B13.2 Pipe Design Suitability Model

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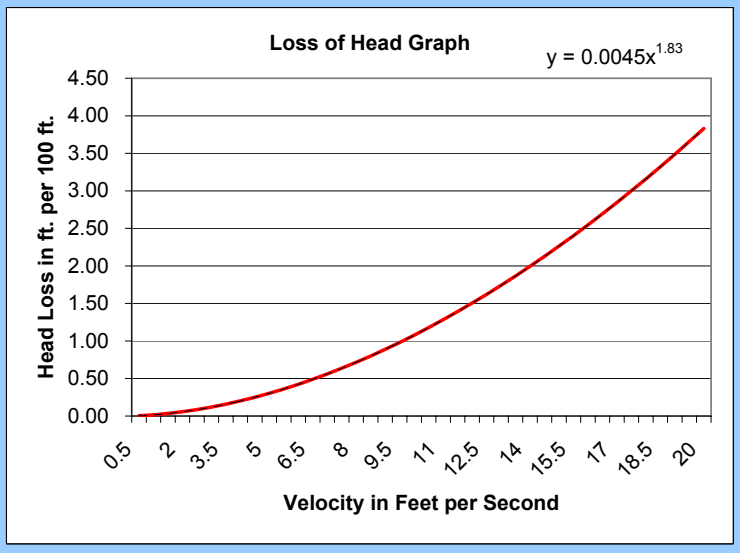
Use this model to assure that the desired flow is within safe pipeline velocity parameters.

Final Pipe Size to Model:	18	inch	Incremental Head Loss Units in Feet:	100	feet

#	18 inch Pipe Velocity (fps)	FLOW In GPM	Head Loss per 100 feet	Pipeline Design Suit-ability
1	0.5	397	0.00	Good
2	1	793	0.02	Good
3	1.5	1,190	0.03	Good
4	2	1,586	0.06	Good
5	2.5	1,983	0.09	Good
6	3	2,379	0.12	Good
7	3.5	2,776	0.16	Good
8	4	3,173	0.20	Good
9	4.5	3,569	0.25	Marginal
10	5	3,966	0.30	Marginal
11	5.5	4,362	0.36	Marginal
12	6	4,759	0.42	Marginal
13	6.5	5,155	0.49	Marginal
14	7	5,552	0.56	Marginal
15	7.5	5,949	0.64	Caution
16	8	6,345	0.72	Caution
17	8.5	6,742	0.80	Caution
18	9	7,138	0.89	Caution
19	9.5	7,535	0.98	Caution
20	10	7,931	1.08	Caution
21	10.5	8,328	1.18	Caution
22	11	8,725	1.28	Caution
23	11.5	9,121	1.39	Extreem
24	12	9,518	1.50	Extreem
25	12.5	9,914	1.62	Extreem
26	13	10,311	1.74	Extreem
27	13.5	10,707	1.87	Extreem
28	14	11,104	1.99	Extreem
29	14.5	11,501	2.13	Extreem
30	15	11,897	2.26	Extreem
31	15.5	12,294	2.40	Extreem
32	16	12,690	2.55	Dangerous
33	16.5	13,087	2.69	Dangerous
34	17	13,483	2.85	Dangerous
35	17.5	13,880	3.00	Dangerous
36	18	14,277	3.16	Dangerous
37	18.5	14,673	3.32	Dangerous
38	19	15,070	3.49	Dangerous
39	19.5	15,466	3.66	Dangerous
40	20	15,863	3.83	Dangerous



IMPORTANT PIPELINE DESIGN CONSIDERATIONS

Use this table to verify that the proposed pipeline flows fit safely within the green or yellow regions (shorter periods). The Orange velocity (caution) region should only be used for peak emergency situaions. If the head loss gets too high, it can add considerable costs and ineffeciencies to a pumped pipeline, as well as dangerous pressure drops to a gravity flowing system (see the next section for detailed data on this). If the headloss in a gravity system exceeds the static head, negative pressure conditions can occur, especially in more restricted sections of the pipeline system. This event can result in pipeline damage as well as possible back siphonage of water around leaks or other utility taps. This backflow or cross connection cond-ition can become a serious health threat and can be avoided with proper pipeline sizing and design. Consult a professional enginneer when designing any pipe system for further help and modeling. Avoid pieline velocities above 10 feet per second at all costs. The hazards and extreem operational costs will more than pay the differences in the long run.