



# Bhabha Atomic Research Centre

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Centre for Design and Manufacture

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## SSR2 Tooling and Forming Technical Meeting

26-08-2022

## SSR2 Cavity

- Cavity Component Forming
  - Forming trials are under progress.
  - Copper trials completed for Shell, Spoke collar, Half Spoke
  - CMM Inspection under progress
  - End Wall copper trial under progress
- EBW Trials
  - Trails completed; Acceptable parameters achieved for all weld types
  - Final WPS, PQR under progress
- Nb Components Machining
  - Nb 4.7 mm sheet cutting completed.
  - Components which can be made from tubes completed.





# Spoke



# MRR Approach



**As formed component is not ready,**

**All parts shall be machined as per drawings (Except formed components).**

<b>Parts required EBW &amp; Machining</b>	<b>Machined Parts</b>
F10118615	F10125292 Ti-2 Transition
F10118619	F10118144 Ti-5 Beam Pipe-
F10118612	F10119069 Beam Pipe
F10118679	F10118622 Rib
F10119063 (Shell)	F10118599 Spoke Rib
	F10118978 Spoke Rib
F10118616	F10119066 Spoke Beam Pipe-
	F10118265 Ti-5 Side
	F10118578 Side Transition
	F10119067 Side Port Tube-
	F10118805 Ti-2 L Rib Disk



## Stage – 0      Parts required EBW, Rolling & Machining

Niobium – Niobium welds (W51 to W55) – Total 05 Nos. (4.7 mm)

