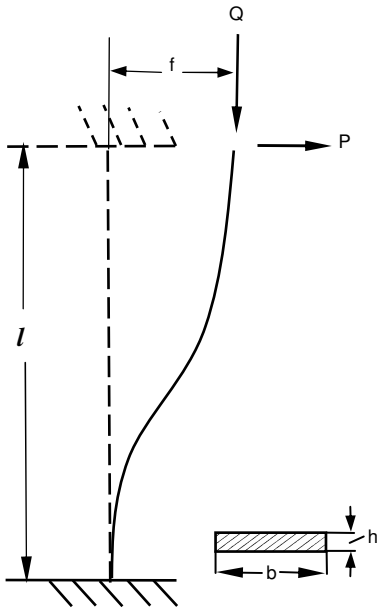
Product-Information

Calculation principles for leaf-springs in use as a cantilever leaf-spring

Subsequent calculation formulae refer to regular S-Ply leaf-springs with the following mechanical properties:

Young´s modulus **E = 28 • 10³ N/mm²**

Max. allowed bending stress **σ_b = 138 N/mm²**



Thickness of leaf-spring:

$$h = \sqrt[3]{\frac{4Ql^2}{b \cdot E}}$$

Bending stress:

$$\delta = \left(\frac{3Eh}{l^2} + \frac{6Q}{b \cdot h^2} \right) f$$

Spring constant:

$$C = \frac{P}{f} = \frac{Eh^3 b}{l^3}$$

For the equivalent rigidity of S-Ply-leaf-springs to steel-leaf-springs at the same spring displacement, the following equation applies:

$$h = h_s \sqrt[3]{\frac{n \cdot E_s}{E}}$$

in which ***n*** represents the quantity of steel-leaf-springs, h_s the thickness of the steel-leaf-spring and E_s represents the Young´s modulus of the steel-leaf-spring.

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