$\delta_{træ} := 19\ mm$

$\delta_{al} := 4\ mm$

AL består af 1m^2 plader

$A_{al} := 1\ m^2$

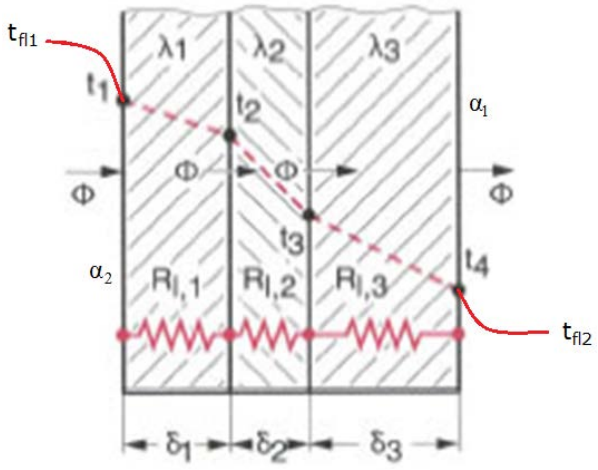
$\alpha_{al.udven} := 15\ \frac{W}{m^2 \cdot K}$

$\alpha_{træ.indven} := 25\ \frac{W}{m^2 \cdot K}$

$\lambda_{al} := 250\ \frac{W}{m \cdot K}$

$\lambda_{træ} := 0.15\ \frac{W}{m \cdot K}$

$\lambda_{isolation} := 0.04\ \frac{W}{m \cdot K}$



$t_{fl1} := 253.15\ K$

$t_{fl2} := 298.15\ K$

$t_4 := 296.15\ K$

$\Phi_{konvek.invendig} = \Phi_{ledning} = \Phi_{konvek.udvendig}$

$\Phi_{konvek.udvendig} = \alpha_{udv} \cdot A \cdot \left(t_4 - t_{fl2}\right)$

$\Phi_{konvek.udvendig} := \alpha_{al.udven} \cdot A_{al} \cdot \left(t_{fl2} - t_4\right) = 30\ W$

$\Phi = U \cdot A \cdot \left(t_{fl2} - t_{fl1}\right) \Rightarrow \frac{\Phi}{A \cdot \left(t_{fl2} - t_{fl1}\right)} = U$

$U := \frac{\Phi_{konvek.udvendig}}{A_{al} \cdot \left(t_{fl2} - t_{fl1}\right)} = 0.667\ \frac{W}{m^2 \cdot K}$

$$U_{varm} = \frac{1}{\frac{1}{\alpha_1} + \sum \frac{\delta}{\lambda} + \frac{1}{\alpha_2}} \Rightarrow$$

Guess Values

$$\delta_{isolation} := 1\ mm$$

Constraints

$$U = \frac{1}{\frac{1}{\alpha_{træ.indven}} + \frac{\delta_{al}}{\lambda_{al}} + \frac{\delta_{træ}}{\lambda_{træ}} + \frac{\delta_{isolation}}{\lambda_{isolation}} + \frac{1}{\alpha_{al.udven}}}$$

Solver

$$\delta_{isolation} := \mathbf{Find}\left(\delta_{isolation}\right)$$

$$\delta_{isolation} = 50.666\ mm$$