Engineering Information

Loss in Cast Iron Pipes

Cast iron pipe is a historical pipe which found widespread use as a pressure pipe for transmission of water, gas and sewage, and as a water drainage pipe, during the 19th and 20th centuries. It comprises predominantly a gray cast iron tube and was frequently used uncoated, although later developments did result in various coatings and linings to reduce corrosion and improve hydraulics. Cast iron pipe was gradually superseded by ductile iron pipe, which is a direct development, with most existing manufacturing plants transitioning to the new material during the 1970s and 1980s. There is currently almost no new manufacture of cast iron pipe.

FLOW OF WATER AND FRICTION

Velocity Feet per Second	Diameter of 3		4		5		6	
	Discharge per Minute in Cubic Feet.							
Feet	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head
2	5.9	9.7	10.5	.55	16.4	.41	23.6	.32
2.5	7.3	1.49	13.0	.12	20.4	.64	29.3	.50
3	8.8	1.9	15.7	1.2	24.5	.82	35.2	.72
3.5	10.3	2.6	18.3	1.6	28.6	1.2	41.2	1.0
4	11.8	3.3	21.0	2.2	32.7	1.7	47.0	1.3
4.5	—	—	—	—	—	—	53.0	1.6
5	—	—	—	—	—	—	—	—
5.5	—	—	—	—	—	—	—	—
6	—	—	—	—	—	—	—	—

FLOW OF WATER AND FRICTION

Velocity Feet per Second	Diameter of 15		18		21		24	
	Discharge per Minute in Cubic Feet.							
Feet	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head
2	148	.11	212	.025	298	.075	377	0.65
2.5	184	.17	264	.147	360	.117	470	.109
3	220	.25	317	.21	430	.17	565	.15
3.5	258	.34	372	.29	505	.23	680	.20
4	295	.44	425	.36	575	.31	755	.27
4.5	331	.56	475	.46	650	.39	845	.34
5	368	.70	530	.58	720	.48	940	.41
5.5	405	.84	580	.70	790	.59	1030	.50
6							1130	.59

LOSS IN CAST IRON PIPES

Pipes in Inches: 6		7		8		9		10	
and loss of Head in Feet, per 100 Feet long.									
Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head
32	.27	42	.23	53	.19	65	.18	94	.15
40	.43	52	.36	66	.30	82	.27	117	.23
48	.61	63	.51	79	.44	98	.39	141	.33
56	.7	73	.71	93	.61	115	.52	165	.45
64	.9	86	.92	106	.79	131	.69	188	.59
72	1.2	94	1.2	119	1.01	147	.87	212	.75
—	—	—	—	132	1.2	164	1.1	325	.96
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

LOSS IN CAST IRON - (Contd.)

Pipes. In Inches: 27		30		33		36		42	
and loss of Head in Feet, per 100 Feet long.									
Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head	Cubic Feet	Feet of Head
478	.055	590	.052	710	.049	650	.04	1150	.038
595	.088	730	.085	890	.076	1000	.07	1440	0.56
715	.13	880	.12	1070	.108	1270	.10	1730	.081
835	.18	1030	.16	1250	.15	1480	.14	2020	.111
955	.23	1180	.22	1420	.20	1700	.17	2300	.14
1070	.30	1320	.28	1600	.25	1900	.22	2590	.18
1190	.37	1470	.34	1780	.30	2120	.27	2880	.22
1310	.44	1610	.39	1950	.36	2330	.32	3170	.27
1430	.53	1760	.49	2140	.43	2540	.40	3450	.32