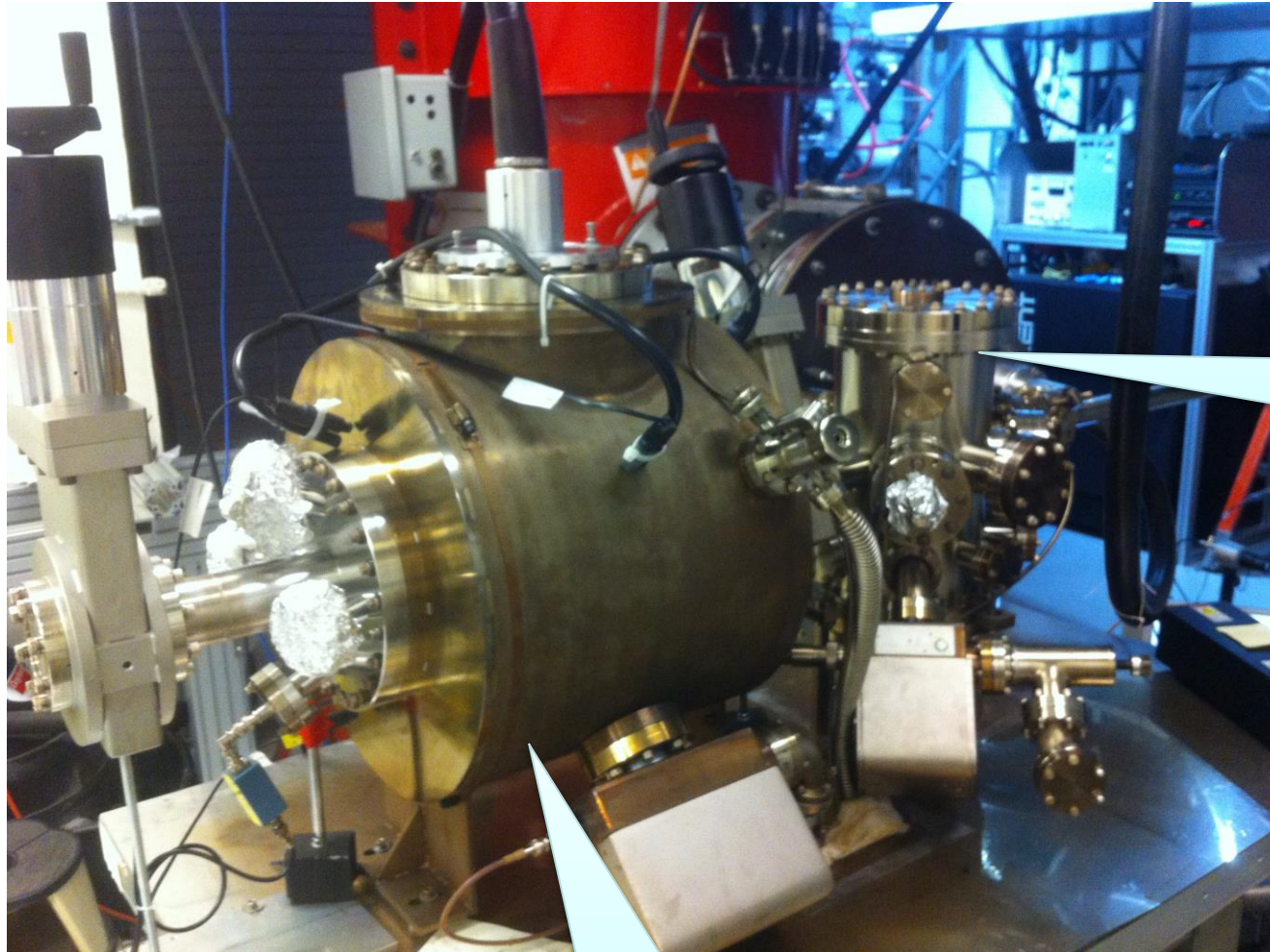


Design Update Puck and Gun Magnet

