

FRICTION LOSS AND FLOW VELOCITY FOR SCHEDULE 40 THERMOPLASTIC PIPE

(Friction head and friction loss are per 100 feet of pipe.)

Gallons Per Minute	1/2 in.			3/4 in.			1 in.			1 1/4 in.			1 1/2 in.			2 in.			2 1/2 in.			3 in.		
	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch
1	1.13	2.08	0.90	0.63	0.51	0.22	0.77	0.55	0.24	0.14	0.06	0.33	0.07	0.03	0.49	0.066	0.029	0.30	0.038	0.016	0.22	0.015	0.007	
2	2.26	4.16	1.80	1.26	1.02	0.44	1.93	1.72	0.75	0.44	0.19	0.81	0.22	0.09	0.98	0.11	0.048	0.49	0.051	0.023	0.31	0.021	0.009	
5	5.64	23.44	10.15	3.16	5.73	2.48	2.72	3.17	1.37	0.81	0.35	1.13	0.38	0.17	0.69	0.11	0.048	0.68	0.09	0.039	0.44	0.03	0.013	
7	7.90	43.06	18.64	4.43	10.52	4.56	3.86	6.02	2.61	1.55	0.67	1.62	0.72	0.31	0.98	0.21	0.091	0.68	0.09	0.082	0.66	0.07	0.030	
10	11.28	82.02	35.51	6.32	20.04	8.68	5.79	12.77	5.53	3.28	1.42	2.42	1.53	0.66	1.46	0.45	0.19	1.03	0.19	0.14	0.88	0.11	0.048	
15		4 in.		12.65	72.34	31.32	7.72	21.75	9.42	4.42	2.42	3.23	2.61	1.13	1.95	0.76	0.33	1.37	0.32	0.14	1.10	0.17	0.074	
20	0.51	0.03	0.013				9.65	32.88	14.22	5.52	3.66	4.04	3.95	1.71	2.44	1.15	0.50	1.71	0.49	0.21	1.10	0.17	0.074	
25	0.64	0.04	0.017				11.58	46.08	19.95	6.63	5.13	4.85	5.53	2.39	2.93	1.62	0.70	2.05	0.68	0.29	1.33	0.23	0.10	
35	0.89	0.08	0.035							7.73	6.82	5.66	7.36	3.19	3.41	2.15	0.93	2.39	0.91	0.39	1.55	0.31	0.13	
40	1.02	0.11	0.048							8.84	8.74	6.47	9.43	4.08	3.90	2.75	1.19	2.73	1.16	0.50	1.77	0.40	0.17	
45	1.15	0.13	0.056							9.94	10.87	7.27	11.73	5.08	4.39	3.43	1.49	3.08	1.44	0.62	1.99	0.50	0.22	
50	1.28	0.16	0.069							11.05	13.21	8.08	14.25	6.17	4.88	4.16	1.80	3.42	1.75	0.76	2.21	0.60	0.26	
60	1.53	0.22	0.095									9.70	19.98	8.65	6.33	7.76	3.36	4.10	2.46	1.07	2.65	0.85	0.37	
70	1.79	0.30	0.13												6.83	8.82	3.82	4.79	3.27	1.42	3.09	1.13	0.49	
75	1.92	0.34	0.15												7.80	9.94	4.30	5.47	4.19	1.81	3.53	1.44	0.62	
80	2.05	0.38	0.16												8.78	12.37	5.36	6.15	5.21	2.26	3.98	1.80	0.78	
90	2.30	0.47	0.20												9.75	15.03	6.51	6.84	6.33	2.74	4.42	2.18	0.94	
100	2.56	0.58	0.25															8.55	9.58	4.15	5.52	3.31	1.43	
125	3.20	0.88	0.38															10.26	13.41	5.81	6.63	4.63	2.00	
150	3.84	1.22	0.53																		7.73	6.16	2.67	
175	4.48	1.63	0.71																		8.83	7.88	3.41	
200	5.11	2.08	0.90																		11.04	11.93	5.17	
250	6.40	3.15	1.36																					
300	7.67	4.41	1.91																					
350	8.95	5.87	2.55																					
400	10.23	7.52	3.26																					
450																								
500																								
750																								
1000																								
1250																								
1500																								
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CAUTION: Flow velocity should not exceed 5 feet per second. PVC and CPVC pipe cannot be used for compressed air service.

FRICTION LOSS AND FLOW VELOCITY FOR SCHEDULE 80 THERMOPLASTIC PIPE

(Friction head and friction loss are per 100 feet of pipe.)

