

A 3D CAD model of a 1.3 GHz Bladetuner assembly. The model features a central cylindrical structure with multiple concentric rings and radial blades. Several long, thin rods are attached to the outer rings, some with red cylindrical components. The entire assembly is mounted on a base with various adjustment screws and bolts. The background is a solid dark blue.

1.3 GHz Bladetuner Concerns

Bladetuner Installation Options
onto a 1.3 GHz cavity



Agenda



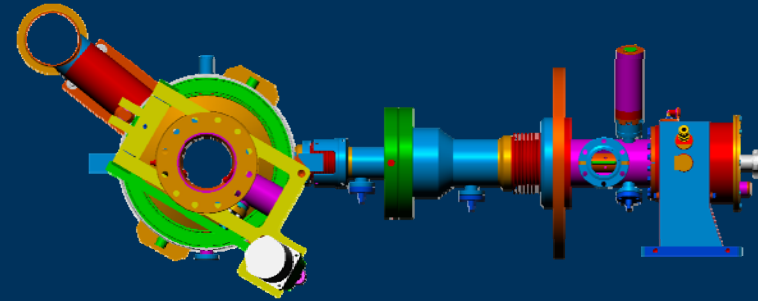
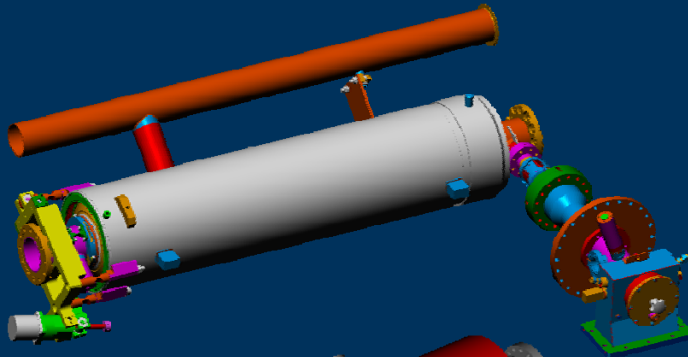
- Current cavity vessel designs w/ tuners
 - DESY / KEK / FNAL
- Tuner mounting option overview
 - Center mounted
 - End mounted around lugs
 - End mounted w/ short lug spacing
- Design issues
- Discussion



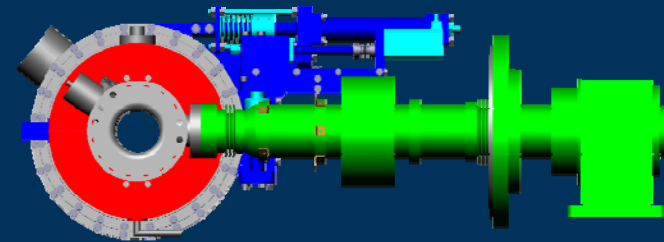
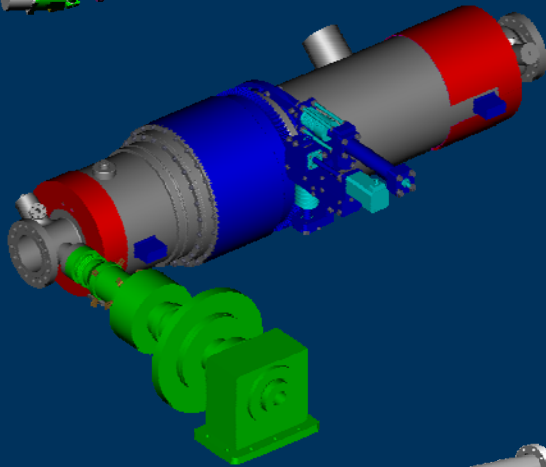
DESY / KEK / FNAL Cavities



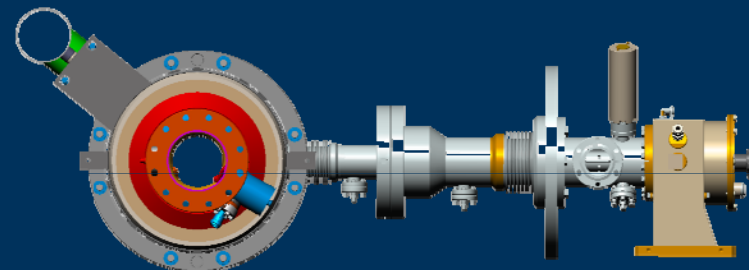
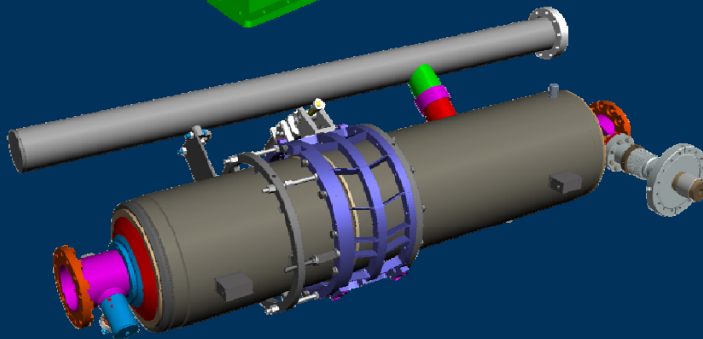
DESY



