



Technical Division

SRF Department

Updates on SSR1-G3

Presented by: R. Patel

(D. Passarelli, M. Merio, L. Ristori, T. Khabiboulline)

Oct 3, 2012



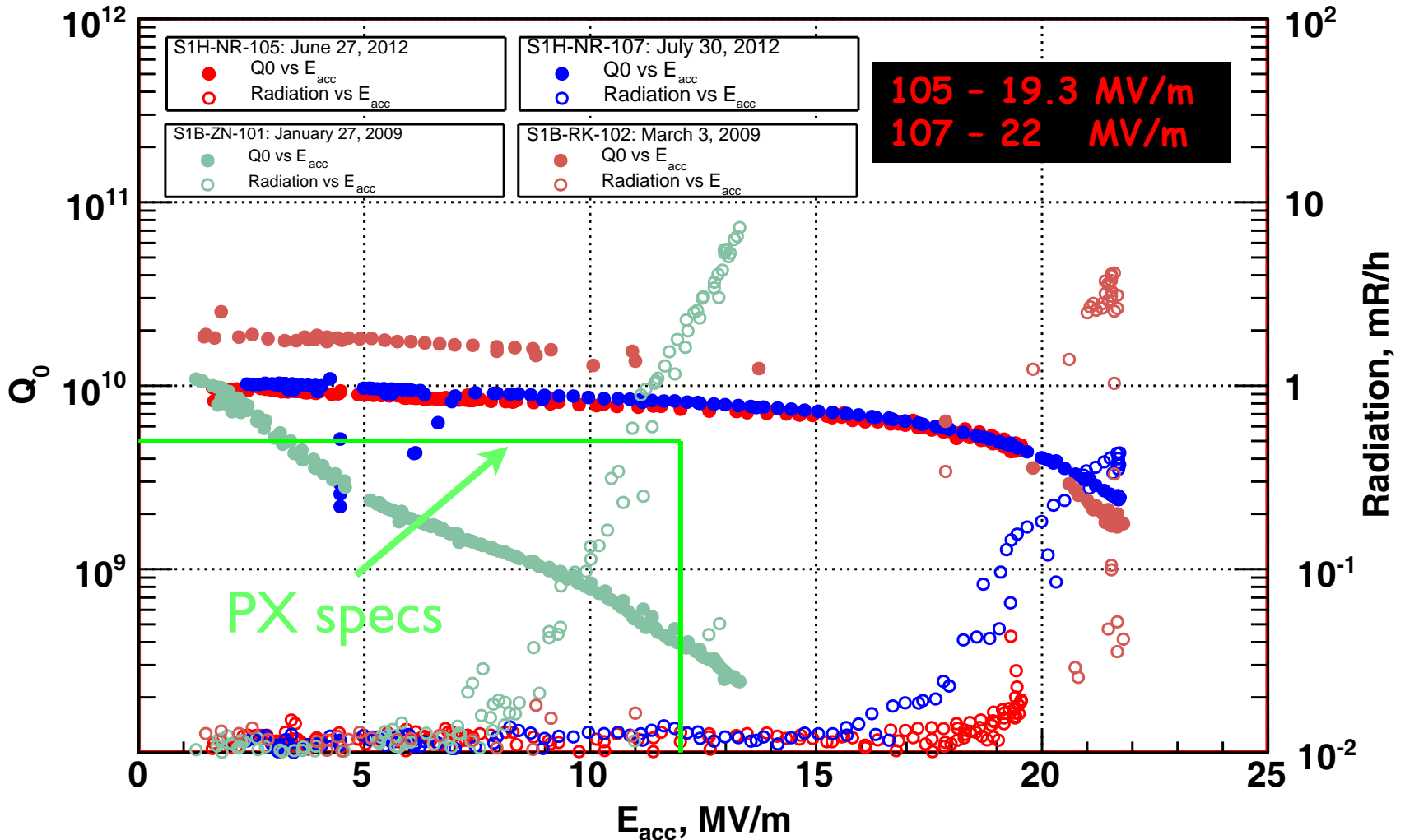
- SSR1 Inventory
- SSR1 Processing
- VTS Test Results
- Current Dressed SSR1 Cavity Design with Tuner