February 16, 2016

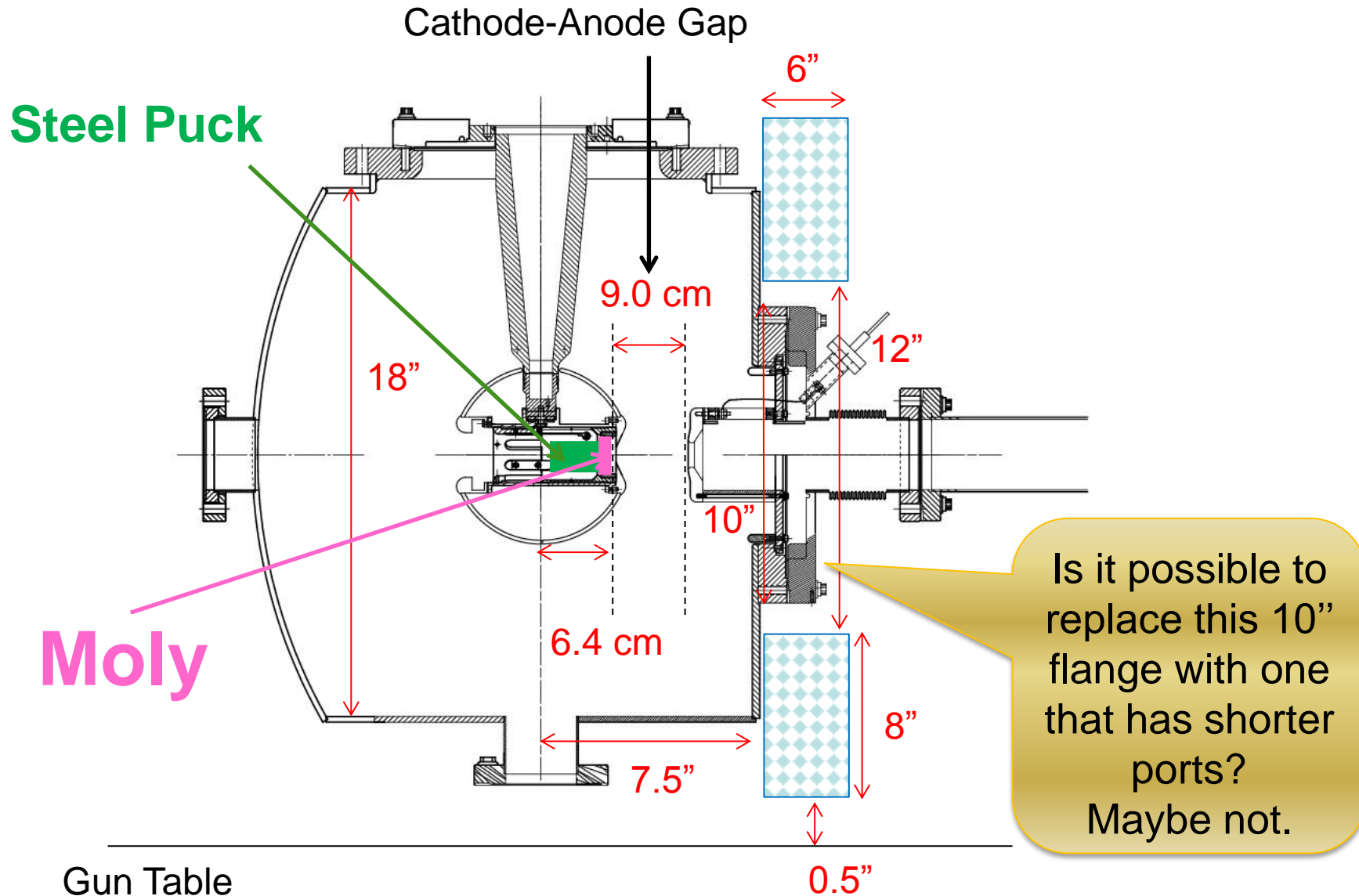
Magnetized Gun

