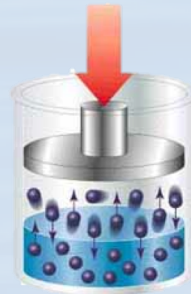
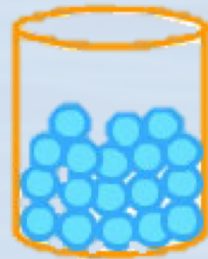
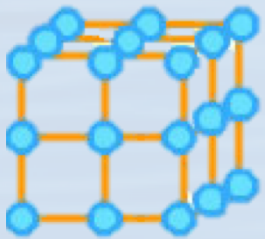


Physics Recap

Gas Consumption



Physics Recap Gas Consumption

- Calculate the gas consumption a divers working at 65 msw for a period of 1hour 25min.

$$85_{\text{min}} \times 7.5 \text{ bar(a)} \times 35_{\text{LPM}} \div 1000 = 22.312 \text{ m}^3$$

- What is the gas consumption of a two dives working at 97 msw for a duration of 1 hour, 7 minutes?

Open circuit consumption = 35 lpm per diver at the surface

At depth, consumption = 70LPM x 10.7 bar(a)

= 749LPM

67 minutes x 749LPM = 50,183 litres

Which is = 50.183 m³

Physics Recap Gas Consumption

4. A diver has a bailout with a volume of 9 litre, and pressure of 150 bar. How much gas does he have? How long will it last him at 50m?

$$\begin{aligned}\text{Gas available} &= 9 \text{ litres} \times (150 - 10 - 6) && \text{(Note: less 10 bars hat / reg driving pressure, and another 6 bar for depth absolute)} \\ &= \mathbf{134 \text{ LITRES}}\end{aligned}$$

$$\text{So gas available} = 9\text{L} \times 134 \text{ bar} = \mathbf{1206 \text{ litres}}$$

$$\text{Gas consumption} = 40 \text{ litres per minute at the surface (Remember were on bailout)}$$

$$\text{At depth will be} = 40 \times 6 \text{ bar} = \mathbf{240 \text{ lpm}}$$

$$\text{Duration} = 1260 \div 240 = \mathbf{5.025 \text{ mins}} \quad \text{(Note: The 0.025 is decimal. You now have to convert it)}$$

$$= 60 \times 0.025 \text{ secs}$$

$$\text{Therefore answer} = \mathbf{5 \text{ minutes } 1 \text{ seconds}}$$

Physics Recap Gas Consumption

- Two 12 litre bail out bottles are pressurised to 210 Bar. If the diver is working at 75 msw, what volume of gas is available to him in an emergency? and how long will it last him?

$$210_{\text{bar}} - 10_{\text{bar (HP)}} - 8.5_{\text{bar (A)}} = 191.5_{\text{bar}} \times 24_{\text{Lt}} = \mathbf{4596_{\text{Lts}}}$$

$$\mathbf{\text{Gas Consumption}} = 40_{\text{LPM}} \times 8.5_{\text{Bar(A)}} = \mathbf{340_{\text{LPM}}}$$

$$\mathbf{\text{Gas available}} = 4596_{\text{Lts}} \div 340_{\text{LPM}} = \mathbf{13.51_{\text{mins}}}$$

So **13min 30secs**

Physics Recap Gas Consumption

4. A bail out bottle (BOB) has a volume of 15 litres and a pressure of 195 Bar. If the diver is working at 90 msw, what volume of gas is available to him in an emergency? and how long will it last him?

$$195_{\text{bar}} - 10_{\text{bar (HP)}} - 10_{\text{bar(A)}} = 175_{\text{bar}} \times 15_{\text{Lt}} = \mathbf{2625_{\text{Lts}}}$$

$$\mathbf{\text{Gas Consumption}} = 40_{\text{LPM}} \times 10_{\text{Bar(A)}} = \mathbf{400_{\text{LPM}}}$$

$$\mathbf{\text{Gas available}} = 2625_{\text{Lts}} \div 40_{\text{LPM}} = \mathbf{6.56_{\text{mins}}}$$

So 6min 33secs