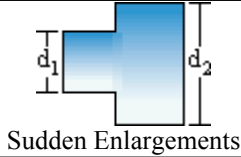


# Friction Loss Due to Change in Pipe Size

## Loss of Head in Feet of Liquid

### Based on Velocity in Smaller Pipe



Velocity of $d_1$ fps	$d_1 d_2$									$d_1 d_2$									Velocity of $d_1$ fps
	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	
2	.00	.01	.02	.03	.03	.04	0.5	0.6	.06	.01	.01	.02	.02	.02	.03	.03	.03	.03	2
3	.01	.02	.04	.06	.08	.10	.12	.13	.14	.01	.03	.03	.04	.05	.06	.06	.07	.07	3
4	.01	.03	.06	.10	.14	.17	.21	.23	.24	.02	.04	.06	.08	.09	.10	.11	.12	.12	4
5	.01	.05	.10	.16	.22	.27	.32	.36	.38	.04	.07	.10	.12	.15	.16	.18	.19	.19	5
6	.02	.07	.15	.23	.31	.39	.46	.51	.55	.05	.10	.14	.18	.21	.23	.26	.27	.28	6
7	.03	.10	.20	.31	.43	.53	.63	.70	.75	.07	.14	.19	.24	.29	.32	.35	.37	.38	7
8	.04	.13	.26	.41	.56	.70	.83	.92	.97	.09	.18	.25	.32	.38	.42	.46	.48	.50	8
9	.05	.16	.33	.52	.70	.88	1.04	1.16	1.23	.12	.23	.31	.40	.48	.53	.56	.60	.63	9
10	.06	.20	.40	.64	.87	1.09	1.29	1.43	1.52	.15	.28	.38	.50	.59	.65	.71	.75	.77	10
12	.08	.29	.58	.92	1.25	1.57	1.86	2.06	2.19	.21	.40	.56	.72	.85	.94	1.03	1.07	1.12	12
15	.13	.45	.91	1.43	1.96	2.45	2.90	3.22	3.43	.33	.53	.87	1.12	1.33	1.47	1.61	1.68	1.75	15
20	.22	.80	1.62	2.55	3.48	4.35	5.16	5.72	6.09	.59	1.12	1.55	1.99	2.36	2.61	2.86	2.98	3.10	20
25	.35	1.26	2.53	3.98	5.44	6.80	8.06	8.94	9.52	.92	1.75	2.43	3.11	3.69	4.06	4.47	4.66	4.86	25
30	.50	1.82	3.64	5.73	7.83	9.79	11.6	12.9	13.7	1.32	2.52	3.50	4.48	5.31	5.87	6.43	6.71	6.99	30
40	.90	3.23	6.46	10.2	13.9	17.4	20.6	22.9	24.4	2.36	4.48	6.22	7.96	9.45	10.4	11.4	11.9	12.4	40
K	.036	0.13	0.26	0.41	0.56	0.70	0.83	0.92	0.98	.095	0.18	0.25	0.32	0.38	0.42	0.46	0.48	0.50	K