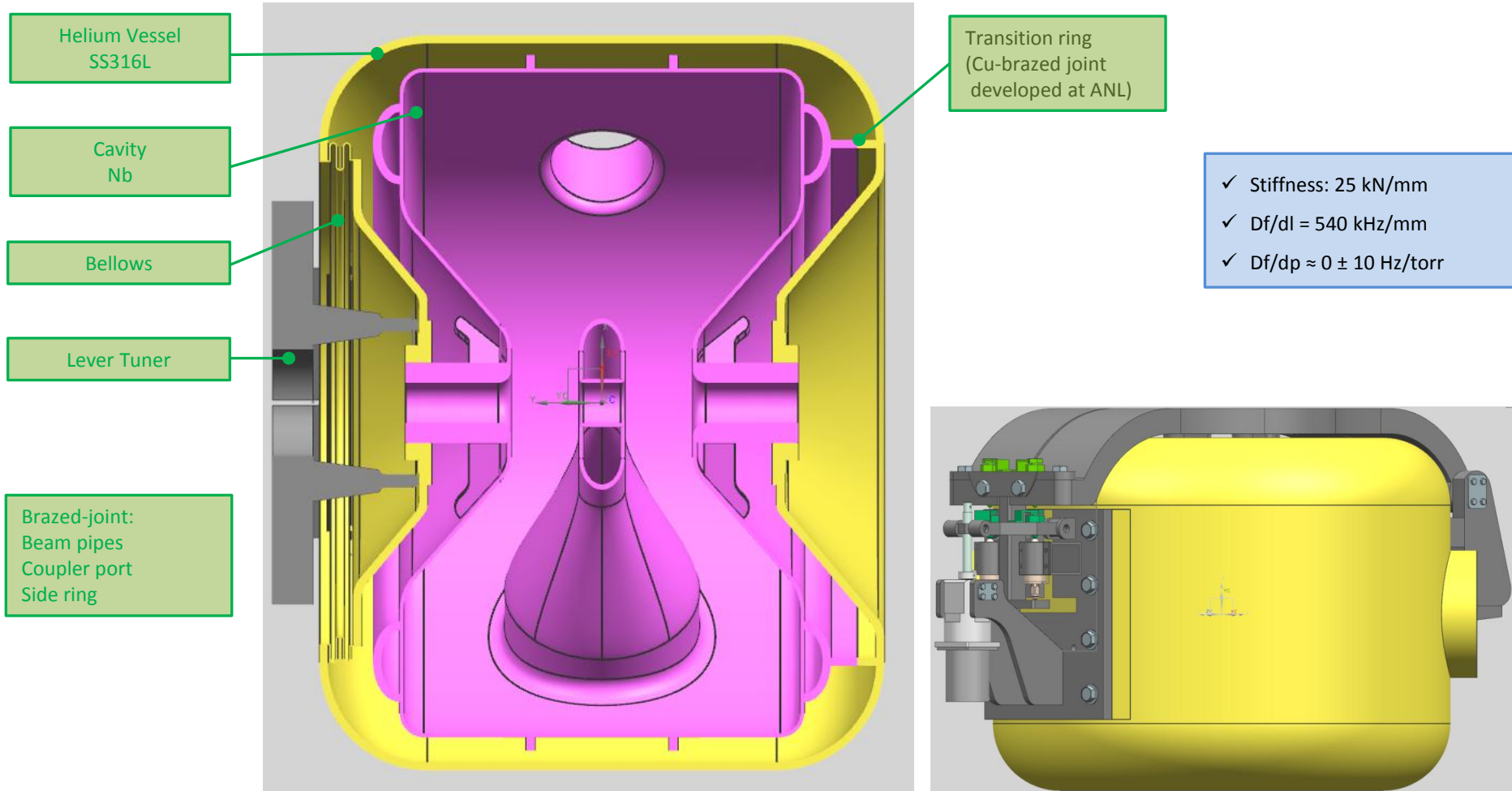
	Received	Incoming Inspection Complete	BCP Processing	VTS Testing
S1H-NR-105				
S1H-NR-106				
S1H-NR-107				
S1H-NR-108				Late Oct
S1H-NR-109				
S1H-NR-110				
S1H-NR-111				
S1H-NR-112				
S1H-NR-113				
S1H-NR-114				



