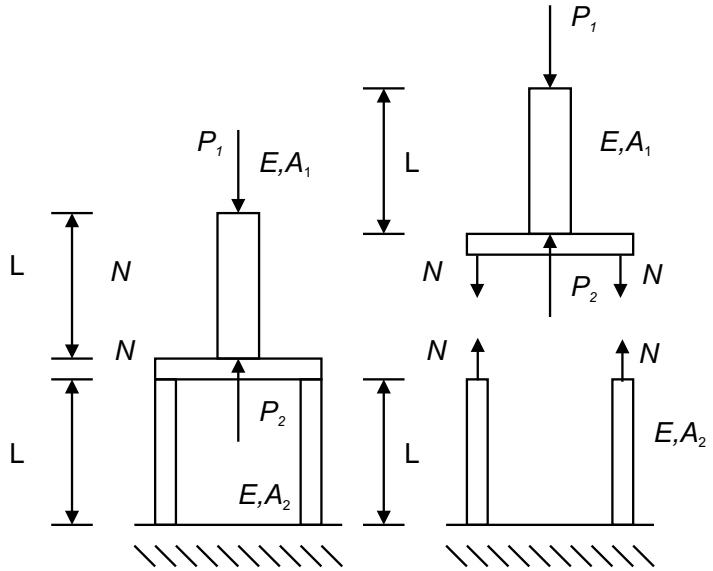

(5 % uncertainty of the load P_1),

$P_1 = 200.1\ [kN]$, $P_2 = 200\ [kN]$, $\sigma_0 = 235\ [MPa]$, $|N| = \left|\frac{P_2 - P_1}{2}\right| = \frac{0.1}{2}\ [kN]$

Area of cross-section

$$A_2 = \frac{|N|}{\sigma_0} = \frac{\frac{0.1}{2}\ [kN]}{235\ [MPa]} = 2.13 \cdot 10^{-7}[m^2] = 2.13 \cdot 10^{-3}[cm^2]$$

Let's assume that the $P_1^* = P_1 \cdot 1.05\ [kN] = 210.105\ [kN]$ then $|N^*| = \frac{10.105}{2}[kN]$.

$$A_2^* = \frac{\frac{10.105}{2}[kN]}{235\ [MPa]} = 215 \cdot 10^{-7}[m^2] = 215 \cdot 10^{-3}[cm^2].$$

$$\frac{|A_2 - A^*|}{A_2} \cdot 100\% = \frac{\left|2.13 \cdot 10^{-3} - 235 \cdot 10^{-3}\right|}{2.13 \cdot 10^{-3}} \cdot 100\% = 10933\%$$

$$\frac{|N - N^*|}{N} \cdot 100\% = \frac{\left|\frac{0.1}{2} - \frac{10.105}{2}\right|}{\frac{0.1}{2}} \cdot 100\% = 10005\%$$

How big should be the safety factor in that case?