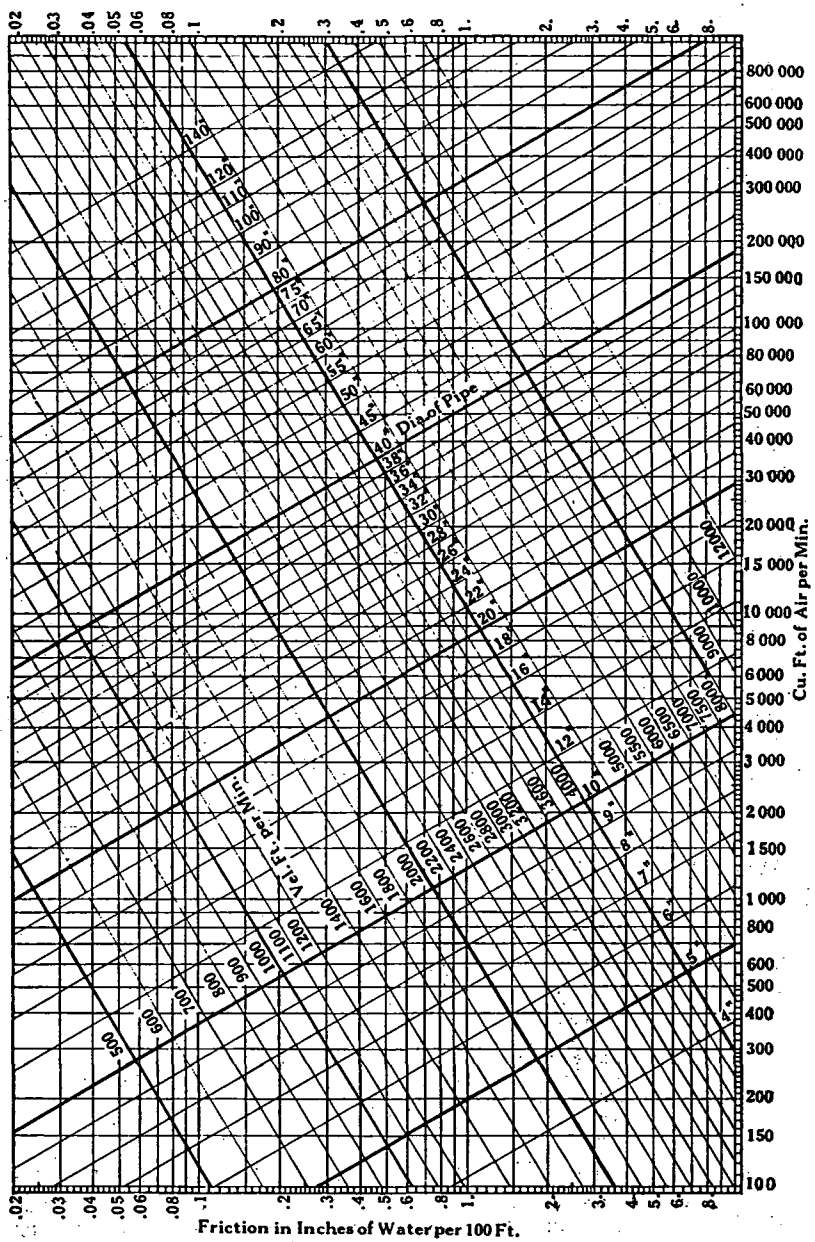

FIG. 1. FRICTION OF AIR IN PIPES

TABLE 2. CIRCULAR EQUIVALENTS OF RECTANGULAR DUCTS FOR EQUAL FRICTION

Side Rectangular Duct	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	6.9	7.6	8.2	8.8	9.4	11.0	12.1	13.2	14.3	15.4	16.5	17.6	18.7	19.8	20.9	22.0	23.6	24.2	25.9	26.4
9	7.3	9.0	8.7	9.3	9.9	11.5	12.6	13.7	14.9	16.0	16.5	18.2	19.2	20.4	21.5	23.1	24.7	25.2	26.9	27.5
10	7.7	8.4	9.2	9.8	10.4	12.0	13.1	14.3	15.3	16.0	17.1	18.7	19.8	20.9	22.5	24.0	25.7	26.3	28.0	28.5
11	8.0	8.8	9.6	10.2	10.9	11.5	13.6	14.7	15.8	17.0	17.6	18.2	19.2	20.4	21.9	23.5	25.1	26.0	27.5	28.2
12	8.3	9.2	10.0	10.7	11.4	12.0	12.6	13.2	14.3	15.4	16.5	17.1	17.6	18.7	19.8	20.9	21.5	22.0	23.6	24.2
13	8.7	9.6	10.4	11.1	11.8	12.5	13.1	13.7	14.9	16.0	16.5	17.6	18.2	18.7	19.2	20.4	20.9	21.5	22.0	22.5
14	8.9	9.9	10.8	11.5	12.3	12.9	13.6	14.3	15.3	16.0	16.5	17.1	17.6	18.2	18.7	19.2	19.8	20.4	20.9	21.5
15	9.2	10.2	11.1	11.9	12.7	13.4	14.1	14.7	15.3	16.0	16.5	17.1	17.6	18.2	18.7	19.2	19.8	20.4	20.9	21.5
16	9.5	10.5	11.4	12.3	13.1	13.8	14.5	15.2	15.8	16.5	17.1	17.6	18.2	18.7	19.2	19.7	20.3	20.9	21.5	22.0
17	9.8	10.8	11.8	12.6	13.5	14.2	15.0	15.7	16.3	17.0	17.6	18.2	18.7	19.2	19.8	20.3	20.9	21.5	22.0	22.5
18	10.0	11.1	12.1	13.0	13.8	14.6	15.4	16.1	16.8	17.4	18.1	18.7	19.2	19.8	20.4	20.9	21.5	22.0	22.6	23.1
19	10.3	11.4	12.4	13.3	14.2	15.0	15.8	16.5	17.2	17.9	18.6	19.2	19.8	20.4	20.9	21.5	22.0	22.6	23.1	23.6
20	10.5	11.6	12.7	13.6	14.5	15.4	16.2	17.0	17.6	18.4	19.0	19.7	20.3	20.9	21.5	22.0	22.6	23.1	23.6	24.2
22	11.0	12.1	13.2	14.2	15.2	16.1	16.9	17.8	18.5	19.2	19.9	20.6	21.3	21.9	22.5	23.1	23.6	24.2	24.7	25.2
24	11.4	12.6	13.8	14.8	15.8	16.8	17.6	18.5	19.3	20.0	20.8	21.5	22.2	22.8	23.5	24.0	24.7	25.2	25.9	26.4
26	11.8	13.1	14.3	15.4	16.4	17.3	18.3	19.2	20.0	20.8	21.6	22.3	23.0	23.8	24.4	25.1	25.7	26.3	26.9	27.5
28	12.2	13.5	14.8	15.9	17.0	18.0	19.0	19.8	20.7	21.5	22.4	23.1	23.9	24.6	25.3	26.0	26.6	27.3	27.9	28.5
