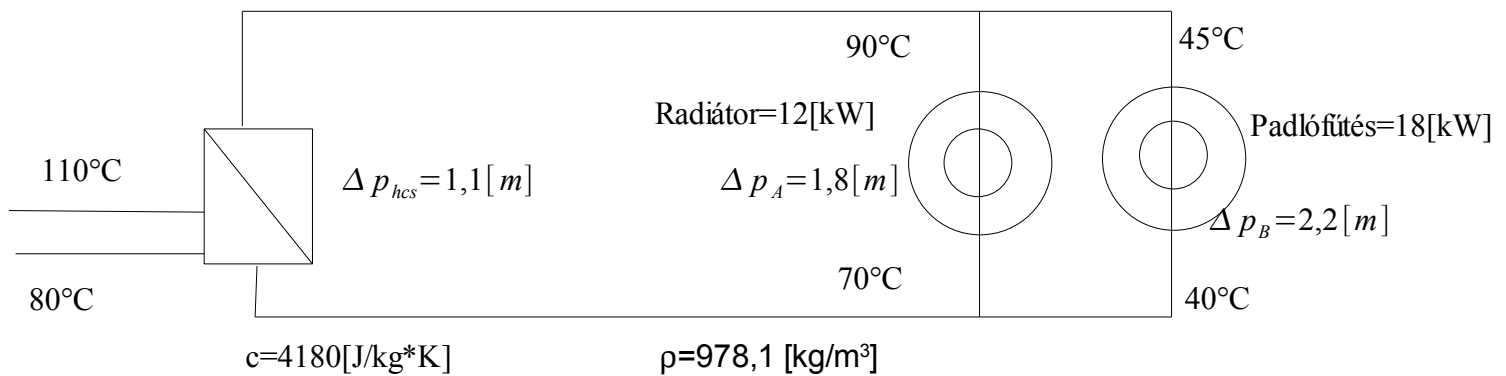


Fűtés féléves írásbeli dolgozat 14É2



1. Tömegáram meghatározása

$$\dot{m}_{\text{sec}} = \frac{\dot{Q}}{c \cdot \Delta t} = \frac{30}{4,18 \cdot 30} = \frac{30}{125,4} = 0,239 [\text{kg/s}]$$

$$\dot{m}_{\text{radiator}} = \frac{\dot{Q}}{c \cdot \Delta t} = \frac{12}{4,18 \cdot 20} = \frac{12}{83,6} = 0,1435 [\text{kg/s}]$$

$$\dot{m}_{\text{radiator}} = \frac{\dot{Q}}{c \cdot \Delta t} = \frac{18}{4,18 \cdot 5} = \frac{18}{20,9} = 0,8612 [\text{kg/s}]$$

2. Nyomáskereső ábrázolása

$$\Delta p_A = 1,8 [\text{m}] \quad \Delta p_A = h * g * \rho = 1,8 * 9,81 * 971,8 = 17160 [\text{Pa}]$$

$$\Delta p_B = 2,2 [\text{m}] \quad \Delta p_B = h * g * \rho = 2,2 * 9,81 * 971,8 = 21109 [\text{Pa}]$$

$$\Delta p_{\text{hcs}} = 1,1 [\text{m}] \quad \Delta p_B = h * g * \rho = 1,1 * 9,81 * 971,8 = 10554 [\text{Pa}]$$

RAJZ ?????????

3. kv érték meghatározása

$$V_{\text{rad}} = \frac{\dot{m}}{\rho} = \frac{0,1435}{978,1} = 0,000146 \left[\frac{\text{m}^3}{\text{s}} \right] = 0,528 \left[\frac{\text{m}^3}{\text{h}} \right]$$

$$k_{\text{radiator}} = \dot{V} \sqrt{\frac{1}{\Delta p}} = 0,528 * \sqrt{\frac{1}{0,1716}} = 1,405 \left[\frac{\text{m}^3}{\text{h}} \right]$$

IDE [BAR] -BA KELL BEHELYETESÍTENI !!!!!

$$V_{\text{padlo}} = \frac{\dot{m}}{\rho} = \frac{0,8612}{978,1} = 0,00088 \left[\frac{\text{m}^3}{\text{s}} \right] = 3,17 \left[\frac{\text{m}^3}{\text{h}} \right]$$

$$k_{\text{vpadlo}} = \dot{V} \sqrt{\frac{1}{\Delta p}} = 3,17 * \sqrt{\frac{1}{0,21109}} = 6,9 \left[\frac{\text{m}^3}{\text{h}} \right]$$

$$t_b = 22^\circ \text{C}$$

$$k = 8,6 [\text{W/m}^2 \cdot \text{K}]$$

$$A = ?$$

$$\Delta t_{\text{köz}} = \frac{t_{\text{előre}} + t_{\text{vissza}}}{2} - t_{\text{belső}} = \frac{90 + 70}{2} - 22 = 58 [^\circ \text{C}]$$

$$k = k_0 \sqrt[3]{\frac{\Delta t_{\text{köz}}}{60}} = 8,7 * \sqrt[3]{\frac{58}{60}} = 8,5 \left[\frac{\text{W}}{\text{m}^2 \cdot \text{K}} \right]$$

$$Q = A * K * \Delta t \Rightarrow A = \frac{Q}{k * \Delta t} = \frac{12000}{8,5 * 58} = 24,3 [\text{m}^2]$$