

Rotational Spring – Example 1

Example 1

The beam considered has the following characteristics:

Beam section:

$$h = 60 \text{ cm}$$

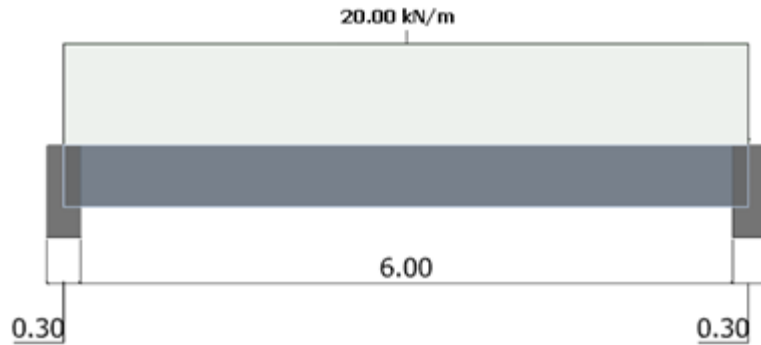
$$b_w = 30 \text{ cm}$$

Supports width:

$$t = 30 \text{ cm}$$

Length:

$$L_{\text{eff}} = L_n + 2 \cdot a_i$$



$$a_i = \min\left(\frac{1}{2} \cdot h; \frac{1}{2} \cdot t\right) \quad a_i = \min\left(\frac{1}{2} \cdot 60; \frac{1}{2} \cdot 30\right) \text{ cm} \quad a_i = \min(30; 15) \text{ cm} \quad a_i = 15 \text{ cm}$$

$$L_{\text{eff}} = 6 + 2 \cdot 0.15 = 6.3 \text{ m}$$

Loads:

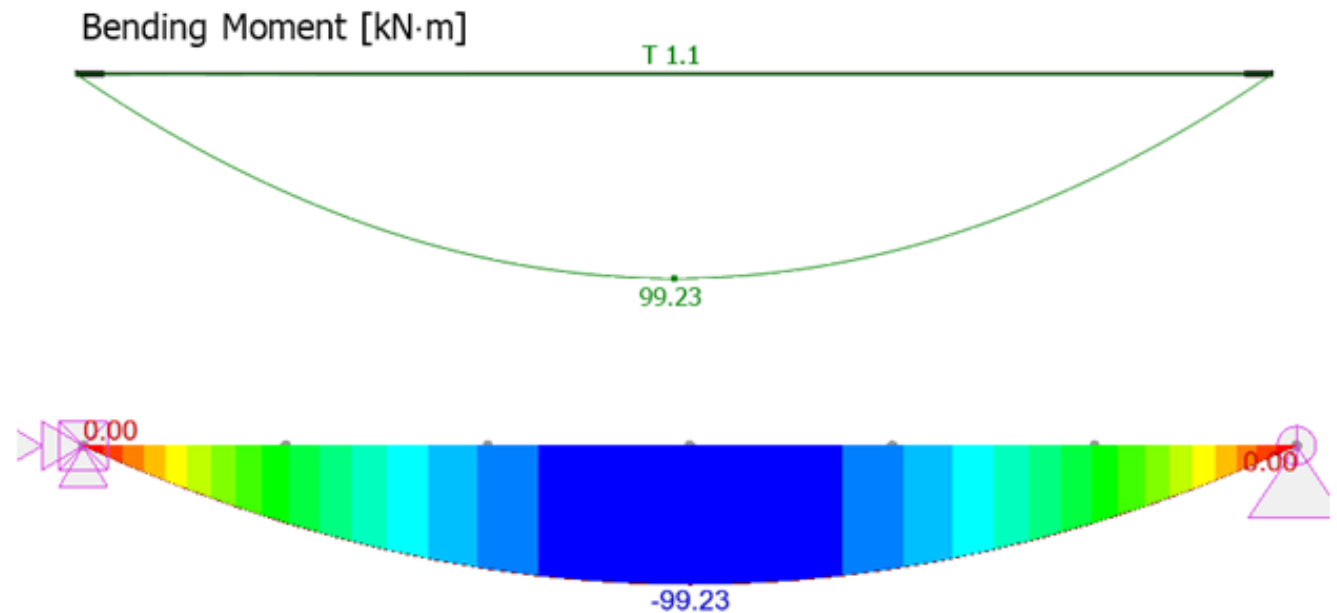
Live loads- 20 kN/m

If the value for rotational spring is 0 (kN · m)/rad

The diagram will be similar to a simple supported beam.

Bending moment at supports

| Support | Method | Spring Value |
|---------|-------------------|---------------|
| 1 | Rotational spring | 0.00 kN·m/rad |
| 2 | Rotational spring | 0.00 kN·m/rad |

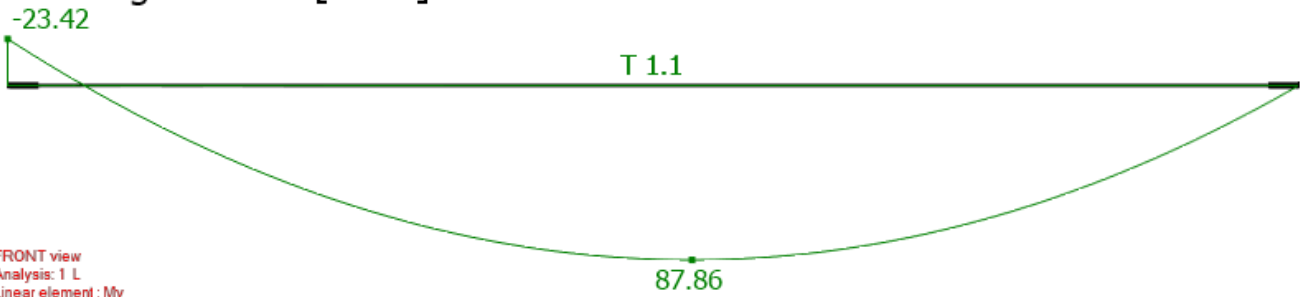


For 'Rotational spring' 25000 (kN · m)/rad

Bending moment at supports

| Support | Method | Spring Value |
|---------|-------------------|-------------------|
| 1 | Rotational spring | 25000.00 kN·m/rad |
| 2 | None | |

Bending Moment [kN·m]



FRONT view
Analysis: 1 L
Linear element: My
Local axes