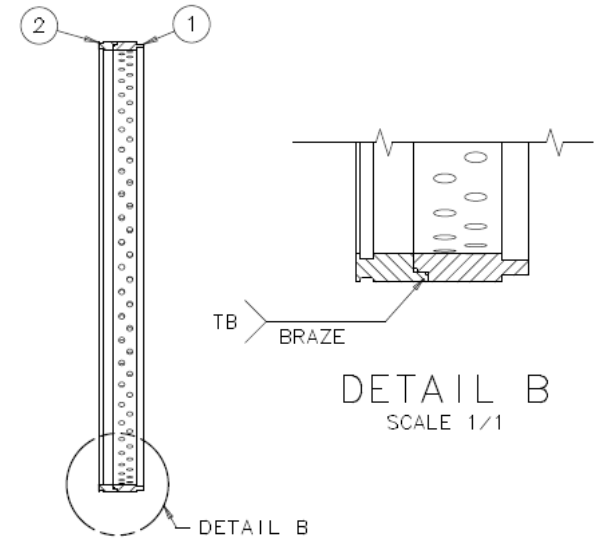
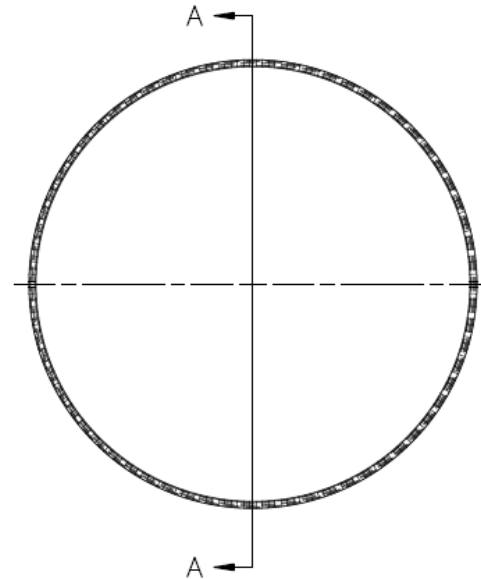
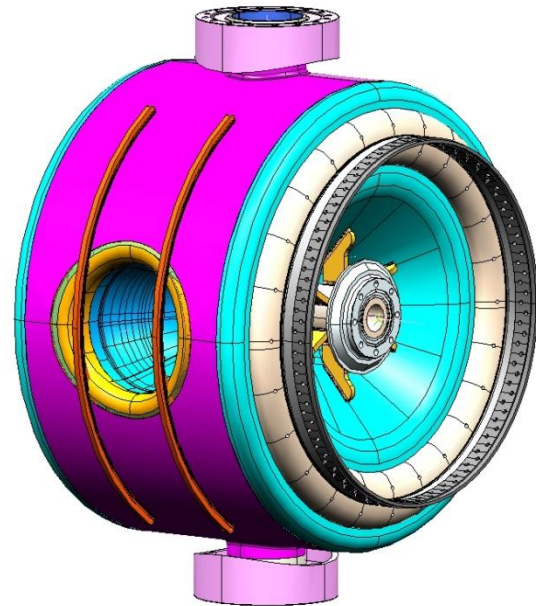
- Standard processing:
 - ▶ bulk BCP 120 um
 - ▶ 600C bake 10 hr
 - ▶ BCP 50 um
 - ▶ 120C bake 48 hr
- Suggested modifications to improve Q_0 (Anna, Allan, Dmitri)
 - ▶ bulk BCP 120 um
 - ▶ 600C bake 10 hr
 - ▶ light BCP 20-30 um
 - ▶ 120C bake 48 hr
 - ▶ 2 HF rinses *To remove residual resistance from 120C bake*
 - ▶ 60-70C bake 48 hr *Needed for avoiding multipacting*



