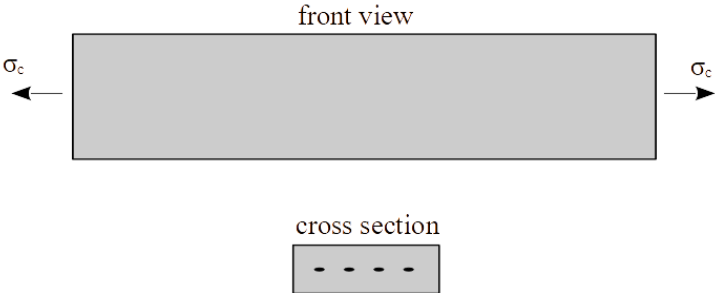


## X0204: Tensile behavior of a composite with constant bond-slip law

For the displayed tensile test of textile-reinforced composite specimen assuming a constant bond-slip law with the given data:

 <p>The diagram illustrates a tensile test specimen. The top part, labeled 'front view', shows a rectangular specimen under tensile stress <math>\sigma_c</math>, indicated by arrows pointing outwards from the left and right sides. The bottom part, labeled 'cross section', shows a rectangular cross-section with three horizontal dashed lines representing the internal reinforcement.</p>	<p>Fiber: <math>E_f = 240000</math> [MPa]. fiber strength <math>\sigma_{fu} = 3500</math> [MPa] reinforcement ratio = 1.0 % perimeter <math>p = 50</math> [mm]</p> <p>Matrix: matrix strength <math>\sigma_{mu} = 3.0</math> [MPa] <math>E_m = 30000</math> [MPa]. <math>A_m = 1500</math> [mm<sup>2</sup>]</p> <p>Bond: <math>\tau = 5</math> [MPa]</p>
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- Calculate the stiffness of the composite.
- Calculate the characteristic values of the ACK model and plot the stress-strain response of the composite.
- Calculate the average crack spacing.
- If the reinforcement ratio is doubled, how will the stress-strain response and the average crack spacing change?