Required for fabrication of parts from sheets,

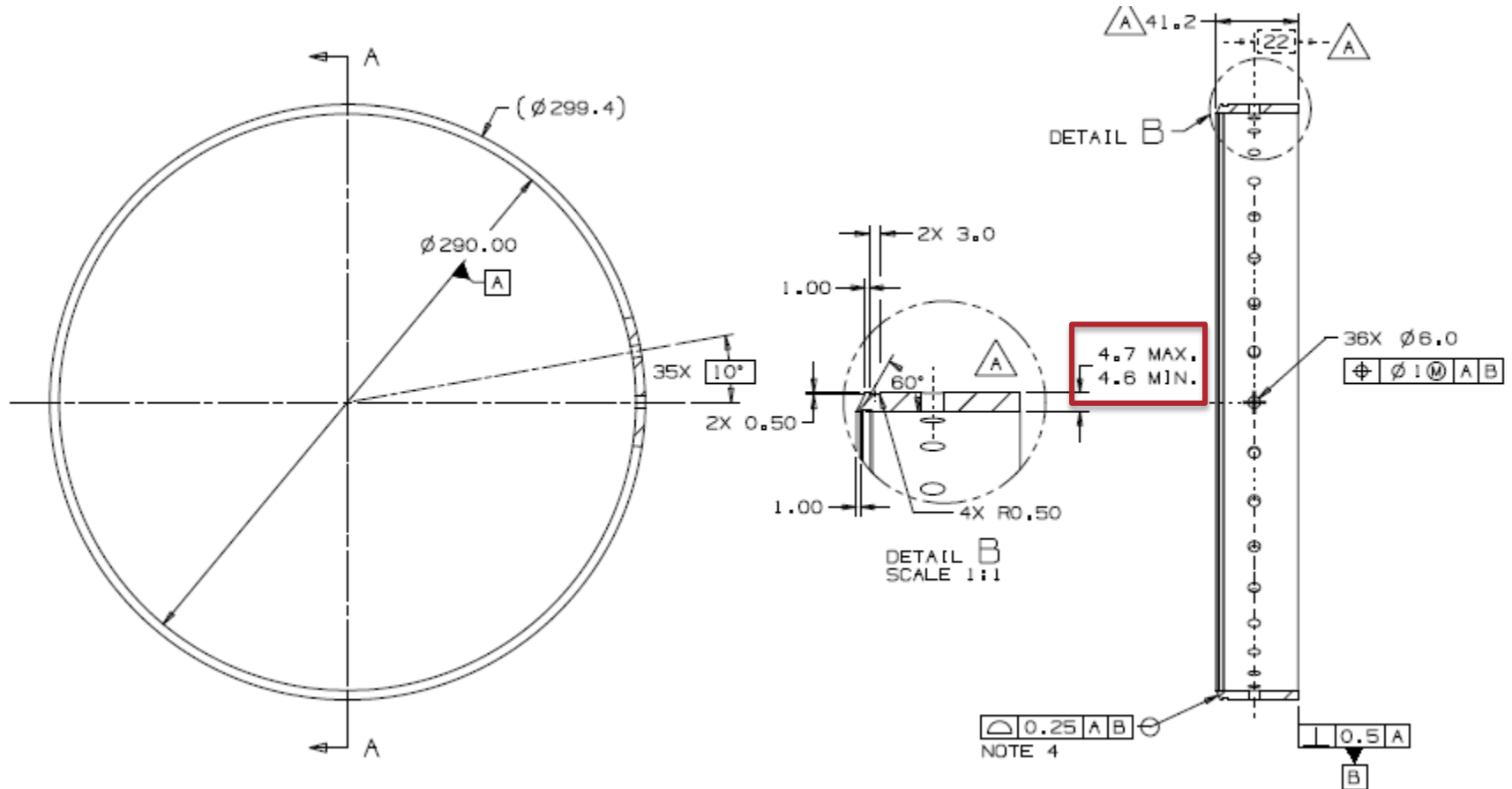
Requirements,

- 100% penetration.



