

[Remarks:](#) See §4.6, pages. 184 till 186

See §4.7.2, pages. 190 till 193

[Answers:](#)

$$n = 14$$

[Explanation:](#)

$$M_{\max} = 27 \text{ kNm}$$

$$\sigma_{\max} = \frac{M_{\max}}{W} \leq 10 \text{ N/mm}^2$$

$$\Rightarrow W = \frac{1}{6}bh^2 \geq \frac{M_{\max}}{10 \text{ N/mm}^2} = \frac{27 \times 10^6 \text{ Nmm}}{10 \text{ N/mm}^2} = 2,7 \times 10^6 \text{ mm}^3$$

$$\Rightarrow h \geq \sqrt{6 \times \frac{2,7 \times 10^6 \text{ mm}^3}{\underbrace{180 \text{ mm}}_b}} = 300 \text{ mm}$$

$$n \geq \frac{300 \text{ mm}}{22 \text{ mm}} = 13,6$$