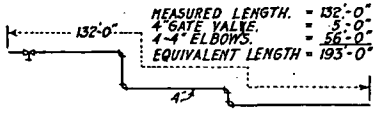
TABLE 3. CONSTANTS FOR VARIOUS LENGTHS AND INITIAL PRESSURES

STEAM PRESSURE GAGE LB.	CONSTANT BY WHICH TO MULTIPLY CAPACITY OF ANY PIPE FOR 1 LB. GAGE STEAM PRESSURE TO OBTAIN CAPACITY OF SAME PIPE FOR PRESSURE IN COL. 1	LENGTH OF PIPE FT.	CONSTANT BY WHICH TO MULTIPLY CAPACITY OF 100 FT. PIPE TO OBTAIN CAPACITY OF SAME SIZED PIPE WITH SAME PRESSURE, AND LENGTH AS GIVEN IN COL. *A*
Col. 1	Col. 2	Col. *A*	Col. *B*
0	0.92	20	2.240
1	1.00	40	1.580
2	1.03	60	1.290
5	1.11	80	1.120
10	1.24	100	1.000
15	1.35	120	0.912
20	1.45	140	0.841
30	1.63	160	0.793
40	1.79	180	0.741
50	1.94	200	0.710
60	2.08	250	0.632
75	2.26	300	0.578
100	2.54	350	0.538
125	2.79	400	0.500
150	3.02	450	0.477
175	3.23	500	0.447
200	3.44	600	0.407
...	....	700	0.378
...	....	800	0.354
...	....	900	0.333
...	....	1000	0.316
...	....	1400	0.267

TABLE 4. LENGTH IN FEET OF PIPE TO BE ADDED TO ACTUAL LENGTH OF RUN—DUE TO FITTINGS—TO OBTAIN EQUIVALENT LENGTH

SIZE OF PIPE INCHES	ST'D. ELBOW	SIDE OUTLET TEE	GATE VALVE	GLOBE VALVE	ANGLE VALVE
	Length in Feet to be Added in Run				
2	5	16	2	18	9
2½	7	20	3	25	12
3	10	26	3	33	16
3½	12	31	4	39	19
4	14	35	5	45	22
5	18	44	7	57	28
6	22	50	9	70	32
7	26	55	10	82	37
8	31	63	12	94	42
9	35	69	13	105	47
10	39	76	15	118	52
12	47	90	18	140	63
14	53	105	20	160	72

Example of length in feet of pipe to be added to actual length of run.



Example: What is the capacity of a 140 ft. 4 in. pipe with an initial pressure of 1 lb. and pressure drop of 2 oz. in the 140 ft.?

Solution: From Table 2 it is found that the capacity of a 100 ft. 4 in. pipe with 1 lb. initial pressure and 2 oz. pressure drop, is 3,475 sq. ft. Multiplying this value by 0.841 the constant for a 140 ft. length as given in Table 3 gives 2,922 the capacity for the given conditions.

Example: What is the capacity of a 140 ft. 4 in. pipe with 2 lb. initial pressure and a pressure drop of 2 oz.?

Solution: From Table 2 find 3,475, the capacity of the 4 in. pipe with 1 lb. initial pressure and 2 oz. pressure drop. Multiplying 3,475 by 1.03 the constant found in Column 2, Table 3, for 2 lb. initial pressure and this by 0.841 the constant found under Column *B*, Table 3, the constant for 140 ft. length all as given in Table 3 gives 3,010 as the capacity of the 4 in. pipe with 2 lb. initial pressure and a pressure drop of 2 oz. in the 140 ft. length.

Should lengths other than those given in Column *A*, Table 3, and under length of pipes in feet in Table 1 be desired the constant may be obtained, from the formula in Column 4, Table 1, and used the same as the constants from Table 3.

Example: What would be the constant for 2,500 ft. of pipe to be used either in Tables 1 or 3?

Solution: The $\sqrt{\frac{100}{2{,}500}} = 0.2$ or the constant to be used.

In determining the length of pipe used in any system, the actual length must be increased for the various fittings and valves, in determining the equivalent length before applying any of the tables given.

Gate valves are recommended in all cases where service calls for the valve to be either entirely closed or open. They should never be used for throttling. Angle and globe valves should be used for throttling, such as the by-pass valve in a pressure-reducing outfit.

Table 4 gives the allowance for fittings in feet of pipe to be added to the actual length of run to obtain the equivalent length.

SYSTEMS OF STEAM HEATING

The choice of gravity one-pipe, two-pipe, vapor or vacuum return line systems depends upon the requirements as to first cost, convenience, quality of service and local conditions. Theoretically, gravity one and two-pipe and vapor and vacuum return line systems are substantially on a par as to heating efficiency; that is to say, the major portion of the heat delivered is, or should be, dissipated by the heating unit.

It is essential that any system circulate steam uniformly throughout the entire installation, as too often certain defective features of a system will require that heat be kept on longer or to a greater degree than would otherwise be required uniformly and satisfactorily to heat the building. This will result in waste and overheating. The one important thing to be remembered in connection with all systems is that they shall circulate steam freely and uniformly to the heating units and shall remove and return the condensation noiselessly.