# F10118615 –longitudinal weld W52

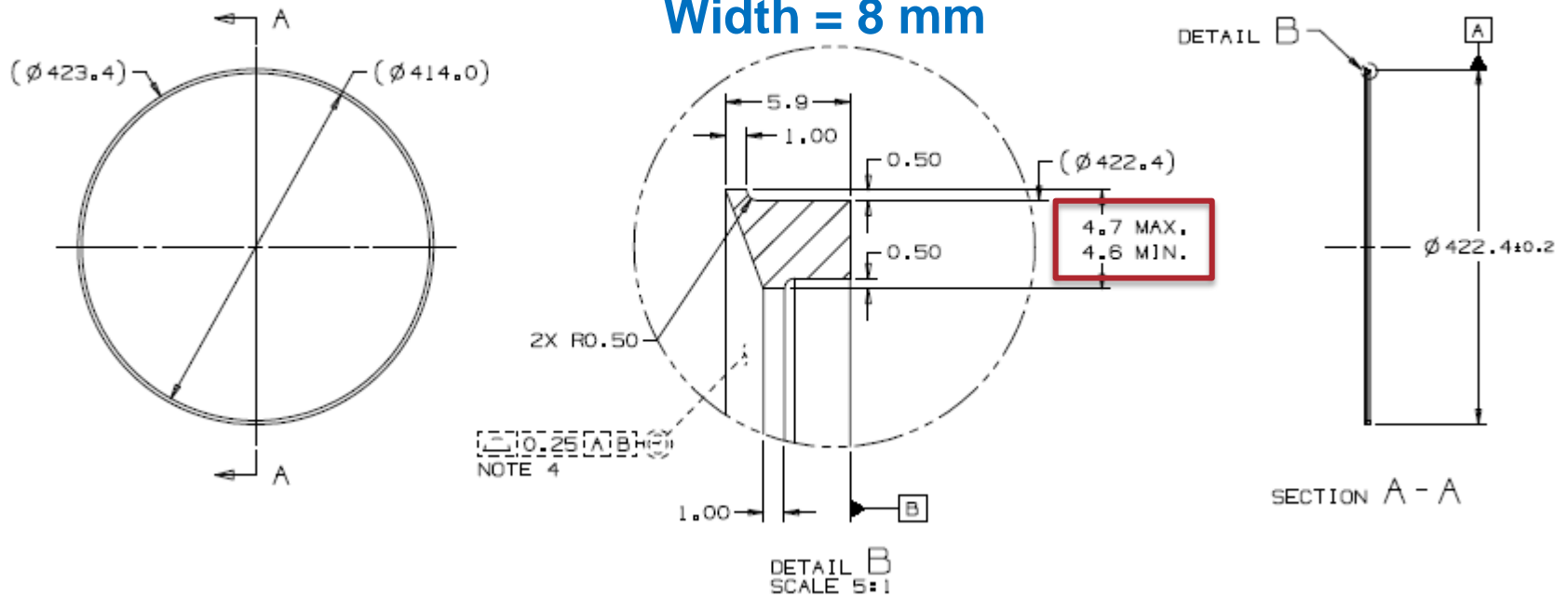
Width = 45 mm



Development length = 940 mm



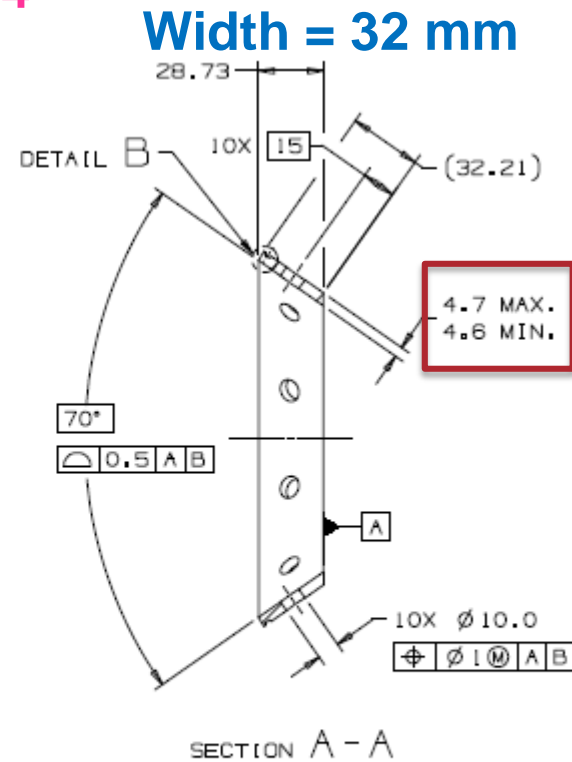
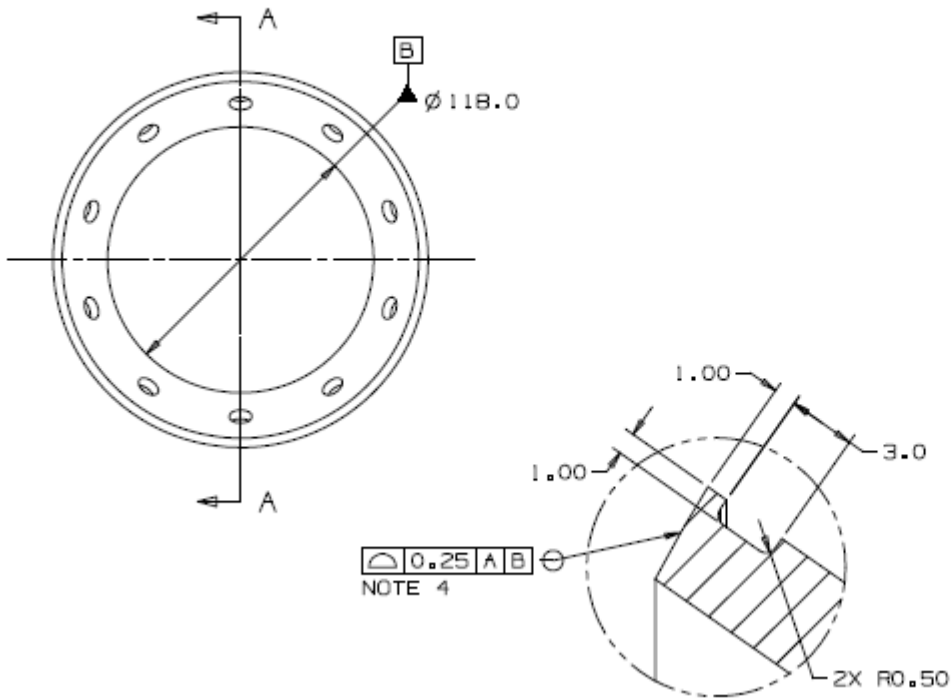
# F10118619 – two longitudinal welds W53



