mass of Air Flow,

$$m_a = \rho_a A_a C_a$$

$$= \rho_a A_a C_{da} \sqrt{2\Delta P_a / \rho_a}$$

Or

$$\boxed{m_a = A_a C_{da} \sqrt{2 \rho_a \Delta P_a}}$$

Note ⇒ A more precise treatment without the assumption of the incompressibility of air can be given by Steady Flow Energy Eqn.