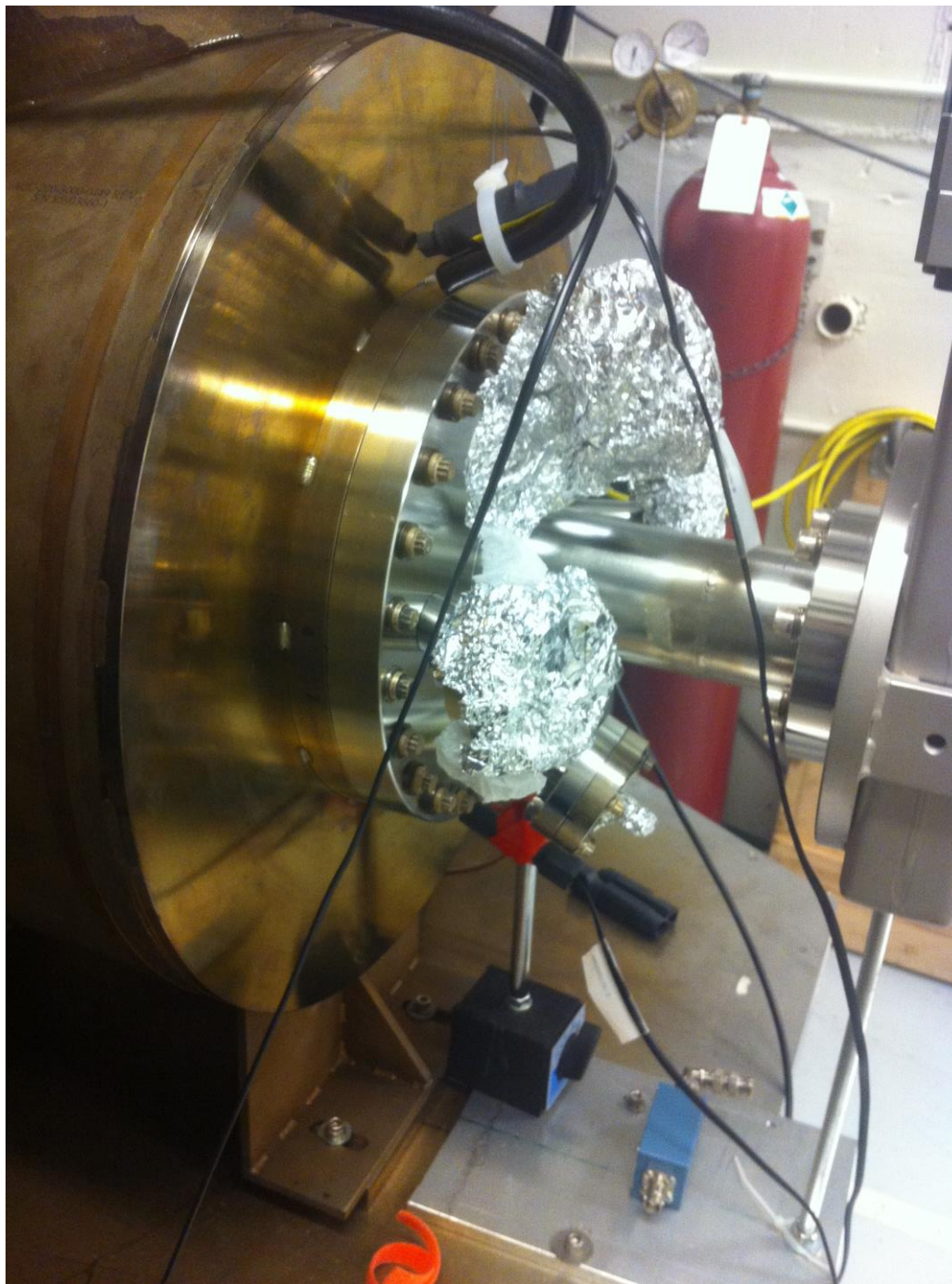


K₂CsSb
Preparation
Chamber

HV Chamber

