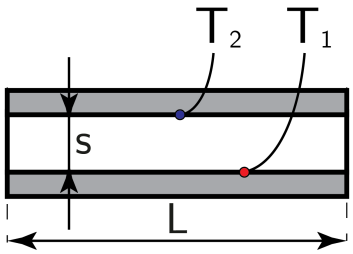
Grashof Number 03

Give an expression for the Grashof number in terms of given variables.



The standard expression for the Grashof number is:

$$\mathrm{Gr} = \frac{g\beta\left(T_\mathrm{H} - T_\mathrm{L}\right) L_\mathrm{c}^3}{\nu^2}$$

In this case, the Grashof number used for determining the rate of heat transfer from the bottom plate to the upper plate should be determined.

In that case, the characteristic length is:

$$L_\mathrm{c} = s$$

And it is given that $T_2 < T_1$.

So we can define the Grashof number as:

$$\mathrm{Gr} = \frac{g\beta\left(T_1 - T_2\right) s^3}{\nu^2}$$