KEK

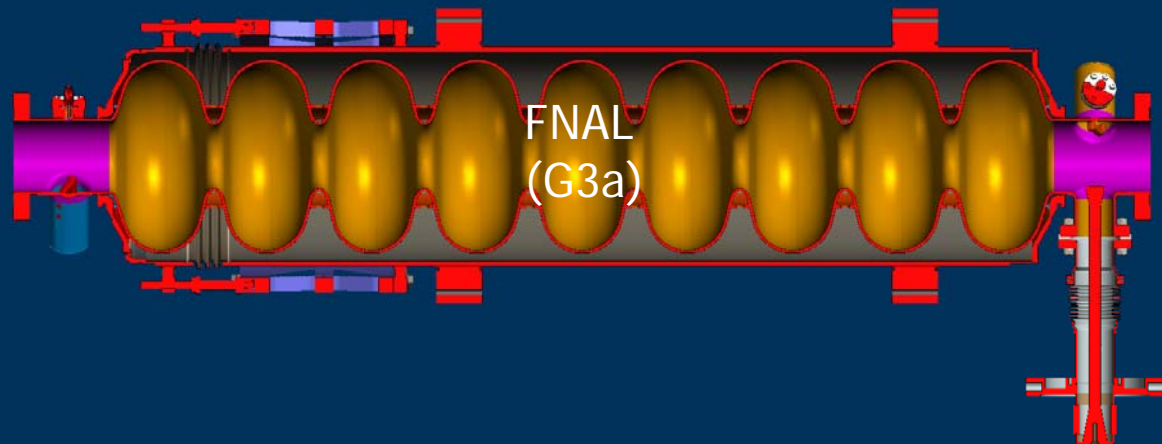
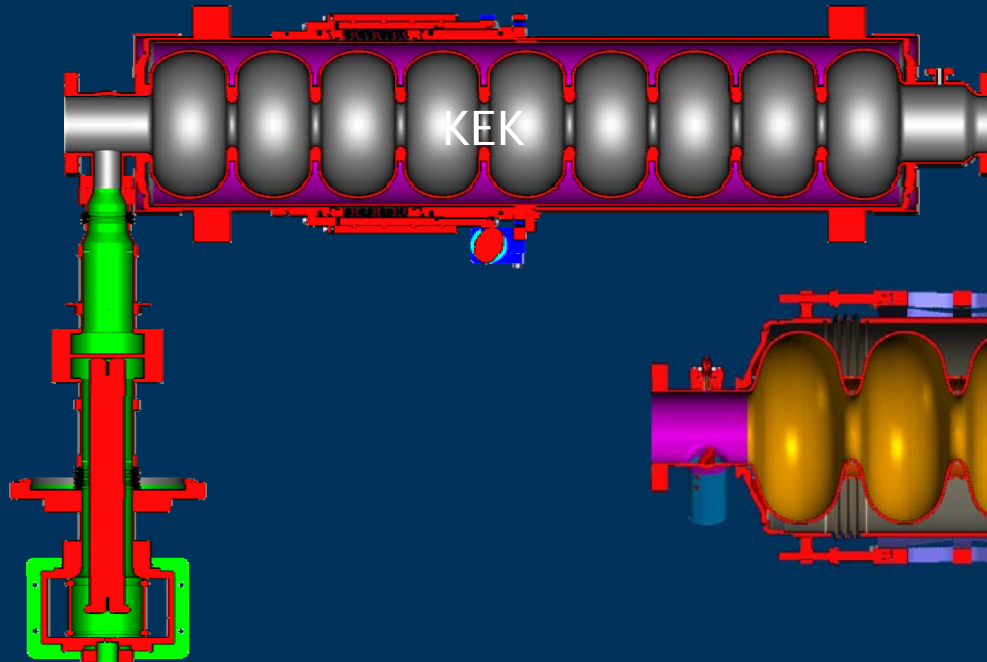
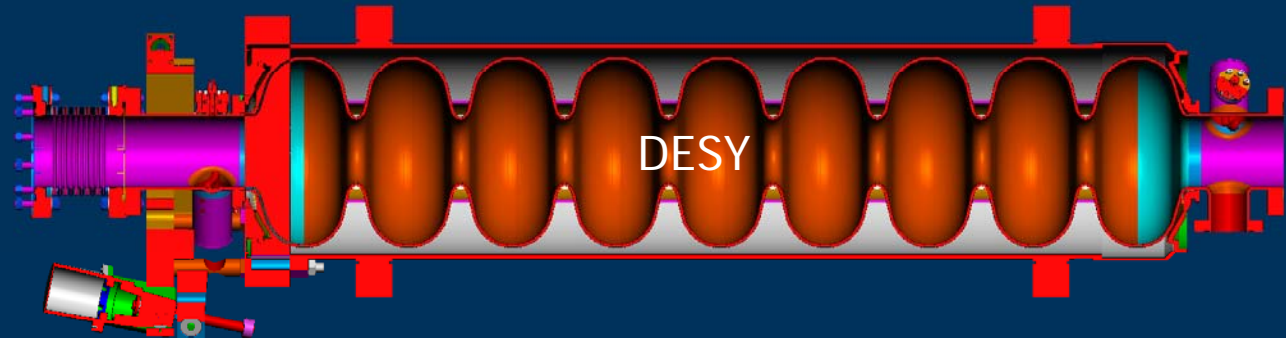


