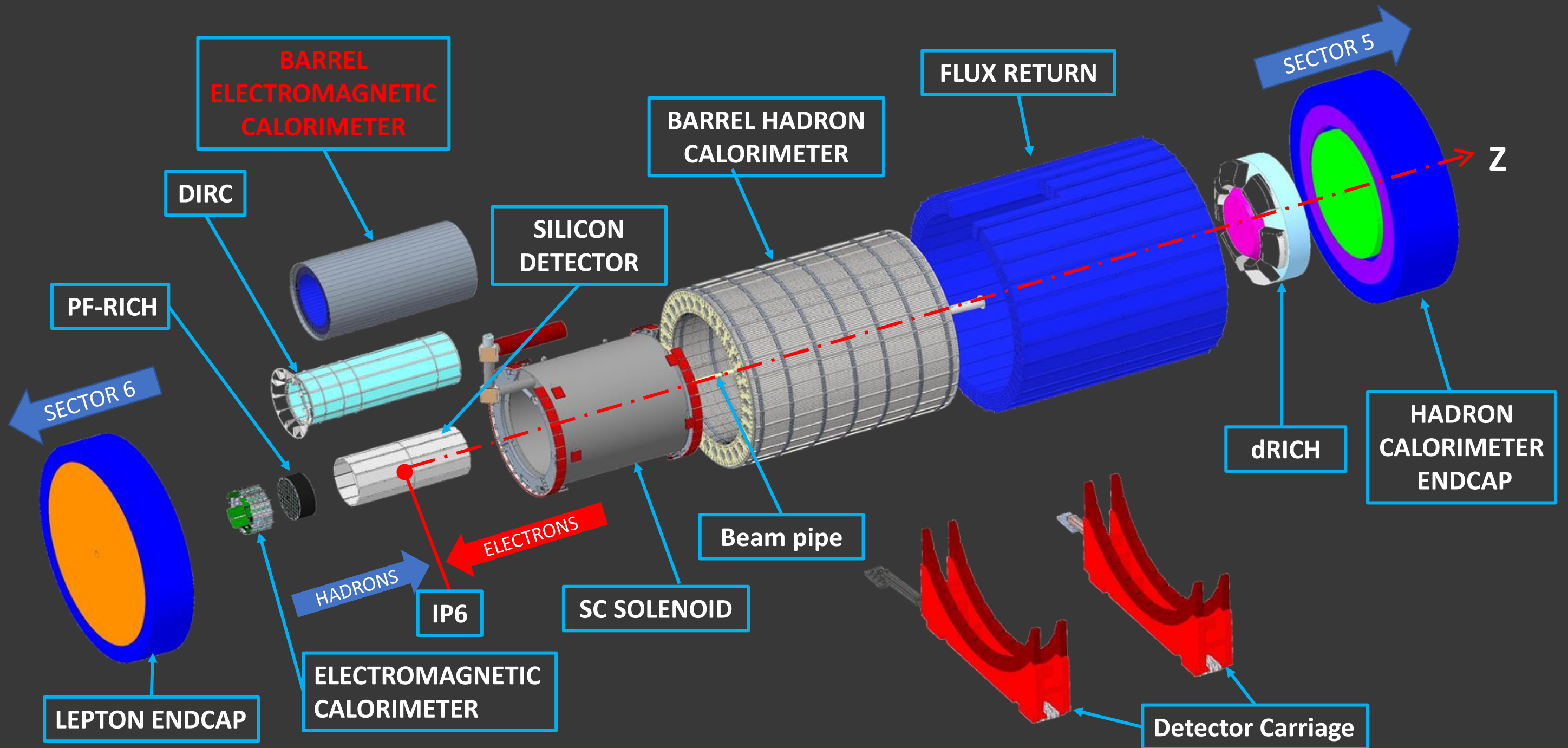


# Barrel EMCal Integration, Assembly and Installation

Dan Cacace



