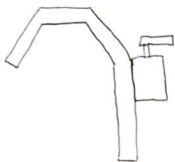


Calculation of Torque Requirement



Given (using SolidWorks)

$$m = 1.297 \text{ kg}$$

$$I = 0.002566 \text{ kg} \cdot \text{m}^2$$

Assumptions

- Required to reach a speed of 8 Hz in 3 seconds.

$$\alpha = \frac{\omega_f - \omega_i}{t} = \frac{16\pi \frac{\text{rad}}{\text{s}}}{3\text{s}}$$

$$\alpha = 16.75 \frac{\text{rad}}{\text{s}^2}$$

$$\tau = I \alpha$$

$$\tau = \underbrace{(0.002566)}_{\text{kg} \cdot \text{m}^2} \underbrace{(16.75)}_{\frac{\text{rad}}{\text{s}^2}}$$

$$\tau = 0.043 \text{ N} \cdot \text{m}$$

← Required Torque