FNAL



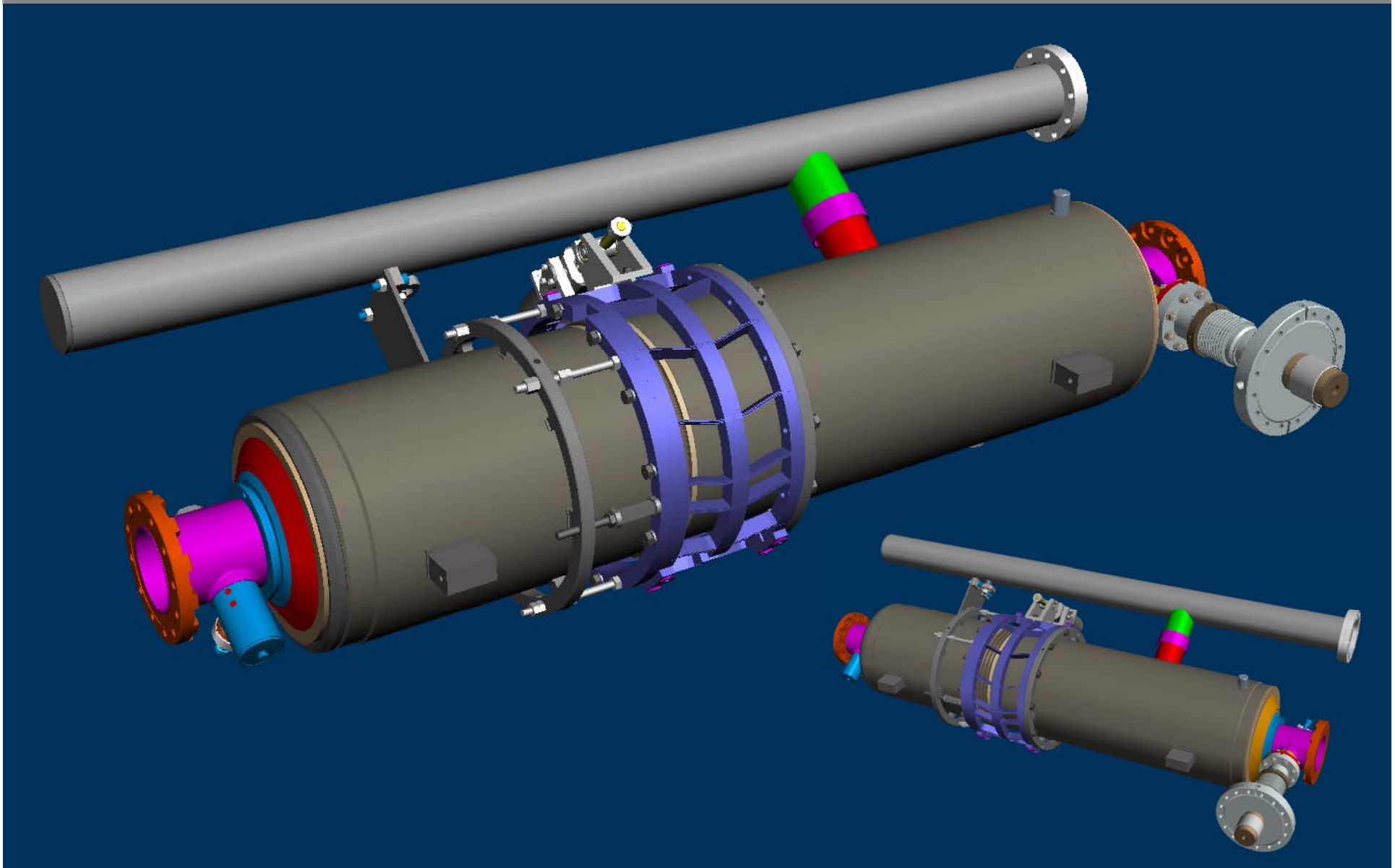


Cross-sections of DESY / KEK / FNAL