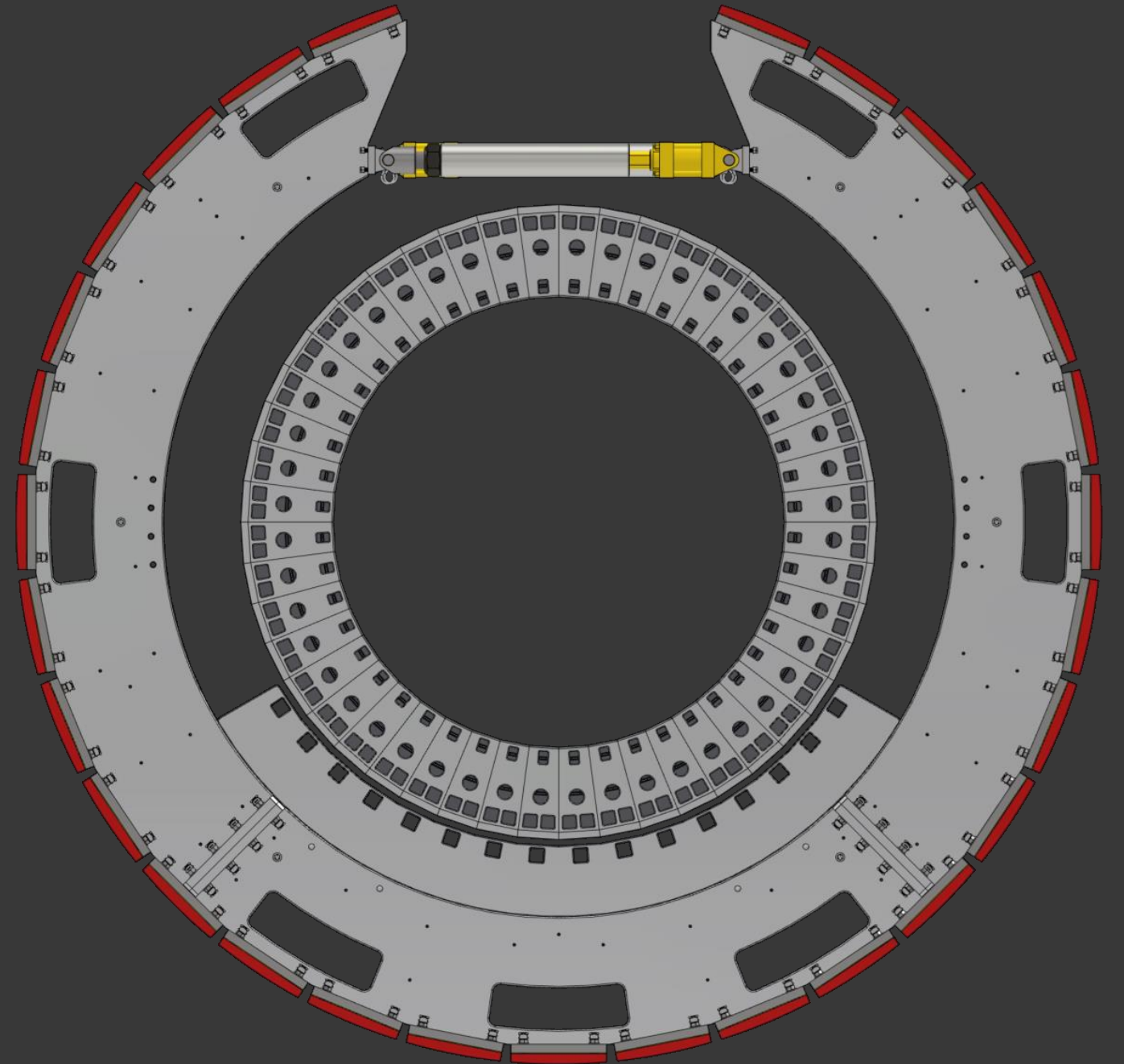
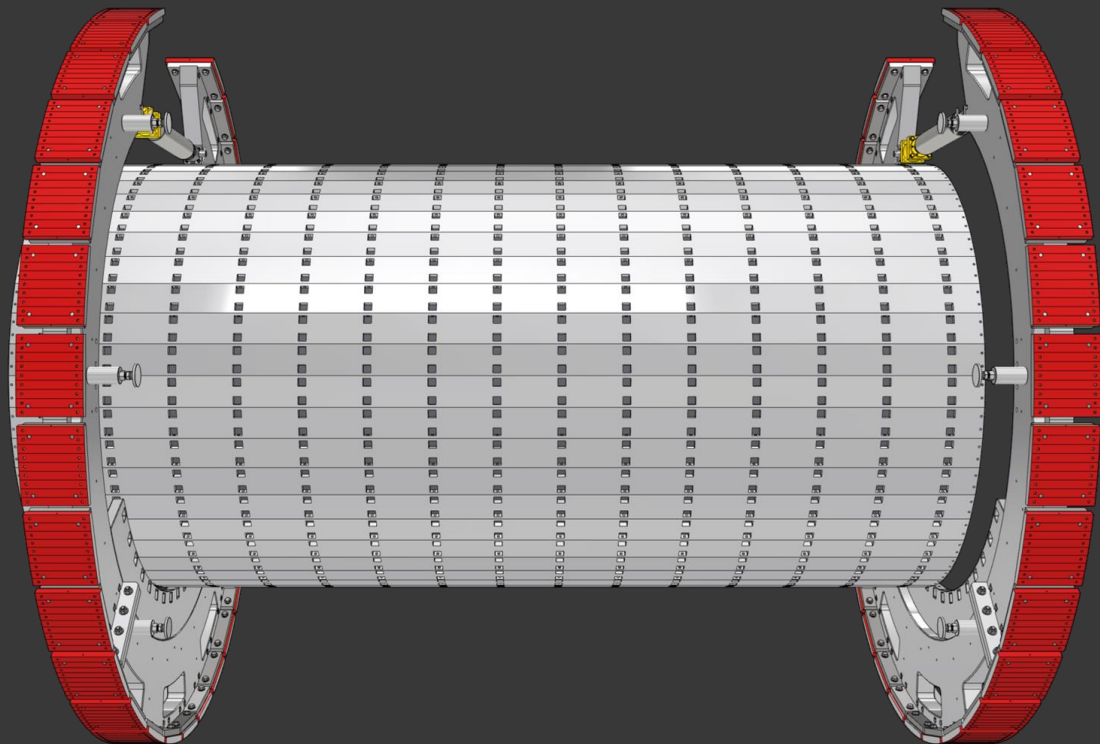