Gallons Per Minute	1/2 in.		3/4 in.		1 in.		1 1/4 in.		1 1/2 in.		2 in.		2 1/2 in.		3 in.	
	Velocity Feet Per Second	Friction Head Feet	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Head Feet	Friction Loss Pounds Per Square Inch
1	1.48	4.02	0.86	0.37	0.94	0.88	0.21	0.09	0.38	0.10	0.041	0.56	0.10	0.05	0.02	0.009
2	2.95	8.03	1.57	0.74	2.34	2.75	0.66	0.29	0.94	0.30	0.126	1.12	0.15	0.07	0.028	0.012
5	7.39	45.23	3.92	4.19	3.28	5.04	1.21	0.53	1.32	0.55	0.24	1.78	0.29	0.12	0.052	0.017
7	10.34	83.07	5.49	7.69	4.68	9.61	2.30	1.00	1.88	1.04	0.45	2.42	0.42	0.17	0.075	0.039
10			7.84	14.65	7.01	20.36	4.87	2.11	2.81	2.20	0.95	3.18	0.62	0.26	0.11	0.065
15			11.76	31.05	9.35	34.68	3.59	3.43	3.75	3.75	1.62	4.43	1.06	0.44	0.15	0.095
20	0.57	0.04			11.69	52.43	6.50	5.43	4.69	5.67	2.46	6.12	1.60	0.69	0.29	0.135
25	0.72	0.06			14.03	73.48	7.80	7.62	5.63	7.95	3.44	7.35	2.25	0.97	0.41	0.18
30	0.86	0.08					9.10	10.13	6.57	10.58	4.58	8.31	2.99	1.29	0.54	0.23
35	1.00	0.11					11.70	12.98	7.50	13.55	5.87	10.47	3.83	1.60	0.69	0.29
40	1.15	0.14					13.00	16.14	8.44	16.85	7.30	11.70	4.73	2.31	0.94	0.41
45	1.29	0.17						19.61	9.38	20.48	8.87	13.00	5.58	3.11	1.49	0.84
50	1.43	0.21							11.26	28.70	12.43	14.43	6.70	4.02	2.05	1.49
60	1.72	0.30										17.20	8.12	5.77	3.11	2.50
70	2.01	0.39										20.90	10.05	7.02	4.48	4.84
75	2.15	0.45											11.70	8.72	4.98	5.12
80	2.29	0.50											11.70	9.75	5.72	6.23
90	2.58	0.63											11.70	13.21	8.00	8.00
100	2.87	0.76											11.70	18.48		
125	3.59	1.16											11.70			
150	4.30	1.61											11.70			
175	5.02	2.15											11.70			
200	5.73	2.75											11.70			
250	7.16	4.16											11.70			
300	8.60	5.83											11.70			
350	10.03	7.76											11.70			
400	11.47	9.93											11.70			
450													11.70			
500													11.70			
750													11.70			
1000													11.70			
1250													11.70			
1500													11.70			
2000													11.70			
2500													11.70			
3000													11.70			
3500													11.70			
4000													11.70			
4500													11.70			
5000													11.70			
5500													11.70			
6000													11.70			
6500													11.70			
7000													11.70			
7500													11.70			
8000													11.70			
8500													11.70			
9000													11.70			
9500													11.70			
10000													11.70			

CAUTION: Flow velocity should not exceed 5 feet per second. PVC and CPVC pipe cannot be used for compressed air service.

FRICTION LOSS AND FLOW VELOCITY FOR SDR 26 THERMOPLASTIC PIPE

(Friction head and friction loss are per 100 feet of pipe.)

