

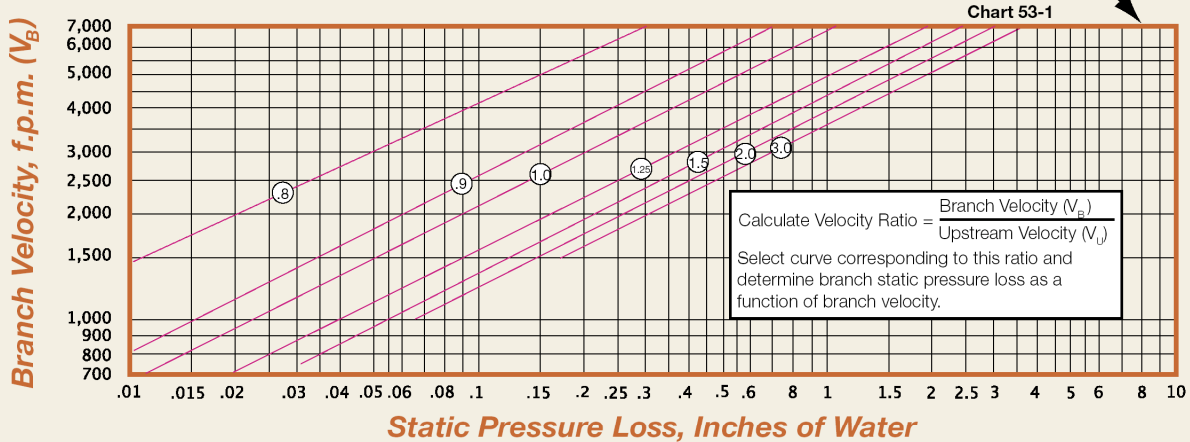
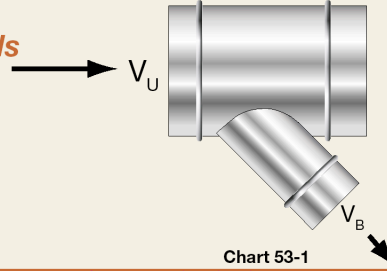
Static Pressure (SP) Loss in 45° Laterals & Branch Entry Loss

Static Pressure loss in 45° Laterals

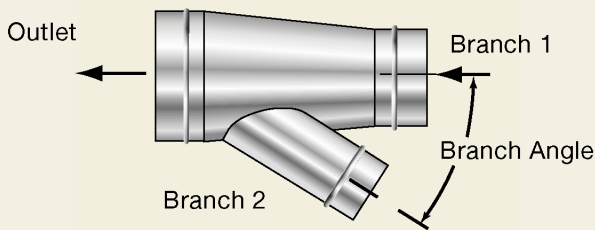
Example: Main (V_U) = 4000, Branch (V_B) = 6000

$$\text{Velocity Ratio} = \frac{V_B}{V_U} = \frac{6000}{4000} = 1.5$$

From Chart: 1.5 Ratio @ 6000 f.p.m. \approx 1.9" S.P. loss



Branch Entries



Note that branch entry loss is assumed to occur in the branch for calculations. Enlargement regain should not be included in branch entry enlargements. Any losses due to acceleration of combined flow should be added to the calculations in the outlet pipe.

(Continued from page 50)

Conservation of mass requires that the net change of mass flow rate must be zero. If the effects discussed on page 51 are negligible, then the density will be constant and the net change of volumetric flow rate (Q) must be zero. Therefore, the flow rate that enters a hood must be the same as the flow rate that passes through the duct leading from the hood. At a branch entry, the sum of the two flow rates that enter the fitting must be equivalent to the total leaving the fitting.

Table 54-1: Equivalent Resistance in Feet of Straight Duct

Size	30°	45°	Size	30°	45°
3"	3	4	20"	18	28
4"	4	6	22"	20	31
5"	5	7	24"	22	34
6"	6	9	26"	24	37
7"	6	10	28"	26	40
8"	7	11	30"	28	43
9"	8	13	32"	29	45
10"	9	14	34"	31	48
12"	11	17	36"	33	51
14"	13	20	38"	35	54
16"	15	23	40"	37	57
18"	17	26	42"	39	60