Solenoid + Steel Puck

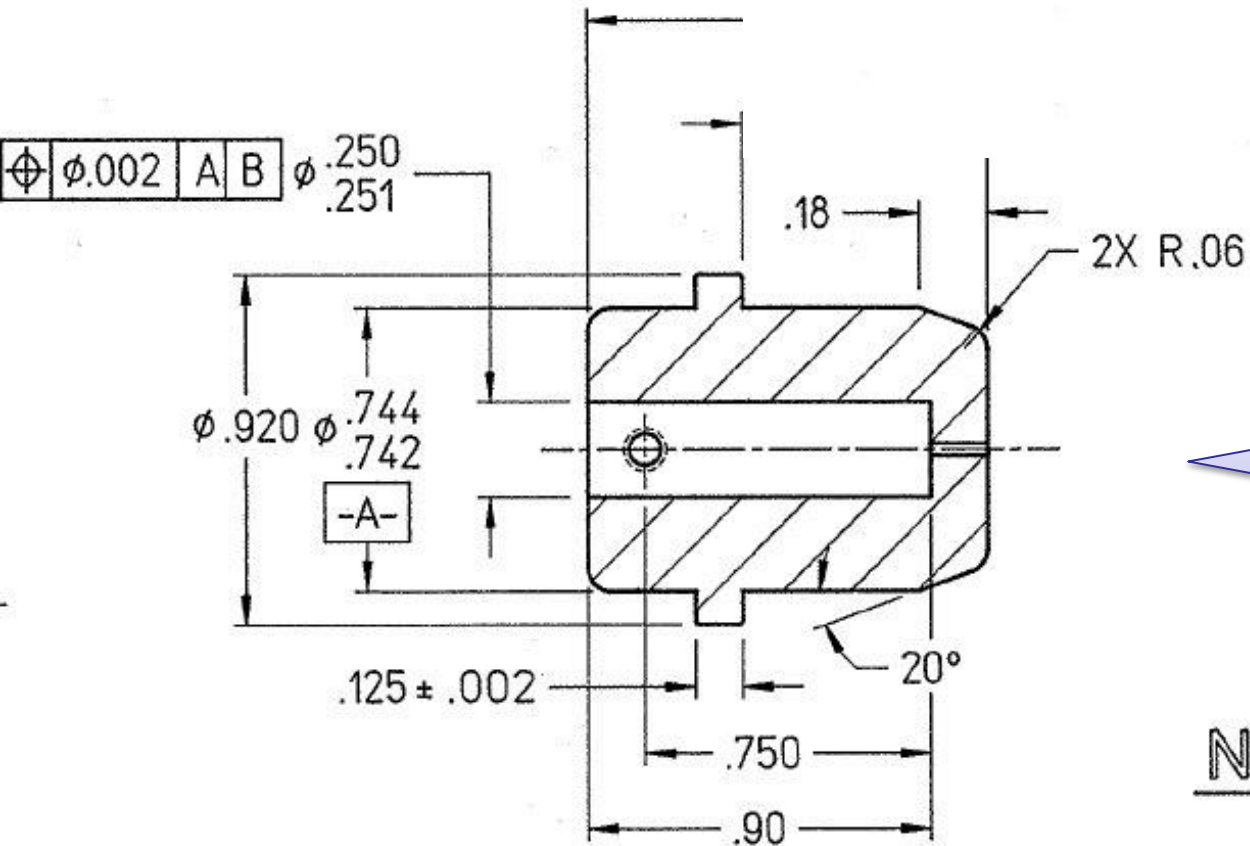
