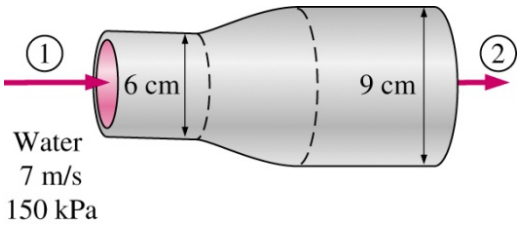
October 28, 2015

NAME

Fluids-ID

Quiz 8. A 6-cm-diameter horizontal water pipe expands gradually to a 9-cm-diameter pipe. The velocity and pressure of water before the expansion section are V_1 = 7 m/s and p_1 = 150 kPa, respectively. Determine the pressure in the large-diameter pipe p_2 using the energy equation. The head loss in the expansion section is given as $h_L = K_L \frac{V_1^2}{2g}$ where k_L = 0.133. Assume the velocity is uniform across the pipe section.



$$\frac{p_1}{\rho g} + \frac{1}{2}V_1^2 + z_1 + h_p = \frac{p_2}{\rho g} + \frac{1}{2}V_2^2 + z_2 + h_t + h_L$$

Note: Attendance (+2 points), format (+1 point)