Gallons Per Minute	1/2 in.		3/4 in.		1 in.		1 1/4 in.		1 1/2 in.		2 in.		2 1/2 in.		3 in.	
	Velocity Feet Per Second	Friction Head Feet	Velocity Feet Per Second	Friction Head Feet	Velocity Feet Per Second	Friction Head Feet	Velocity Feet Per Second	Friction Head Feet	Velocity Feet Per Second	Friction Head Feet	Velocity Feet Per Second	Friction Head Feet	Velocity Feet Per Second	Friction Head Feet	Velocity Feet Per Second	Friction Head Feet
1	0.84	1.00	0.43	0.009	0.59	0.29	0.13	0.037	0.27	0.02	0.0087	0.17	0.01	0.004	0.01	0.0045
2	1.67	2.00	0.86	0.24	1.48	0.91	0.39	0.117	0.68	0.14	0.059	0.44	0.045	0.020	0.014	0.0063
5	4.17	11.25	4.87	1.36	2.08	1.66	0.72	0.21	0.96	0.25	0.104	0.61	0.08	0.035	0.028	0.022
7	5.84	20.66	8.95	2.49	2.96	3.16	1.37	0.40	1.36	0.47	0.20	0.87	0.16	0.069	0.40	0.009
10	8.34	39.34	17.03	4.74	4.44	6.69	2.90	0.85	2.04	1.00	0.43	1.30	0.33	0.14	0.59	0.022
15					5.92	11.40	4.94	1.45	2.72	1.71	0.74	1.73	0.57	0.25	0.88	0.039
20	0.48	0.02	0.009		7.40	17.23	7.46	2.18	3.40	2.59	1.12	2.16	0.86	0.37	1.47	0.056
25	0.60	0.04	0.017		8.88	24.15	10.46	3.06	4.08	3.63	1.57	2.60	1.21	0.52	1.77	0.078
30	0.72	0.05	0.022	0.009	10.36	32.13	13.91	4.07	4.76	4.83	2.09	3.03	1.61	0.70	2.06	0.10
35	0.84	0.07	0.030	0.013				5.22	5.44	6.18	2.68	3.46	2.06	0.89	2.35	0.13
40	0.96	0.09	0.039	0.013				6.49	6.12	7.69	3.33	3.90	2.56	1.11	2.65	0.16
45	1.08	0.11	0.048	0.017				7.88	6.80	9.34	4.04	4.33	3.11	1.35	2.94	0.20
50	1.20	0.14	0.061	0.022					8.16	13.10	5.67	5.19	4.36	1.89	3.53	0.28
60	1.44	0.19	0.082	0.030					9.52	17.42	7.54	6.06	5.80	2.51	4.12	0.38
70	1.67	0.25	0.11	0.039					10.87	19.80	8.57	6.49	6.60	2.86	4.41	0.43
75	1.79	0.29	0.13	0.043					10.19	19.80	8.57	6.49	6.60	2.86	4.41	0.43
80	1.91	0.32	0.14	0.052					10.87	22.31	9.66	6.92	7.43	3.22	4.71	0.48
90	2.15	0.40	0.17	0.061					12.23	27.75	12.02	7.79	9.25	4.01	5.30	0.60
100	2.39	0.49	0.21	0.078					13.59	33.73	14.61	8.66	11.24	4.87	5.89	0.73
125	2.99	0.74	0.33	0.12												
150	3.59	1.04	0.45	0.16												
175	4.19	1.39	0.60	0.22												
200	4.79	1.77	0.77	0.27												
250	5.98	2.68	1.16	0.42												
300	7.18	3.75	1.62	0.58												
350	8.38	5.00	2.17	0.77												
400	9.57	6.39	2.77	0.99												
450	10.77	7.95	3.44	1.23												
500	11.96	9.66	4.18	1.49												
750				3.17												
1000																
1250																
1500																
2000																
2500																
3000																
3500																
4000																
4500																

CAUTION: Flow velocity should not exceed 5 feet per second. PVC and CPVC pipe cannot be used for compressed air service.

FRICTION LOSS AND FLOW VELOCITY FOR SDR 21 THERMOPLASTIC PIPE

(Friction head and friction loss are per 100 feet of pipe.)

