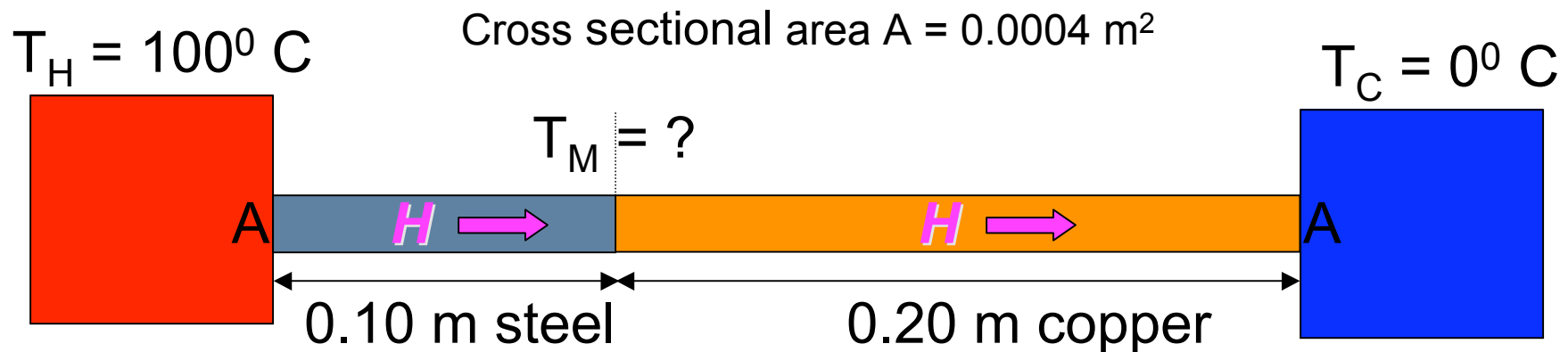


Heat Conduction Through Connected Bars (Ex 17.13)



What is the temperature T_M and what is the heat flow H ?

There are two heat conductivity equations

$$H = k_{\text{steel}} A (T_H - T_M) / L_{\text{steel}} \quad \text{and} \quad H = k_{\text{copper}} A (T_M - T_C) / L_{\text{copper}}$$

The rate of heat transfer is the same in both bars

From these two equations we can get $T_M = 20.7^\circ \text{C}$

After we know the value of T_M we can get $H = 15.9 \text{ Watts}$