Remarks: See §6.3, pages 426 till 445

Answers:

1a. $I_t = 4\times10^6$ mm^4 (closed cross-section)

1b. $I_t = 8,53\times10^3$ mm^4 (open cross-section)

2a. $I_t = 4,8\times10^6$ mm^4 (closed cross-section)

2b. $I_t = 18,67\times10^3$ mm^4 (open cross-section)

Explanation:

1a. $A_m = 10\times10^3$ mm^2

$$I_t = \frac{4\times(10\times10^3 \text{ mm}^2)^2}{\frac{400 \text{ mm}}{4 \text{ mm}}} = 4\times10^6 \text{ Nmm}$$

1b. $I_t = \frac{1}{3}\times(400 \text{ mm})(4 \text{ mm})^3 = 8,53\times10^3$ Nmm

2a. $A_m = 10\times10^3$ mm^2

$$I_t = \frac{4\times(10\times10^3 \text{ mm}^2)^2}{\frac{200 \text{ mm}}{4 \text{ mm}} + \frac{200 \text{ mm}}{6 \text{ mm}}} = 4,8\times10^6 \text{ Nmm}$$

2b. $I_t = \frac{1}{3}\left\{(200 \text{ mm})(4 \text{ mm})^3 + (200 \text{ mm})(6 \text{ mm})^3\right\} = 18,67\times10^3$ Nmm