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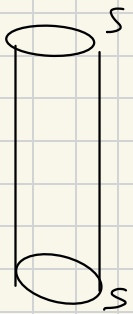

$S = 71\,cm^2$

$T_i = 23^\circ C = 296,15\,K$

$P_i = 1,04 \cdot 10^5\,Pa$

$V_f = V_i - \frac{1}{100} V_i = \frac{99}{100} V_i$

$T_f = 65^\circ C = 338\,K$

$F = ?$

$F = P_f \cdot S$

$PV = mRT$

$P_f V_f = \frac{P_i V_i}{T_i} \cdot T_f$

$P_f = \frac{P_i V_i}{T_i} \cdot \frac{T_f}{V_f}$

$P_f = \frac{P_i V_i}{T_i} \cdot \frac{T_f}{\frac{99}{100} V_i}$

$P_f = \frac{P_i \cancel{V_i}}{T_i} \cdot T_f \cdot \frac{100}{99 \cancel{V_i}}$

$F = P_f \cdot S$

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$p_1 = 120\ kPa$

$T_1 = 293\ K$

$d = 3{,}65\ m$

$p_2 = 65\ kPa$

$V_2 = ?$

$r = \frac{d}{2}$

$V_1 = \frac{4}{3}\pi \cdot r^3$

$p \cdot V = m R T \quad \Leftrightarrow \quad p_2 \cdot V_2 = m R T_2$

$p_2 \cdot V_2 = \frac{p_1 V_1}{T_1} \cdot T_2$

$V_2 = \frac{p_1 \cdot V_1 \cdot T_2}{T_1 \cdot p_2}$

$(V_1 - V_2) : V_1 = x : 100$

$x = \frac{(V_1 - V_2)}{V_1} \cdot 100$