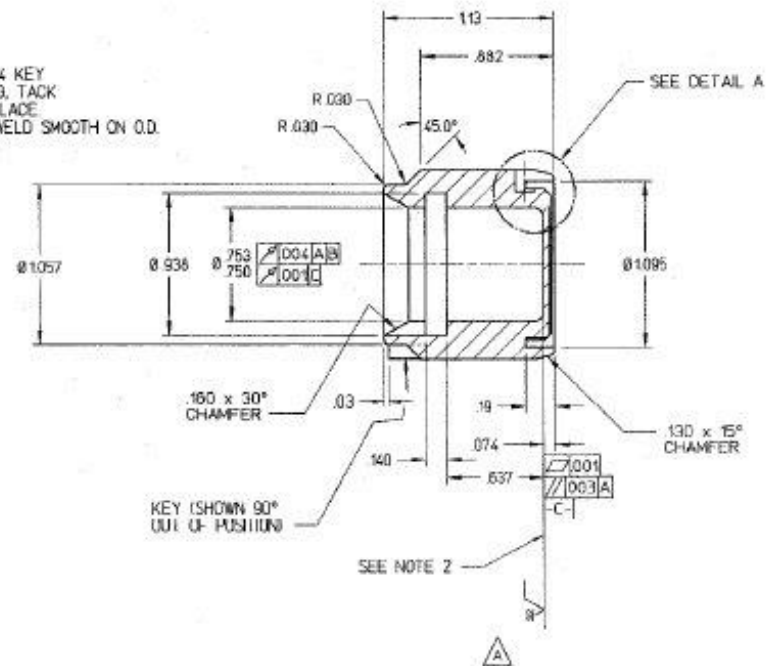
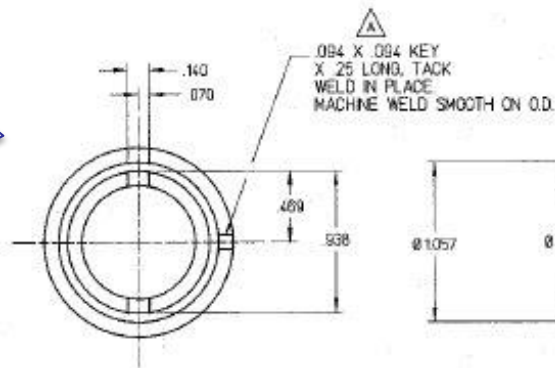




