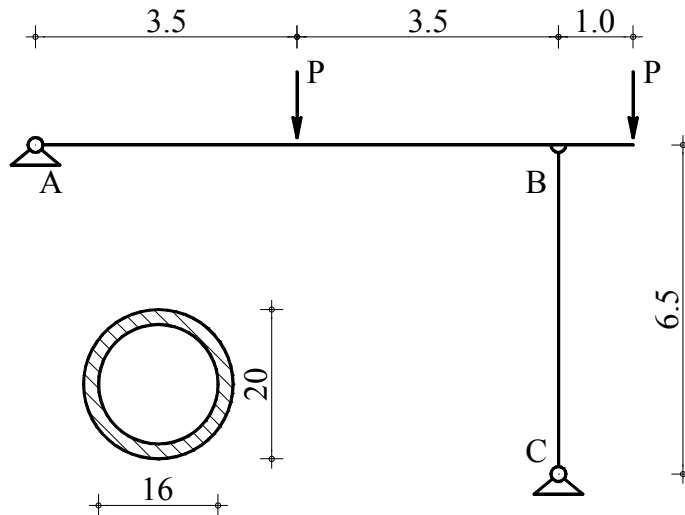


3.4. Za konstrukciju prikazanu na slici je potrebno odrediti dopuštenu veličinu sile P ako je poznato:

$$E = 2.1 \cdot 10^4 \frac{\text{kN}}{\text{cm}^2}$$

$$\sigma_p = 22.0 \frac{\text{kN}}{\text{cm}^2}$$

$$v = 3.0$$



$$L_i = 6.5\text{m}$$

#### Karakteristike poprečnog presjeka

$$I_{\min} = \frac{\pi \cdot D^4}{64} \left[ 1 - \left( \frac{d}{D} \right)^4 \right] = 4636.99 \text{cm}^4$$

$$A = \frac{\pi \cdot D^2}{4} - \frac{\pi \cdot d^2}{4} = 113.097 \text{cm}^2$$

$$i_{\min} = \sqrt{\frac{I_{\min}}{A}} = 6.403 \text{cm}$$

#### Kontrola izvijanja

$$\lambda_p = \sqrt{\frac{\pi^2 E}{\sigma_p}} = 97$$

$$\lambda = \frac{L_i}{i} = \frac{650}{6.403} = 101.51 > 97$$

$$P_{kr} = \frac{\pi^2 \cdot E \cdot I_{\min}}{L_i^2} = 2274.72 \text{kN}$$

#### Sila u štapu BC

$$\sum M_A = 0$$

$$P \cdot 3.5 + P \cdot 8.0 - F_{BC} \cdot 7.0 = 0$$

$$P = \frac{F_{BC} \cdot 7.0}{11.5}$$

$$F_{BC} \leq \frac{P_{kr}}{v} = 758.24 \text{kN}$$

$$P \leq \frac{75.82 \cdot 7.0}{11.5} = 461.53 \text{kN}$$