Gedwongen trillingen

Gedempt

Geringe Demping

$$u = A_0 . e^{-\frac{b}{2m}t} \sin(\omega_1 t + \varphi) + A\sin(\omega\omega_{dw} - \beta)$$

$$\rightarrow A = \frac{F_{dw}}{\sqrt{m^2(\omega_0{}^2 - \omega_{dw}{}^2)^2 + b^2\omega_{dw}{}^2}}$$

$$\rightarrow \tan\beta = \frac{b\omega_{dw}}{m(\omega_0{}^2 - \omega_{dw}{}^2)}$$

- *Resonantie*

$$\omega_{res} = \omega_{dw} = \sqrt{\omega_0{}^2 - \frac{b^2}{2m^2}}$$

$$A_{res} = \frac{F_{dw}}{b\omega_1}$$

$$E_{kin,\max} : \omega_{dw} = \omega_0$$

Ongedempt

~ gedempte trilling met b=0

$$u = A\sin(\omega_{dw} t) - A\frac{\omega_{dw}}{\omega_0}\sin(\omega_0 t)$$