**Development length = 1330 mm**  
**= 980 + 340 mm**

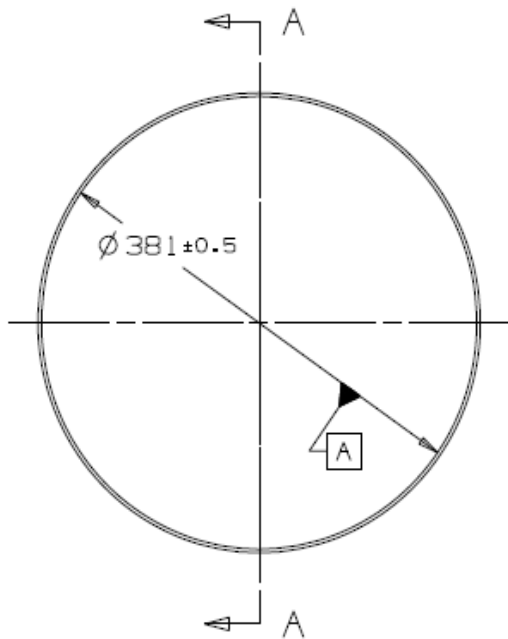
**Available straight max. length = 1000 mm only**

# F10118612 –longitudinal welds W54

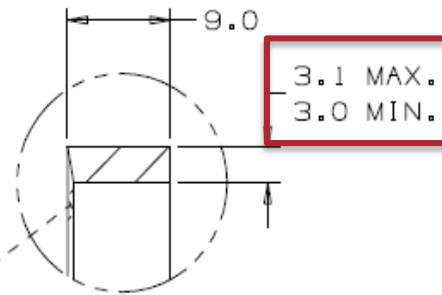


Development length = 523 mm

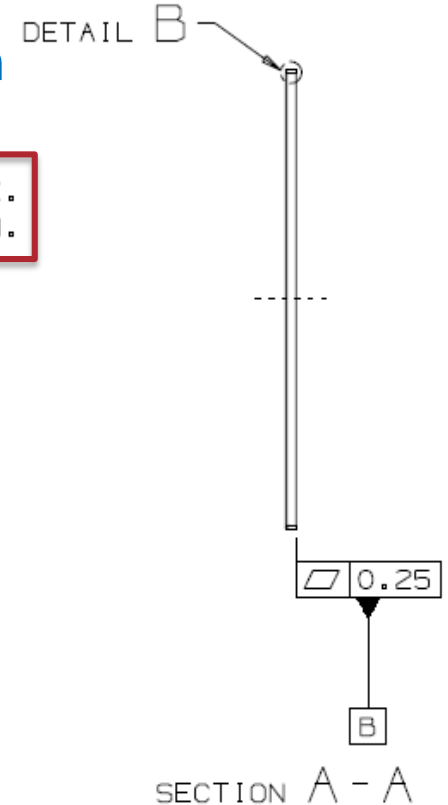
# F10118679 – two longitudinal welds W51



