

$$1) P = 1650 \times 3000 \times 9,81 = 48559500 \text{ Pa} \\ = \underline{\underline{485,6 \text{ bar}}}$$

$$\text{I psi: } 485,6 \times 14,5 = \underline{\underline{7041 \text{ psi}}}$$

$$2) a) P_{\text{HT}} = 305 - 2500 \times 0,3 \times 0,0981 = \underline{\underline{231,4 \text{ bar}}}$$

$$b) \frac{5}{16} \times 2,54 \text{ cm} = 0,0079375 \text{ m}$$

$$F = 23140000 \times \frac{\pi}{4} \cdot (0,0079375)^2 = 1145 \text{ N}$$

$$\text{Verktøystrøg minst: } \frac{1145 \text{ N}}{9,81} = \underline{\underline{116,7 \text{ kg}}}$$

$$3) P_{\text{pore, 2000}} = 1,3 \times 2000 \times 0,0981 = 255 \text{ bar}$$

$$a) P_{\text{Kappe}} = \cancel{305} 255 - 0,85 \times 200 \times 0,0981 - 0,18 \times 250 \times 0,0981 = 234 \text{ bar}$$

$$b) \text{slanttetthet} = \frac{244}{1550 \times 0,0981} = \underline{\underline{1,60 \text{ sg}}}$$

$$4) \cancel{C = 1,8 \times F + 32} \Rightarrow C = 1 \\ C = \frac{F - 32}{1,8} = \frac{68 - 32}{1,8} = \underline{\underline{20}} \quad K = \underline{\underline{293}} \quad c)$$

$$20 + 4000 \times 0,03 = \underline{\underline{140}} \quad \leftarrow a) \quad K = 413 \text{ K}$$

$$P_{\text{pore}} = 1,7 \times 4000 \times 0,0981 = 667 \text{ bar}$$

$$b) \frac{P \cdot V}{T} = C \Rightarrow \frac{1 \cdot V_{\text{luft}}}{293} = \frac{667 \cdot 3 \cdot 293}{413} = \underline{\underline{1419 \text{ m}^3}}$$

$$5) a) b = 1 - \frac{1,8}{7,85} = 0,77$$

$$T = (3500 \cdot 31,06 + 100 \cdot 218,77) \cdot 0,77 \cdot 9,81 = 986415 \text{ N} = \underline{\underline{98,6 \cdot 10^3 \text{ daN}}}$$

$$b) F_{\text{flyt}} = \sigma_{\text{flyt}} \cdot A = \left(\frac{135000 \text{ psi} \times 100000}{14,5} \right) \times \frac{3401 \text{ mm}^2}{\frac{10^6}{\text{m}^2}} = \underline{\underline{316,6 \cdot 10^3 \text{ daN}}}$$

$$c) M_{OP+T} = 0,9 \cdot T_{\text{flyt}}$$

$$M_{OP} = 0,9 T_{\text{flyt}} - T$$

$$= 0,9 \cdot 316,6 \cdot 10^3 \text{ daN} - 98,6 \cdot 10^3 \text{ daN} = \underline{\underline{186,3 \cdot 10^3 \text{ daN}}}$$

$$g) \frac{X_o}{X_w} = 4 \Rightarrow X_o = 4X_w$$

$$X_o + X_w + X_{vm} = 1 \Rightarrow 5X_w + X_{vm} = 1 \Rightarrow X_{vm} = (1 - 5X_w)$$

$$X_o \rho_o + X_w \rho_w + X_{vm} \rho_{vm} = 1700$$

↓

$$4X_w \rho_o + X_w \rho_w + (1 - 5X_w) \rho_{vm} = 1700$$

$$X_w (4\rho_o + \rho_w - 5\rho_{vm}) = 1700 - \rho_{vm}$$

$$X_w = \frac{1700 - \rho_{vm}}{(4\rho_o + \rho_w - 5\rho_{vm})} = \frac{1700 - 4200}{(4 \cdot 830 + 1000 - 5 \cdot 4200)} = \underline{\underline{0.15}}$$

$$X_{vm} = (1 - 5 \cdot X_w) = (1 - 5 \cdot 0.15) = \underline{\underline{0.25}}$$

$$X_o = 1 - X_w - X_{vm} = 1 - 0.15 - 0.25 = \underline{\underline{0.6}}$$

$$\text{Test } \rho = 0.6 \cdot 830 + 0.15 \cdot 1000 + 0.25 \cdot 4200 \approx \underline{\underline{1700 \text{ kg/m}^3}}$$

(testen truster er ikke ta med)