# réducteur volet roulant

**Q1.** $\dfrac{\omega_{c/PS}}{\omega_{P/PS}} = -\dfrac{Z_P}{Z_S} \times \dfrac{Z_S'}{Z_C}$

$$\frac{\omega_{c/0} - \omega_{PS/0}}{\omega_{P/0} - \omega_{PS/0}} = \boxed{-\frac{Z_P}{Z_S} \times \frac{Z_S'}{Z_C} = \lambda}$$

$$\Leftrightarrow \quad \omega_{c/0} - \omega_{PS/0} = \lambda\left(\omega_{P/0} - \omega_{PS/0}\right)$$

$$\omega_{c/0} - \lambda\,\omega_{P/0} + \omega_{PS/0}\left(\lambda - 1\right) = 0$$

**Q2.** si $\omega_{c/0} = 0$ alors $\boxed{\dfrac{\omega_{PS/0}}{\omega_{P/0}} = \dfrac{\lambda}{\lambda - 1}}$

**Q3.** $r_1 = \dfrac{\omega_{PS/0}}{\omega_{P/0}} = \dfrac{\lambda}{\lambda - 1}$ avec $\lambda = -\dfrac{Z_P}{Z_S} \times \dfrac{Z_S'}{Z_C}$

$$\lambda = -\frac{9}{18} \times \frac{14}{42} = -0,1\overline{6}$$

$$r_1 = \frac{\omega_{PS/0}}{\omega_{P/0}} = 0,1429$$

$$r_g = r_1^{\,3} \qquad \boxed{r_g = 2,91.10^{-3}}$$

**Q4.** $V_{volet/0} = \dfrac{\phi_{rouleau}}{2} \times N_{PS/0} \times \dfrac{2\pi}{60} = \dfrac{\phi_{rouleau}}{2} \times r_g \times N_{moteur} \dfrac{2\pi}{60}$

$\boxed{V_{volet/0} = 29,3 \text{ mm/s}} \approx 3 \text{ cm/s}$