

3D ANSYS Model

317711-Jlab-Dipole-Chimney

21/11/2014-SA-AP



Revision and Abstract

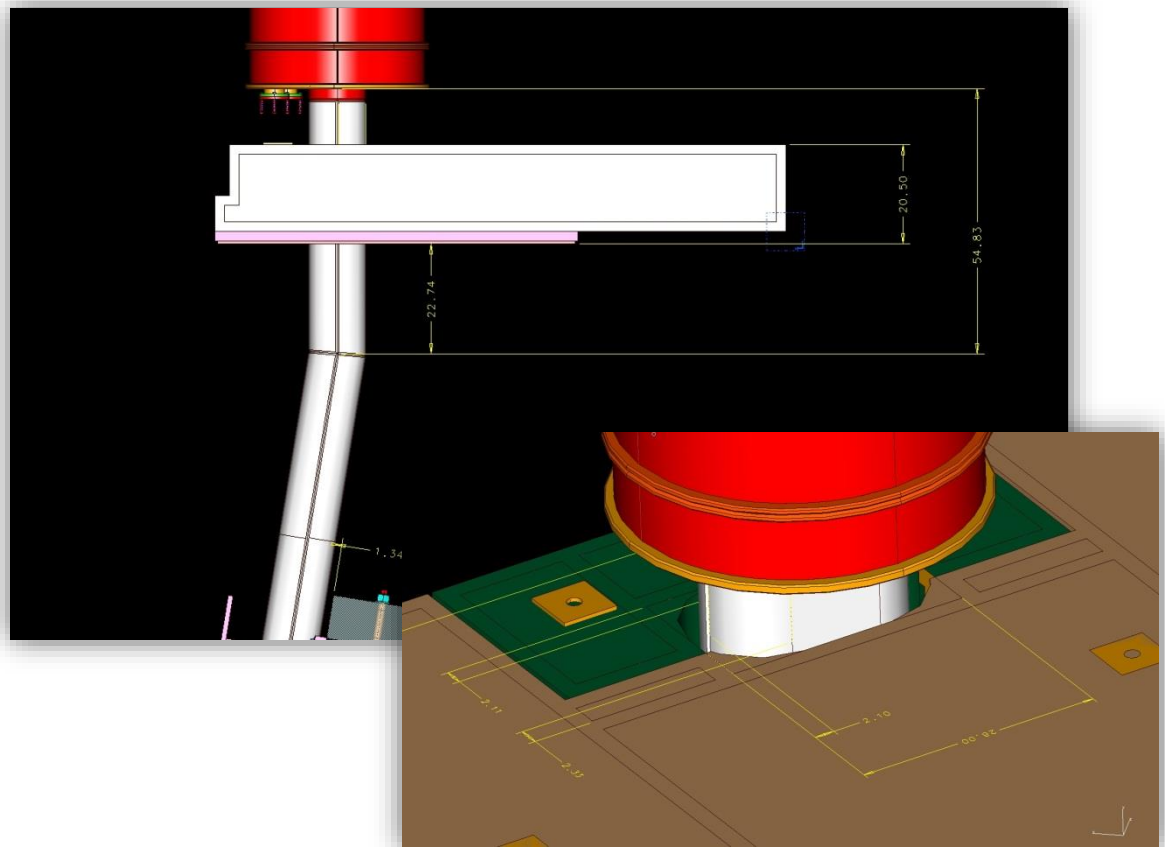
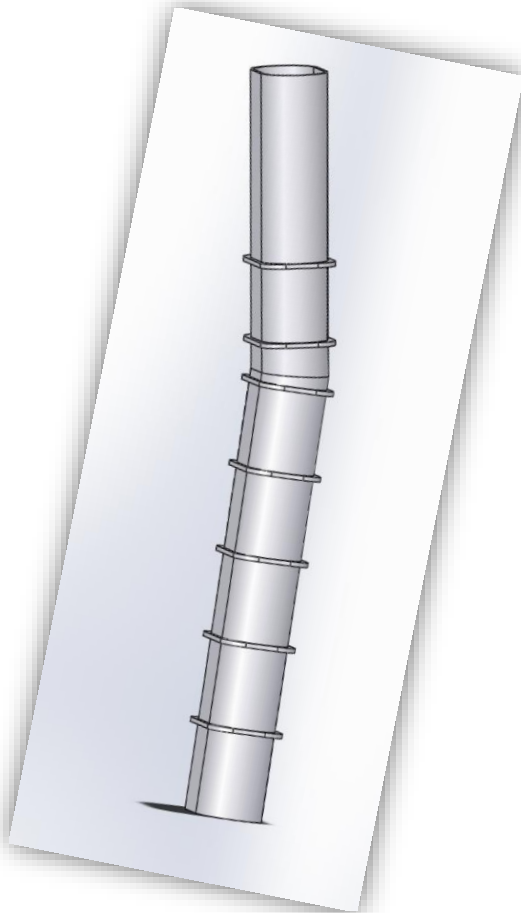
Description	Revision	Date
Creation	A	27/08/2014-SA
Update with reinforcement parts	B	21/11/2014-SA-AP