**Width = 12 mm**



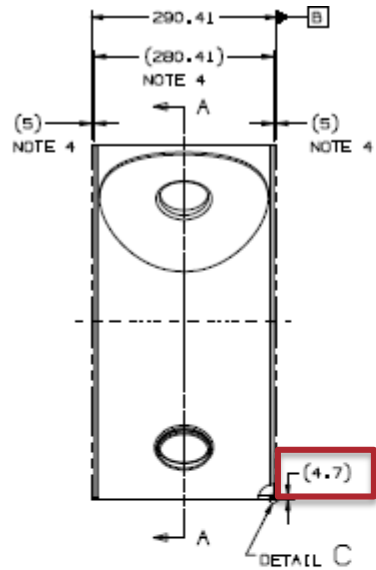
$\square 0.25$  (A) (B) (C)  
NOTE 4



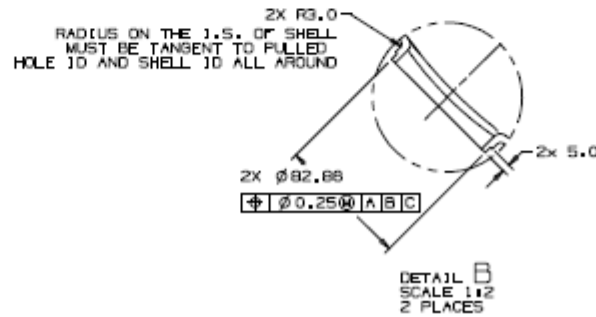
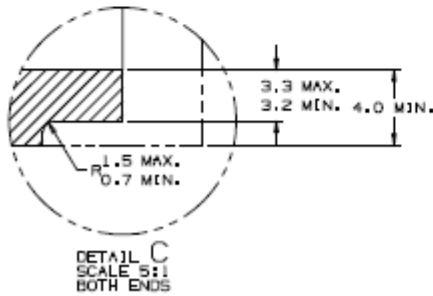
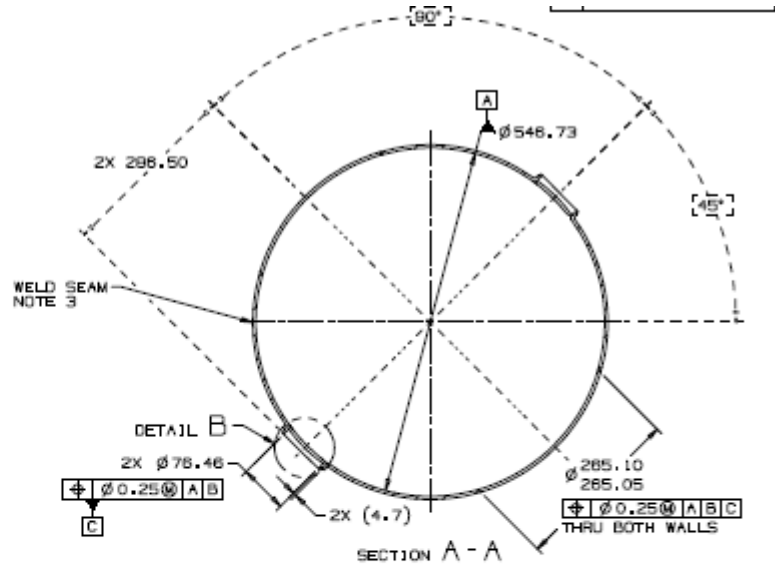
**Development length = 1215 mm**  
**= 985 + 230 mm**

**Available straight max. length = 1000 mm only**

# F10119063 –two longitudinal welds W55



Width = 292 mm



Development length = 1747 mm



# Ti – Ti Weld Details

**Group 5:** Titanium – Titanium welds (W61) – Total 01 Nos.

Required for fabrication of parts from sheets,

Requirements,

- 100% penetration.