# ePIC Exploded View



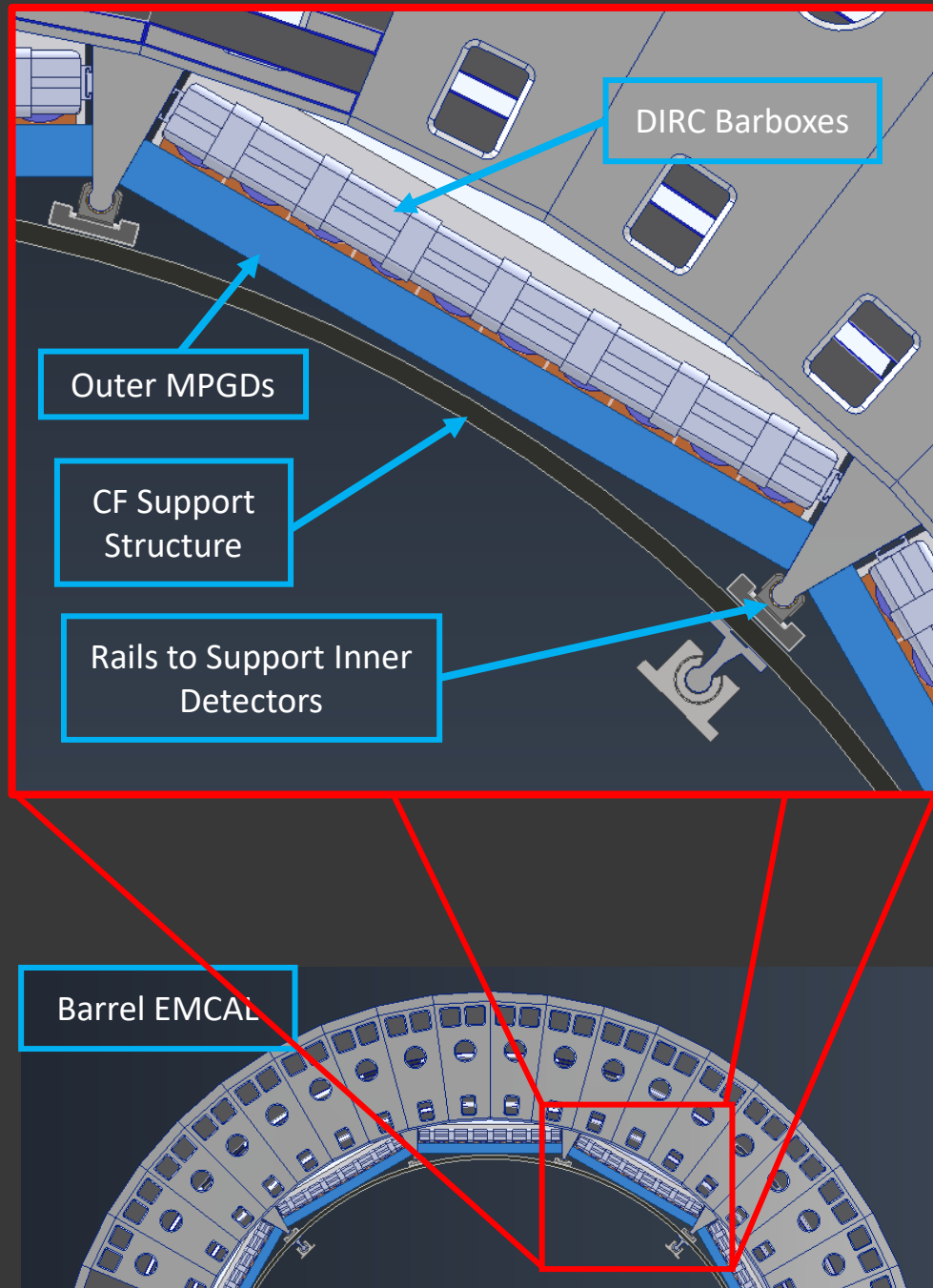


# Support Structure

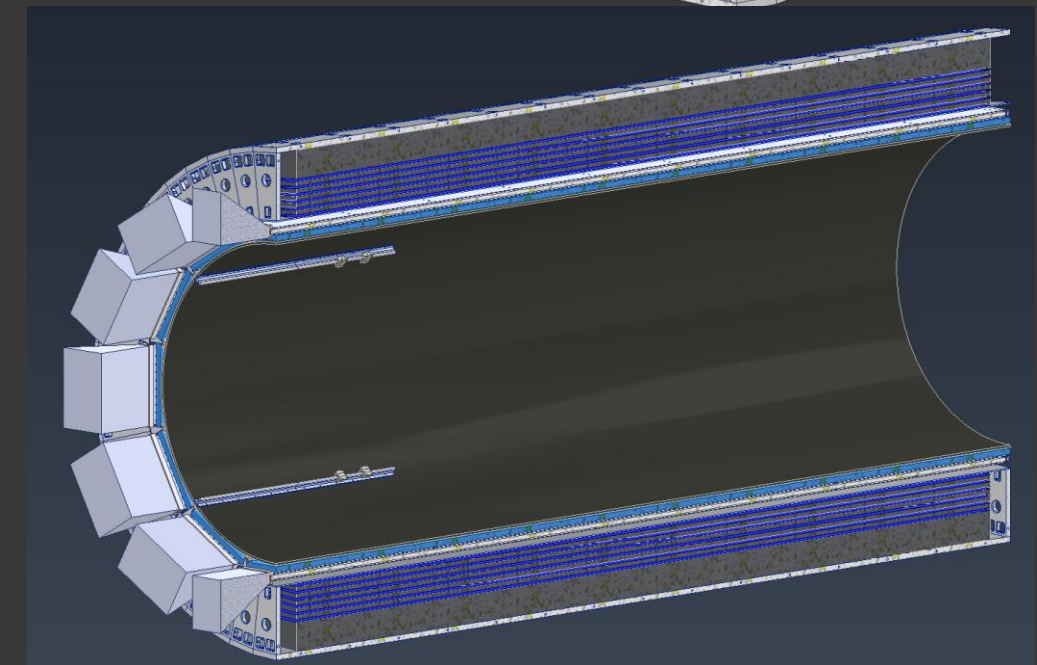
