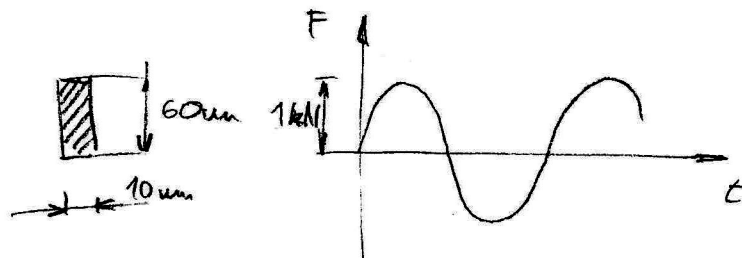
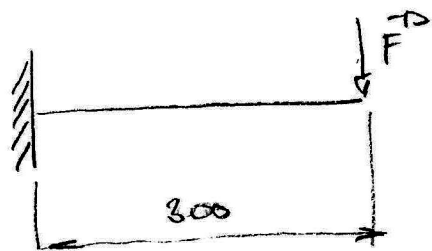


Pi: Určete bezpečnost k MS neomezené životnosti u současně podle obrázku.



materiál ocel
povrch vřítí s denjem, kalem

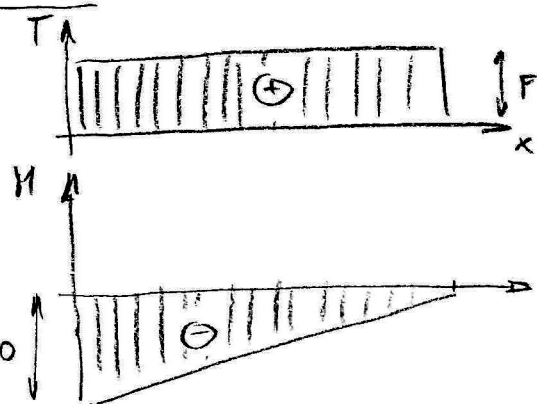
$$\sigma_{pt} = 610 \text{ MPa}$$

$$\sigma_c = 200 \text{ MPa}$$

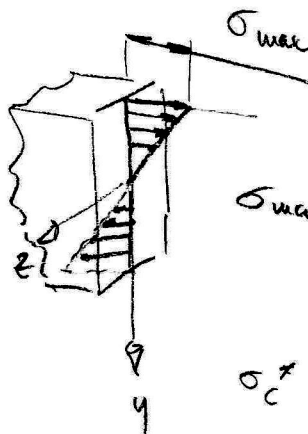
$$h_1 = 10 \text{ mm}$$

$$\sigma_{cov} = 140 \text{ MPa}$$

1. VVV:



2. Řešení



$$\sigma_{max} = \frac{M}{W_0} = \frac{6 \cdot F \cdot 200}{10 \cdot 30^2} = \frac{6 \cdot 1000 \cdot 300}{10 \cdot 60^2} = 50 \text{ MPa}$$

$$\sigma_c^* = \frac{\beta_\sigma \eta_\sigma}{\beta_\sigma} \sigma_c = \frac{0.83 \cdot 0.96}{1} \cdot 200 = 159 \text{ MPa} \Rightarrow k_\sigma = \frac{\sigma_c^*}{\sigma_{max}} =$$

součinatel velikosti

$$\beta_\sigma = \beta_1 \cdot \beta_2 = 0.88 \cdot 0.94 = 0.83$$

$$\beta_1 = 1 - \sqrt{k \cdot \log \frac{h}{h_1}} = 1 - \sqrt{2 \cdot 10^{-2} \cdot \log \frac{60}{10}} = 0.88$$

$$\beta_2 = 1 + \left(\frac{\sigma_{cov}}{\sigma_c} - 1 \right) \cdot \sqrt{\frac{h_1}{h}} = 1 + \left(\frac{140}{200} - 1 \right) \cdot \sqrt{\frac{10}{60}} = 0.94$$

součinatel umbru

$$\beta_\sigma = 1$$

součinatel povrchu

$$\eta_\sigma = \eta_1 \eta_2 = 0.6 \cdot 1.6 = 0.96$$

$$\eta_1 = 0.6$$

$$\eta_2 = 1.6$$

$$= \frac{159}{50} = \underline{\underline{3.18}}$$