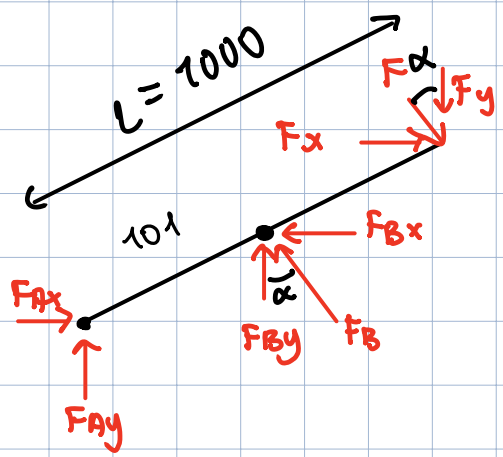
Handhebel

$\sigma_{b\,max} = M_{max} / W$

$\tau_{t\,max} = T_{max} / W$



$\alpha = 26{,}57°$

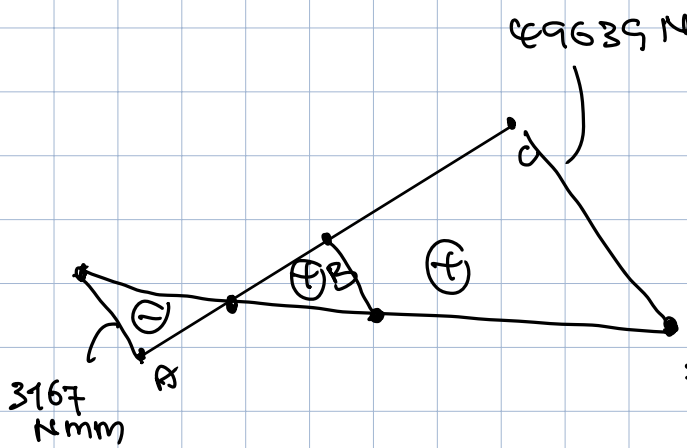
$F_{By} = 5500\,N$

$F_{Ay} = -5000\,N$

$F = 500\,N$

$\Sigma M_{(A)} = F_{By}\cos\alpha\,(101) - F\,(1000)$

$= -3167\,Nmm$



$\Sigma M_{(B)} = 5000\cos\alpha\,(101) - 500\,(1000-101)$

$= 2167\,Nmm$

$\Sigma M_{(C)} = 5000\cos\alpha\,(1000) - F_{By}\cos\alpha\,(1000-101)$

$= 49639\,Nmm$

$W_b = \frac{b\cdot h^2}{6}$

$= \frac{20\cdot 30^2}{6}$

$= 3000\,mm^3$

$\sigma_{bmax} = M_{max} / W$

$W = \frac{b\cdot h^2}{6} = \frac{20\cdot(30)^2}{6}$

$= 3000\,mm^3$

$\tau = 0$ da $T = 0$ $\quad \sigma_{b\,max} = \frac{49639}{3000}$

$= 16,55 \text{ N mm}^{-2}$

$R_{p\,0,2N} = 190 \text{ min}$

$K_t = 1$

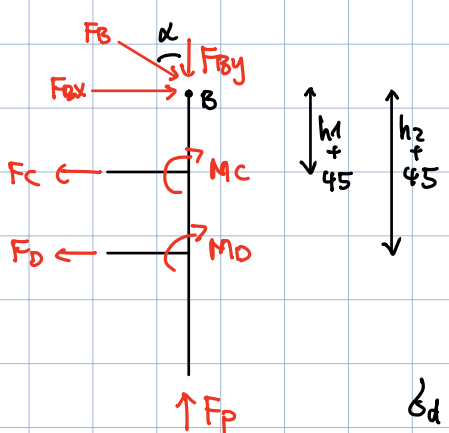
$\sigma_{bF} = 1,2 \cdot R_{p\,0,2N} \cdot K_t$

$= 228 \text{ N mm}^{-2}$

$$S_F = \frac{1}{\sqrt{\left(\frac{\sigma_{b\,max}}{\sigma_{bF}}\right)^2 + (0)}} = 13,8$$

$S_F \geq S_{F\,min} = 1,5$

Gestänge



$M_C = 0$

$M_D = 0$

$F_{p\,max} = 5500 \text{ N}$

$r = 20 \text{ mm}$

$\sigma_{d\,max} = \frac{F}{A} = \frac{5500 \text{ N}}{\pi (20)^2}$

$= 4,38 \text{ N mm}^{-2}$

$$\sigma_{dF} = \sigma_{d0,2} = f_\sigma \cdot R_{p0,2} = \quad 1 \quad \cdot 190 = 190\,\text{min}$$

$f_\sigma = 1$

$$S_F = \frac{1}{\sqrt{\left(\frac{\sigma_{d\,max}}{\sigma_{dF}}\right)^2}}$$

$$= \frac{1}{\sqrt{\left(\frac{4,38}{190}\right)^2}} = 43,4 \geq S_{F\,min} = 1,5$$

$S_F \geq S_{F\,min}$