

Standard Pipe Data • Pressure Equivalents • Schedule 40 Steel Pipe

Standard Pipe Data								
Nominal Diameter, Inches	Actual Outside Diameter, Inches	Actual Inside Diameter, Inches	Inside Area Square, Inches	Weight per Foot, Pounds	Length in Feet Containing One US Gallon	Length in Feet Containing One Cubic Foot	US Gallons in One Lineal Foot	Pounds of Water in One Lineal Foot
½	0.84	0.622	0.304	0.85	63.322	473.91	0.0158	0.1316
¾	1.05	0.824	0.533	1.13	36.116	270.03	0.0277	0.2309
1	1.315	1.049	0.864	1.678	22.28	166.62	0.0449	0.3742
1¼	1.66	1.38	1.496	2.272	12.867	96.275	0.0777	0.6477
1½	1.9	1.61	2.036	2.717	9.454	70.733	0.1058	0.8816
2	2.375	2.067	3.356	3.652	5.736	42.913	0.1743	1.453
2½	2.875	2.469	4.788	5.79	4.02	30.077	0.2487	2.0732
3	3.5	3.068	7.393	7.57	2.593	19.479	0.384	3.2012
3½	4	3.548	9.887	9.11	1.947	14.565	0.5136	4.2812
4	4.5	4.026	12.73	10.79	1.512	11.312	0.6613	5.5125
5	5.563	5.047	20.006	14.62	0.962	7.198	1.0398	8.6629
6	6.625	6.065	28.89	18.97	0.666	4.984	1.5008	12.5101
8	8.625	7.981	50.027	28.55	0.384	2.878	2.5988	21.6627

Pressure Equivalents							
Ounces Per Square Inch	Pounds Per Square Inch	Atmospheres	Cols. of Mercury 32° F		Cols. of Water at 60° F		
			Meters	Inches	Meters	Inches	Feet
1.0	0.0625	0.004253	0.003232	0.1273	0.04403	1.734	0.1445
16.00	1.0	0.06805	0.05172	2.036	0.7045	27.74	2.311
235.1	14.7	1.0	0.76	29.92	10.35	407.6	33.97
309.4	19.34	1.316	1.0	39.37	13.63	536.4	44.7
7.859	0.4912	0.03342	0.0254	1.0	0.346	13.62	1.135
22.71	1.419	0.09658	0.0734	2.89	1.0	39.37	3.281
0.5768	0.03605	0.002453	0.001864	0.0734	0.0254	1.0	0.08333
6.922	0.426	0.02944	0.02237	0.8309	0.3048	12.0	1.0

Mercury at 32° F = 13.5951 grams per cubic centimeter = 0.491156 pounds per cubic inch
 Water at 60° F = 62.2994 pounds per cubic foot in air
 1 Atmosphere = 760.0 millimeters of mercury at 32° F

