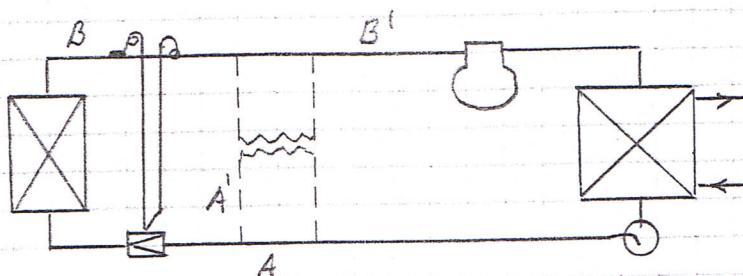


2 årspr, Køl, May 2001 (opg. 4)



$$t_f = -15^\circ\text{C}$$

$$t_k = 20^\circ\text{C}$$

$$\dot{Q}_f = 45 \text{ kW}$$

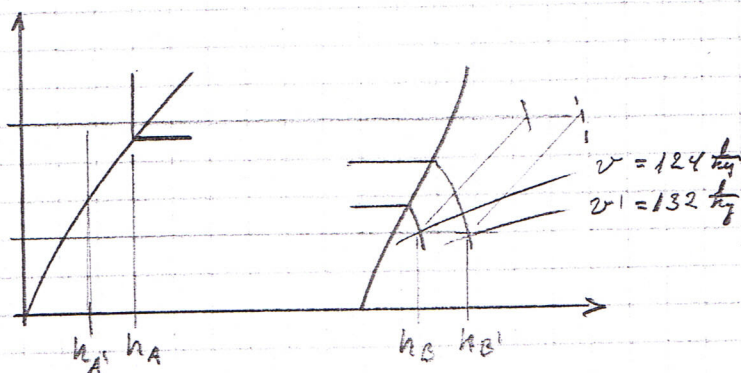
$$\Delta t_{\text{on}} = 5^\circ\text{C}$$

$$t_v = 18^\circ\text{C}$$

$$h_A = 225 \frac{\text{kJ}}{\text{kg}}$$

$$h_B = 393 \frac{\text{kJ}}{\text{kg}}$$

$$h_{B'} = 406 \frac{\text{kJ}}{\text{kg}}$$



$$4.1 \quad \dot{q}_f = \Delta h_f = h_B - h_A = 393 - 225 = \underline{\underline{168 \frac{\text{kJ}}{\text{kg}}}}$$

$$\dot{m}_R = \frac{\dot{Q}_f}{\Delta h_f} = \frac{45}{168} = 0,268 \frac{\text{kg}}{\text{s}}$$

$$\dot{V}_R = \dot{m}_R \cdot v = 0,268 \cdot 124 = 33,2 \frac{\text{l}}{\text{s}}$$

$$\dot{m}_{R'} = \frac{\dot{V}_R}{v'} = \frac{33,2}{132} = 0,252 \frac{\text{kg}}{\text{s}}$$

$$\Delta h_f' = \Delta h_f + \Delta h_{v.v.} = 168 + (406 - 393) = 181 \frac{\text{kJ}}{\text{kg}}$$

$$\dot{Q}_f' = \dot{m}_{R'} \cdot \Delta h_f' = 0,252 \cdot 181 = 45,6 \text{ kW}$$

$$4.2 \quad \Delta \dot{Q}_f(\%) = \frac{\dot{Q}_f' - \dot{Q}_f}{\dot{Q}_f} \cdot 100 = \frac{45,6 - 45}{45} \cdot 100 = \underline{\underline{1,33\%}}$$

(Bem.: tilført effekt reduceres prop. med \dot{m}_R)
 (s $\dot{m}_R \approx 6\% \Rightarrow$ COP forøges med ca 8%)

- 4.3 Fordele: Bedre COP, forøget sikkerhed mod væskeslag.
 Ulemper: Højere hotgastemp. (ikke probl. ved 134a)
 Tryktab gennem varmeveksler
 Flere samlinger \Rightarrow forøget lækagerisiko