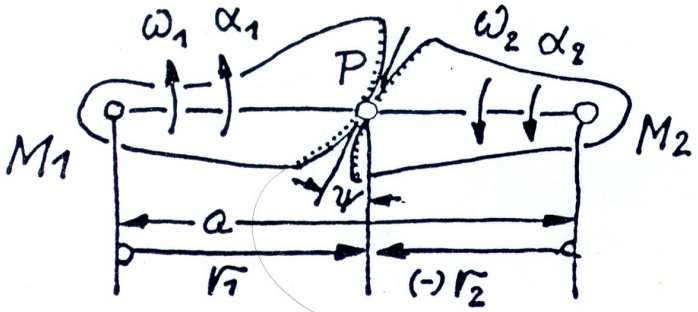
Wälzhebel



$\vec{r_1} = \overrightarrow{M_1 P}$

$\vec{r_2} = \overrightarrow{M_2 P}$

$r_1 - r_2 = a; \quad \omega_1 = \frac{d\alpha_1}{dt}; \quad \omega_2 = \frac{d\alpha_2}{dt};$

$i = \omega_1/\omega_2 = r_2/r_1 = d\alpha_1/d\alpha_2;$

$\tan\psi = \frac{dr_1}{r_1 d\alpha_1} = \frac{dr_2}{r_2 d\alpha_2}$

$r_1 = a + r_2 = a + i r_1; \qquad \boxed{r_1 = a/1-i}$

$r_2 = r_1 - a = (a/1-i) - a \qquad \boxed{r_2 = ia/1-i}$

1. Beispiel: Wälzhebel für $\alpha_1 = \alpha_2^2$

für a = 60 mm für $-2 \leq \alpha_2 \leq 0{,}2$

Lösung:

$i = \frac{d\alpha_1}{d\alpha_2} = 2\alpha_2; \quad r_1 = \frac{a}{1-i} = \frac{a}{1-2\alpha_2}; \quad r_2 = \frac{ia}{1-i} = \frac{2\alpha_2 a}{1-2\alpha_2};$