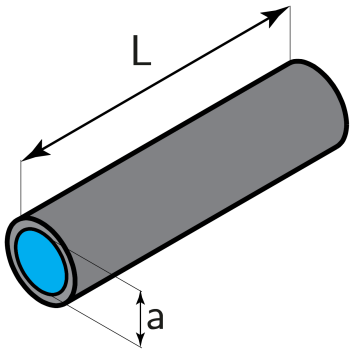
Reynolds Number 06

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



The standard expression for the Reynolds number is:

$$\mathrm{Re} = \frac{\rho U L_\mathrm{c}}{\eta}$$

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

The characteristic length has to be determined. For pipe flow in a cylindrical pipe, this is the diameter of the pipe.

Which thus is:

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

And therefore the Reynolds number can be expressed as:

$$\mathrm{Re} = \frac{U a}{\nu}$$