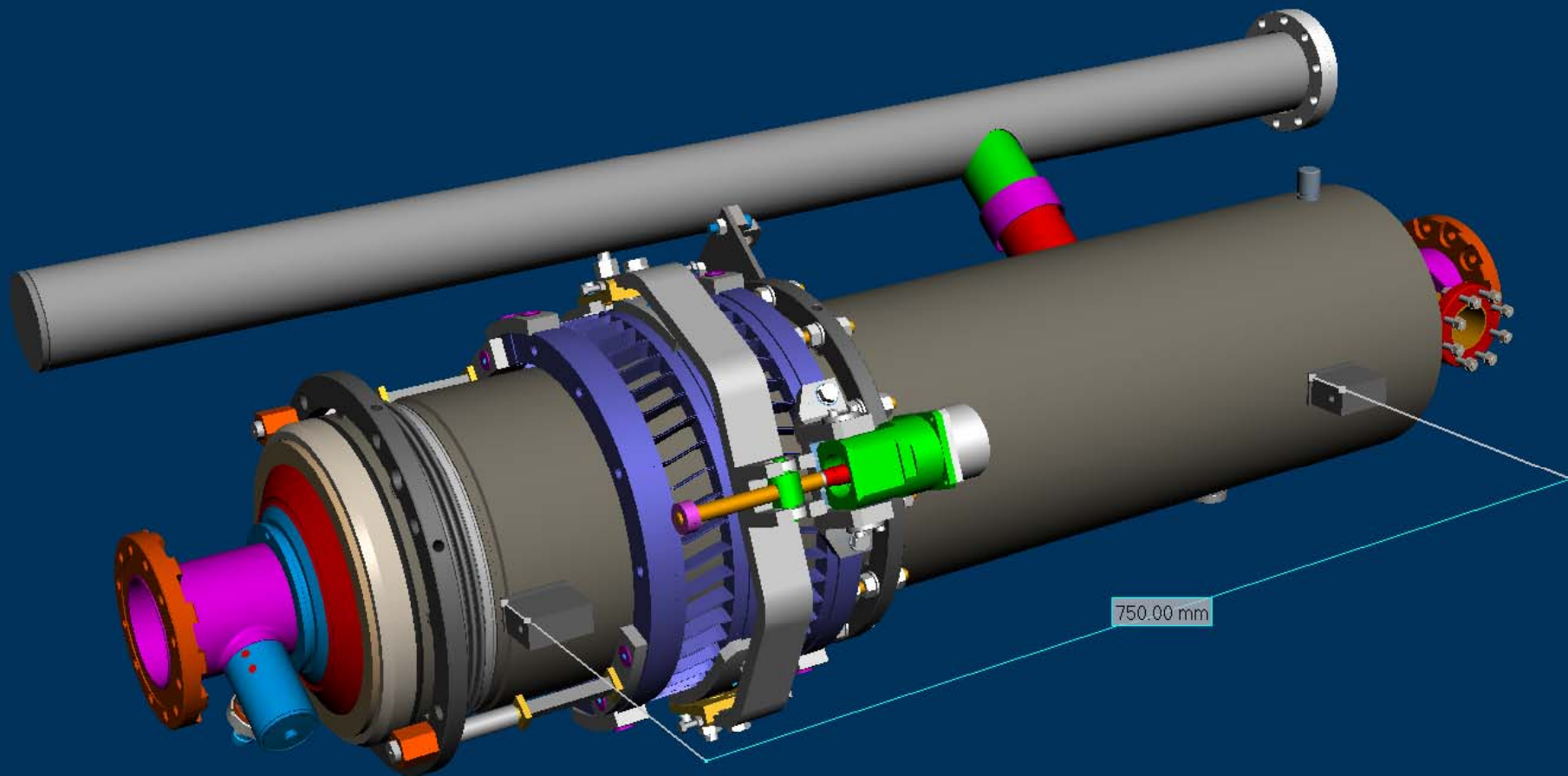


INFN Tuner, Center Mounted





