

$$7) \quad \sigma_{\text{ax}} = 0,5 \cdot 500 \frac{\text{N}}{\text{mm}^2} + 740 \frac{\text{N}}{\text{mm}^2} \\ = 390 \frac{\text{N}}{\text{mm}^2}$$

$$\sigma_{\text{max}} = \frac{4 F}{3 A} = \frac{4 F}{3 d^2 \pi} = \frac{\sigma_{\text{ax}}}{S_B} \quad ; S_B = 3,5$$

$$\sigma_{\text{max}} = \frac{390 \frac{\text{N}}{\text{mm}^2}}{3,5} = 111,42857 \frac{\text{N}}{\text{mm}^2}$$

$$111,42857 \frac{\text{N}}{\text{mm}^2} = \frac{4 F}{3 d^2 \pi} \cdot |d^2| \cdot \frac{1}{111,42857}$$

$$d^2 = \frac{4 F}{3 \pi \cdot 111,42857 \frac{\text{N}}{\text{mm}^2}} \quad \Leftrightarrow \quad d \approx 20,463 \text{ mm} \downarrow$$