

SSR1 Fabrication at IUAC – Present Status

Abhishek Rai, P.N.Prakash, J.Sacharias, K.K.Mistri

IUAC, New Delhi

INDIA

Overview

➤ New Developments

➤ What's next

➤ Difficulties

New Developments

- ❖ Completion of all the four End Walls.
 - Since the last presentation, the two remaining End Walls have also been completed with the Daisy ribs and Donut rib attached.



New Developments

- ❖ Electropolishing(EP) of the two Outer Shells.
 - Since the last presentation, the two Shells have been electropolished ($\sim 125 \mu\text{m}$).



New Developments

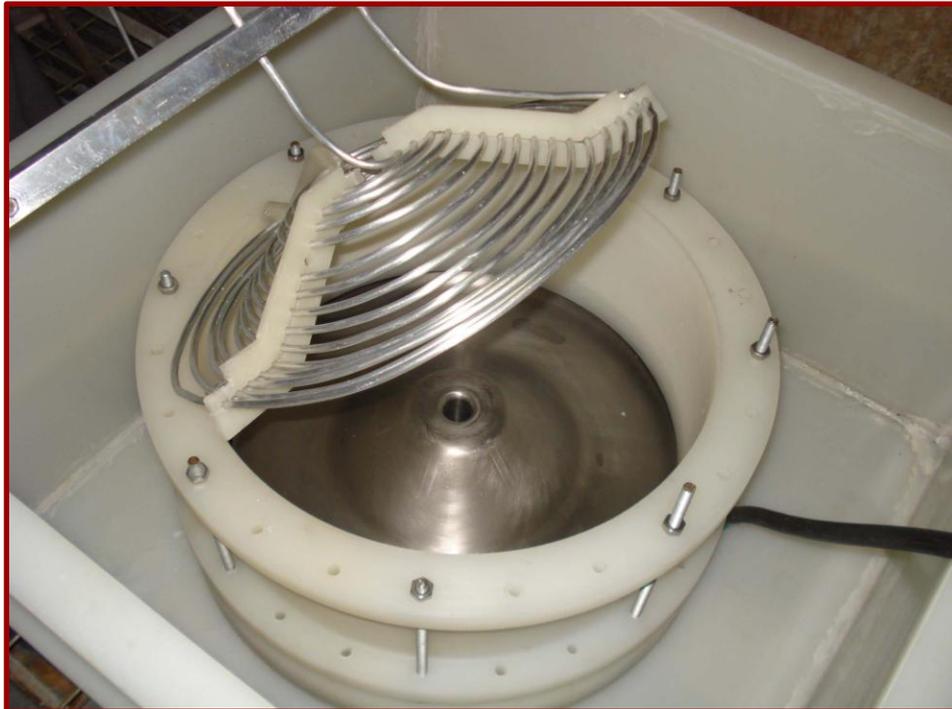
❖ Spoke to Shell collar.

- Copper trials are now in the final stages after several iterations.
- Die/Punch are being tweaked for the final forming trials.
- Forming of the actual Niobium pieces should start as soon as the dimensional accuracy on the copper parts is established.
- This should happen by the middle of February.

New Developments

❖ Electropolishing (EP) of the End Walls.

- A conical shaped aluminum coil has been fabricated which serves as the cathode / heat exchanger.
- The setup is ready and EP will start from tomorrow.



What's Next

- ❖ Spoke to Shell Collar forming and welding.
 - Forming trials on copper are in final stages.

- ❖ EP of the two Spokes.
 - EP of Spoke will be done after the Spoke to Shell Collar and the Beam Port is welded.

- ❖ Shell to Spoke welding
 - Weld parameter development for the critical saddle weld will be started shortly. We will use the niobium piece used for developing the Shell Coupler Port pullout.

- ❖ Tuning of the cavity at room temperature and 1 atm.

- ❖ Shell to End Wall welding.

Difficulties

❖ During the EP of the Shells, the PP (?) extension reacted with acid and became soft where it seals with the Shell. We were able to EP the two Shells though.

- Probable cause \longrightarrow Faulty Material (probably the material was not (PP))
- We then procured fresh PP material from another party on urgent basis and got a new extension fabricated.
- It was difficult to procure the material as no vendor was ready to supply a single piece of this dimension (600 x 600 x 200).

Time lost ~ 2 Months

Thank you !!