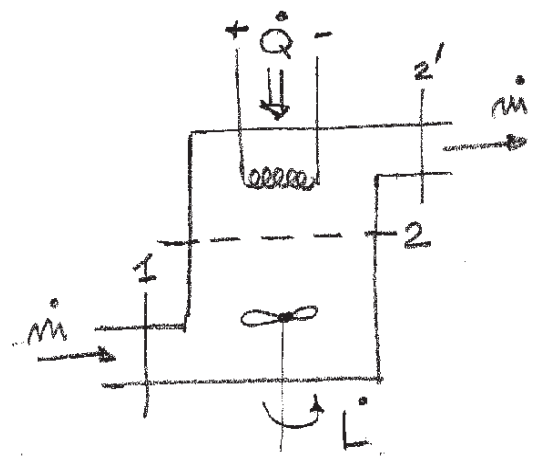


Ipotesi

$$T_1 = 273 \text{ K} \quad \text{aria}$$

$$P_1 = 1 \text{ bar}$$

$$\dot{Q} = 1 \text{ kWt}$$



1) Trascurando L (isobora), quale deve essere la portata massica per avere $T_{2'} = T_1 + 40 \text{ K}$?

Sistema aperto $\Rightarrow dh = \delta q - \delta w$
 $\Delta h = \dot{Q}$ isobara
 $c_p \dot{m} \Delta T = \dot{Q}$

$$\Rightarrow \dot{m} = \frac{\dot{Q}}{c_p \Delta T}$$

$$= \frac{1 \text{ kWt}}{1,005 \frac{\text{kJ}}{\text{kg} \cdot \text{K}} \cdot 40 \text{ K}}$$

$$= 0,025 \frac{\text{kg}}{\text{s}}$$

ovvero

$$v_1 = \frac{R T_1}{P_1}$$

$$= \frac{0,287 \frac{\text{kJ}}{\text{kg} \cdot \text{K}} \cdot 273 \text{ K}}{100 \text{ kPa}}$$

$$= 0,786 \frac{\text{m}^3}{\text{kg}}$$

$$\Rightarrow \dot{V}_1 = v_1 \cdot \dot{m}$$

$$= 0,020 \frac{\text{m}^3}{\text{s}} \quad \left(20 \frac{\text{l}}{\text{s}} \right)$$