Gallons Per Minute	1/2 in.			3/4 in.			1 in.			1 1/4 in.			1 1/2 in.			2 in.			2 1/2 in.			3 in.		
	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch	Velocity Feet Per Second	Friction Head Feet	Friction Loss Pounds Per Square Inch
1	0.84	1.00	0.44	0.50	0.28	0.12	0.60	0.30	0.13	0.04	0.29	0.05	0.022	0.18	0.023	0.010	0.31	0.031	0.014	0.20	0.015	0.006		
2	1.67	2.00	0.87	0.99	0.56	0.24	1.50	0.93	0.41	0.13	0.095	0.71	0.15	0.065	0.45	0.06	0.025	0.43	0.044	0.020	0.29	0.021	0.009	
5	4.17	11.25	4.87	2.47	3.14	1.36	2.09	1.70	0.74	0.23	0.30	0.54	0.28	0.12	0.63	0.081	0.035	0.43	0.044	0.020	0.29	0.021	0.009	
7	5.84	20.66	8.95	3.46	5.76	2.49	2.99	3.24	1.40	0.44	0.54	1.02	0.52	0.23	0.90	0.17	0.074	0.61	0.07	0.03	0.41	0.03	0.013	
10	8.34	39.34	17.03	4.94	10.96	4.75	4.49	6.86	2.97	0.94	1.02	1.86	1.11	0.48	1.35	0.37	0.16	0.92	0.14	0.061	0.62	0.06	0.026	
15		4 in.		7.40	23.23	10.06	5.98	11.68	5.06	1.59	2.16	2.83	1.89	0.82	1.80	0.63	0.27	1.23	0.25	0.11	0.83	0.09	0.039	
20	0.50	0.03	0.013	9.87	39.57	17.13	7.48	17.66	7.65	2.41	3.54	4.24	2.85	1.23	2.25	0.95	0.41	1.53	0.37	0.16	1.03	0.14	0.061	
25	0.62	0.04	0.017				8.97	24.76	10.72	3.38	4.24	4.95	3.32	1.73	2.71	1.34	0.58	1.84	0.52	0.23	1.24	0.20	0.087	
30	0.75	0.06	0.026				10.47	32.94	14.26	4.49	5.32	6.24	4.00	2.30	3.16	1.78	0.77	2.15	0.70	0.30	1.45	0.27	0.12	
35	0.87	0.08	0.035	0.49	0.02	0.009	0.57	0.03	0.013	5.75	7.44	13.28	8.47	2.95	3.61	2.27	0.98	2.45	0.89	0.39	1.65	0.34	0.15	
40	1.00	0.10	0.043	0.65	0.04	0.017	0.65	0.04	0.017	7.15	8.37	16.52	9.67	3.67	4.06	2.83	1.23	2.76	1.11	0.48	1.86	0.42	0.18	
45	1.12	0.12	0.052	0.74	0.05	0.022	0.74	0.05	0.022	8.69	10.29	20.08	11.17	4.46	4.51	3.44	1.49	3.07	1.35	0.58	2.06	0.51	0.22	
50	1.25	0.15	0.065	0.82	0.06	0.027	0.82	0.06	0.027	12.18	14.42	28.14	15.11	6.24	5.41	4.82	2.09	3.68	1.89	0.82	2.48	0.72	0.31	
60	1.50	0.21	0.091	0.98	0.08	0.035	0.98	0.08	0.035		11.17	20.08	18.49	8.31	6.31	6.41	2.78	4.29	2.51	1.09	2.89	0.96	0.42	
70	1.75	0.28	0.12	1.14	0.10	0.043	1.14	0.10	0.043		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
75	1.87	0.32	0.14	1.23	0.11	0.048	1.23	0.11	0.048		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
80	2.00	0.36	0.16	1.31	0.13	0.056	1.31	0.13	0.056		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
90	2.25	0.45	0.19	1.47	0.16	0.069	1.47	0.16	0.069		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
100	2.50	0.54	0.23	1.63	0.19	0.082	1.63	0.19	0.082		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
125	3.13	0.82	0.36	2.04	0.30	0.13	2.04	0.30	0.13		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
150	3.75	1.15	0.50	2.45	0.41	0.18	2.45	0.41	0.18		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
175	4.37	1.54	0.67	2.86	0.55	0.24	2.86	0.55	0.24		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
200	4.99	1.96	0.85	3.27	0.70	0.30	3.27	0.70	0.30		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
250	6.24	2.97	1.29	4.09	1.06	0.46	4.09	1.06	0.46		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
300	7.49	4.16	1.80	4.90	1.48	0.64	4.90	1.48	0.64		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
350	8.74	5.54	2.40	5.72	1.98	0.86	5.72	1.98	0.86		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
400	9.99	7.09	3.07	6.54	2.53	1.10	6.54	2.53	1.10		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
450	11.24	8.82	3.82	7.35	3.14	1.36	7.35	3.14	1.36		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
500	12.48	10.72	4.64	8.17	3.82	1.65	8.17	3.82	1.65		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
750				12.26	8.09	3.50					11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
1000							11.53	5.89	2.55		11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
1250											11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
1500											11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
2000											11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
2500											11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
3000											11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
3500											11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
4000											11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	
4500											11.17	28.14	20.08	9.44	6.76	7.29	3.16	4.60	2.85	1.23	3.10	1.09	0.47	

CAUTION: Flow velocity should not exceed 5 feet per second. PVC and CPVC pipe cannot be used for compressed air service.