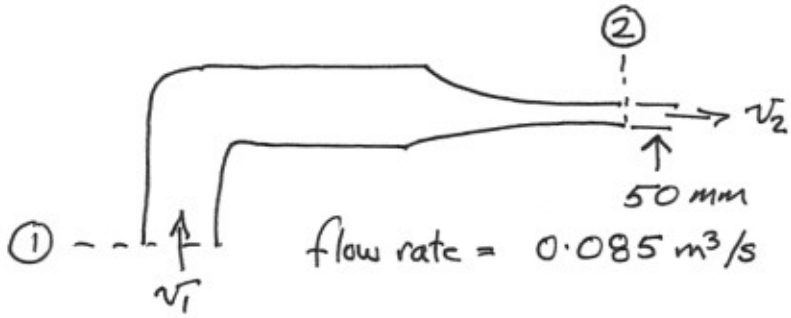


At ② $\dot{v} = \frac{\pi}{4} d_2^2 v_2$ $\therefore$ $0.085 = \frac{\pi}{4}(0.050)^2 v_2$

$\therefore v_2 = 43.29$ m/s

Reaction force of the jet $= \dot{m} v_2$

$= (0.085 \times 1000) \times 43.29$

$= 3680$ N

$v_2 = 10 v_1$ $\therefore v_1 = 4.329$ m/s

$\dot{v} = A_1 v_1$ $\therefore 0.085 = A_1 \times 4.329$ $\therefore A_1 = 0.01964$ m²

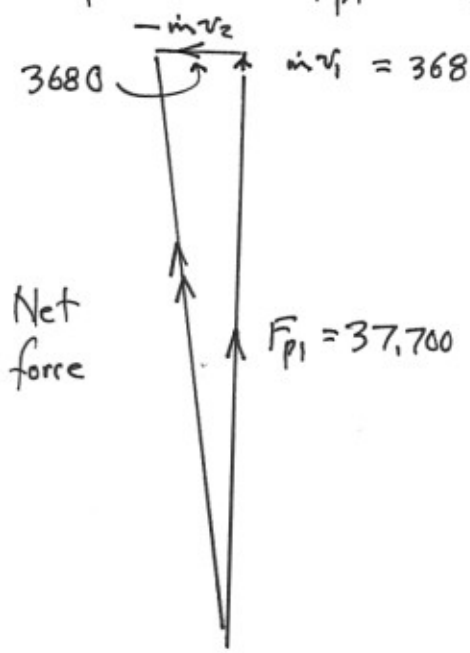
$p_1 = 1.92 \times 10^6$ Pa (gauge)

$\therefore F_{p1} = 1.92 \times 10^6 \times 0.01964 = 37{,}700$ N

$F_{p2} = \phi$

$\dot{m} v_1 = (0.085 \times 1000) \times 4.329 = 368$ N

Net force $= \vec{F}_{p1} + \vec{F}_{p2} - (\dot{m}\vec{v}_2 - \dot{m}\vec{v}_1)$



$F_{net} = \sqrt{(37700 + 368)^2 + 3680^2}$

$= 38245$ N

or 38·25 kN