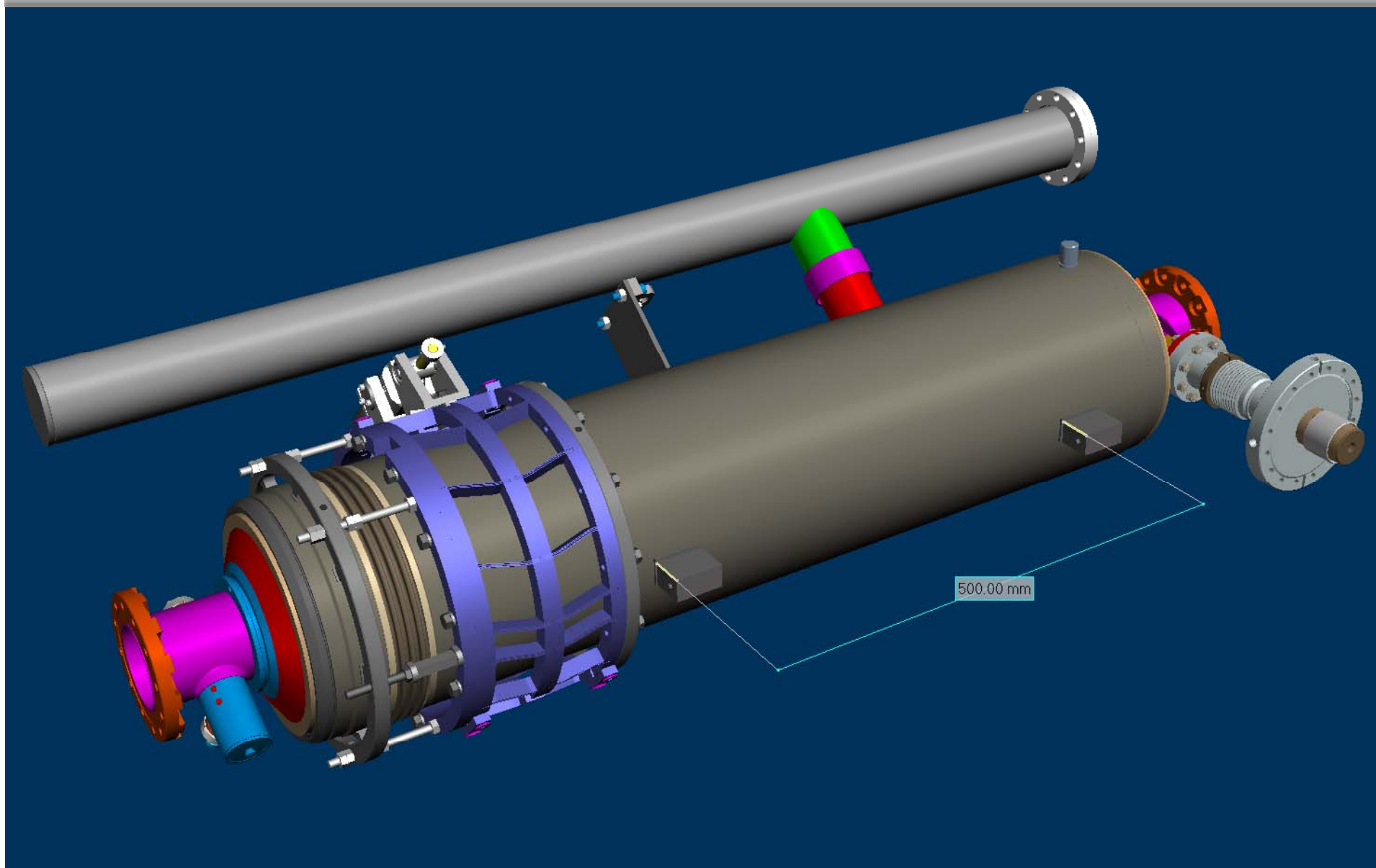
INFN Tuner, End Mounted (built around lugs)



