

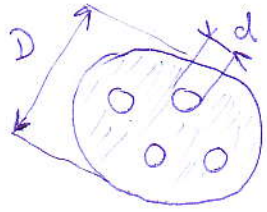
9-9

37 trubek 2m

$$d = 0,038 \text{ m}$$

$$D = 0,35 \text{ m}$$

$$v = 0,15 \text{ m/s}$$



$$d_{ek} = \frac{4A}{O_s}$$

$$A = \frac{\pi D^2}{4} - 37 \cdot \frac{\pi d^2}{4} = 0,05425 \text{ m}^2$$

$$O_s = 37 \pi d + \pi D = 5,5166 \text{ m}$$

$$d_{ek} = 0,03933 \text{ m}$$

$$Re = \frac{v \cdot d_{ek} \cdot \rho}{\eta} = \frac{0,15 \cdot 0,03933 \cdot 850}{8,5 \cdot 10^{-3}} = 590$$

$$Pr = \frac{\eta \cdot C_p}{\lambda} = \frac{8,5 \cdot 10^{-3} \cdot 2,12 \cdot 10^3}{0,12} = 150,17$$

$$Gz = Re \cdot Pr \cdot \frac{0,03933}{2} = 2474,1742$$

$$Nu = 3,66 + \frac{0,19 Gz^{0,8}}{1 + 0,117 Gz^{0,467}} \left(\frac{\eta}{\eta_w} \right)^{0,14} = \frac{19,55}{16,63}$$

$$Nu = 1,86 Gz^{1/3} \left(\frac{\eta}{\eta_w} \right)^{0,14}$$

$$= 23,61 \cdot 21,93$$

$$\rightarrow \alpha = 22,03$$

$$66,9$$

$$Nu = \frac{\alpha \cdot d_{ek}}{\lambda}$$

$$\alpha = \frac{Nu \cdot \lambda}{d_{ek}} = \frac{16,63 \cdot 0,12}{0,03933} = 50,74 \frac{\text{W}}{\text{m}^2 \text{K}}$$