

Exergy-allocation

$$A_a = \frac{E_a}{E_a + P}$$

$$A_p = \frac{P}{E_a + P}$$

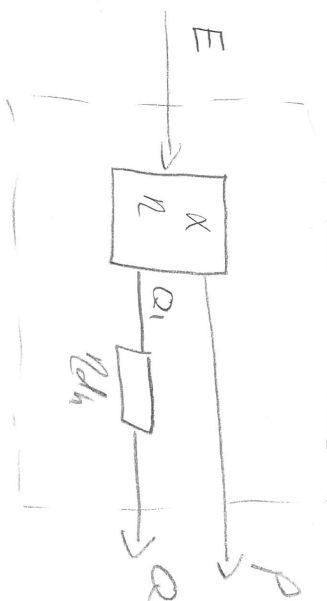
$$d = \frac{P}{Q_1}$$

$$\eta_c = 1 - \frac{T_o}{T_m}$$

$$T_m = \frac{T_s - T_r}{\ln\left(\frac{T_s}{T_r}\right)}$$

$$E_a = \eta_c \cdot Q_1$$

$$\frac{P E_p}{P E_a} = \frac{E A_p}{E A_a} = \frac{P}{E_a} = \frac{d \cdot Q_1}{\eta_c Q_1} = \frac{d}{\eta_c}$$



$$\frac{P E_p}{P E_a} = \frac{E A_p}{E A_a} = \frac{P}{E_a} = \frac{A_p}{A_a} = \frac{A_p}{A_a} \cdot \frac{Q_1}{Q_1} = \frac{A_p}{A_a} \cdot \frac{Q_1 \cdot \eta_{dh}}{Q_1} = \frac{A_p \eta_{dh}}{A_a d}$$

$$\frac{P \cdot \eta_{dh}}{E_a \cdot d} = \frac{d \cdot Q_1 \cdot \eta_{dh}}{Q_1 \cdot \eta_c \cdot d} = \frac{\eta_{dh}}{\eta_c}$$

$$\frac{P E_a}{P E_p} = \frac{\eta_{dh}}{\eta_c}$$