VELOCITY CHART IN FEET PER SECOND

	14.	1/2" Pipe		¾" Pipe		1' Pipe		1½" Pipe		1½" Pipe		2" Pipe		2½* Pipe		3' Pipe		4" Pipe		5" Pipe		6" Pipe	
U.S. Gals. per min.	Vel. ft. per	Loss	Vel. ft. per	Loss	Vel. ft. per	Loss	Vel. ft. per	Loss	Vel.	Loss	Vel. ft. per	Loss	Vel. ft. per	Loss	Vel.	Loss	Vel. ft. per	Loss in	Vel. ft. per	Loss	Vel. ft. per	Loss	U.S. Gala. per min.
	Sec. 2.10	Feet 7.4	Sec.	Feet	Sec.	Feet	Sec.	Feet	Sec.	Feet	Sec.	Feet	Sec.	Feet	Sec.	Feet	Sec.	Feet	Sec.	Feet	Sec.	Feet	2
2 4 6 8 10	4.21 6.31 8.42 10.52	27.0 57.0 98.0 147.0	2.41 3.61 4.81 6.02	1.9 7.0 14.7 25.0 38.0	1.49 2.23 2.98 3.72	2.14 4.55 7.8 11.7	.86 1.29 1.72 2.14	1.20 2.03 3.05	.63 .94 1.26 1.57	.26 .56 .95 1.43	.61 .82 1.02	.20 .33 .50	.52	ii .17	45	.07							2 4 6 8 10
12 15 18 20 25 30 35			7.22 9.02 10.84 12.03	53.0 80.0 108.2 136.0	4.46 5.60 6.69 7.44 9.30 11.15 13.02	16.4 25.0 35.0 42.0 64.0 89.0 119.0	2.57 3.21 3.86 4.29 5.36 6.43 7.51	4.3 6.5 9.1 11.1 16.6 23.0 31.2	1.89 2.36 2.83 3.15 3.80 4.72 5.51	2.01 3.00 4.24 5.20 7.30 11.0	1.23 1.53 1.84 2.04 2.55 3.06 3.57	.79 1.08 1.49 1.82 2.73 3.84 5.10	.78 .98 1.18 1.31 1.63 1.96 2.29		.54 .68 .82 .91 1.13 1.36 1.59	.10 .15 .21 .25 .38 .54 .71	 .51 .64 .77 .89	 .06 .09 .13	.49				12 15 18 20 25 30 35
40 45 50 55 60 65					14.88	152.0	8.58 9.65 10.72 11.78 12.87 13.92	40.0 50.0 60.0 72.0 85.0 99.7	6.30 7.08 7.87 8.66 9.44 10.23	18.8 23.2 28.4 34.0 39.6 45.9			2.61 2.94 3.27 3.59 3.92 4.24		1.82 2.04 2.27 2.45 2.72 2.89	.91 1.15 1.38 1.58 1.92 2.16	1.02 1.15 1.28 1.41 1.53 1.66	.22 .28 .34 .41 .47 .53	.65 .73 .82 .90 .98 1.06	.08 .09 .11 .14 .16	 .57 .62 .68 .74	.04 .05 .06	40 45 50 55 60 65
70 75 80 85 90 95							15.01 16.06 17.16 18.21 19.30		14.95	53.0 60.0 68.0 75.0 84.0 93.0	8.17 8.68 9.19 9.70		4.58 4.91 5.23 5.56 5.88 6.21	6.2 7.1 7.9 8.1 9.8 10.8	3.18 3.33 3.63 3.78 4.09 4.22	2.57 3.00 3.28 3.54 4.08 4.33	1.79 1.91 2.04 2.17 2.30 2.42	.63 .73 .81 .91 1.00 1.12	1.14 1.22 1.31 1.39 1.47 1.55	.21 .24 .27 .31 .34	.79 .85 .91 .96 1.02 1.08	.08 .10 .11 .12 .14 .15	70 75 80 85 90 95
100 110 120 130 140 150	8" P	IPE::08							15.74 17.31 18.89 20.46 22.04	102.0 122.0 143.0 166.0 190.0	10.21 11.23 12.25 13.28 14.30 15.32	35.8 42.9 50.0 58.0 67.0 76.0	6.54 7.18 7.84 8.48 9.15 9.81	12.0 14.5 16.8 18.7 22.3 25.5	4.54 5.00 5.45 5.91 6.35 6.82	4.96 6.0 7.0 8.1 9.2 10.5	2.55 2.81 3.06 3.31 3.57 3.82	1.22 1.46 1.17 1.97 2.28 2.62	2.12 2.29 2.45	.41 .49 .58 .67 .76	1.13 1.25 1.36 1.47 1.59 1.70	.17 .21 .24 .27 .32 .36	100 110 120 130 140 150
160 170 180 190 200 220	1.02 1.08 1.15 1.21 1.28 1.40	.10 .11 .13 .14 .15	10" P	IPE:							16.34 17.36 18.38 19.40 20.42 22.47	86.0 96.0 107.0 118.0 129.0 154.0	11.11 11.76 12.42	34.1 35.7 39.6 43.1	7.26 7.71 8.17 8.63 9.08 9.99	11.8 13.3 14.0 15.5 17.8 21.3	4.08 4.33 4.60 4.84 5.11 5.62	2.91 3.26 3.61 4.01 4.4 5.2	3.10 3.27 3.59	.98 1.08 1.22 1.35 1.48 1.77		.40 .45 .50 .55 .62 .73	160 170 180 190 200 220
240 260 280 300 320 340	1.53 1.66 1.79 1.91 2.05 2.18	.22 .25 .28 .32 .37 .41	.98 1.06 1.15 1.22 1.31 1.39	.07 .08 .09 .11 .12 .14	12" P	IPE:					24.51 26.55		15.69 16.99 18.30 19.61 20.92 22.22	116.0	10.89 11.80 12.71 13.62 14.52 15.43	47.5	6.13 6.64 7.15 7.66 8.17 8.68	6.2 7.2 8.2 9.3 10.5				1.62	240 260 280 300 320 340
