
Example

Water flows through a section of 2.54-cm diameter tube 3.0 m long. The water enters the section at 60°C with a velocity of 2 cm/s. Assuming that the flow is **fully developed** (buzza buzza buzza) by the time it enters the region of interest and that the wall is subject to constant wall heat flux,

- (a) calculate the wall heat flux (in W/m^2) needed to heat the water to 80°C . **DONE!**
- (b) Calculate the wall temperatures at the inlet and the exit. **DONE!**
- (c) Repeat part (a) and (b) if the velocity of the water is increased to 2 m/s. **DONE!**
- (d) Find the pressure drops and the pumping powers required for the two velocities above.

