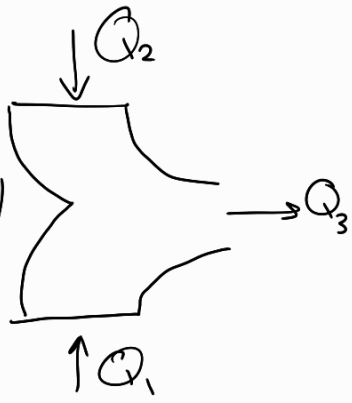
Wye, symmetrical elevation



$Q_1 = Q_2 = 0.5 Q_3$ (symmetrical)

Areas: Calculated from WXlt

$\frac{A_b}{A_c} \rightarrow C_o$ is obtained

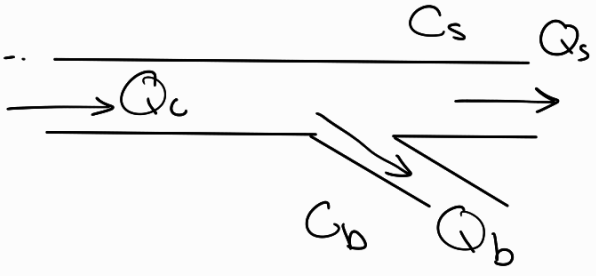
C_i is calculated from $C_i = \frac{C_o}{(V)^2}$

Branch الأقل من ال

and then:

$\Delta P = \frac{C \Delta V^2}{2}$ ← الأقل

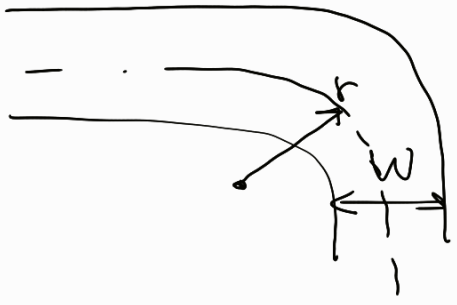
Smooth Wye of Type



we calculate Q_s/Q_c, A_s/A_c to find C_s

or Q_b/Q_c, A_b/A_c to find C_b

Elbow

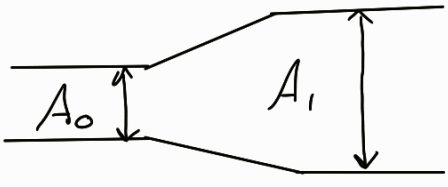


$r_i = 0.5W$

$r_o = 3W$

$\Delta P = C_o \left(\frac{\Delta V^2}{2}\right)$

Transition Rectrangular



A_o/A_1 is found, θ is Given

Then C_o

$\Delta P \rightarrow$ Take V from A_o

$$\Delta P = \left(\frac{1000 f L}{D_h} + \Sigma C\right)\left(\frac{\rho V^2}{2}\right)$$

Fans
- → Direct Drive centrifugal fans
- → Belt Drive centrifugal fans

highest efficiency: Backward curved and Aerofoil bladed

Fan laws:

$$(CFM)_2 = (CFM)_1 \left(\frac{RPM_2}{RPM_1}\right)$$

- $(CFM)_2$ → volume flowrate changen based on
- RPM_2 → wanted
- RPM_1 → available

$$SP_2 = SP_1 \left(\frac{RPM_2}{RPM_1}\right)^2$$

- SP_2 ← static pressure
- Diameter is changed of pulley

$$HP_2 = HP_1 \left(\frac{RPM_2}{RPM_1}\right)^3$$

- HP_2 → Horse Power changed by diameter of pulley changing