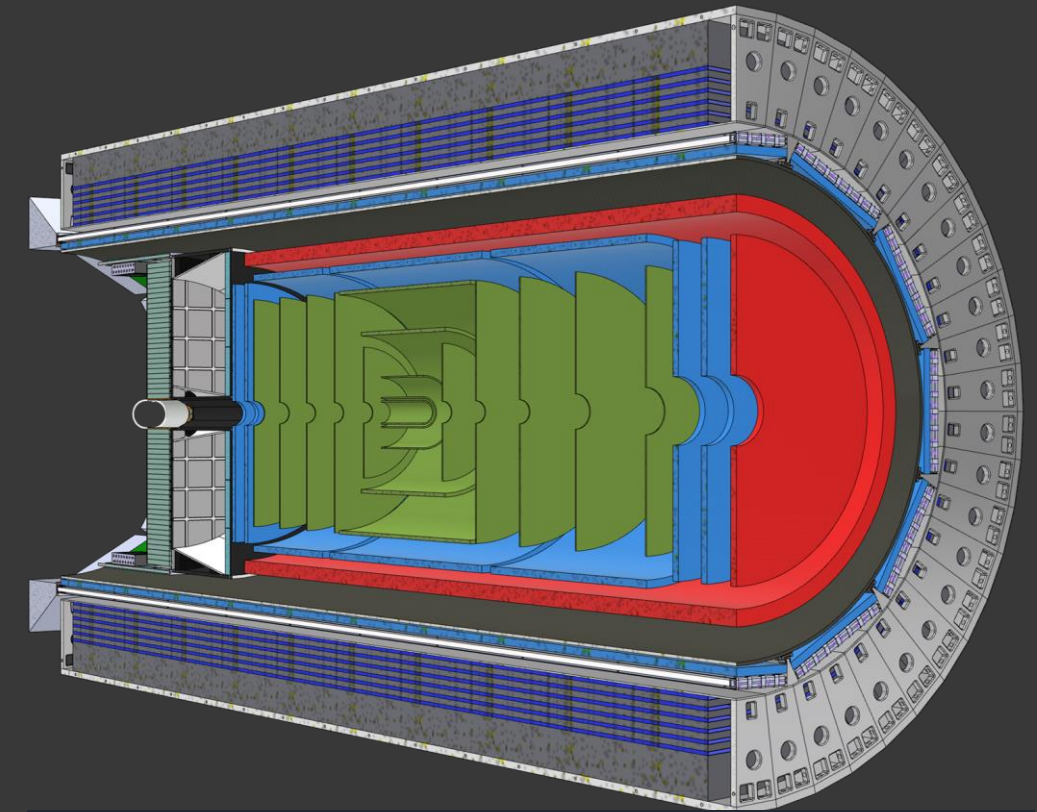
- Support rings are reused from sPHENIX
- Intermediate part needed to bridge/adapt to barrel EMCal
- Additional restrains likely needed for seismic loads.