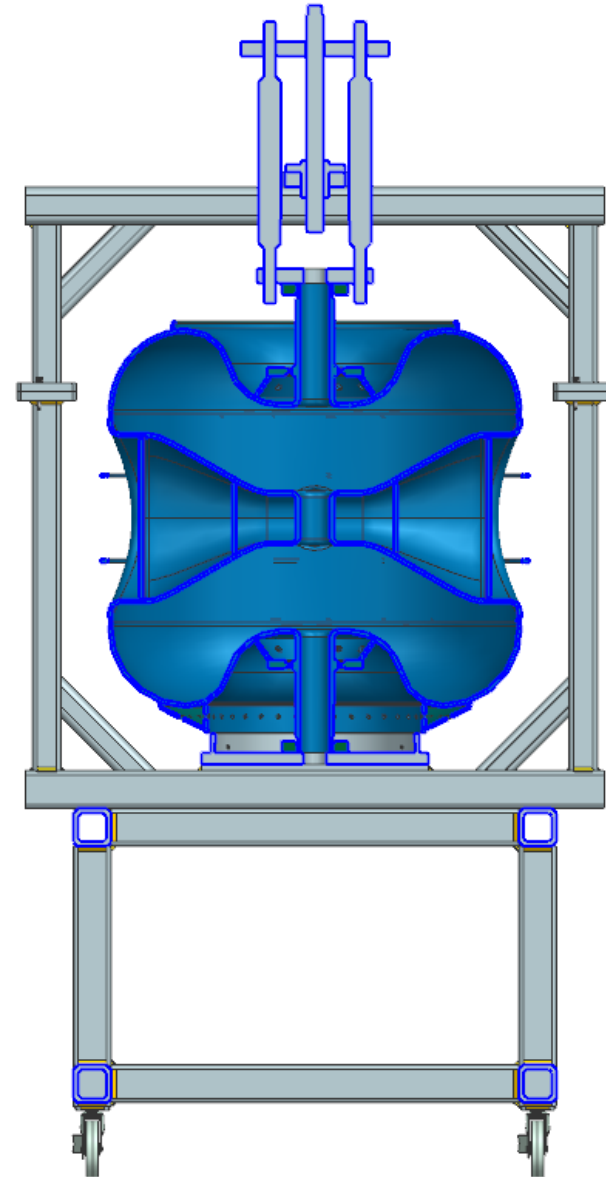
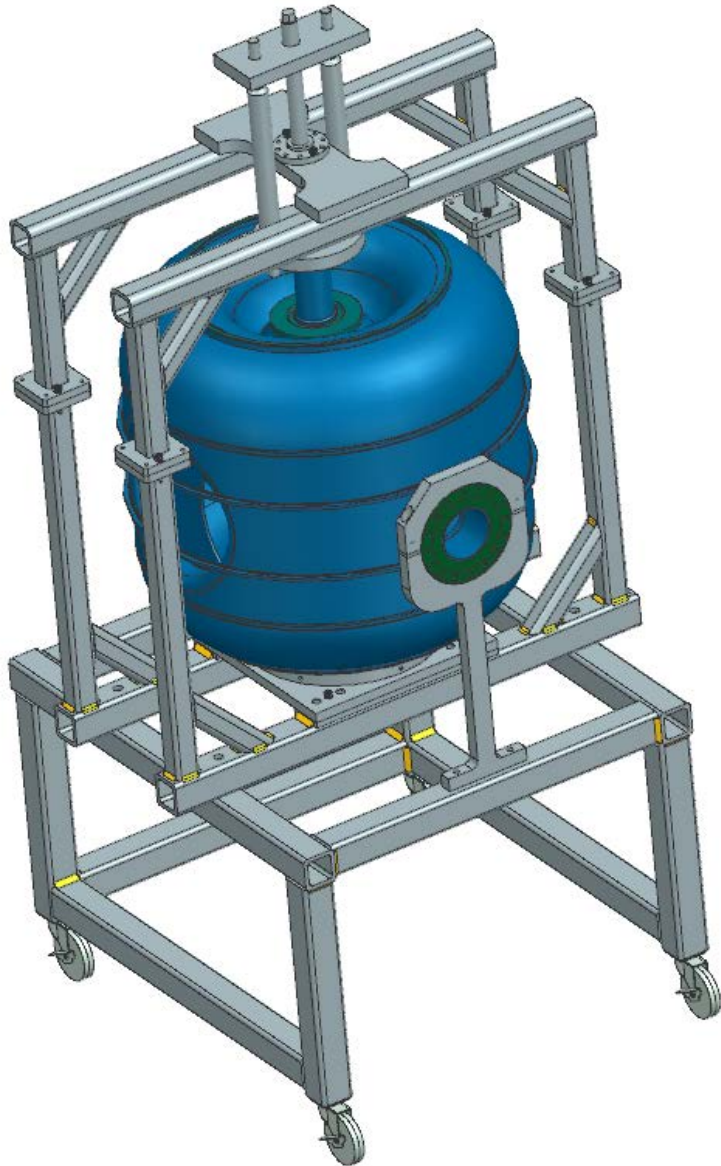