ABSTRACT

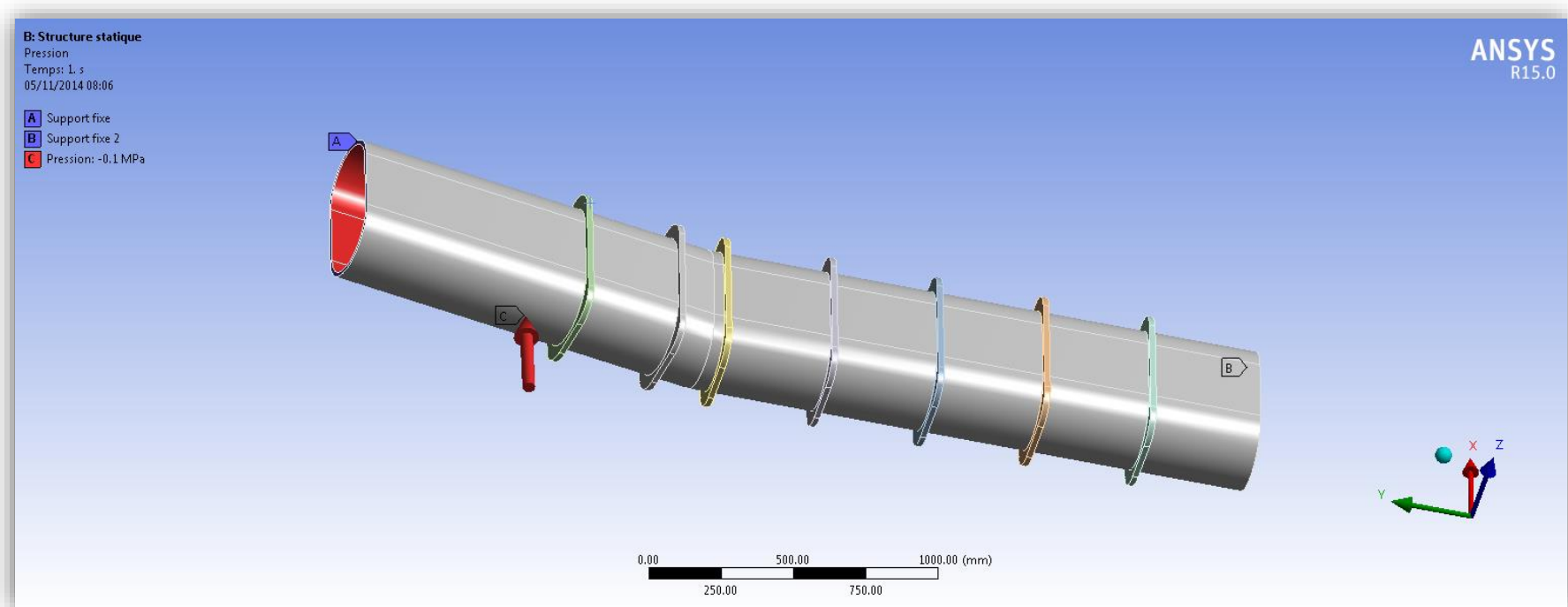
- This report presents calculation made by Sigmaphi on the chimney of the vacuum vessel.
- This chimney (thickness 15mm) has been reinforced at several places (reinforcement thickness 20mm) in order to decrease the deformation of the chimney.
- This design is in accordance with Jefferson Lab's installation in terms of space constraints.

