Assignment #5
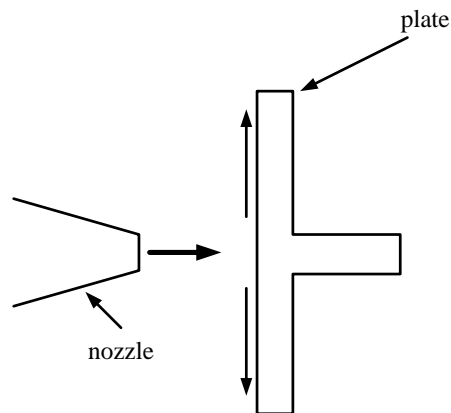
Assignment date: Monday Feb. 9, 2009

Due date: Monday Feb. 16, 2009

Problem1

Water from a stationary nozzle strikes a flat plate as shown. The water leaves the nozzle at $15 \, m/s$; the nozzle area is $0.01 \, m^2$. Assuming the water is directed normal to the plate, and flows along the plate, determine the horizontal force you need to resist to hold it.

Problem 2

Water flows steadily through the 90° reducing elbow shown in the diagram. At the inlet to the elbow, the absolute pressure is $220 \, kPa$ and the cross-sectional area is $0.01 \, m^2$. At the outlet, the cross-sectional area is $0.0025 \, m^2$ and the velocity is $16 \, m/s$. The elbow discharges to the atmosphere. Determine the force required to hold the elbow in place.

M.Bahrami   **ENSC 283**   **Assignment # 5**