

Fremgangsmåte dimensjonering av tilleggsarmering i forhold til minimumskrefter

1. Finn minimumskraft,  $F_{tie}$ :

$$F_{tie} = 20 * \frac{(l_1 + l_2)}{2} \geq 70kN$$

Dersom  $F_{tie}$  er mindre enn 70 kN, skal armering dimensjoneres etter 70 kN.

2. Finn  $A_{min}$ :

$$A_{min} = \frac{F_{tie}}{f_{yd}}$$

3. Finn  $\emptyset$ :

Ettersom det skal være 3 lengdearmeringer i bjelken gir det:

$$\emptyset_{min,bjelke} = \frac{2 * \sqrt{A_{min}}}{\sqrt{3} * \pi}$$

### **Finner minimumsarmering:**

1. Finner  $F_{tie}$  etter aksene:

Akse A:

$$F_{tie,A} = 20 * \frac{6}{2} = 60kN \leq \mathbf{70kN}$$

Akse B:

$$F_{tie,B} = 20 * \frac{\frac{6}{2} + \frac{12}{2}}{2} = \mathbf{90kN} \geq 70kN$$

Akse C:

$$F_{tie,C} = 20 * \frac{12}{2} = \mathbf{120kN} \geq 70kN$$

2. Finner  $A_{min}$ :

Akse A:

$$A_{min,A,bjelke} = \frac{70*10^3}{434} = 161,3 \text{ mm}^2$$

Akse B:

$$A_{min,B,bjelke} = \frac{90*10^3}{434} = 207,4 \text{ mm}^2$$

Akse C:

$$A_{min,C,bjelke} = \frac{120 \cdot 10^3}{434} = 276,5 \text{ mm}^2$$

### 3. Finner ø:

Akse A:

$$\varnothing_{min,A,bjelke} = 3 * \pi * \left(\frac{\varnothing}{2}\right)^2 = 161,3 \text{ mm}^2 \rightarrow \varnothing = \frac{2 * \sqrt{161,3}}{\sqrt{3 * \pi}} = 8,3 \text{ mm}$$

Velger ø10

Akse B:

$$\varnothing_{min,B,bjelke} = 3 * \pi * \left(\frac{\varnothing}{2}\right)^2 = 207,4 \text{ mm}^2 \rightarrow \varnothing = \frac{2 * \sqrt{207,4}}{\sqrt{3 * \pi}} = 9,4 \text{ mm}$$

Velger ø10

Akse C:

$$\varnothing_{min,C,bjelke} = 3 * \pi * \left(\frac{\varnothing}{2}\right)^2 = 276,5 \text{ mm}^2 \rightarrow \varnothing = \frac{2 * \sqrt{276,5}}{\sqrt{3 * \pi}} = 10,8 \text{ mm}$$

Velger ø12