Interpretting Buckling Analysis Results for Different Initial Conditions (Stiffness to Use)

Purpose

• This purpose of this test problem is to illustrate how the results of buckling analysis are influenced using either stiffness for zero initial conditions or stiffness at the end of a nonlinear load case.

Model geometry





Loads applied in the "AXIAL" load pattern.

Results for Buckling Analysis Using Stiffness at Zero Initial Conditions

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Critical buckling load = (buckling factor) (axial load applied in buckling analysis) = (6.16814)(1kN) = 6.16814 kN

(this matches theoretical Euler buckling load calculated on page 3)

Results for Buckling Analysis Using Stiffness at the End of Nonlinear "AXIAL-NL" load case

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Critical buckling load = (axial load applied in the "AXIAL-NL" load case) + (buckling factor) (axial load applied in buckling analysis) = 1kN + (5.16814)(1kN) = 6.16814 kN

(this again matches theoretical Euler buckling load calculated on page 3)