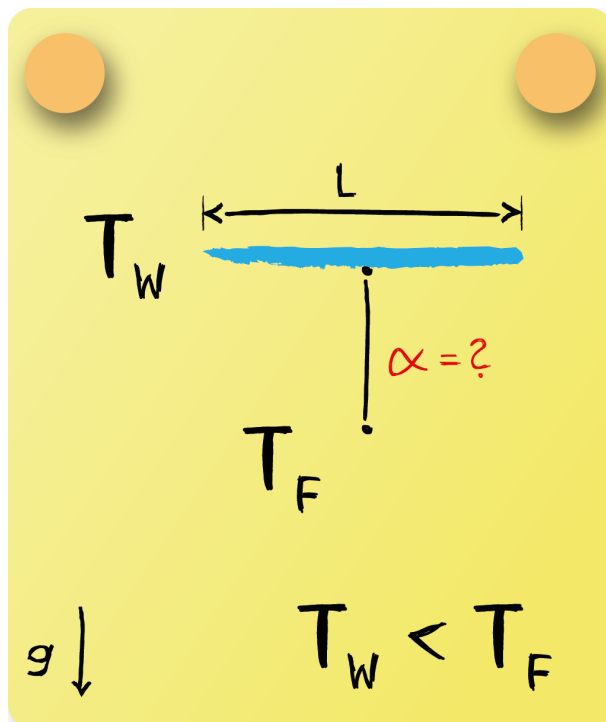




Heat Transfer Correlation: Task 18



The image describes a horizontal plate with length L and a constant temperature T_W standing in a non-moving ideal gas of temperature T_F . The temperature of the lower surface T_W is smaller than the fluid temperature T_F .

1



HTC.22a: $\overline{Nu}_L = 0.54(Gr_L Pr)^{1/4}$ for $2 \cdot 10^4 < Gr_L Pr < 8 \cdot 10^6$ with $\beta = \frac{1}{T_\infty} = \frac{1}{T_F}$ (ideal gas)

2



Results: $Gr_L = 4.66 \cdot 10^6$ $\overline{Nu}_L = 12.69$ $\bar{\alpha} = 9.90$

3



Important: Use temperatures in Kelvin!