

ANSYS - Bending of a Curved Beam (Results-Interpretation)

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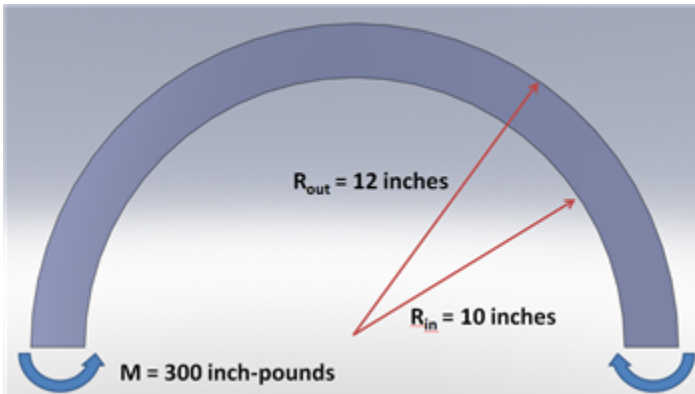
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Bending of a Curved Beam (Results-Interpretation)

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Problem Specification

A curved beam with a rectangular cross section is subjected to a moment of 300 inch-pounds. The curved beam has an inner radius of 10 inches and outer radius of 12 inches. The beam is .25 inches thick.



Calculate the stresses at $r = 11.5$ inches.

In this exercise, you are presented with the numerical solution to the above problem obtained from finite-element analysis (FEA) using ANSYS software. Compare FEA results for the stress distribution presented to you with the corresponding analytical solution. Justify agreements and discrepancies between the two approaches (FEA vs. Analytical).

Note that you will be using the ANSYS solution presented to you to explore the physics of the problem. You will be downloading the ANSYS solution prepared for you. The objective is to help you learn important fundamentals of mechanics through the interactive, visual interface provided by ANSYS. You will not be obtaining the FEA solution using ANSYS; there are other tutorials to help you learn this.

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