

The analyzation of magnetic level gauge floater

In this report, we have observed the pressure on a floater of magnetic level gauge. As regards, the shape of the floater is circular, so we use axisymmetric analyzation. In this shape, we have been considering a part of floater. The thickness is 0.8mm and the thickness of upper and lower cap is 1mm. We present the floater in the form of 2D. This part have some pieces that it is so tiny and maybe you cannot see them.

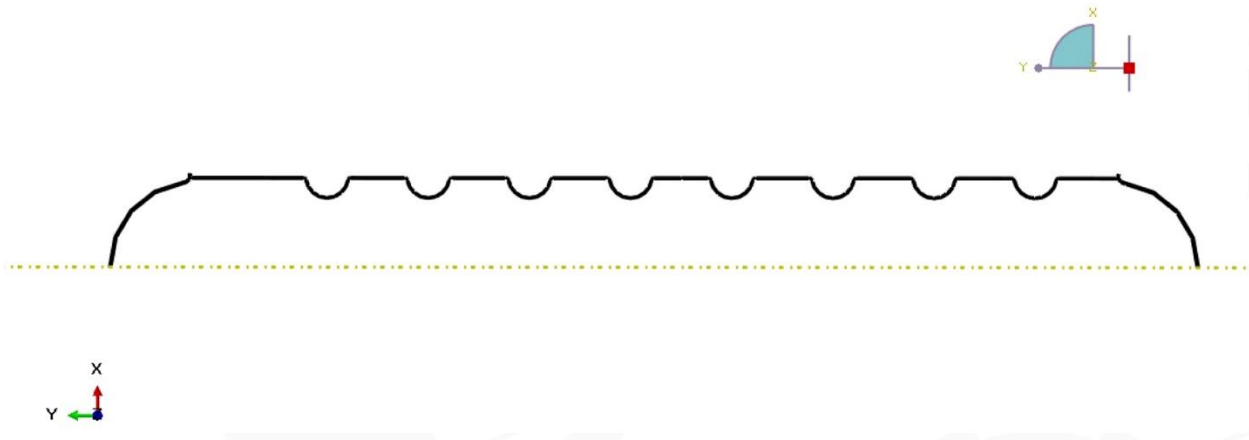


Figure 1: ABAQUS analyzation for floater

We specify mechanical Titanium material in table 1. We suppose that all the characteristics are similar to each other.

Poisson's Ration	Elastic modulus	Fracture Strain	Ultimate Tensile Strength	Yield Strength	Material
0.35	116	54	220	220	Titanium

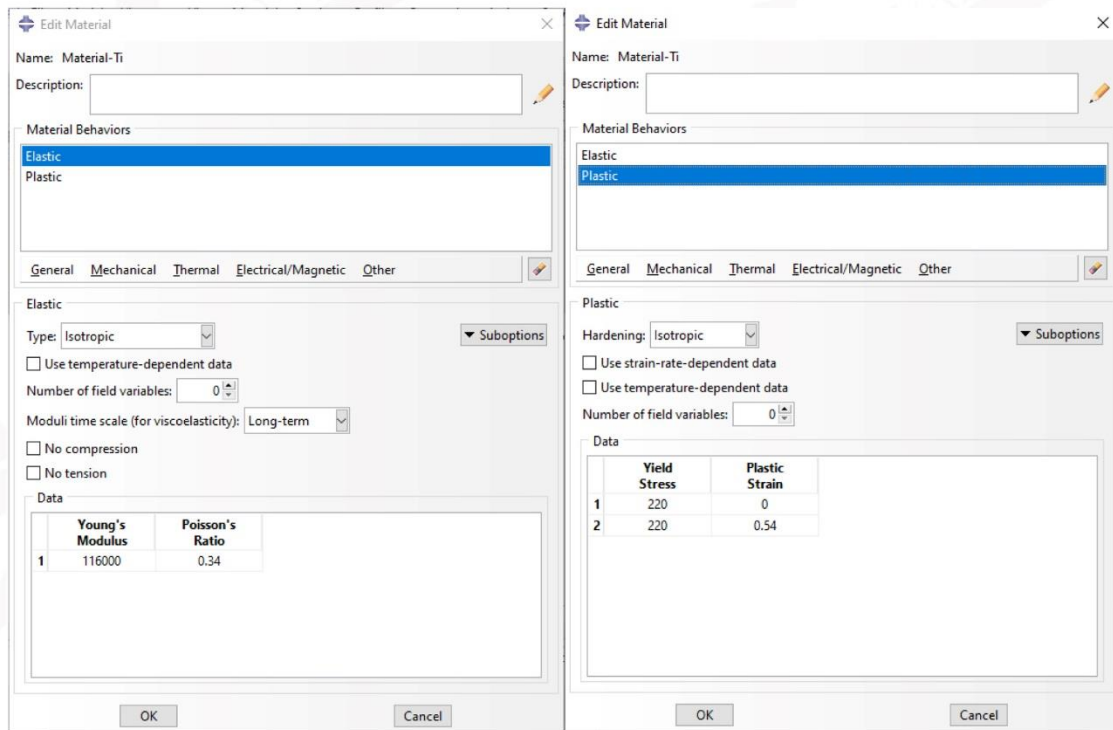


Figure 2 : ABAQUS analyzation

The analyzation is in the form of general static. In this analyzation, the maximum working pressure is 16bar (1.6MPa). The pressure enter from all parts and dimensions. At the end of the analyzation, we have checked the results.

