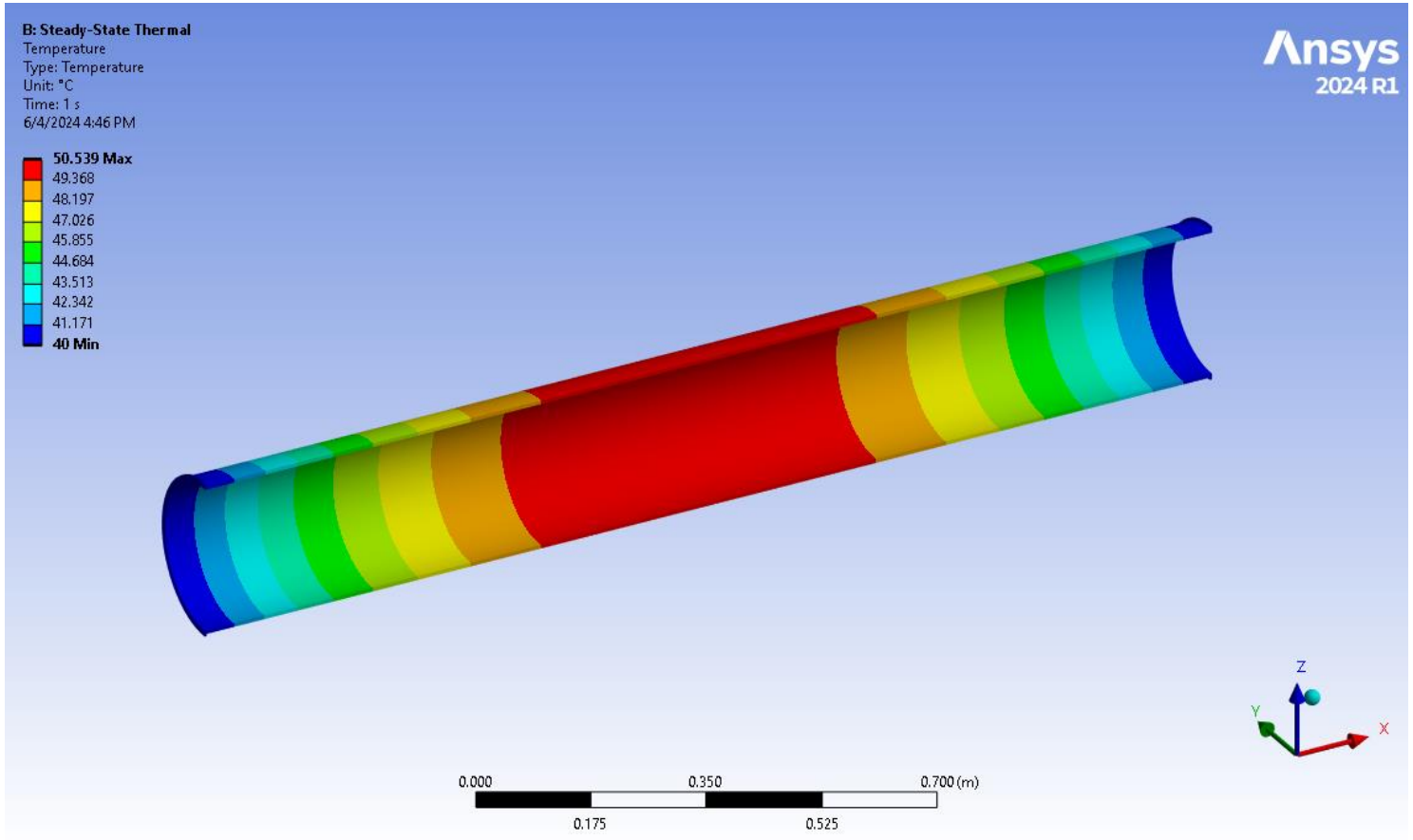
Considering separation of the coil from the vessel

