

Flat Spring

Monday, February 08, 2010
4:36 PM

Mirelavus sent me a flat spring Part file.

I used Quarter symmetry to simplify the geometry and the constraints.

Applied 23N (92N / 4) to a surface patch.

Mirror symmetry constraints in X & Z directions

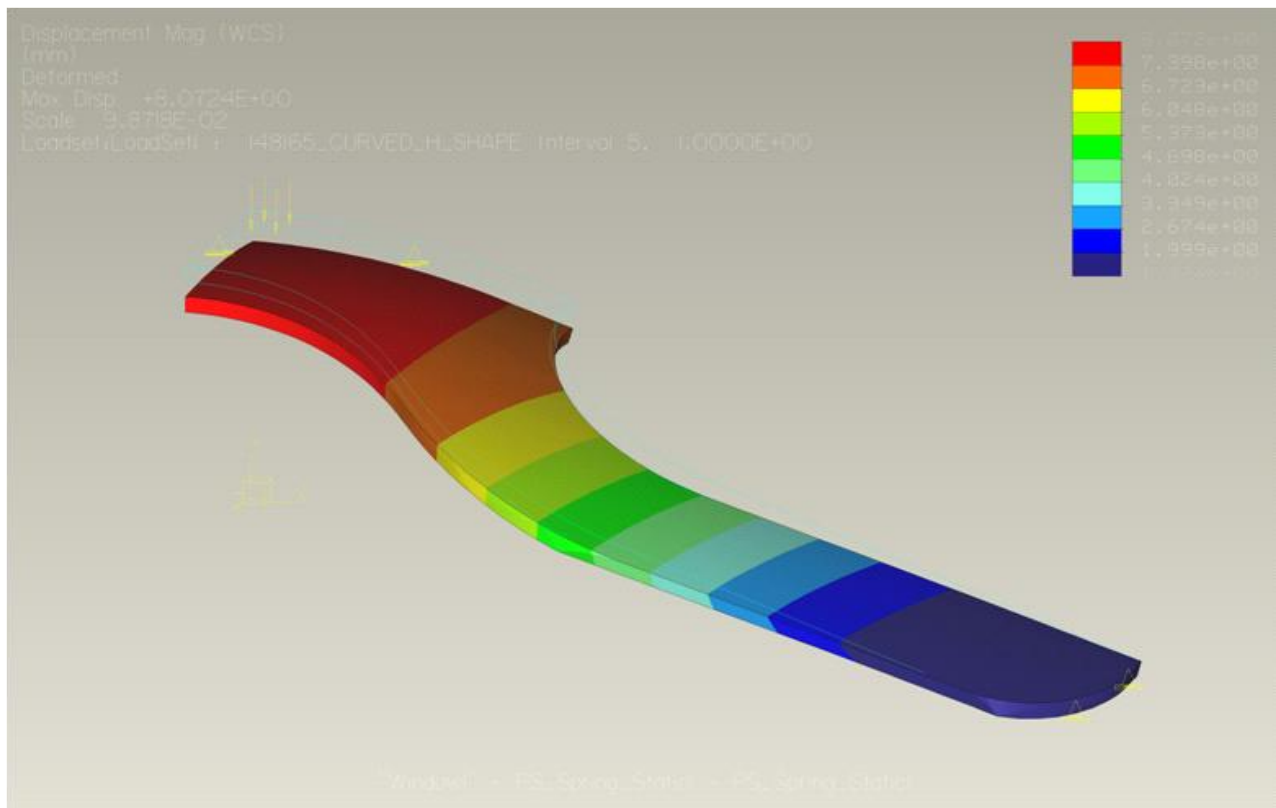
Turned on "Large Displacements" in the Static analysis window.

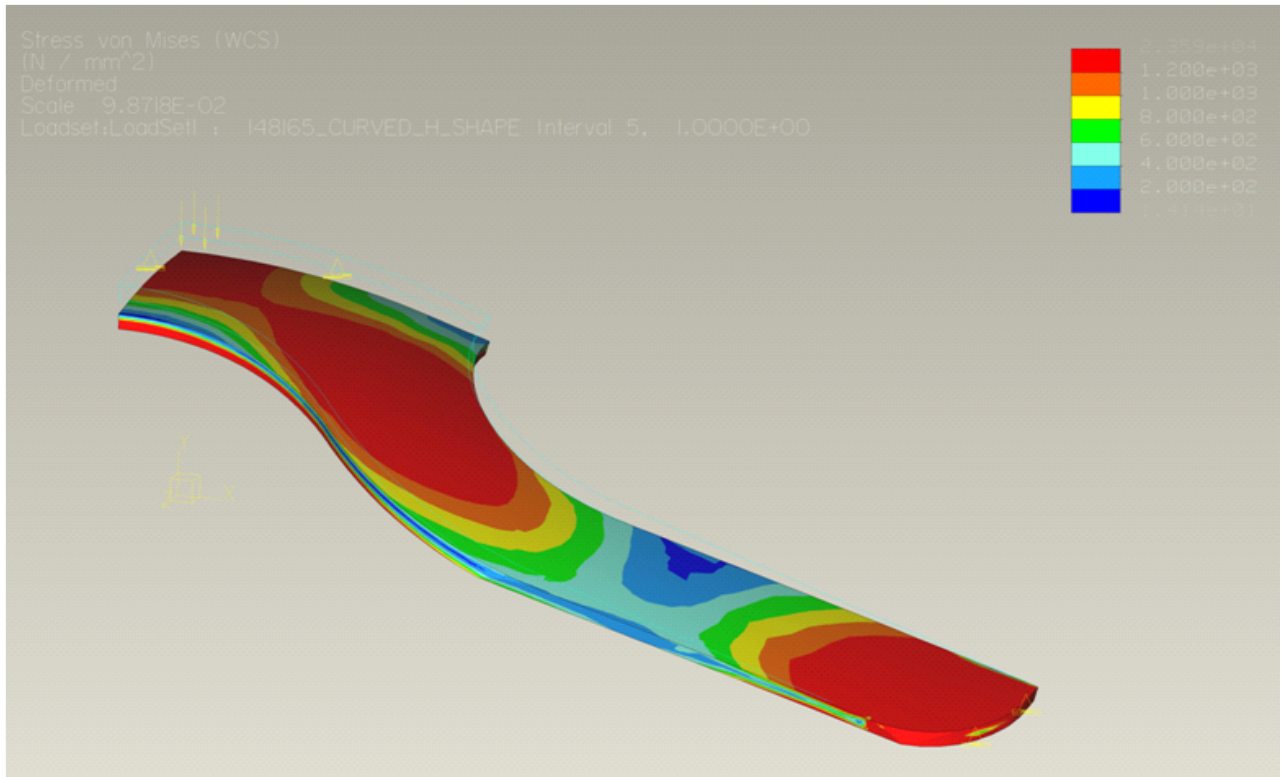
Analysis 1:

Displacement constraint (Y=0) along bottom 2 edges

Result: Max displacement of 7.89 mm

Spring constant: $92 / 7.89 = 11.6603 \text{ N/mm}$ (~65 lbf/in)





Analysis2:

Displacement constraint (Y=0) at only 1 point

Result: Max displacement of 16 mm

Spring constant: $92 / 16 = 5.75 \text{ N/mm}$ (~33 lbf/in)