Steel Puck

- Molybdenum and Steel hybrid puck
- Designed to enhance field to 2.0kG at cathode
- Use 1010 carbon steel
- Re-design new Puck Manipulator End Adapter
- Order 4 pucks – map with Solenoid
- Heat Treatment:
 1. Un-heated
 2. 200°C (Sb) and 120°C (K – Cs) growth
 3. 550°C Heat Cleaning then 200°C and 120°C
 4. Multiple

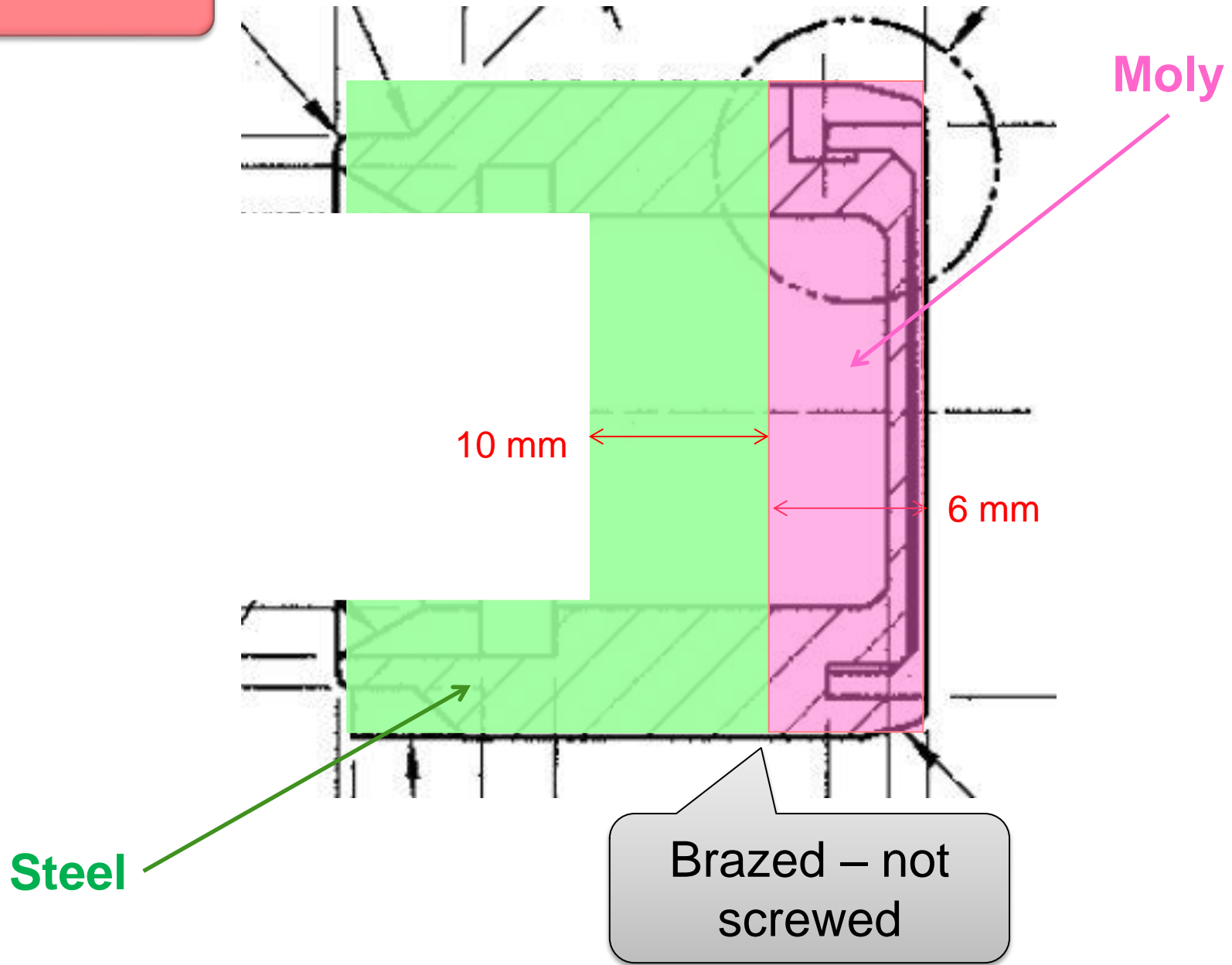
Puck



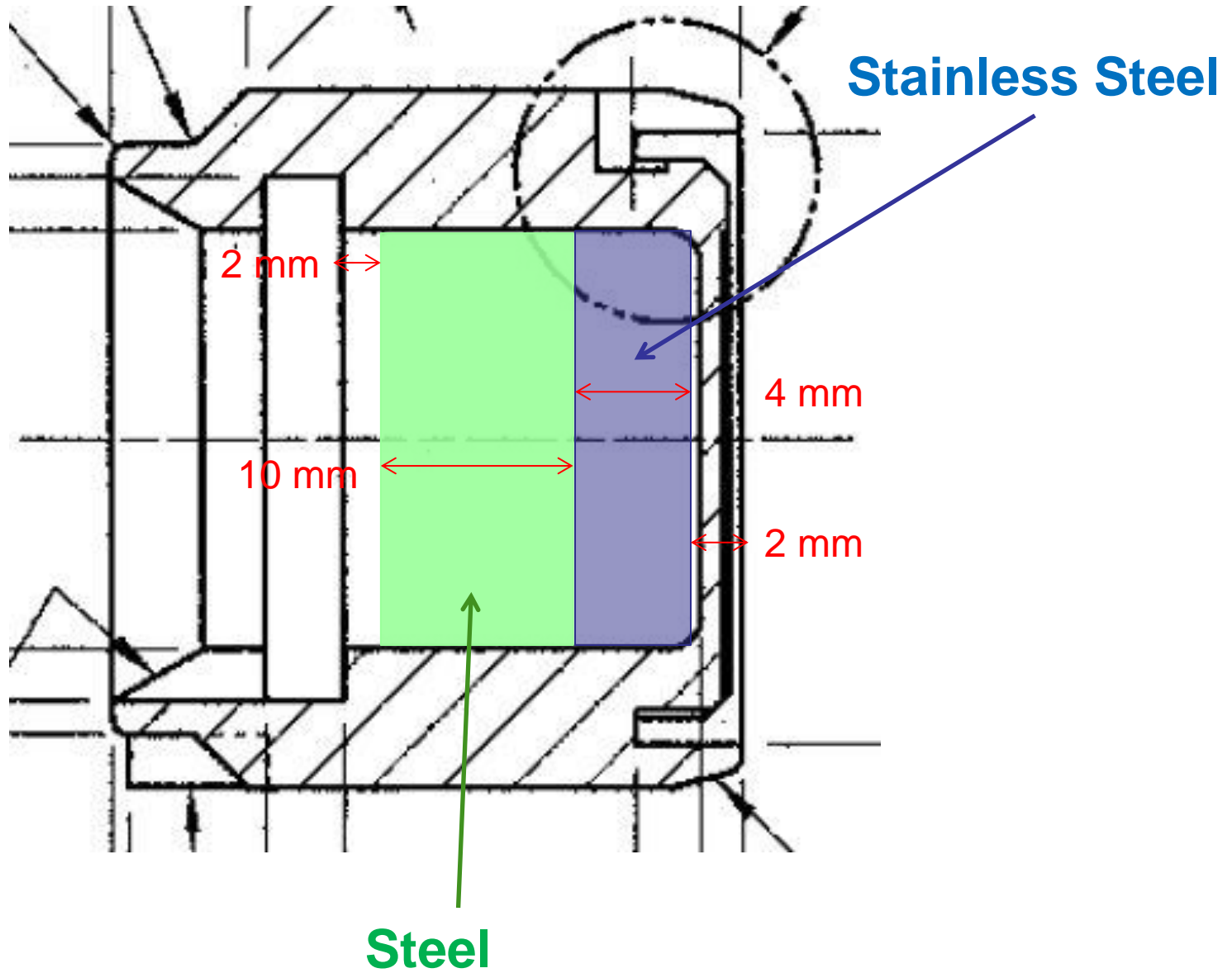
Puck Manipulator End Adapter

NC

Design I



Design II



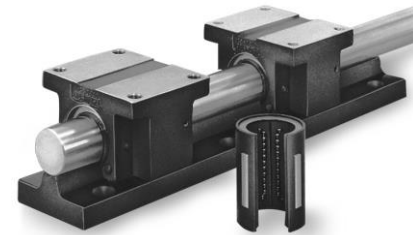