# Inelastic Tuning of Bare Cavity

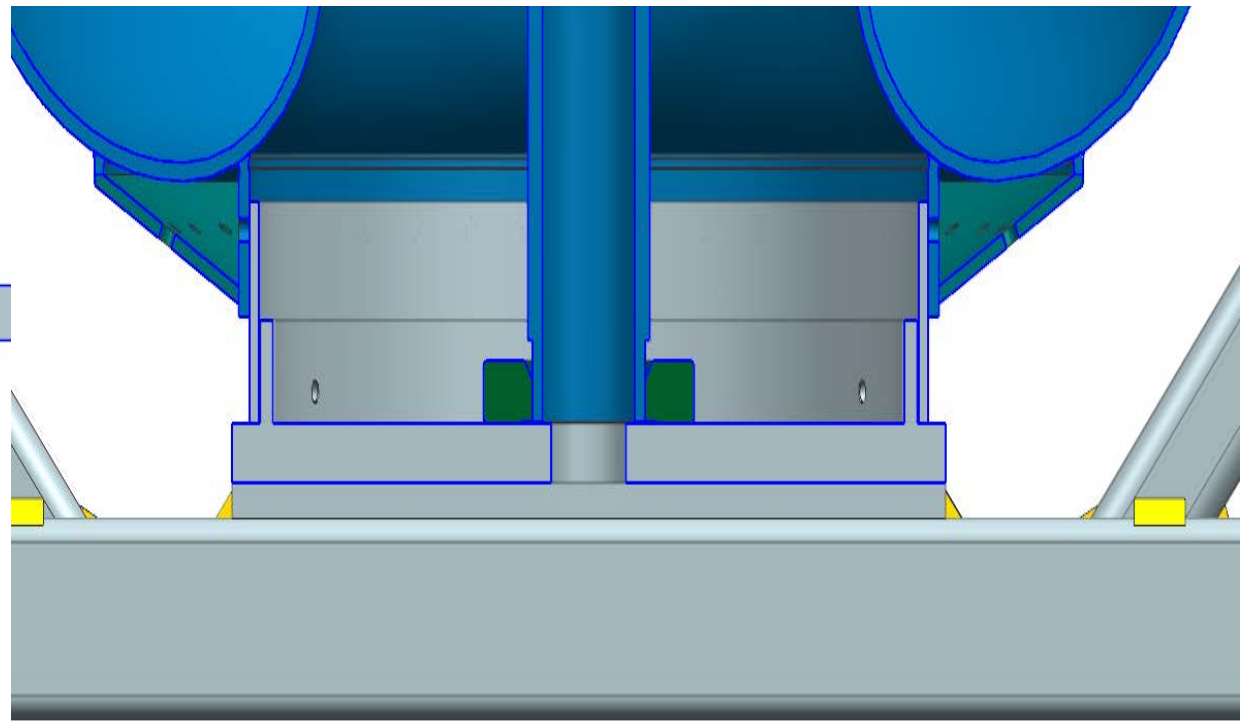
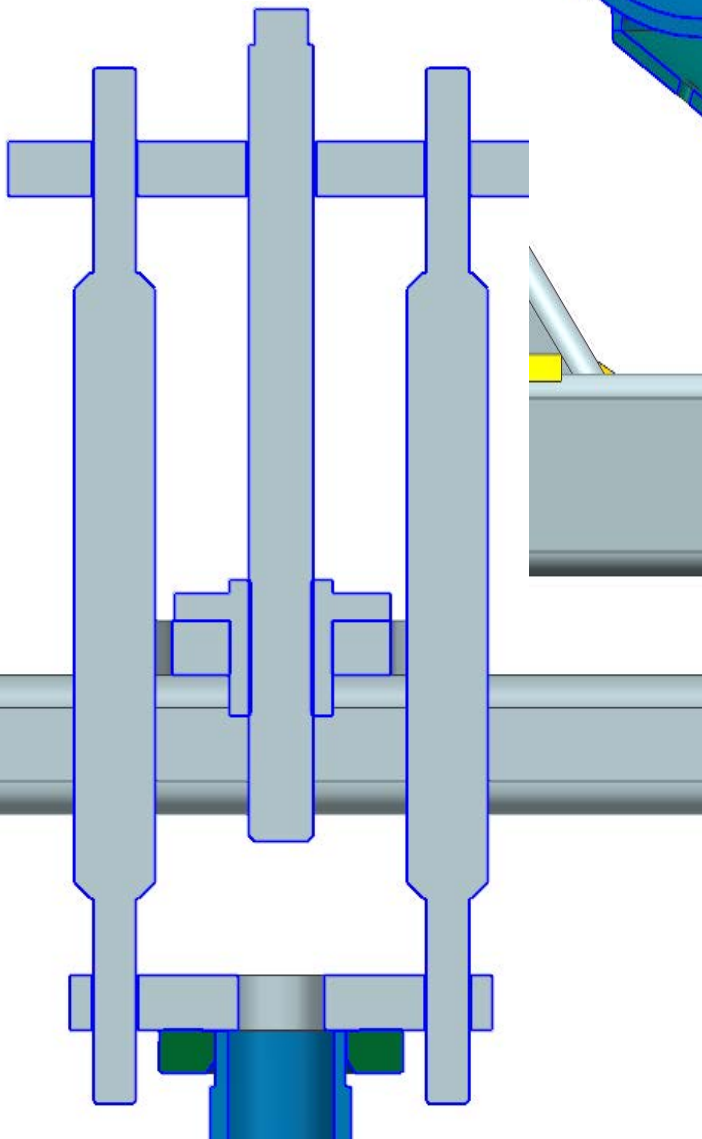