30	12.6	13.9	15.2	16.4	17.5	18.5	19.5	20.5	21.4	22.2	23.1	23.9	24.7	25.4	26.2	26.8	27.5	28.2	28.8	29.5
32	12.9	14.3	15.6	16.9	18.0	19.1	20.1	21.1	22.0	22.9	23.8	24.6	25.4	26.2	27.0	27.7	28.4	29.1	29.8	30.5
34	13.2	14.7	16.1	17.3	18.5	19.6	20.7	21.6	22.6	23.5	24.4	25.3	26.2	26.9	27.7	28.5	29.2	30.0	30.7	31.3
36	13.6	15.1	16.4	17.7	19.0	20.1	21.2	22.2	23.2	24.2	25.1	26.0	26.8	27.7	28.5	29.3	30.0	30.8	31.5	32.2
38	13.9	15.4	16.8	18.2	19.4	20.6	21.7	22.8	23.8	24.8	25.8	26.7	27.5	28.4	29.2	30.0	30.8	31.5	32.3	33.1
40	14.3	15.7	17.2	18.6	19.8	21.1	22.2	23.3	24.4	25.4	26.4	27.3	28.2	29.1	29.9	30.8	31.6	32.4	33.1	33.9
42	14.5	16.1	17.6	19.0	20.3	21.6	22.7	23.8	24.9	25.9	26.9	27.9	28.8	29.8	30.7	31.4	32.2	33.0	33.8	34.5
44	14.8	16.4	18.0	19.4	20.7	22.0	23.1	24.3	25.4	26.5	27.5	28.5	29.5	30.3	31.2	32.1	32.9	33.7	34.5	35.3
46	15.1	16.7	18.4	19.8	21.1	22.4	23.6	24.8	25.9	27.0	28.1	29.1	30.1	31.0	31.9	32.8	33.8	34.6	35.4	36.2
48	15.4	17.0	18.7	20.1	21.5	22.8	24.1	25.2	26.4	27.5	28.6	29.6	30.5	31.6	32.5	33.4	34.3	35.2	36.1	37.0
50	15.7	17.3	19.0	20.4	21.9	23.2	24.5	25.7	26.9	28.0	29.2	30.3	31.3	32.2	33.1	34.1	35.0	35.9	36.8	37.6
52	15.9	17.6	19.2	20.8	22.2	23.6	24.9	26.2	27.4	28.5	29.6	30.7	31.8	32.9	33.8	34.7	35.6	36.5	37.4	38.3
54	16.1	17.9	19.6	21.1	22.6	24.0	25.3	26.6	27.8	29.0	30.1	31.2	32.3	33.4	34.4	35.3	36.3	37.2	38.0	38.9
56	16.3	18.2	19.9	21.5	22.9	24.4	25.7	27.0	28.3	29.5	30.6	31.7	32.8	33.9	34.9	35.9	36.9	37.8	38.7	39.6
58	16.6	18.4	20.2	21.8	23.3	24.7	26.1	27.4	28.7	30.0	31.1	32.2	33.3	34.4	35.4	36.4	37.4	38.4	39.4	40.3
60	16.8	18.7	20.4	22.1	23.6	25.1	26.5	27.8	29.1	30.5	31.6	32.7	33.8	34.9	36.1	37.1	38.1	39.1	40.0	40.9
62	17.0	19.0	20.7	22.4	24.0	25.5	26.9	28.2	29.5	30.9	32.1	33.2	34.3	35.4	36.6	37.7	38.7	39.6	40.6	41.6
64	17.3	19.2	21.0	22.7	24.3	25.9	27.3	28.6	29.9	31.3	32.6	33.7	34.8	35.9	37.1	38.2	39.2	40.2	41.2	42.2
66	17.5	19.5	21.2	23.0	24.6	26.2	27.7	29.0	30.3	31.7	33.0	34.2	35.3	36.4	37.6	38.7	39.8	40.8	41.8	42.8