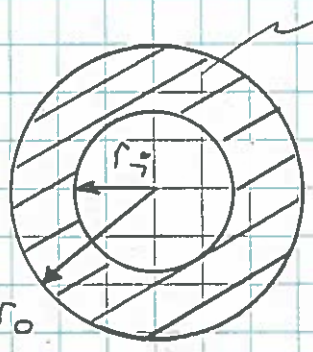
$d_o = 10\ cm$
$r_o = 5\ cm = 0.05\ m$



$M = 690\ g = 0.69\ kg$

$\rho_A = 2700\ kg/m^3$

fluid inner diameter: $d_i = 2r_i$

$$M = \rho V = \rho \left\{ \frac{4}{3}\pi r_o^3 - \frac{4}{3}\pi r_i^3 \right\}$$

$$= \rho \frac{4}{3}\pi \left(r_o^3 - r_i^3 \right)$$

or,

$$\frac{3M}{4\pi\rho} = r_o^3 - r_i^3$$

$\therefore$

$$r_i = \left\{ r_o^3 - \frac{3M}{4\pi\rho} \right\}^{1/3}$$

$$= 0.04\ m$$

$\therefore$

$$\underline{d_i = 0.08\ m = 8\ cm}$$