In[ ]:=
$$\text{hPlate} = 0.943 \left(\frac{h_{fg} \, (1 + 0.68 \, \text{Ja}) \, g \, \rho_l \, (\rho_l - \rho_v) \, \kappa_l^{\,3}}{\mu_l \, (T_{sat} - T_w) \, L} \right)^{1/4};$$

$$\text{mPlate} = \frac{2 \, \text{hPlate} \, L \, (T_{sat} - T_w)}{h_{fg}};$$

$$\text{mCylinder} = 2 \times 1.923 \left(\frac{g \, \rho_l \, (\rho_l - \rho_v) \, \kappa_l^{\,3} \, d^3 \, (T_{sat} - T_w)^3}{8 \, \mu_l \, h_{fg}^{\,3}} \right)^{1/4};$$

In[ ]:=
```
Solve[(mPlate == mCylinder) /. {Ja → 0, L → 1}, d, Reals]
```