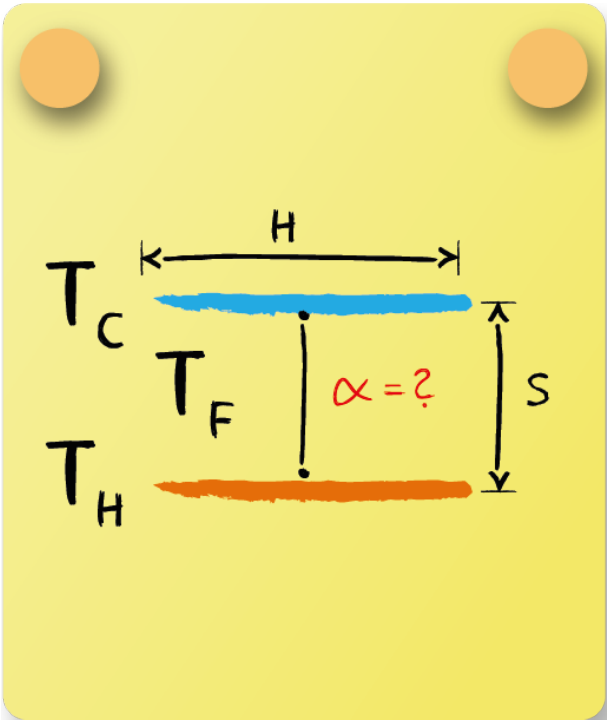
Heat Transfer Correlation: Task 22



The image describes a gap of s between two horizontal plates of length H which is filled with an ideal gas. The lower plate has a temperature T_H and the upper plate has a temperature T_C, the ideal gas in between has an average temperature T_F.

1 When $Gr_s < 2{\cdot}10^3$ applies, assume pure heat conduction with $\overline{Nu_s} = 1$. If this is not the case, calculate with $\mid T_H - T_F \mid$ as temperature difference.

2 HTC.27: $\overline{Nu_s} = 0.21(Gr_s Pr)^{1/4}$ for $2 \cdot 10^3 < Gr_s Pr < 3.2 \cdot 10^5$ with $\beta = \frac{1}{T_\infty} = \frac{1}{T_F}$ (ideal gas)

3 Gr_s = 22.1:152817 |22.2:515.76 |22.3:1682.92 $\overline{Nu_s}$ = 22.1:3.756 |22.2:1 |22.3:1

4 $\overline{\alpha}$ = 22.1:37.94 |22.2:6.73 |22.3:7.63 **Important:** Use temperatures in Kelvin!