# Inelastic Tuning of Bare Cavity



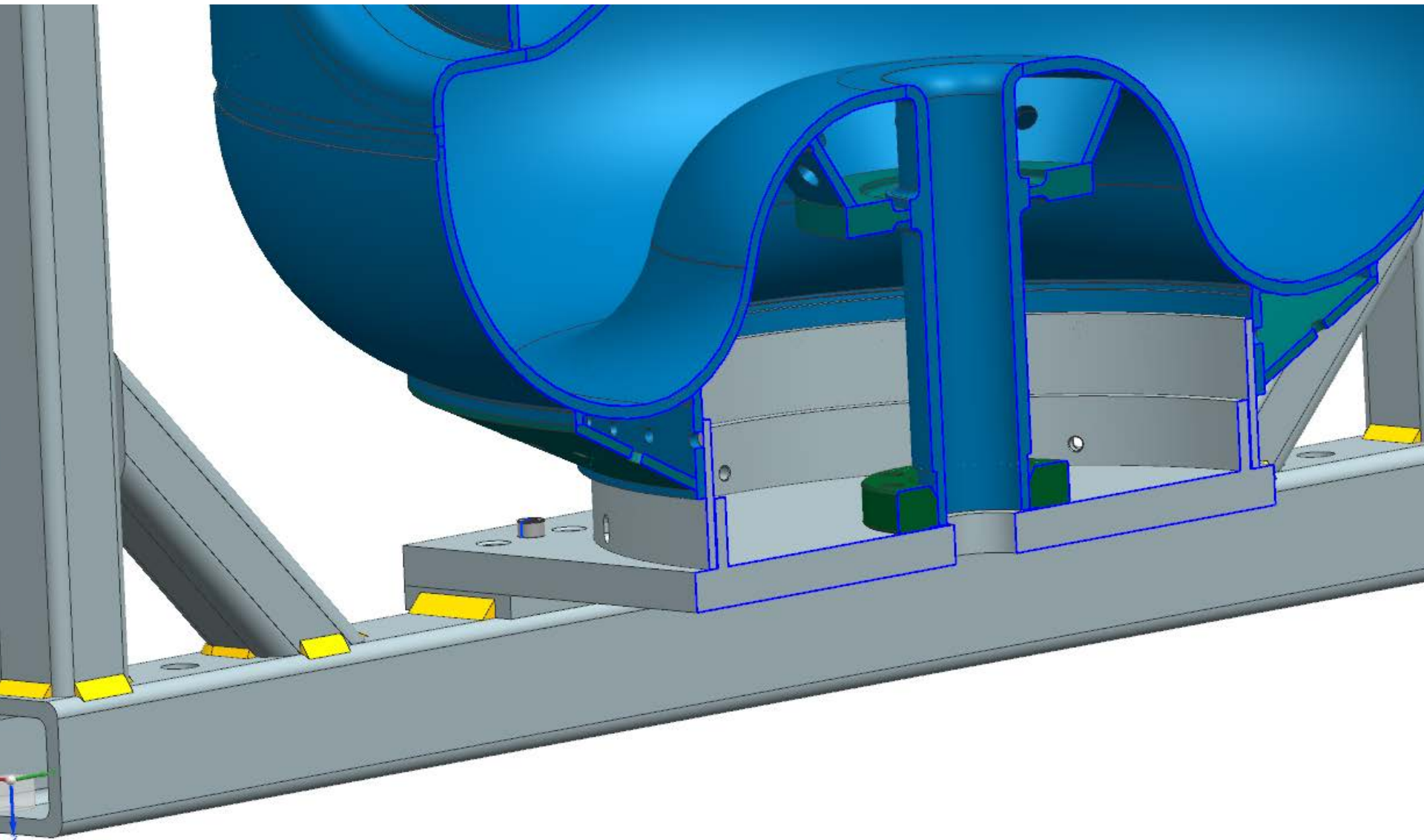


Top Flange Side



Bottom Flange Side





Thank You