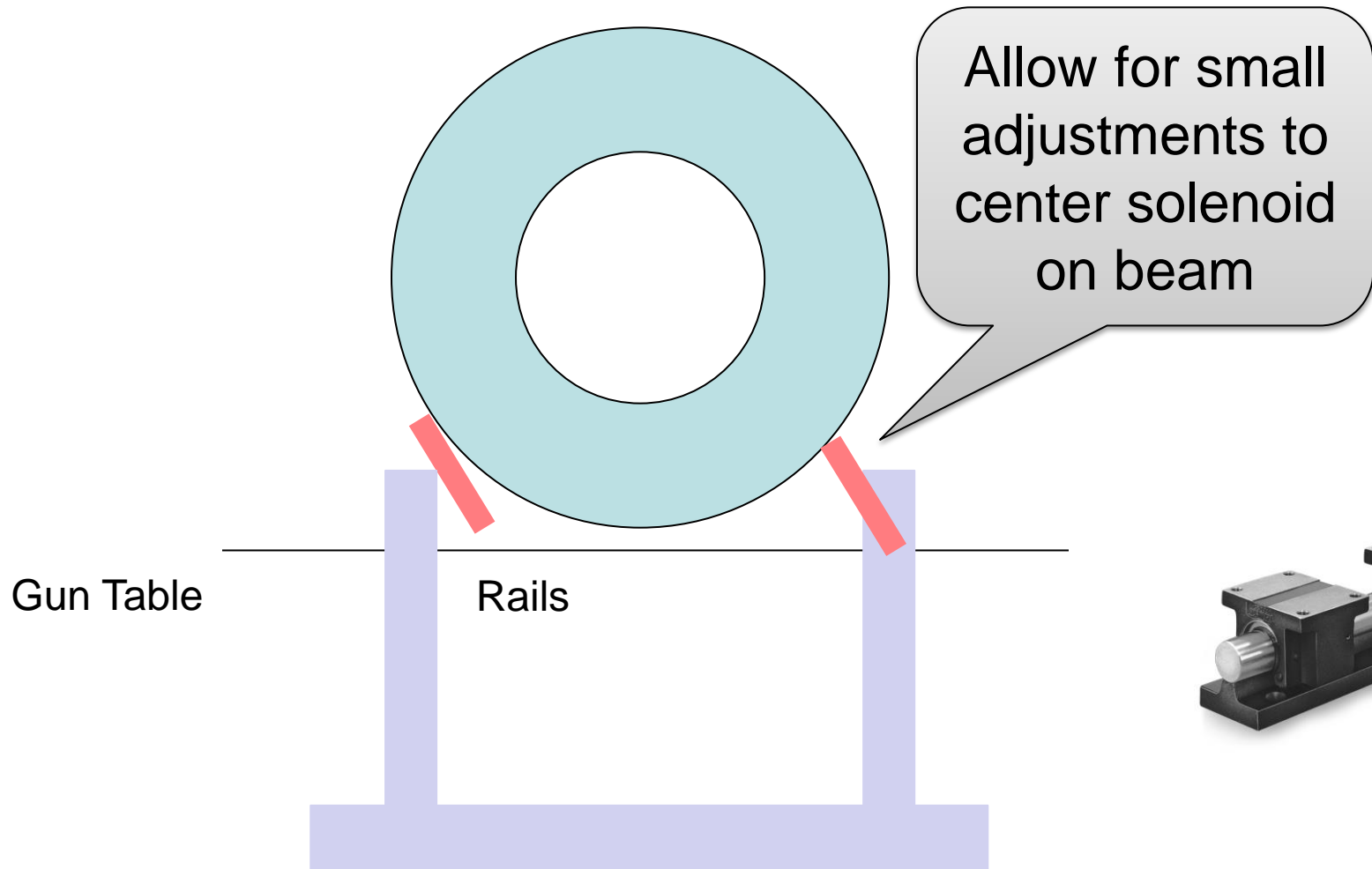
Power Supply

- Use new spare Dogleg power supply (500A, 80V)
- We have Arne's permission
- If needed at CEBAF, we can use an old Dogleg supply (270A, 50V) to keep going
- Need to add polarity switch to be able to degauss steel

Solenoid

- Not bakable – will be mounted on rails. Push downstream out of oven and run LCW through. Move gate valve after beamline solenoid (in place of BPM). Move HV Chamber front foot upstream
- Designed to give 1.4kG at cathode without steel puck
- Bare coil – no cylindrical steel shield/return
- Plan to ask companies for design and cost:
 1. Everson Tesla
 2. Buckley Systems
 3. JLab Machine shop
- Needs a designer for solenoid mount

Solenoid Mount



Timeline

Power Supply (new spare Dogleg):

1. Being built at Magnet Lab: March
2. Test and add polarity switch: April
3. Move to GTS: May
4. Ready: July 1, 2016

**All work has to
be completed
by September
30, 2016.**

Solenoid:

1. Design: February and March
2. Procure: April
3. Map (with and w/o puck), check hysteresis and forces: July
4. Install: August, 2016