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Solidworks geometry & JLAB's installation

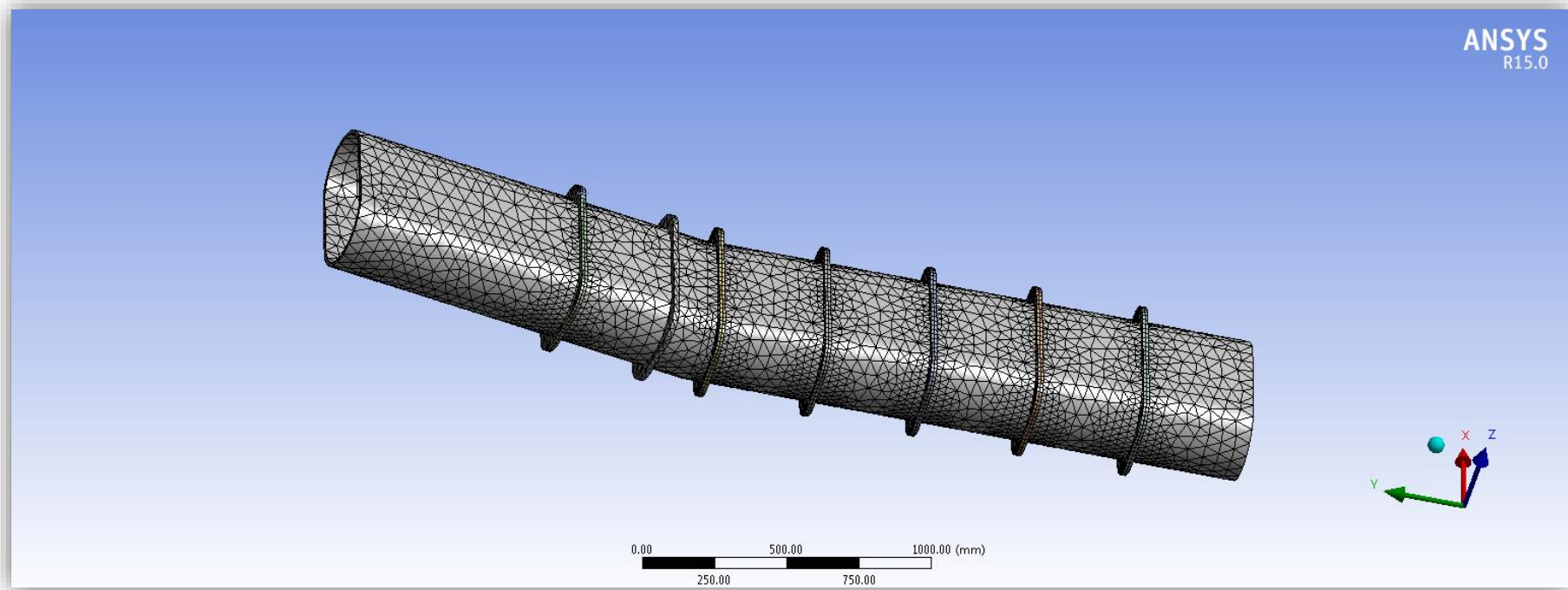


Ansyes Model / Boundary condition and loading

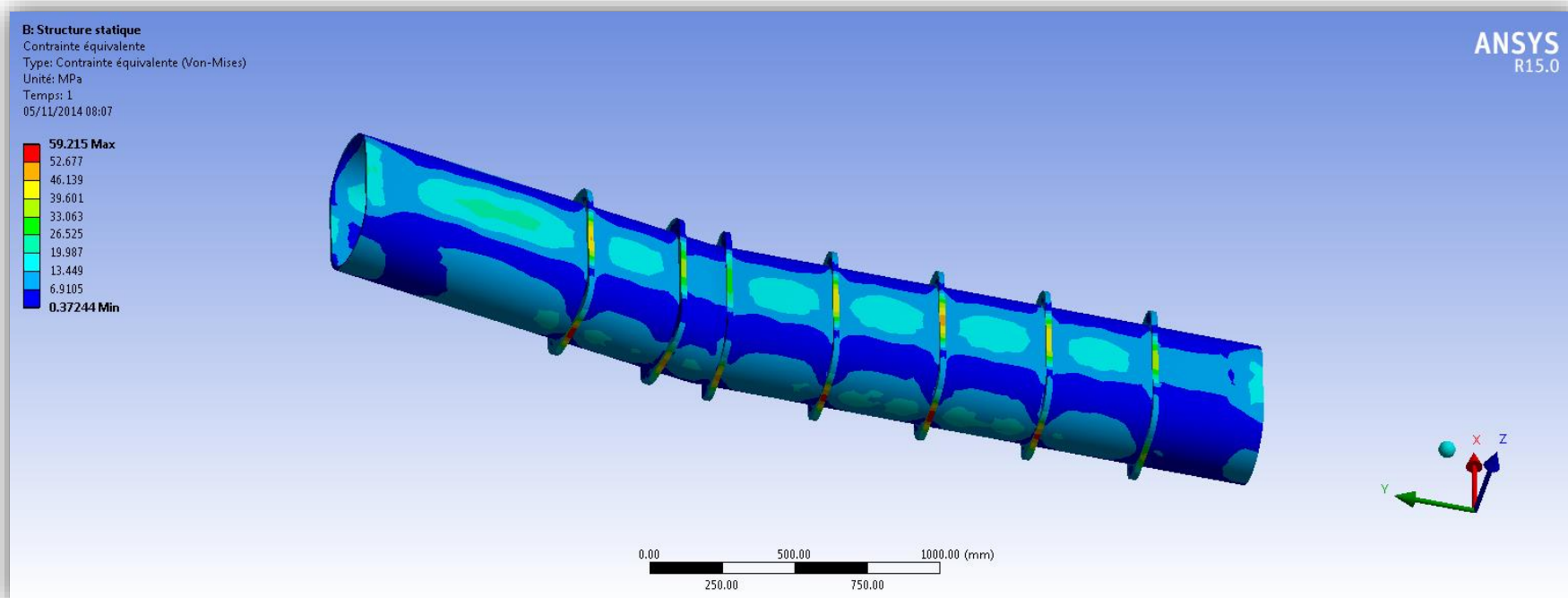


