

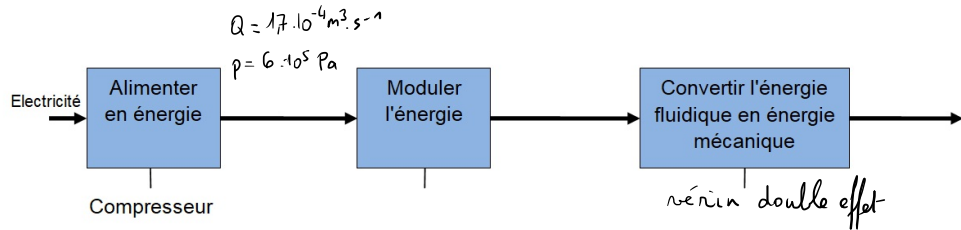
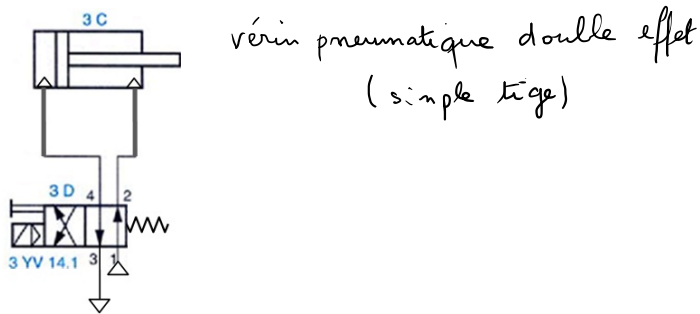
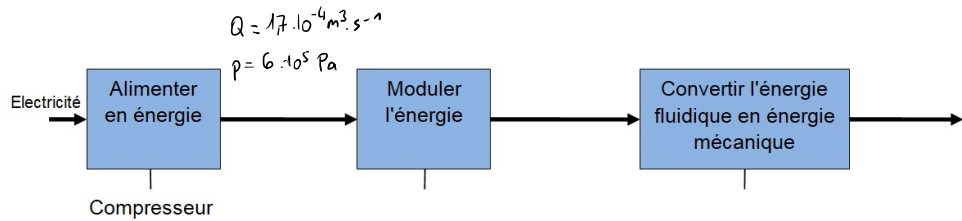
Ed CTS.0 (durée 30min prof → 45min à 1h) 16h49

① Débit d'air  $Q = 10L \cdot \text{min}^{-1}$   $1L = 1 \text{ dm}^3$   $1 \text{ dm} = 10^{-1} \text{ m}$  }  $1L = (10^{-1} \text{ m})^3 = 10^{-3} \text{ m}^3$

$Q = \frac{10 \cdot 10^{-3} \cdot \text{m}^3 \cdot \text{min}^{-1}}{10^{-2}} \cdot \frac{1}{1 \text{ min}} = \frac{1}{60} \text{ s}$

$Q = \frac{10^{-2}}{60} \text{ m}^3 \cdot \text{s}^{-1}$   $Q = 1,67 \cdot 10^{-4} \text{ m}^3 \cdot \text{s}^{-1}$

Pression  $p = 6 \text{ bar} \equiv 6 \cdot 10^5 \text{ Pa}$  16h55



⑤ En poussant

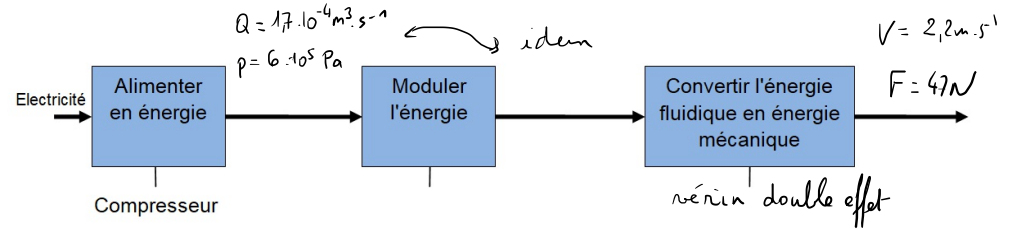
$S = \pi R^2 = \pi \left(\frac{D}{2}\right)^2$   $S = \pi \frac{D^2}{4}$

$S = \pi \cdot \left(\frac{10 \cdot 10^{-3}}{4}\right)^2$   $S = 7,85 \cdot 10^{-5} \text{ m}^2$

⑥  $Q = V \cdot S$  donc  $V = \frac{Q}{S}$   $V = \frac{1,67 \cdot 10^{-4}}{7,85 \cdot 10^{-5}} = 2,12 \text{ m} \cdot \text{s}^{-1}$

$F = p \cdot S$   $F = p \cdot S$   $F = 6 \cdot 10^5 \cdot 7,85 \cdot 10^{-5} = 47,1 \text{ N}$

*Annotations: m · s⁻¹, m³ · s⁻¹, m², N, Pa = N/m², m², m³ · s⁻¹, m².*



⑦  $Q = \frac{Cyl \cdot \omega}{2\pi}$  donc  $Cyl = \frac{2\pi Q}{\omega}$   $Cyl = \frac{2\pi \cdot 1,67 \cdot 10^{-4}}{200}$

$10^{-6} \text{ m}^3 = 10^{-6} \cdot (10^2 \text{ cm})^3 = 1 \text{ cm}^3$

$Cyl = 5,24 \cdot 10^{-6} \text{ m} \cdot \text{tr}^{-1}$   
 $Cyl = 5,24 \text{ cm}^3 \cdot \text{tr}^{-1}$

*Annotations: rad · s⁻¹, tr · s⁻¹, m³ · s⁻¹.*