Older style tuner shown

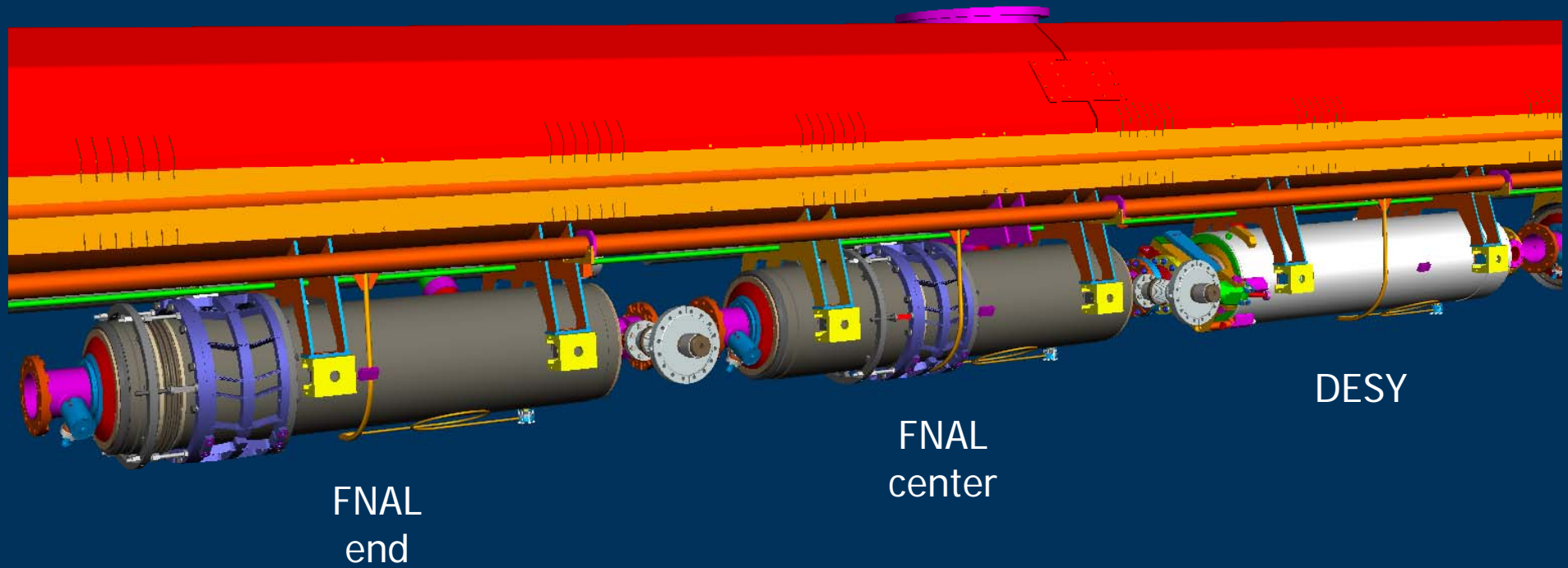


INFN Tuner, End Mounted



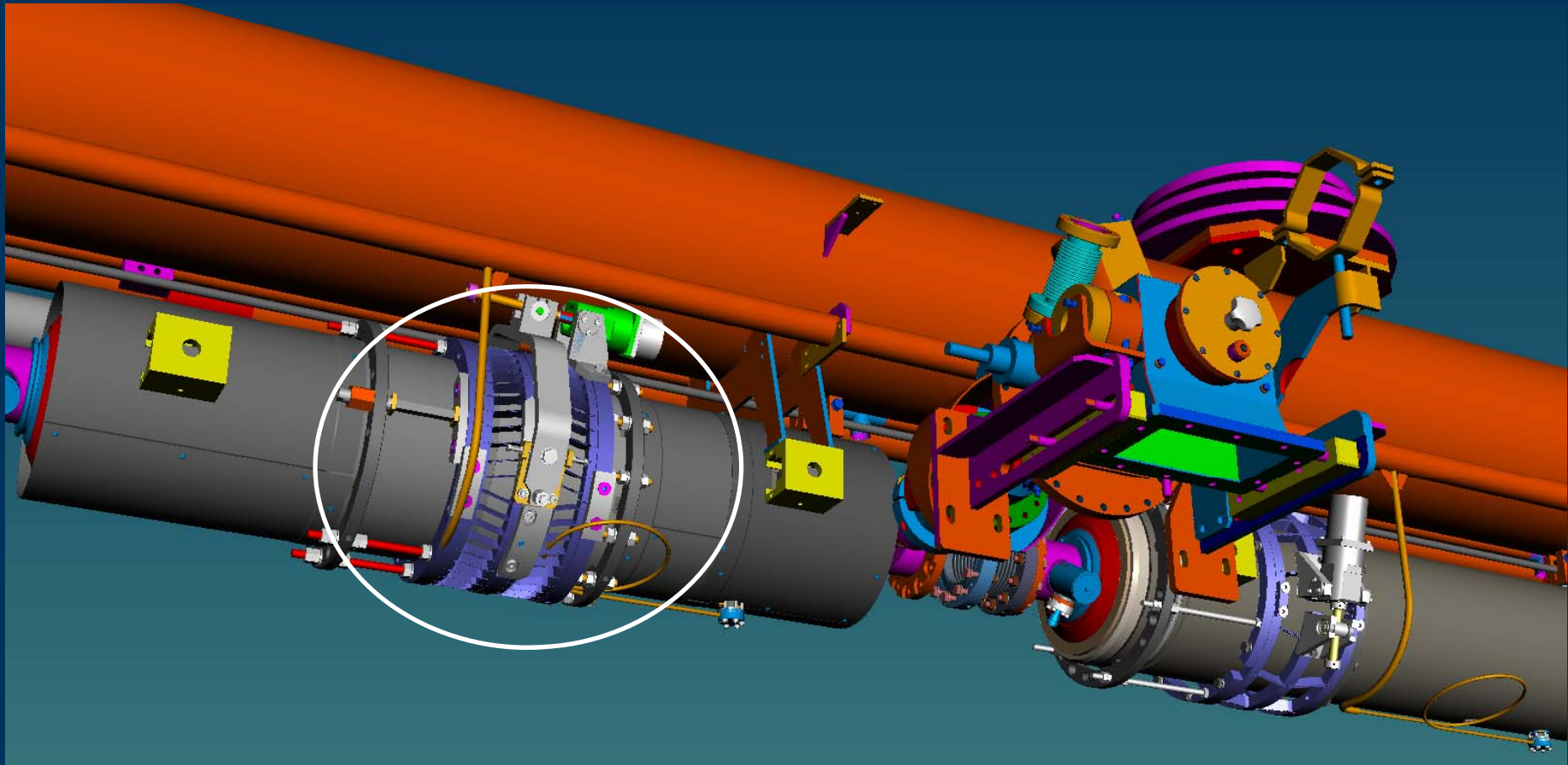


DESY, FNAL center, FNAL end





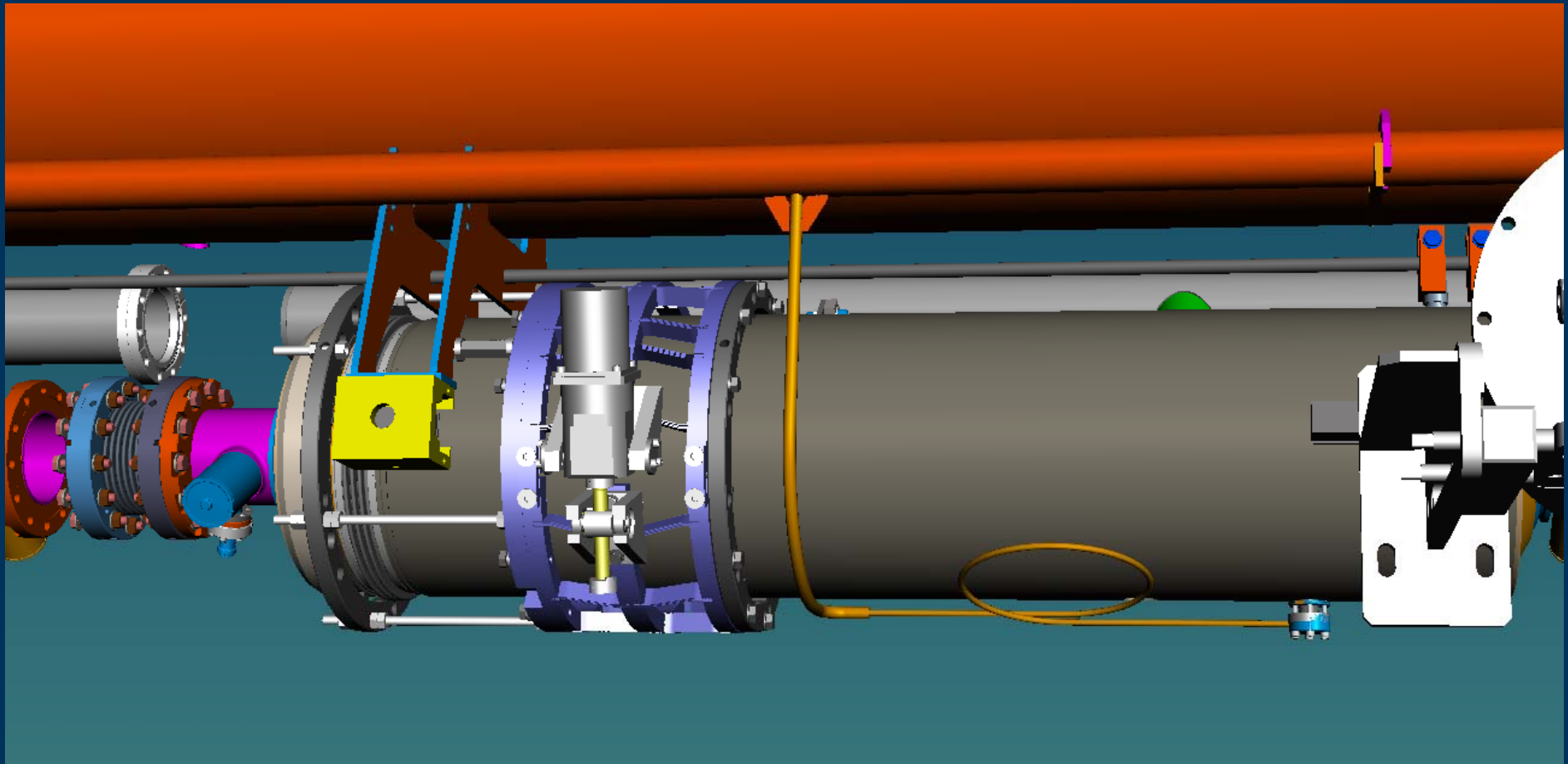
Tuner Position vs. Optional Position



A center mounted tuner interferes with the warmup / cooldown line.
INFN has already fixed this problem at Zanon.
Solution: Move BT assy and cooldown tube



