

Brayton efficiency

$$\eta_B = 1 - \frac{T_0}{T_1}, \quad (1)$$

Humphrey efficiency

$$\eta_H = 1 - \gamma \frac{T_0}{T_1} \left[ \frac{\left( \frac{T_2}{T_1} \right)^{\frac{1}{\gamma}} - 1}{\frac{T_2}{T_1} - 1} \right], \quad (2)$$

Efficiency comparison

$$\gamma \left[ \frac{\left( \frac{T_2}{T_1} \right)^{\frac{1}{\gamma}} - 1}{\frac{T_2}{T_1} - 1} \right] < 1, \quad (3)$$