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View of the mesh



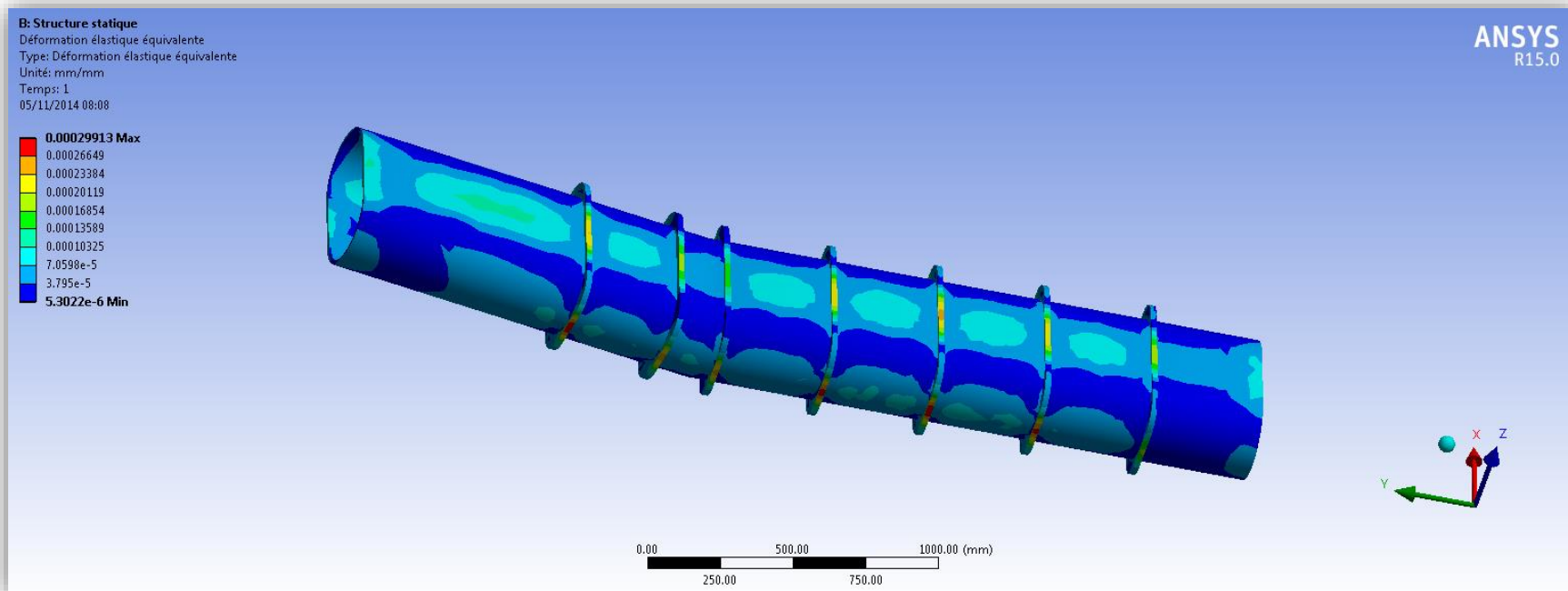
Stress –Von Mises



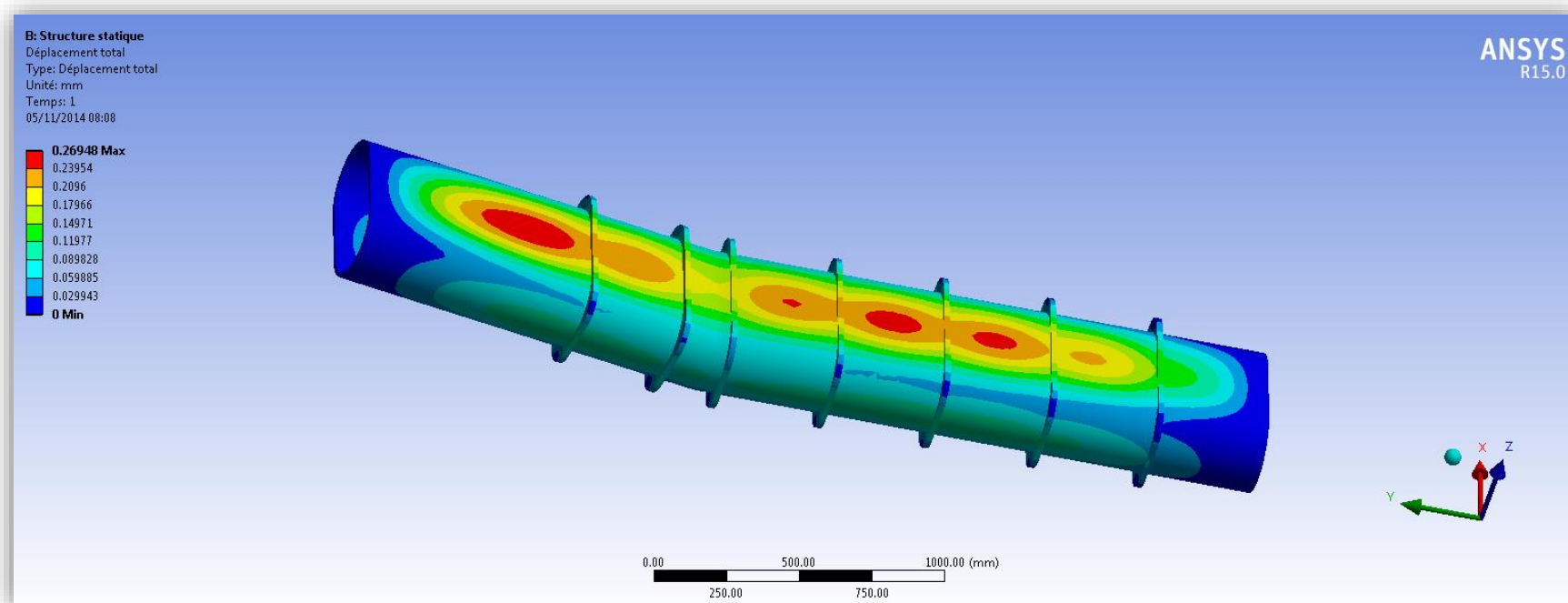
The maximum Von Mises stress is 59 MPa < 115 MPa = $(2/3) * 172$ MPa

With 172 MPa the Yield Strength of 304L (UNS 30403) according to ASME II Part D

Deformation



Displacement



The maximum displacement is inferior to 0.3mm which is acceptable.