Current Dressed SSR1 Cavity Design with Tuner



Current Dressed SSR1 Cavity Design with Tuner

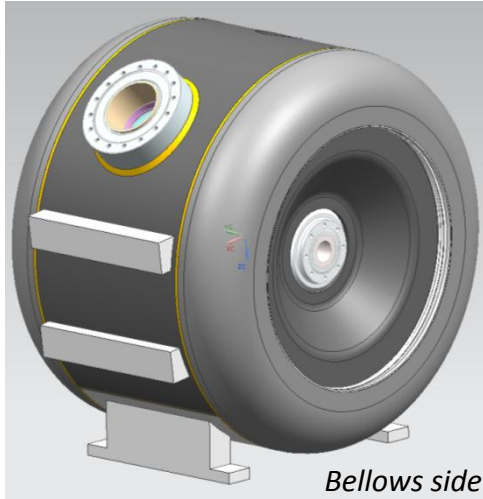


Mechanical analysis (details: welds and holes)

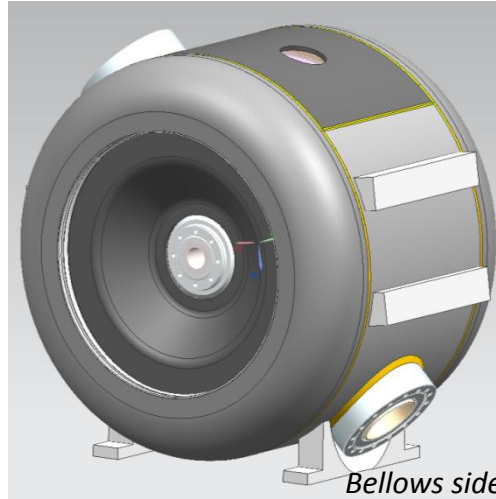


Analyses of heat transport confirm that with 110 holes having $d=5\text{mm}$ it will be possible to remove **20W** from the cavity endwall via the helium at 2K. The estimated heat coming from the entire cavity is 5W.

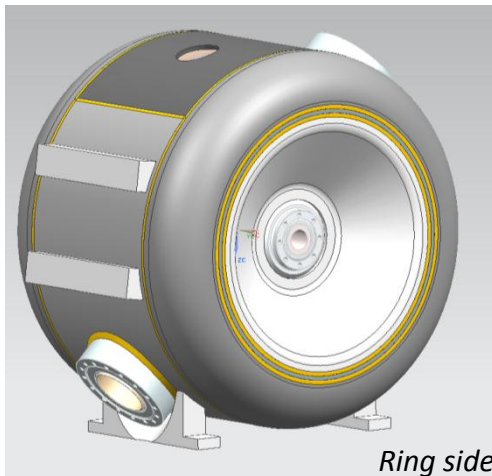
Current Dressed SSR1 Cavity Design with Tuner



Bellows side



Bellows side



Ring side

Main components of each stainless steel HV:

2 semi-shells

2 convex heads

2 conical plates

1 bellows

1 transition ring

2 supports for Tuner

1 cradle

...other details (from Y. Orlov)

Two-types of Helium Vessel (type 1, type 2, specular) are needed to install tuner on different sides.

