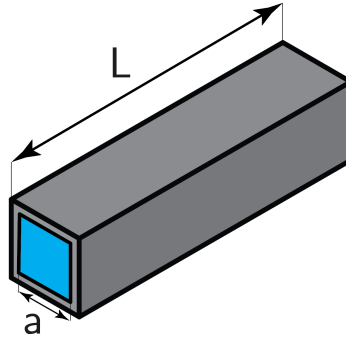


Reynolds Number 07

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



The standard expression for the Reynolds number is:

$$\text{Re} = \frac{\rho U L_c}{\eta}$$

Note that $\nu = \frac{\eta}{\rho}$.

The characteristic length has to be determined. For pipe flow in a rectangular duct pipe, this is the hydraulic diameter (=width) of the pipe.

Which thus is:

$$L_c = a$$

And therefore the Reynolds number can be expressed as:

$$\text{Re} = \frac{Ua}{\nu}$$