Fluids, Work, and Power SPH4C

Fluids may be used to do _____.

The movement of fluid is a system is often given in terms of the

Example: A water jet cutter needs a flow rate of 3.3 L/min and a time of 18 s to cut a certain metal component. What is the volume of water required?



To convert litres to cubic metres, use the conversion factor:

Example:

The speed of the fluid may be determined by:

If the volume is a cylinder, the area is: _____

Example: If the radius of the water jet cutter is 0.34 mm, what is the speed of the water?

The equations for pressure, work, and power are, as before:

W =

p =

Example: If the water jet cutter exerts a force of 120 N, what is (a) the pressure and (b) the power of the water jet?

More Practice: Liquid in a cylinder exerts a pressure of 10 000 kPa on a piston of radius 8.0 cm. The piston moves 34 cm in 6.8 s. Calculate the:

(a) force on the piston (b) work done on the piston (c) power of the system