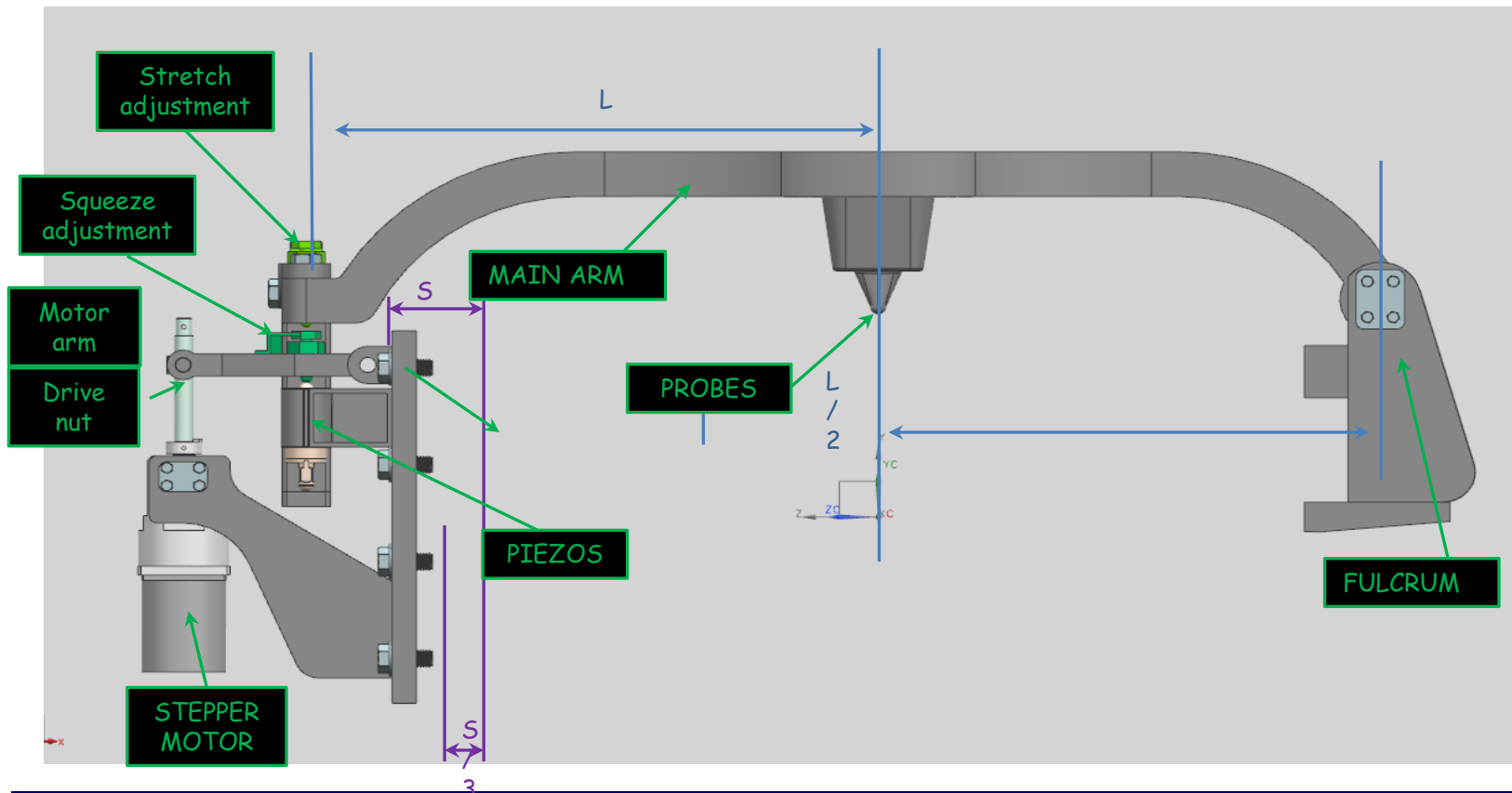
1—2-1—2-1—2-1—2

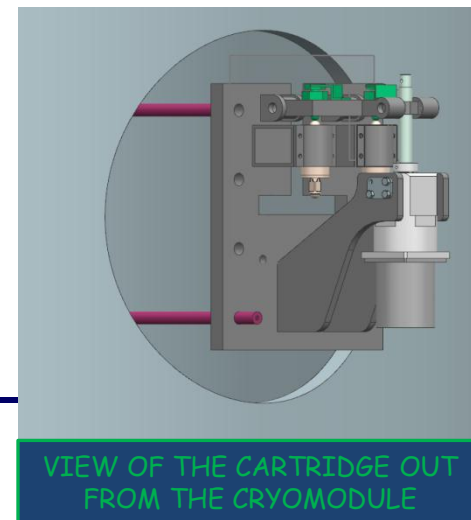
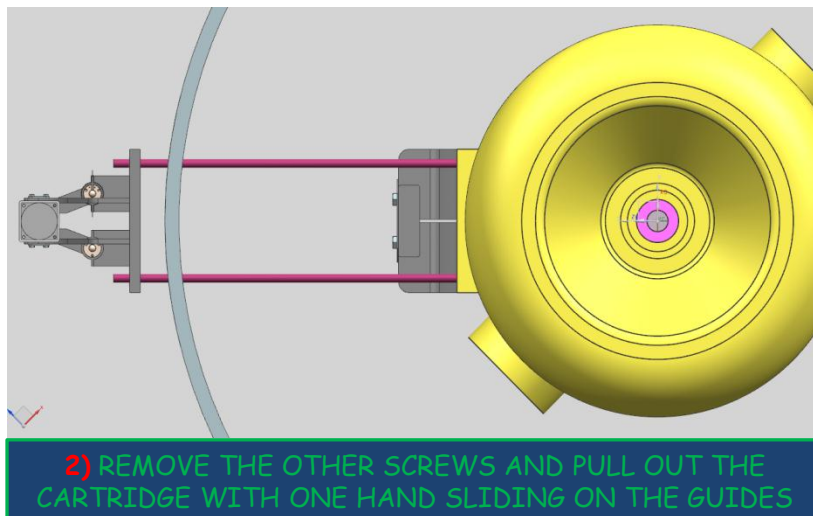
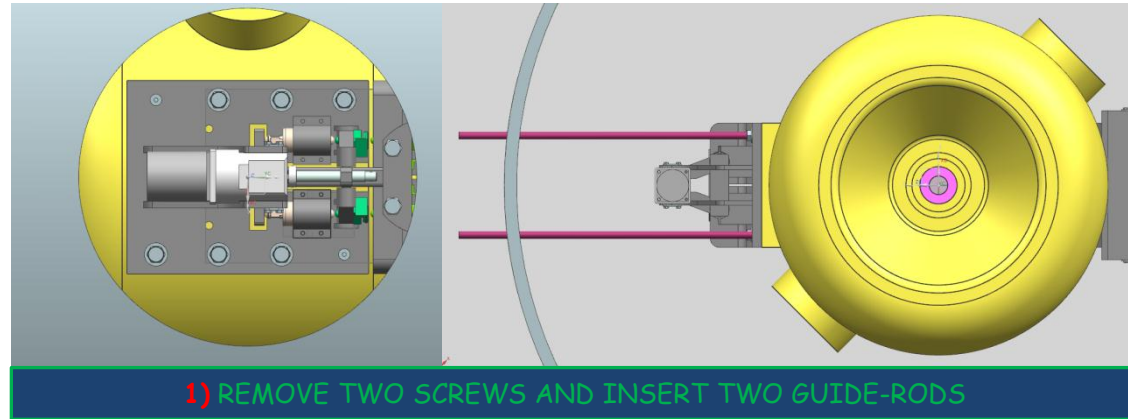
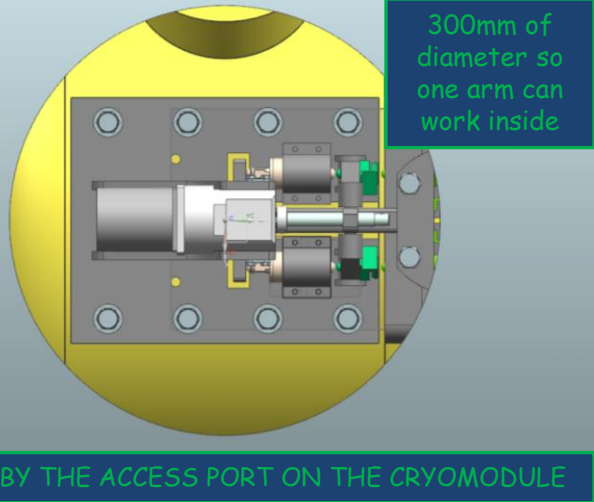
All TIG Welds details are finalized

Current Dressed SSR1 Cavity Design with Lever Tuner



Range for Fine Tuning: $1 \geq \text{kHz}$
Range for Coarse Tuning: $270 \geq \text{kHz}$







- Weld geometry details currently being defined
- Jacketing scheme under study (how to put everything together effectively)
- Bellows details being defined
- Finalizing design drawings