

ADJUSTMENT OF DUCT DESIGN PRESSURE FOR EQUIVALENT LENGTH

TOTAL EFF. LENGTH OF DUCT & FITTINGS IN FT.	CORRECTED PRESSURE DROP (FRICTION) PER 100 FT. DUCT LENGTH*																																			
	TOTAL PRESSURE DROP (in. of water column)																																			
	05	06	08	10	12	14	16	18	20	25	30	34	37.5	40	50	62.5	75	1.00	05	06	08	10	12	14	16	18	20	25	30	34	37.5	40	50	62.5	75	1.00
35-44	13	15	20	25	32	35	40	45	50	63	75	85	95	100	125	150	190	254	13	15	20	25	32	35	40	45	50	63	75	85	95	100	125	150	190	254
45-54	10	12	16	20	25	28	32	36	40	50	60	68	76	80	100	126	152	202	10	12	16	20	25	28	32	36	40	50	60	68	76	80	100	126	152	202
55-64	08	10	13	17	21	23	27	30	33	42	50	57	63	67	83	105	126	168	08	10	13	17	21	23	27	30	33	42	50	57	63	67	83	105	126	168
65-74	07	09	11	14	18	20	23	26	29	36	43	49	54	57	72	90	100	144	07	09	11	14	18	20	23	26	29	36	43	49	54	57	72	90	100	144
75-84	06	08	10	13	16	18	20	23	25	31	38	43	47	50	63	79	94	126	06	08	10	13	16	18	20	23	25	31	38	43	47	50	63	79	94	126
85-94	06	07	09	11	14	16	18	20	22	28	33	38	42	45	56	70	84	112	06	07	09	11	14	16	18	20	22	28	33	38	42	45	56	70	84	112
95-104	05	06	08	10	13	14	16	18	20	25	30	33	38	40	50	63	75	101	05	06	08	10	13	14	16	18	20	25	30	33	38	40	50	63	75	101
105-114	05	05	07	09	11	13	15	16	18	23	28	31	34	37	47	57	69	91	05	05	07	09	11	13	15	16	18	23	28	31	34	37	47	57	69	91
115-129	04	05	07	08	10	12	13	15	17	21	25	28	31	33	46	51	62	82	04	05	07	08	10	12	13	15	17	21	25	28	31	33	46	51	62	82
130-149	04	04	06	07	09	10	11	13	14	18	21	24	27	29	36	45	54	72	04	04	06	07	09	10	11	13	14	18	21	24	27	29	36	45	54	72
150-169	03	04	05	06	08	09	10	11	13	16	19	21	24	25	31	39	47	63	03	04	05	06	08	09	10	11	13	16	19	21	24	25	31	39	47	63
170-189	03	03	04	06	07	08	09	10	11	14	17	19	21	22	28	35	42	56	03	03	04	06	07	08	09	10	11	14	17	19	21	22	28	35	42	56
190-214	03	03	04	05	06	07	08	09	10	13	15	17	19	20	25	31	37	50	03	03	04	05	06	07	08	09	10	13	15	17	19	20	25	31	37	50
215-239	02	03	04	05	06	07	08	09	11	13	15	17	18	22	28	33	44	02	03	04	05	06	07	08	09	11	13	15	17	18	22	28	33	44		
240-264	02	02	03	04	05	06	07	08	10	12	14	15	16	20	25	30	40	02	02	03	04	05	06	07	08	10	12	14	15	16	20	25	30	40		
265-289	02	02	03	04	05	06	07	07	09	11	12	14	15	18	23	27	36	02	02	03	04	05	06	07	07	09	11	12	14	15	18	23	27	36		
290-324	02	02	03	03	04	05	05	06	07	08	10	11	12	13	17	20	24	33	02	02	03	03	04	05	05	06	07	08	10	11	12	13	17	20	24	33
325-374	02	02	02	03	04	04	05	05	06	07	09	10	11	11	14	18	21	29	02	02	02	03	04	04	05	05	06	07	09	10	11	11	14	18	21	29
375-424	01	02	02	03	03	04	04	05	05	06	08	09	09	10	13	16	19	25	01	02	02	03	03	04	04	05	05	06	08	09	09	10	13	16	19	25
425-474	01	01	02	03	03	03	04	04	05	06	07	08	08	09	11	14	17	22	01	01	02	03	03	03	04	04	05	06	07	08	08	09	11	14	17	22
475-524	01	01	02	02	03	03	03	04	04	05	06	07	08	08	10	13	15	20	01	01	02	02	03	03	03	04	04	05	06	07	08	08	10	13	15	20
525-574	01	01	02	02	02	03	03	03	04	05	06	07	07	07	09	11	14	18	01	01	02	02	02	03	03	03	04	05	06	07	07	07	09	11	14	18
575-625	01	01	01	02	02	02	03	03	03	04	05	06	06	07	08	10	13	17	01	01	01	02	02	02	03	03	03	04	05	06	06	07	08	10	13	17

* Formula for Friction Loss: $\frac{\text{Friction Loss}}{\text{Per 100 ft.}} = \frac{\text{System design pressure} \times 100}{\text{Total equiv. length of duct}}$
 (if not found in above table).

