

TD – Machine de traction - torsion

POINT METHODE :

- Force globale à partir d'une densité d'effort locale (**Q1**) :

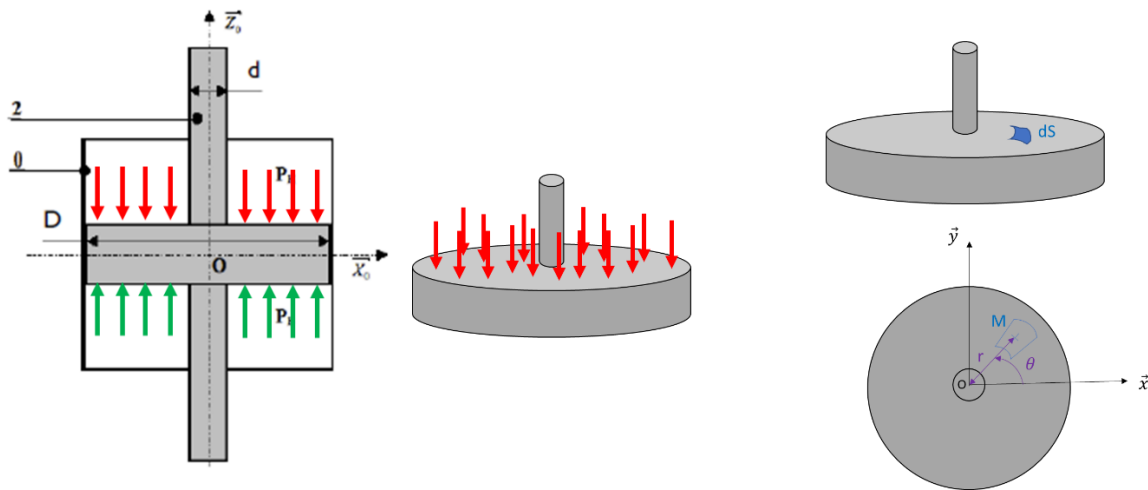
$$\vec{F} = \int_{\Omega} \overrightarrow{dF(M)} = \int_{\Omega} \overrightarrow{eff(M)} d\Omega$$

- Moment global à partir d'une densité d'effort locale (**Q3**) :

$$\vec{M}_A = \int_{\Omega} \overrightarrow{AM} \wedge \overrightarrow{eff(M)}. d\Omega$$

ELEMENTS DE CORRECTION :

Q1 :

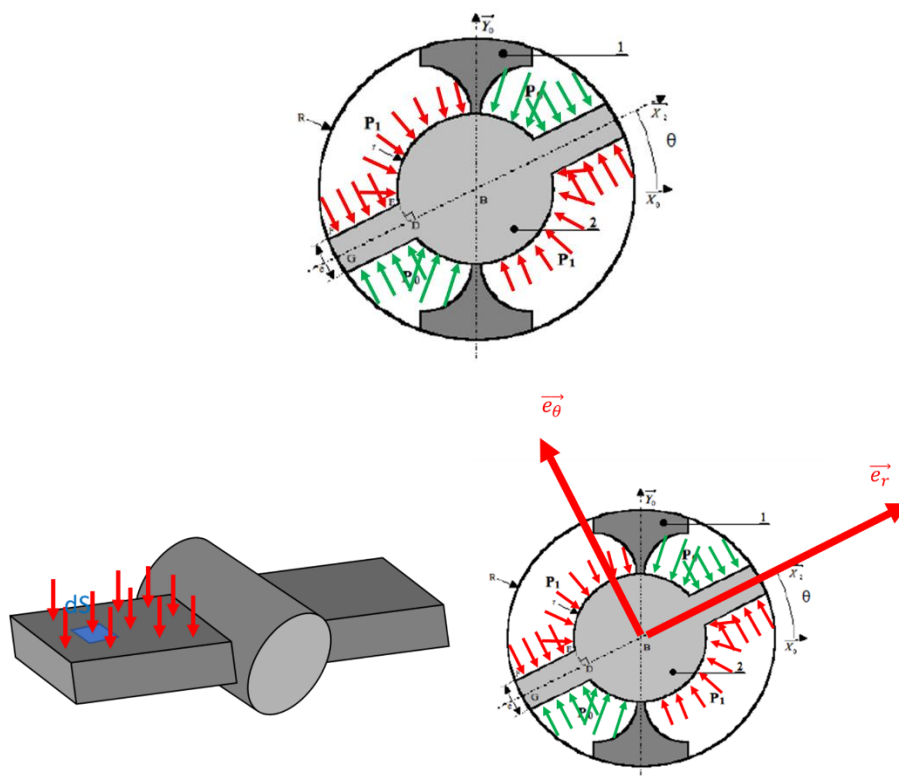


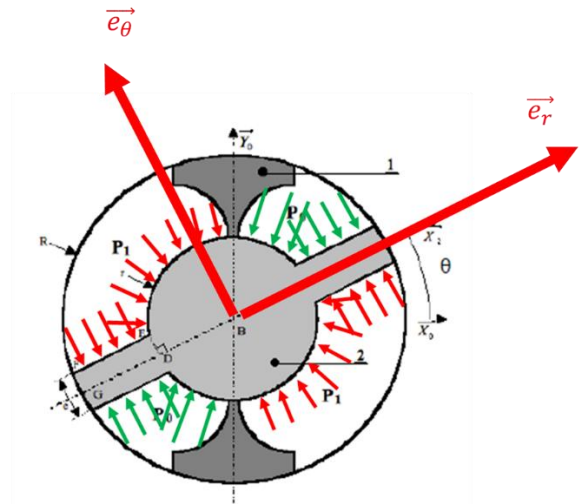
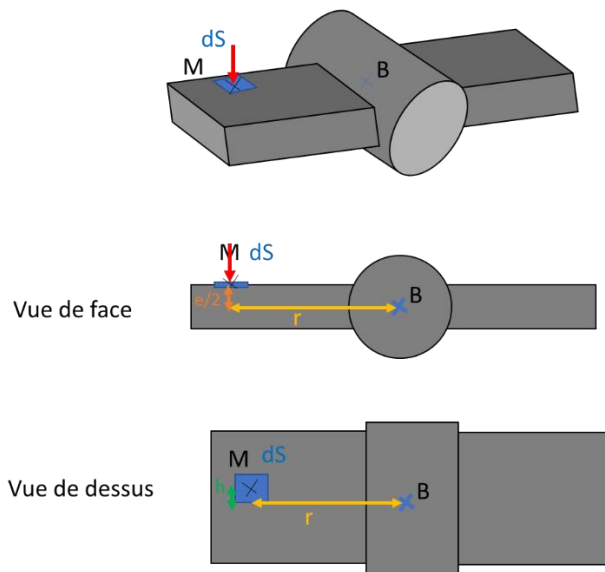
$$\vec{F}_z = \frac{\pi}{4} \cdot (D^2 - d^2) \cdot (P_B - P_H) \cdot \vec{z}_0$$

Q2 :

$$\|\vec{F}_z\|_{max} = 27,52 \text{ kN} > 25 \text{ kN} \rightarrow \text{CdCF OK}$$

Q3 :





$$\vec{C} = H \cdot (R^2 - r^2) \cdot (P_1 - P_0) \cdot \vec{z}_0$$

Q4 :

$$\|\vec{C}\|_{max} = 1,33 \text{ kN.m} > 1,2 \text{ kN.m} \rightarrow \text{CdCF OK}$$