Figure 3: we have compared Mixer criteria and Tresca criteria with each other.

The maximum tension is lower than yield strength so you cannot see deformable in the floater.

Figure 4: The maximum replacement is lower than %3mm.

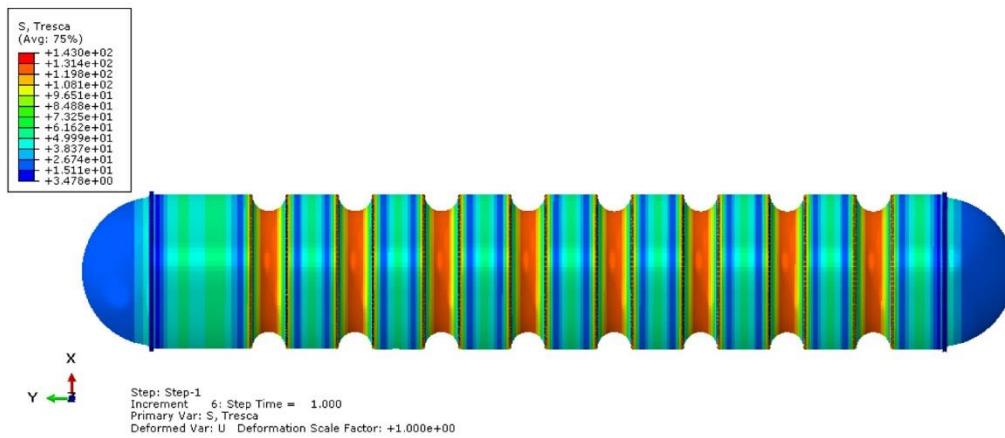
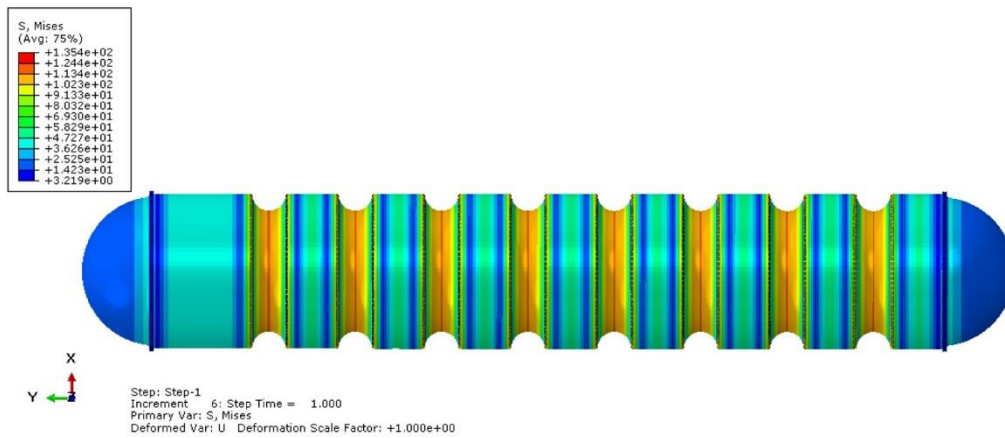


Figure 3: Mixer criteria

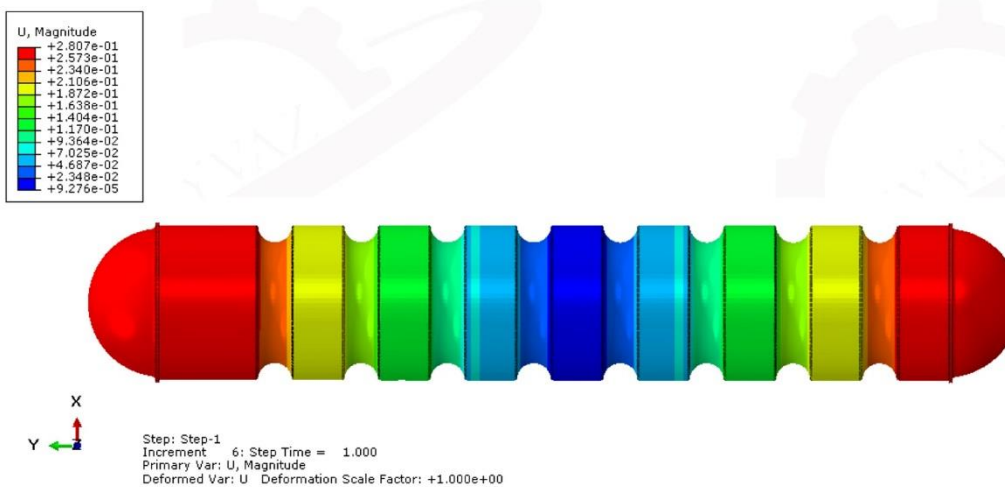


Figure 4: replacement of floater pieces in external pressure.