

[Opmerkingen:](#) Zie §4.6, blz. 165 t/m 166

[Antwoorden 4.57-1:](#)

a. $h = 260 \text{ mm}$

b. $\sigma_{\max} = 9,25 \text{ N/mm}^2$

[Toelichting:](#)

$$M_{\max} = 6,25 \text{ kNm}$$

a. $\sigma = \frac{M_{\max}}{W} \leq \bar{\sigma} = 10 \text{ N/mm}^2$

$$W = \frac{1}{6}bh^2 \geq \frac{M_{\max}}{\bar{\sigma}} \Rightarrow h \geq \sqrt{\frac{6M_{\max}}{b\bar{\sigma}}} = 250 \text{ mm}$$

b. $W = \frac{1}{6} \times (60 \text{ mm})(260 \text{ mm})^2 = 676 \times 10^3 \text{ mm}^3$

$$\sigma_{\max} = \frac{6,25 \times 10^6 \text{ Nmm}}{676 \times 10^3 \text{ mm}^3} = 9,25 \text{ N/mm}^2$$

[Antwoorden 4.57-2:](#)

a. $h = 230 \text{ mm}$

b. $\sigma_{\max} = 9,07 \text{ N/mm}^2$

[Toelichting:](#)

$$M_{\max} = 8 \text{ kNm}$$

a. $\sigma = \frac{M_{\max}}{W} \leq \bar{\sigma} = 10 \text{ N/mm}^2$

$$W = \frac{1}{6}bh^2 \geq \frac{M_{\max}}{\bar{\sigma}} \Rightarrow h \geq \sqrt{\frac{6M_{\max}}{b\bar{\sigma}}} = 219 \text{ mm}$$

b. $W = \frac{1}{6} \times (100 \text{ mm})(230 \text{ mm})^2 = 881,7 \times 10^3 \text{ mm}^3$

$$\sigma_{\max} = \frac{8 \times 10^6 \text{ Nmm}}{881,7 \times 10^3 \text{ mm}^3} = 9,07 \text{ N/mm}^2$$