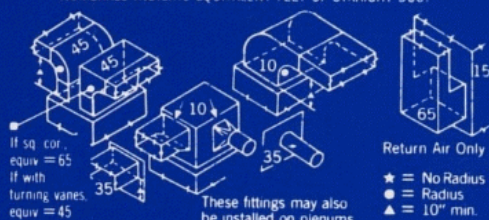
NOTE: Scale on front of chart is for 100 ft. of duct. For greater or lesser equivalent lengths, use friction indicated in above table.

RECOMMENDED VELOCITIES IN FPM

DESIGNATION	SUPPLY				RETURN			
	RECOMMENDED		MAXIMUM		RECOMMENDED		MAXIMUM	
	RIGID	FLEX	RIGID	FLEX	RIGID	FLEX	RIGID	FLEX
Main Plenum	700	600	900	600	600	600	700	600
Branch Ducts	600	600	700	600	400	600	600	600
Registers, Diffusers and Grilles—Face Velocity	500		750		400		600	
Filter Grille—Face Velocity	—		—		300		300	

PLENUMS AND AIR DROPS

COMMONLY USED FITTINGS—CONNECTIONS ETC. AS INDICATED
 NUMERALS INDICATE EQUIVALENT FEET OF STRAIGHT DUCT



If sq. cor. equiv = 65
 If with turning vanes, equiv = 45

Return Air Only
 ★ = No Radius
 ● = Radius
 ▲ = 10" min.

These fittings may also be installed on plenums for counter flow units.

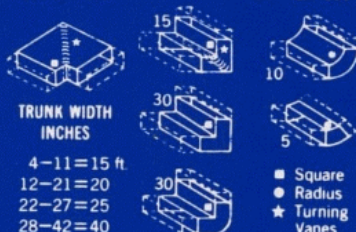
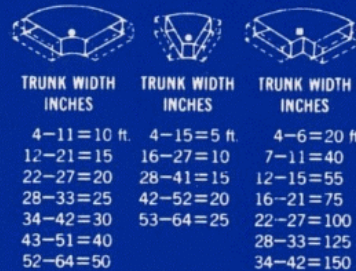
EXTENDED PLENUM FITTINGS



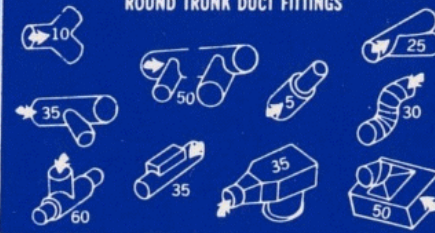
* Add 25 equiv. ft. to ea. of the 3 ftgs. nearest the unit in ea. trunk duct and after each reduction as shown by asterisks.

ANGLES & ELBOWS FOR TRUNK DUCTS*

* (Inside Radius = 1/2 Width of Duct)



ROUND TRUNK DUCT FITTINGS



ANGLES & ELBOWS FOR INDIVIDUAL & BRANCH DUCTS

Inside Radius:
 ▲ = 3"
 ★ = 5"
 ■ Square
 ● Radius



BOOT FITTINGS

These values may also be used for floor diffuser boxes.



(1) TEMPERATURE

CONVERSION TABLE

$$^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$$

$$^{\circ}\text{C} = \frac{^{\circ}\text{F} - 32}{1.8}$$

(2) VELOCITY

fps	m/s	fpm
1	0.305	60
3.281	1	196.9
0.017	0.005	1

(3) VOLUME

L	m ³	U.S. GALLON	ft ³
1	0.001	0.264	0.0353
1000	1	264	35.3
3.785	3.785x10 ⁻³	1	0.134
28.315	0.028	7.48	1

(4) COOLING CAPACITY

BTU/Hr	MBH	Kcal/Hr	kw
1	0.001	0.252	0.293x10 ⁻³
1000	1	252	0.293
3.968	0.004	1	1.162x10 ⁻³
3412	3.412	860.04	1

(5) PRESSURE

psi	kg/cm ²	W.G.		PASCAL (pa)
		(in.)	(ft.)	
1	0.07	27.7	2.309	0.69x10 ⁴
14.22	1	394.08	32.84	9.81x10 ⁴
3.61x10 ⁻²	2.538x10 ⁻³	1	0.083	248.84
1.45x10 ⁻⁴	0.1x10 ⁻⁴	0.004	3.349x10 ⁻⁴	1

(6) FLOW RATE

L/s	m ³ /hr cmh	m ³ /s	U.S. G.P.M.	CFM
1	3.6	0.001	15.85	2.119
0.278	1	0.278x10 ⁻³	4.403	0.588
1000	3600	1	15850	2119
0.063	0.227	0.063x10 ⁻³	1	0.1337
0.472	1.7	0.472x10 ⁻³	7.481	1

(7) AREA

in ²	ft ²	m ²	cm ²
1	6.94x10 ⁻³	6.452x10 ⁻⁴	6.452
144	1	0.093	929.03
1550.06	10.764	1	1X10 ⁴
0.155	1.076x10 ⁻³	1x10 ⁻⁴	1