Schedule 40 Steel Pipe - Friction Loss for Water per 100 Feet

U.S. Gallons per Minute	1/4 Inch		3/8 Inch		1/2 Inch		3/4 Inch		U.S. Gallons per Minute	1 Inch		1¼ Inch		1½ Inch	
	V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.		V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.
0.8	2.47	12.70	.....	.....	.....	.....	.....	.....	6	2.23	2.68	.....	.....	.....	.....
1.0	3.08	19.10	.....	.....	.....	.....	.....	.....	8	2.97	4.54	.....	.....	.....	.....
1.2	3.70	26.70	.....	.....	.....	.....	.....	.....	10	3.74	6.86	.....	.....	.....	.....
1.4	4.32	35.30	2.35	7.85	.....	.....	.....	.....	12	4.45	9.62	2.57	2.48	.....	.....
1.6	4.93	45.20	2.68	10.10	.....	.....	.....	.....	14	5.20	12.80	3.00	3.28	.....	.....
1.8	5.55	56.40	3.02	12.40	.....	.....	.....	.....	16	5.94	16.50	3.43	4.20	2.52	1.96
2.0	6.17	69.00	3.36	15.00	2.11	4.78	.....	.....	18	6.68	20.60	3.86	5.22	2.84	2.42
2.5	7.71	105.00	4.20	22.60	2.64	7.16	.....	.....	20	7.42	25.10	4.29	6.32	3.15	2.94
3.0	9.25	148.00	5.04	31.80	3.17	10.00	.....	.....	22	8.17	30.20	4.72	7.58	3.47	3.52
3.5	10.79	200.00	5.88	42.60	3.70	13.30	.....	.....	24	8.91	35.60	5.15	8.92	3.78	4.14
4.0	12.33	259.00	6.72	54.90	4.22	17.10	2.41	4.21	26	9.65	41.60	5.58	10.37	4.10	4.81
5.0	15.42	398.00	8.40	83.50	5.28	25.80	3.01	6.32	28	10.39	47.90	6.01	11.90	4.41	5.51
6.0	.....	.....	10.08	118.00	6.34	36.50	3.61	8.87	30	11.10	54.60	6.44	13.60	4.73	6.26
7.0	.....	.....	11.80	158.00	7.39	48.70	4.21	11.80	35	13.00	73.30	7.51	18.20	5.51	8.37
8.0	.....	.....	13.40	205.00	8.45	62.70	4.81	15.00	40	14.80	95.00	8.58	23.50	6.30	10.79
9.0	.....	.....	15.10	258.00	9.50	78.30	5.42	18.80	45	16.70	119.00	9.65	29.40	7.04	13.45
10.0	.....	.....	16.80	316.00	10.56	95.90	6.02	23.00	50	18.60	146.00	10.70	36.00	7.88	16.40
12.0	.....	.....	.....	.....	12.70	136.00	7.22	32.60	55	.....	.....	11.80	43.20	8.67	19.70
14.0	.....	.....	.....	.....	14.80	183.00	8.42	43.50	60	.....	.....	12.90	51.00	9.46	23.20
16.0	.....	.....	.....	.....	16.90	235.00	9.63	56.30	65	.....	.....	13.90	59.60	10.24	27.10
18.0	.....	.....	.....	.....	.....	.....	10.80	70.30	70	.....	.....	15.00	68.80	11.03	31.30
20.0	.....	.....	.....	.....	.....	.....	12.00	86.10	75	.....	.....	16.10	78.70	11.80	35.80
22.0	.....	.....	.....	.....	.....	.....	13.20	104.00	80	.....	.....	.....	.....	12.60	40.50
24.0	.....	.....	.....	.....	.....	.....	14.40	122.00	85	.....	.....	.....	.....	13.40	45.60
26.0	.....	.....	.....	.....	.....	.....	15.60	143.00	90	.....	.....	.....	.....	14.20	51.00
28.0	.....	.....	.....	.....	.....	.....	16.80	164.00	95	.....	.....	.....	.....	15.00	56.50
									100	.....	.....	.....	.....	15.80	62.20
U.S. Gallons per Minute	2 Inch		2½ Inch		3 Inch		4 Inch		U.S. Gallons per Minute	5 Inch		6 Inch		8 Inch	
	V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.		V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.	V Ft/Sec	hf Frict.
25	2.39	1.29	.....	.....	.....	.....	.....	.....	160	2.57	0.487	.....	.....	.....	.....
30	2.87	1.82	.....	.....	.....	.....	.....	.....	180	2.89	0.606	.....	.....	.....	.....
35	3.35	2.42	2.35	1.00	.....	.....	.....	.....	200	3.21	0.736	.....	.....	.....	.....
40	3.82	3.10	2.68	1.28	.....	.....	.....	.....	220	3.53	0.879	2.44	0.357	.....	.....
45	4.30	3.85	3.02	1.60	.....	.....	.....	.....	240	3.85	1.035	2.66	0.419	.....	.....
50	4.78	4.67	3.35	1.94	2.17	0.662	.....	.....	260	4.17	1.20	2.89	0.487	.....	.....
60	5.74	6.59	4.02	2.72	2.60	0.924	.....	.....	300	4.81	1.58	3.33	0.637	.....	.....
70	6.69	8.86	4.69	3.63	3.04	1.22	.....	.....	350	5.61	2.11	3.89	0.851	.....	.....
80	7.65	11.40	5.36	4.66	3.47	1.57	.....	.....	400	6.41	2.72	4.44	1.09	2.57	0.279
90	8.60	14.20	6.03	5.82	3.91	1.96	7.85	7.85	450	7.22	3.41	5.00	1.36	2.89	0.348
100	9.56	17.40	6.70	7.11	4.34	2.39	2.41	4.21	500	8.02	4.16	5.55	1.66	3.21	0.424
120	11.56	24.70	8.04	10.00	5.21	3.37	3.01	6.32	600	9.62	5.88	6.66	2.34	3.85	0.597
140	13.40	33.20	9.38	13.50	6.08	4.51	3.61	8.87	700	11.20	7.93	7.77	3.13	4.49	0.797
160	15.30	43.00	10.70	17.40	6.94	5.81	4.21	11.80	800	12.80	10.22	8.88	4.03	5.13	1.02
180	.....	.....	12.10	21.90	7.81	7.28	4.81	15.00	900	14.40	12.90	9.99	5.05	5.77	1.27

200	.....	.....	13.40	26.70	8.68	8.90	5.42	18.80	1000	16.00	15.80	11.10	6.17	6.41	1.56
220	.....	.....	14.70	32.20	9.55	10.70	6.02	23.00	1100	.....	.....	12.20	7.41	7.05	1.87
240	.....	.....	16.10	38.10	10.40	12.60	7.22	32.60	1200	.....	.....	13.30	8.76	7.70	2.20
260	.....	.....	.....	.....	11.30	14.70	8.42	43.50	1300	.....	.....	14.40	10.20	8.34	2.56
280	.....	.....	.....	.....	12.20	16.90	9.63	56.30	1400	.....	.....	15.50	11.80	8.98	2.95
300	.....	.....	.....	.....	13.00	19.20	10.80	70.30	1500	.....	.....	.....	.....	9.62	3.37
350	.....	.....	.....	.....	15.20	26.10	12.00	86.10	1600	.....	.....	.....	.....	10.30	3.82
400	.....	.....	.....	.....	.....	.....	13.20	104.00	1700	.....	.....	.....	.....	10.90	4.29
450	.....	.....	.....	.....	.....	.....	14.40	122.00	1800	.....	.....	.....	.....	11.50	4.79
500	.....	.....	.....	.....	.....	.....	12.00	86.10	1900	.....	.....	.....	.....	12.20	5.31
550	.....	.....	.....	.....	.....	.....	13.20	104.00	2000	.....	.....	.....	.....	12.80	5.86
600	.....	.....	.....	.....	.....	.....	14.40	122.00	2100	.....	.....	.....	.....	13.50	6.43
NOTE: The above table shows average values of pipe friction for new pipe. For commercial installations, it is recommended that 15% be added to the above values. No allowances for aging of pipe are included.									2200	14.10	7.02

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