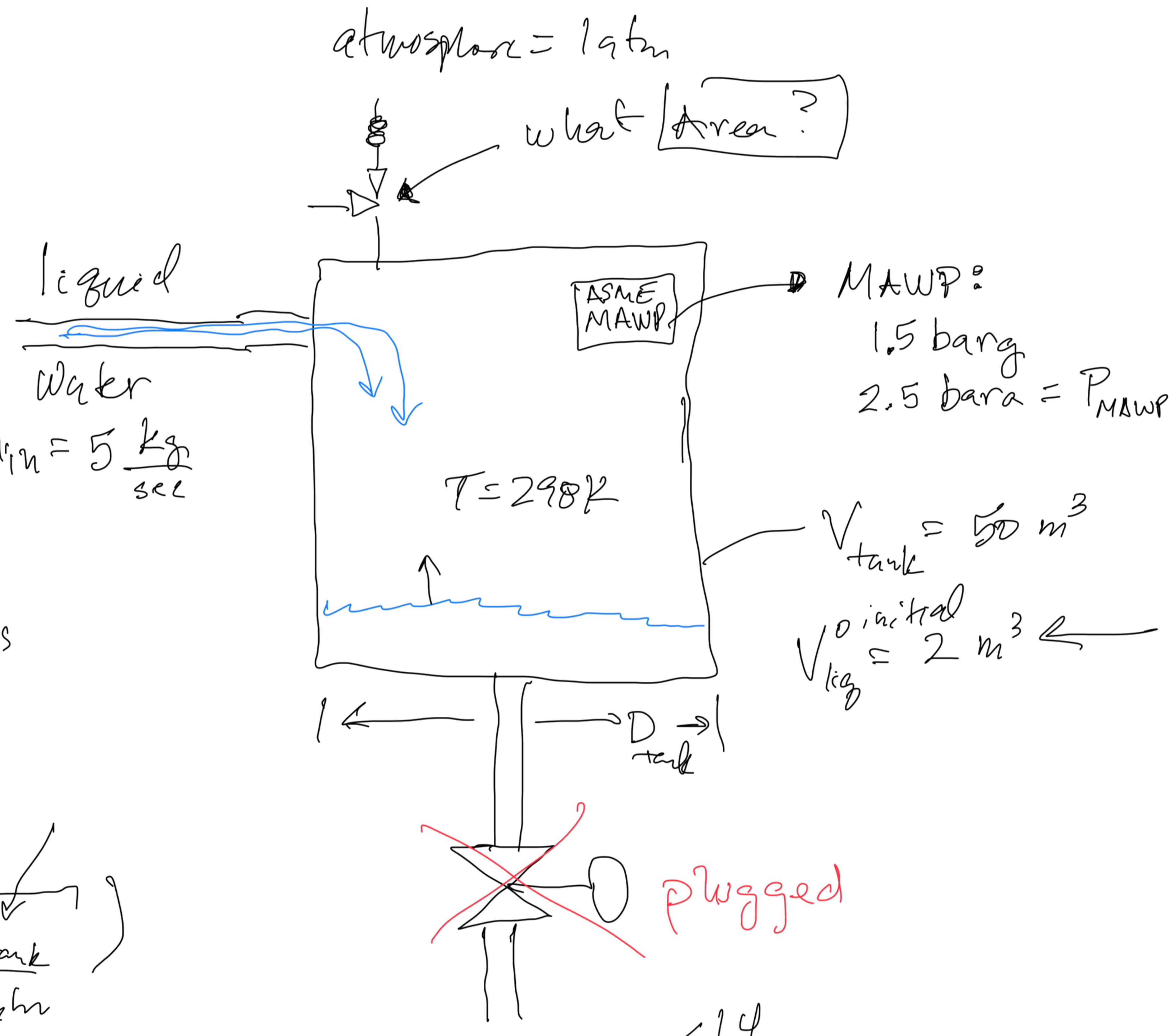
Hello PD



$$P_{max}^{tank} = 1.1 \cdot 2.5 \text{ bara} = 2.75 \text{ bara}$$

① vent vapor/gas
② vent liquid

$$Ma = \min\left(1, \sqrt{\frac{P_{tank}}{P_{atm}}}\right)$$

$$Ma = 1$$

$$\dot{m} = M_w\, P_o\, A\, C_d \sqrt{\frac{\gamma}{R\,T\,M_w}} \cdot 1 \cdot \left[1 + \frac{(\gamma - 1)}{2}\cancel{Ma^2}\right]^{\frac{\gamma+1}{2-2\gamma}}$$

2.75 bara; 0.95; 1.4; 1.4

= some # but what is A? or what $\dot{m}$?

Next step? to get A?

What is $\dot{m}_{gas}$? or how is the volume changing?

$$\dot{m}_{in}^{H_2O} = 5\ \frac{kg}{sec} \qquad \dot{V}^{water} = \frac{\dot{m}_{in}^{water}}{\rho_{water}} = \dot{V}^{gas} \longrightarrow \rho_{gas}\dot{V}^{gas} = \dot{m}_{gas}^{out}$$

not constant

$\rho_{gas}(@\ P = P_{tank}^{max}$ venting condition 2.75 bara$)$

$$A_{gas} = \frac{\dot{m}_{gas}}{P_0\, C_d\, [\ldots]}$$

Will A_{gas} sufficient for liquid?

$$\dot{m} = A\, C_d \sqrt{2\rho\,(P_{tank} - P_{atm})}$$

0.65 ; liquid density

$$\dot{m} = 5\ \frac{kg}{sec}$$

$$[=]\ \overset{A}{m^2} \sqrt{\frac{kg^2}{m^{4}} \cdot \frac{\cancel{kg} \cdot \cancel{m}}{\cancel{m} \cdot s^2}}\ [=]\ \cancel{m^2} \cdot \frac{kg}{s \cdot \cancel{m^2}}$$

$$A = \frac{\dot{m}}{C_d\sqrt{2\rho\,(P_{tank} - P_{atm})}}$$