Remarks: See §5.2.3, pages 288 till 394

Hint:
Calculate for half of the beam the total shear force that it must carry.

Answer:

The minimum number of shear connectors needed is 10.

Explanation:

Cross-sectional properties:

$I_{zz} = 138,24 \times 10^6 \text{ mm}^4$

$S_z^a = 864 \times 10^3 \text{ mm}^3$

The shear force per length is:

$$s_x^a = \frac{V \times (864 \times 10^3 \text{ mm}^3)}{(138,24 \times 10^6 \text{ mm}^4)} = (6,25 \times 10^{-3} \text{ mm}^{-1}) \times V$$

$V_{max} = 3,5 \text{ kN}$

Total shear force for half a beam:

$$\int_{\frac{1}{2}\ell} s_x^a \mathrm{d}x = \frac{1}{2} \times (2000 \text{ mm})(6,25 \times 10^{-3} \text{ mm}^{-1})(3,5 \times 10^3 \text{ N}) = 21875 \text{ N}$$

Shear connectors needed for half of the beam:

$$n \geq \frac{21875}{5000} = 4,375 \Rightarrow n = 5$$

therefore 10 shear connectors are needed for the whole beam.