

TABLE 1. CIRCULAR EQUIVALENTS OF RECTANGULAR DUCTS FOR EQUAL FRICTION—(Concluded)

Side Rectangular Duct	26	28	30	32	34	36	38	40	42	44	46	48	Side Rectangular Duct	50	54	60	66	72	78	84	88
26	28.6	29.7	30.8										30	55.0							
28	30.7	31.9	33.0										52	56.1							
30				35.2									54	57.2	59.4						
32	31.7	32.9	34.1	36.3									56	58.3	60.5						
34	32.7	33.9	35.1	37.3	39.6								58	59.3	61.6	66.0					
36	33.7	34.9	36.1	38.5	40.8	43.1							60	60.3	62.7						
38	34.6	35.9	37.1	39.5	41.8	44.1	46.4						62	61.3	63.7	67.1					
40	35.3	36.7	38.0	40.3	42.6	44.9	47.2	49.5					64	62.2	64.7	68.2	72.6				
42	36.0	37.6	39.0	41.3	43.6	45.9	48.1	50.4	52.7				66	63.2	65.7	69.3					
44	36.9	38.5	39.9	42.2	44.5	46.8	49.1	51.3	53.6	55.9			68	64.1	66.6	70.3	73.7				
46	37.8	39.3	40.8	43.1	45.4	47.7	50.0	52.3	54.6	56.9	59.2		70	65.0	67.5	71.3	74.8	79.2			
48	38.5	40.0	41.5	43.8	46.1	48.4	50.7	53.0	55.3	57.6	60.0	62.3	72	65.9	68.5	72.3	75.9				
50	39.2	40.8	42.3	44.6	46.9	49.2	51.5	53.8	56.1	58.4	60.7	63.0	74	66.8	69.4	73.3	76.9	80.3			
52	40.0	41.6	43.1	45.4	47.7	50.0	52.3	54.6	56.9	59.2	61.5	63.8	76	67.6	70.3	74.2	77.9	81.4	85.8		
54	40.7	42.4	44.0	46.3	48.6	50.9	53.2	55.5	57.8	60.1	62.4	64.7	78	68.4	71.2	75.2	78.9	82.5			
56	41.3	43.0	44.6	46.9	49.2	51.5	53.8	56.1	58.4	60.7	63.0	65.3	80	69.2	72.1	76.1	79.9	83.6	86.9	92.4	
58	42.1	43.8	45.4	47.7	50.0	52.3	54.6	56.9	59.2	61.5	63.8	66.1	82	70.1	73.0	77.1	80.9	84.6	88.0		
60	42.7	44.5	46.1	48.4	50.7	53.0	55.3	57.6	59.9	62.2	64.5	66.8	84	70.9	73.8	78.0	81.9	85.6			
62	43.4	45.1	46.8	49.1	51.4	53.7	56.0	58.3	60.6	62.9	65.2	67.5	86	71.7	74.6	78.9	82.9	86.6	90.2	93.5	
64	44.0	45.8	47.5	49.8	52.1	54.4	56.7	59.0	61.3	63.6	65.9	68.2	88	72.5	75.5	79.8	83.9	87.5	91.2	94.6	96.8
66	44.7	46.5	48.2	50.5	52.8	55.1	57.4	59.7	62.0	64.3	66.6	68.9	90	73.3	76.3	80.6	84.7	88.5	92.2	95.7	97.9
68	45.3	47.2	48.9	51.2	53.5	55.8	58.1	60.4	62.7	65.0	67.3	69.6	92	74.1	77.1	81.4	85.6	89.5	93.2	96.7	99.0
70	46.0	47.8	49.5	51.8	54.1	56.4	58.7	61.0	63.3	65.6	67.9	70.2	94	74.8	77.8	82.2	86.5	90.4	94.2	97.8	100.1
72	46.5	48.4	50.1	52.4	54.7	57.0	59.3	61.6	63.9	66.2	68.5	70.8	96	75.5	78.7	83.0	87.4	91.3	95.2	98.8	101.2

required, it will be twice that of a 40 x 12-in. duct, or $2 \times 23.3 = 46.6$ in.

Elbow Friction Losses

It is customary to express the dynamic and friction losses in elbows as equal to a number of diameters of round pipe, or a number of widths of

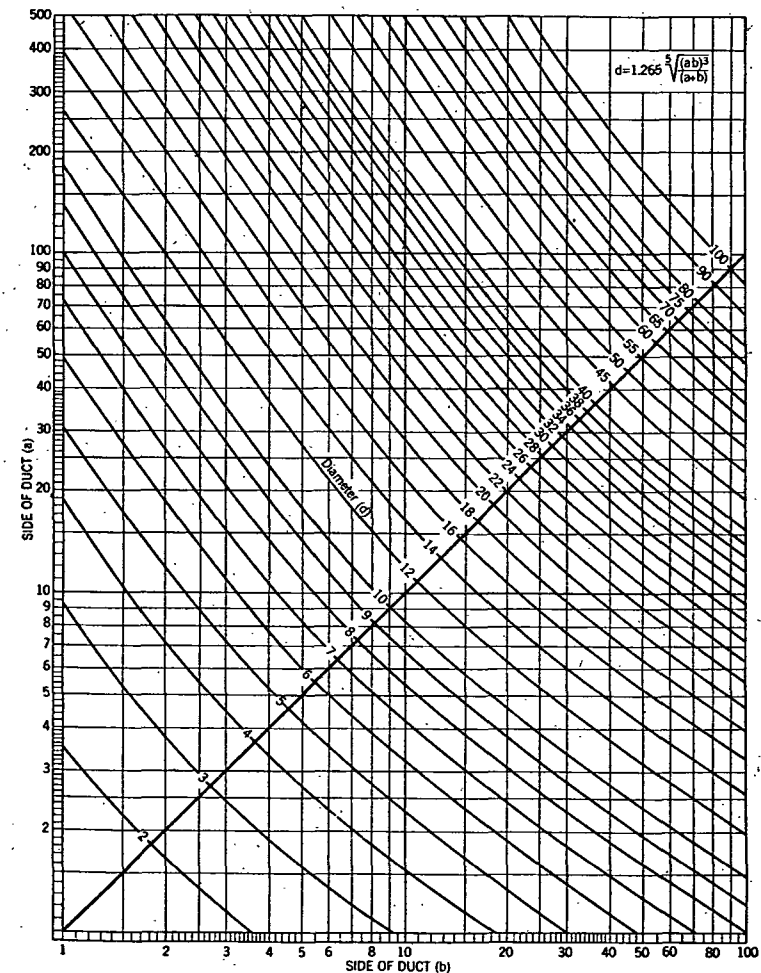


FIG. 4. RECTANGULAR EQUIVALENTS OF ROUND DUCTS

rectangular pipe, or equivalent length of duct³. The curves in Fig. 5 are arranged to read the number of diameters or widths for determining the lineal feet of pipe having a frictional resistance equivalent to the pressure

³A.S.H.V.E. RESEARCH REPORT No. 1211—Pressure Loss Caused by Elbows in 8-Inch Round Ventilating Duct, by M. C. Stuart, C. F. Warner and W. C. Roberts (A.S.H.V.E. TRANSACTIONS, Vol. 48, 1942, p. 335).