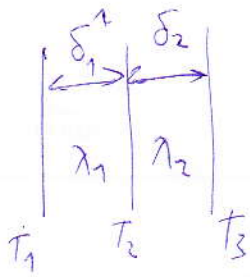


149-3



$$q = 250 \text{ W/m}^2$$

$$T_1 = 1400^\circ\text{C}$$

$$T_2 = 1100^\circ\text{C}$$

$$T_3 = 50^\circ\text{C}$$

$$\lambda_1 = 0.25 \text{ W/mK}$$

$$\lambda_2 = 0.05$$

$$\frac{Q}{A} = \frac{T_1 - T_3}{\lambda_1/\delta_1 + \lambda_2/\delta_2}$$

$$\frac{Q}{A} = \frac{T_1 - T_2}{\lambda_1/\delta_1} \rightarrow \delta_1 = \frac{\lambda_1}{q} (T_1 - T_2) = \frac{0.25}{250} (1400 - 1100) = 0.3 \text{ m}$$

$$\delta_1 = \frac{\lambda_1 (T_1 - T_2)}{q} = \frac{0.25 \cdot 300}{250} = \underline{\underline{0.3 \text{ m}}}$$

$$\delta_2 = \frac{\lambda_2}{q} (T_1 - T_3) - \delta_1 = \frac{0.05}{250} (1400 - 50) - 0.3 = 0.21 \text{ m}$$

$$\frac{Q}{A} = \frac{T_1 - T_3}{\delta_1/\lambda_1 + \delta_2/\lambda_2}$$

$$q \cdot (\delta_1/\lambda_1 + \delta_2/\lambda_2) = (T_1 - T_3)$$

$$\frac{\delta_2}{\lambda_2} = \frac{T_1 - T_3}{q} - \frac{\delta_1}{\lambda_1} = 4.2$$

$$\delta_2 = 4.2 \cdot 0.05 = \underline{\underline{0.21 \text{ m}}}$$