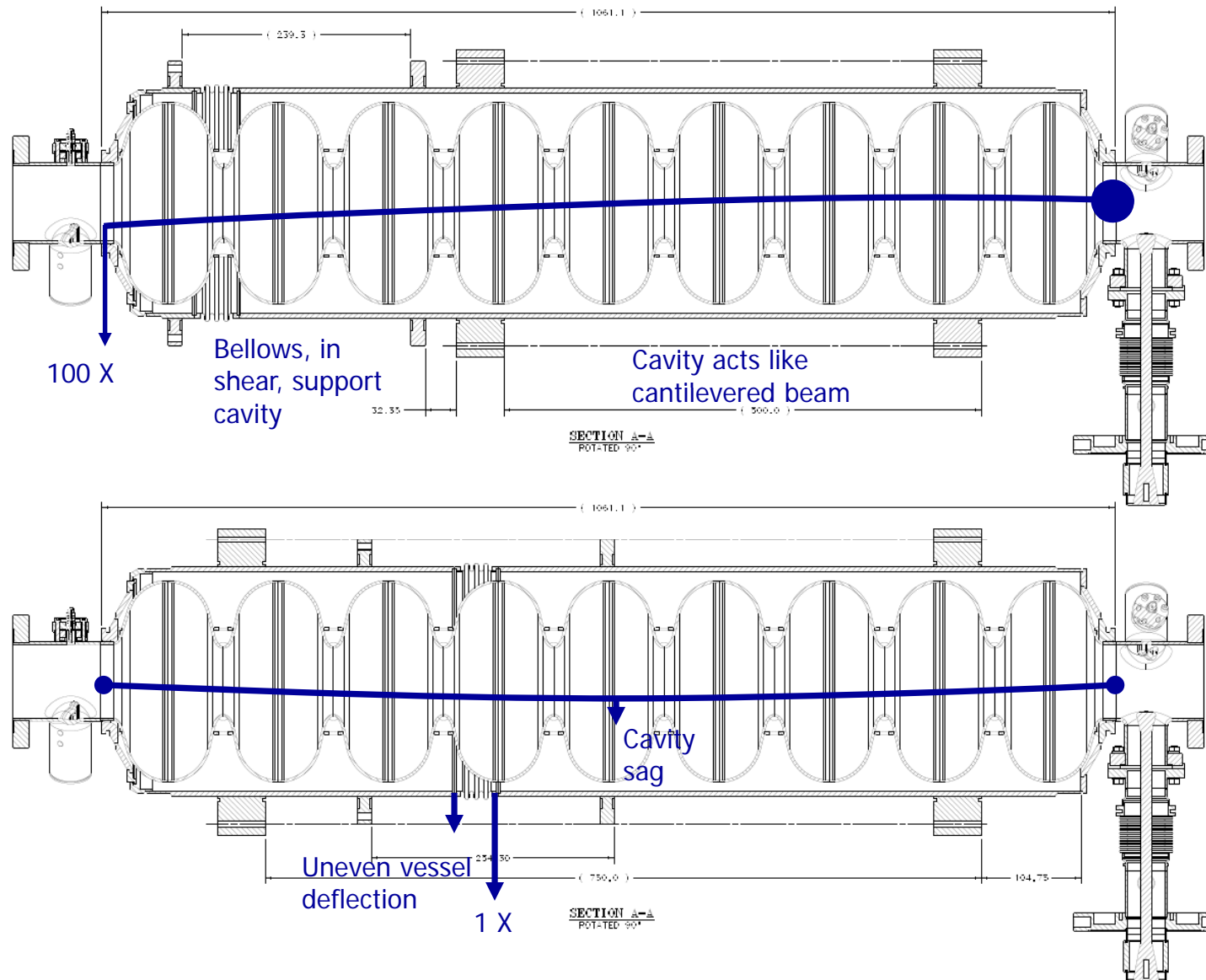
New Tuner moved forward



An end mounted tuner interferes with the HGRP support legs. Bladetuner rods also need to be lengthened and rotated to leave room for the needle bearing blocks. The bladetuner motor interferes with the 5K shield. Piezos are off the neutral axis and, at least one, will interfere with support legs.



Center Position vs. End Position





Preliminary FEA



Center mounted bellows



End mounted bellows





Discussion



- Pros and cons of each option
 - Stability
 - Functional
 - Plug-compatible
 - Sticking Piezos
 - Tested and proven
- Future plans
 - Build
 - Test
 - Evaluate
- Proposals
 - Should CM2 at Fermilab be built with standard BTs mounted on center as a complete test of the design?
 - Should we switch to an alternate design?