- Separation of the coil from the CO2 vessel significantly weakens the thermal link between the coil and the vessel
- This is mechanically straight-forward to implement, but because it is larger, packaging within the GP-SANS setup needs to be carefully considered

Cooling of a separated coil form

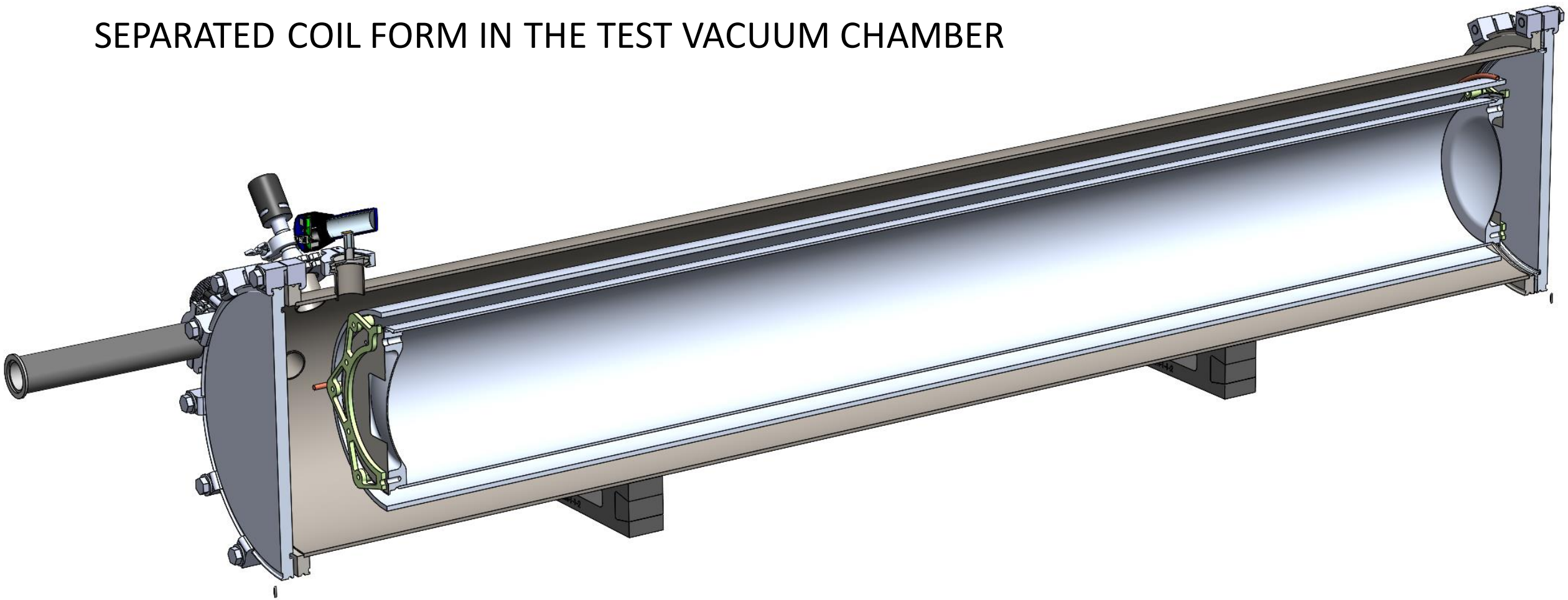


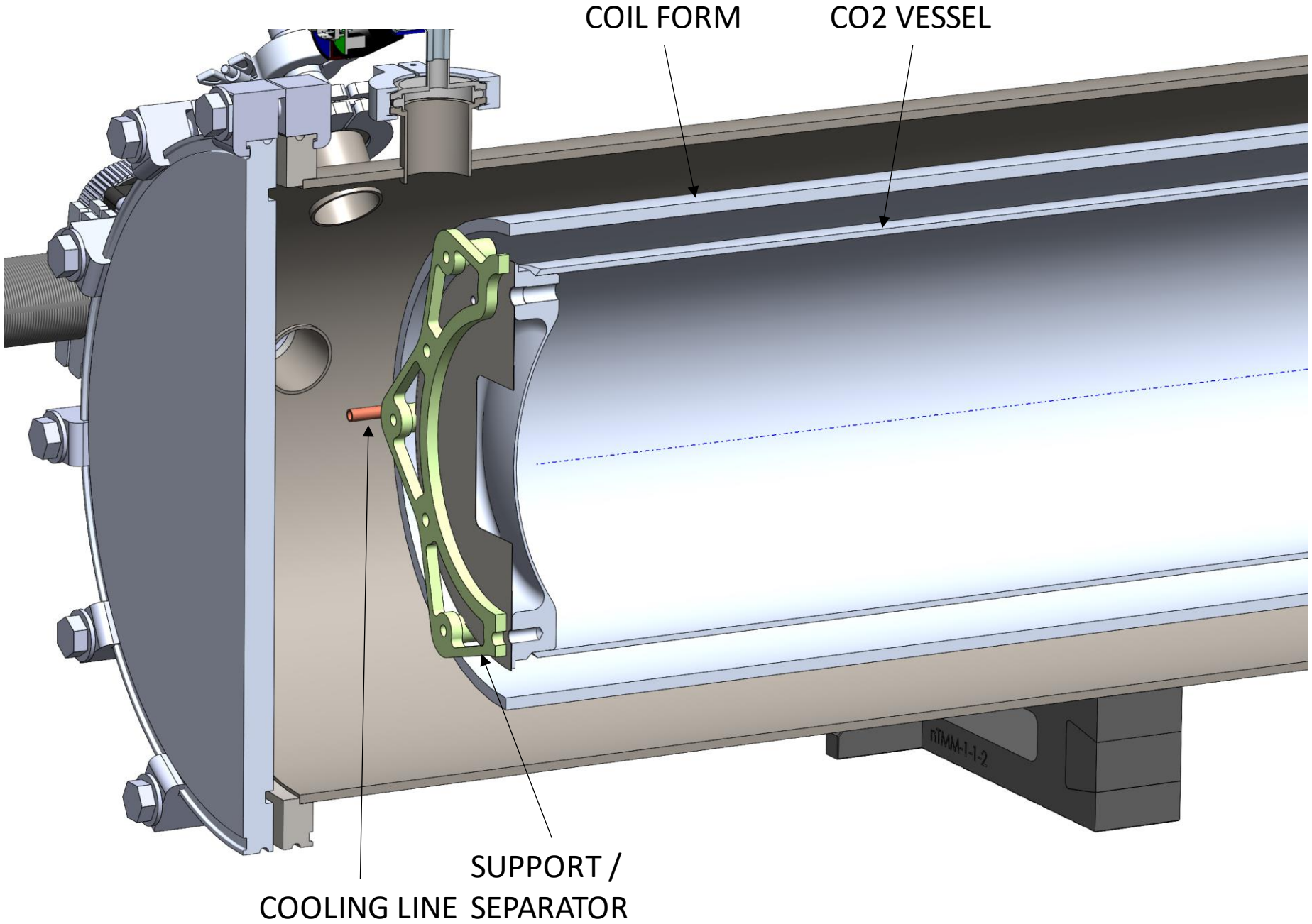
CALCULATED TEMPERATURE GRADIENT IN THE COIL FORM
SEPARATED COIL FORM, COOLED AT BOTH ENDS

Cooling along the length of the coil

- Water cooling along the length of the coil will reduce temperature gradients in general
- This solution could be used either whether the coil is on a separate form or directly on the CO2 vessel
  - CO2 density issues are dependent on gradients. We need to characterize those
- Radiological safety folks are comfortable with our proposed water approach but would want to review the final design
- Will reach out to Lisa regarding viability of using water in the GP-SANS instrument

SEPARATED COIL FORM IN THE TEST VACUUM CHAMBER




COIL FORM
CO2 VESSEL
SUPPORT /
SEPARATOR
COOLING LINE