360 380 400 450 500 550	2.30 2.43 2.60 2.92 3.19 3.52	.45 .50 .54 .68 .82 .97	1.47 1.55 1.63 1.84 2.04 2.24	.15 .17 .19 .23 .28 .33	1.08 1.14 1.28 1.42 1.56	.069 .075 .95 .113	14" P	.06 .07					23.53 24.84 26.14	128.0 142.0 156.0	16.34 17.25 18.16 20.40 22.70 24.96	98.0	9.19 9.69 10.21 11.49 12.77 14.04	13.1 14.0 16.0 19.8 24.0 28.7	8.17	4.41 4.86 5.4 6.7 8.1 9.6	4.55 5.11 5.68 6.25	1.83 2.00 2.20 2.74 2.90 3.96	360 380 400 450 500 550
600 650 760 750 800 850	3.84 4.16 4.46 4.80 5.10 5.48	1.14 1.34 1.54 1.74 1.90 2.20	2.45 2.65 2.86 3.06 3.26 3.47	.39 .45 .52 .59 .66	1.70 1.84 1.99 2.13 2.27 2.41	.159 .19 .22 .24 .27 .31	1.25 1.37 1.46 1.58 1.67 1.79	.08 .09 .10 .11 .13 .14	16"P		2070	IDE			27.23	137.0	15.32 16.59 17.87 (9.15 20.42 21.70	33.7 39.0 44.9 51.0 57.0 64.0	9.80 10.62 11.44 12.26 13.07 13.89			4.65 5.40 6.21 7.12 7.96 8.95	600 650 700 750 800 850
900 950 1000 1100 1200 1300	5.75 6.06 6.38 7.03 7.66 8.30	2.46 2.87 2.97 3.52 4.17 4.85	3.67 3.88 4.08 4.49 4.90 5.31	.83 .91 1.03 1.19 1.40 1.62		.34 .38 .41 .49 .58	1.88 2.00 2.10 2.31 2.52 2.71	.16 .18 .19 .23 .27 .32	1.44 1.52 1.60 1.76 1.92 2.08	.098 .10 .12 .14 .17	20"P	.04	2441	IDE			22.98	71.0	14.71 15.52 16.34 17.97 19.61	24.0 26.7 29.2 34.9 40.9	13.61 14.72	18.4	900 950 1000 1100 1200 1300
1400 1500 1600 1800 2000 2200	8.95 9.58 10.21 11.50 12.78 14.05	5.50 6.24 7.00 8.78 10.71 12.78	5.71 6.12 6.53 7.35 8.16 8.98	4.24	6.25	.78 .89 .98 1.21 1.49 1.81	2.92 3.15 3.34 3.75 4.17 4.59	.36 .41 .47 .58 .71 .84	2.24 2.39 2.56 2.87 3.19 3.51	.19 .21 .24 .30 .37 .44	1.43 1.53 1.63 1.84 2.04 2.25	.07 .08 .10 .12 .15	1.28 1.42 1.56		30"P	IPE					15.90 17.02 18.10	22.60 25.60 26.9	1400 1500 1600 1800 2000 2200
2400 2600 2800 3000 3200 3500	15.32	14.2	9.80 10.61 11.41 12.24 13.05 14.30	5.04 6.81 6.70 7.62 7.8 10.08	9.95	4.16	5.00 5.47 5.84 6.01 6.68 7.30	.99 1.17 1.32 1.49 1.67 1.97	3.83 4.13 4.47 5.13 5.59	.60 7 .68 9 .78 2 .88 9 1.04	2.45 2.66 2.86 3.08 3.27 3.59		1.70 1.84 1.98 2.13 2.20 2.49	.08 .09 .10 .12 .14		.027 .03 .037 .041							2400 2600 2800 3000 3200 3500
3800 4200 4500 5000 5500 6000			15.51	13.4	10.80 11.92 12.78 14.20	4.90 5.88 6.90 8.40	7.98 8.76 9.45 10.50 11.55 12.60	2.36 2.77 3.22 3.92 4.65 5.50	8.0 8.7 9.5	1 . 20 1 . 44 3 1 . 64 1 2 . 03 8 2 . 39 8 2 . 79	3.88 4.29 4.60 5.13 5.6 6.13	8 .41 9 .49 0 .56 3 .68 4 .82 3 .94	2.69 3.20 3.5 3.90 4.2	9 .17 9 .20 0 .22 4 .27 0 .33 5 .38	1.73 1.91 2.04 2.26 2.50 2.73								3800 4200 4500 5000 5500 6000
6500 7000 8000 9000 10000 12000	l:::::						13.65	6.45	10.30 11.10 12.70 14.30 15.90	3.32 3.70 84.74 75.90 67.19	6.64 7.11 8.1 9.20 10.20 12.2	1 . 10 5 1 . 25 7 1 . 61 0 2 . 01 0 2 . 44 5 3 . 41		.45 7 .52 8 .66 8 .81 .98 0 1 .40	2.96 3.18 3.64 4.08 4.54 5.46	.48							6500 7000 8000 9000 10000 12000
14000 16000 18000 20000											-11	0 4.54		1.87 8 2.40 6 2.97 0 3.60	6.37 7.28 8.18 9.10	.63 .81 1.02 1.23		::::					14000 16000 18000 20000

Friction loss of water in feet per 100 feet length of pipe; based on the Williams & Hazen formula using constant 100 sizes of standard pipe in inches. For New Smooth Pipe, use 71% of these values.

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