

$$\dot{M} = \rho \frac{V_{\text{MB}}}{t_{\text{MB}}} \quad (1)$$

$$\dot{Q}_{\text{R}} = \dot{W}_{\text{R}} = c\dot{M}(T_{\text{Zu}} - T_{\text{Ab}}) \quad (2)$$

$$\dot{Q}_1 = c\dot{M}(T_{\text{Zu}} - T_{\text{Ab}}) \quad (3)$$

$$-\dot{Q}_2 = c\rho V_{\text{P}}\mathbb{T} \quad (4)$$

$$\dot{W} = \dot{Q}_1 - \dot{Q}_2 + \dot{W}_{\text{R}} \quad (5)$$

$$\varepsilon = \frac{|Q_2|}{|W|} \quad (6)$$

$$Q = c\rho V_{\text{P}}(T_2 - T_1) \quad (7)$$

$$Q_{\text{G}} = Q_2(t_2 - t_1) + Q \quad (8)$$

$$Q_{\text{S}} = -Q_2(t_2 - t_1) \quad (9)$$