	23.690	69.30	16.741	29.78	9.568	7.63	6.193	2.65	4.345	1.12	4.345	1.12	90
95							25.006	76.59	17.672	32.91	10.100	8.44	6.537	2.93	4.587	1.24	4.587	1.24	95
100							26.322	84.23	18.602	36.19	10.631	9.28	6.881	3.22	4.828	1.36	4.828	1.36	100
110							28.954	100.49	20.462	43.18	11.695	11.07	7.569	3.84	5.311	1.62	5.311	1.62	110
120									31.587	118.06	22.322	50.73	12.758	13.01	8.257	4.51	5.794	1.91	120
130											24.182	58.84	13.821	15.08	8.946	5.23	6.276	2.21	130
140											26.042	67.49	14.884	17.30	9.634	6.00	6.759	2.54	140
150											27.902	76.69	15.947	19.66	10.322	6.82	7.242	2.88	150
160											29.763	86.43	17.010	22.16	11.010	7.69	7.725	3.25	160
170											31.623	96.70	18.073	24.79	11.698	8.60	8.208	3.63	170
180											33.483	107.50	19.137	27.56	12.386	9.56	8.690	4.04	180
190											35.343	118.82	20.200	30.46	13.074	10.57	9.173	4.46	190
200											37.203	130.66	21.263	33.50	13.762	11.62	9.656	4.91	200
225													23.921	41.66	15.483	14.46	10.863	6.10	225
250													26.579	50.64	17.203	17.57	12.070	7.42	250
275													29.236	60.42	18.923	20.96	13.277	8.85	275
300															20.644	24.63	14.484	10.40	300
325															22.364	28.57	15.691	12.06	325
350															24.084	32.77	16.898	13.84	350
375															25.804	37.23	18.105	15.72	375
400															27.525	41.96	19.312	17.72	400
425															29.245	46.95	20.519	19.82	425
450															30.965	52.19	21.726	22.04	450
475																	22.933	24.36	475
500																	24.140	26.79	500
550																	26.554	31.96	550
600																	28.968	37.55	600



NOTE: SHADED AREAS INDICATE VELOCITIES OVER 5 FT/SEC. USE WITH CAUTION