# Supporting Structures

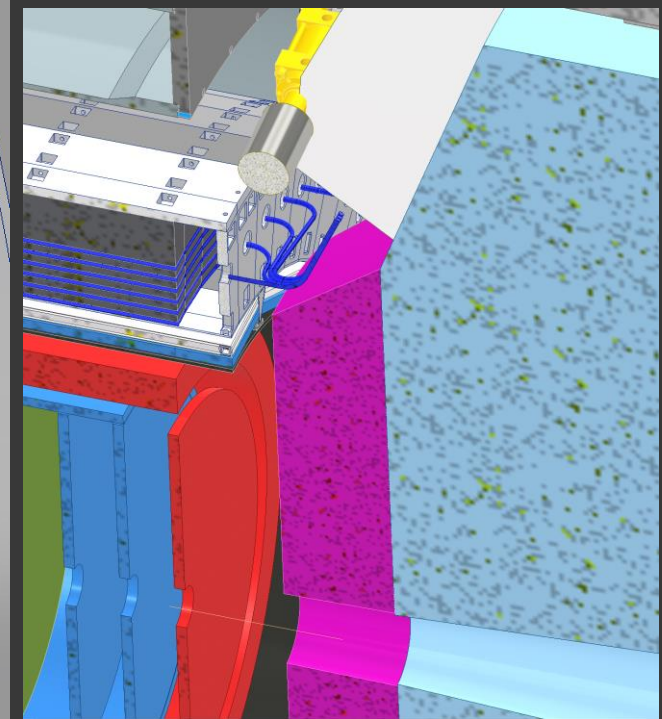
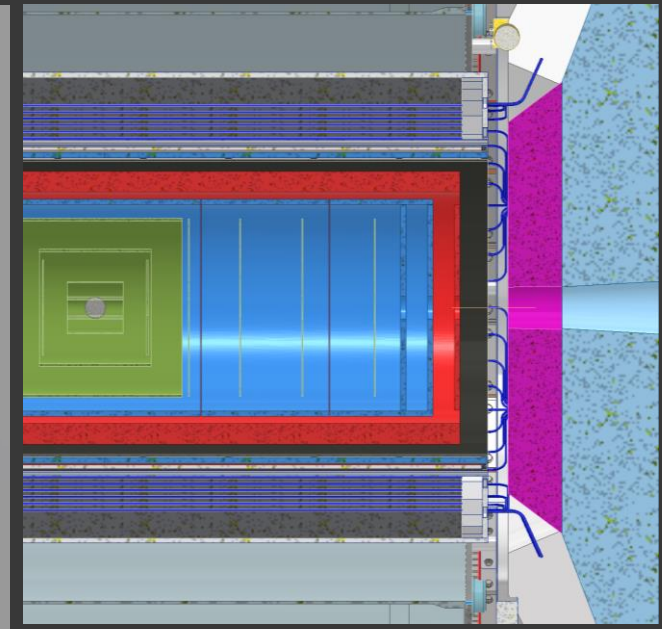
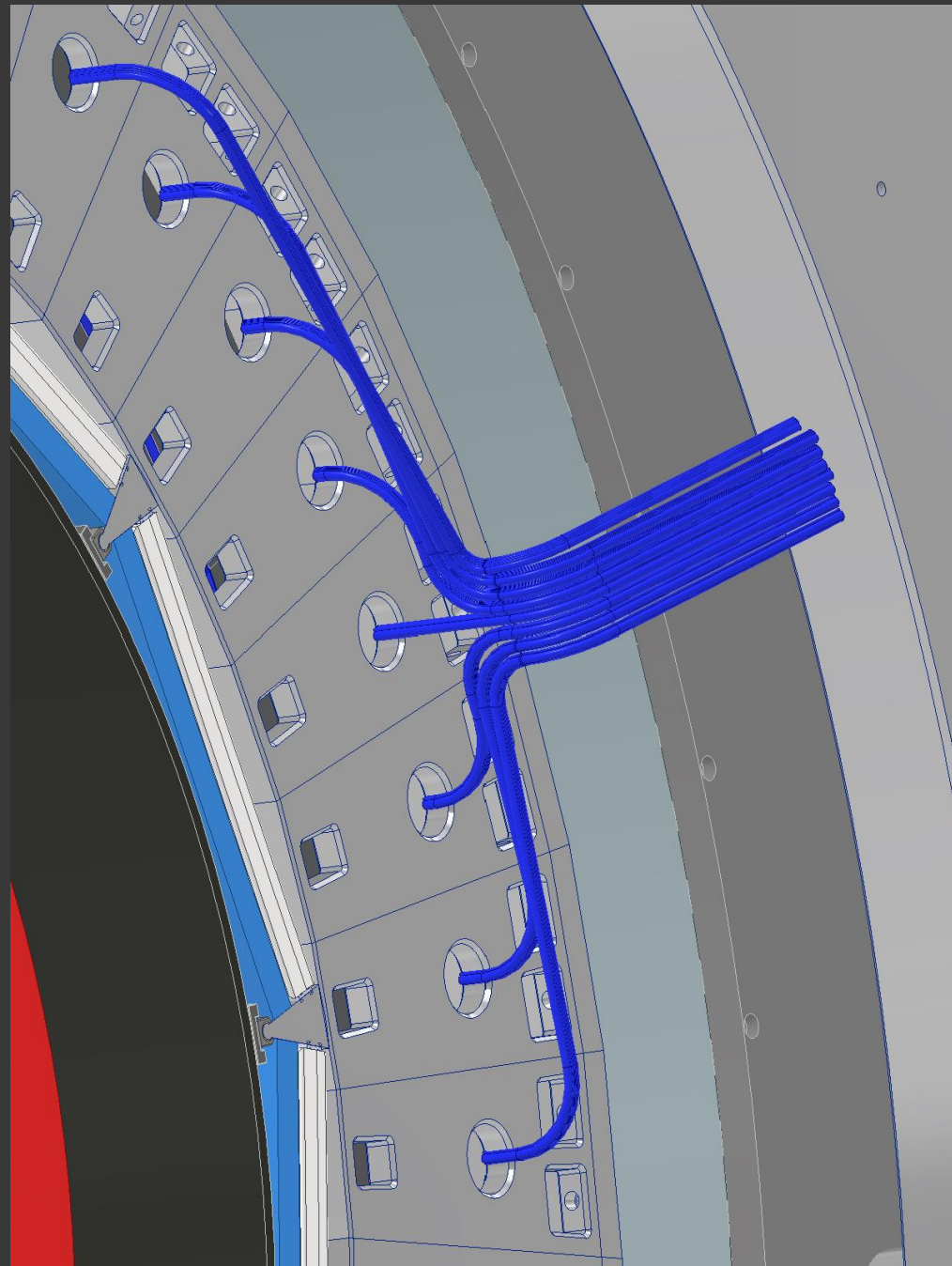
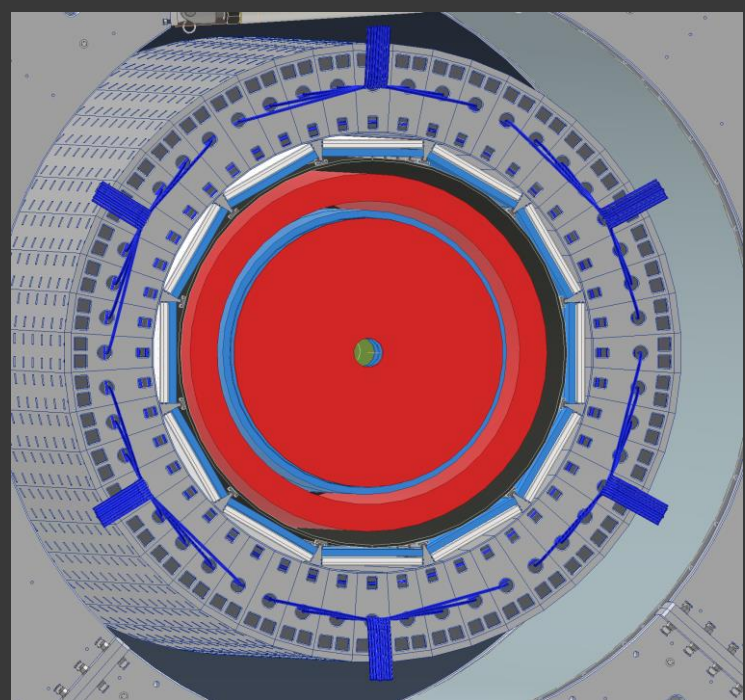


- Current plan is to use barrel EMCAL for support of Inner Detectors.
- Outer MPGDs and DIRC barboxes will be nested in the area between rails.
- A carbon fiber support structure supported using barrel EMCAL will support all the inner detectors.
- Separate Rails will be used for EEEMCAL and pFRICH Installation.
- Gaps between the EEEMCAL and the carbon fiber cylinder will allow for inner services to be brought out.



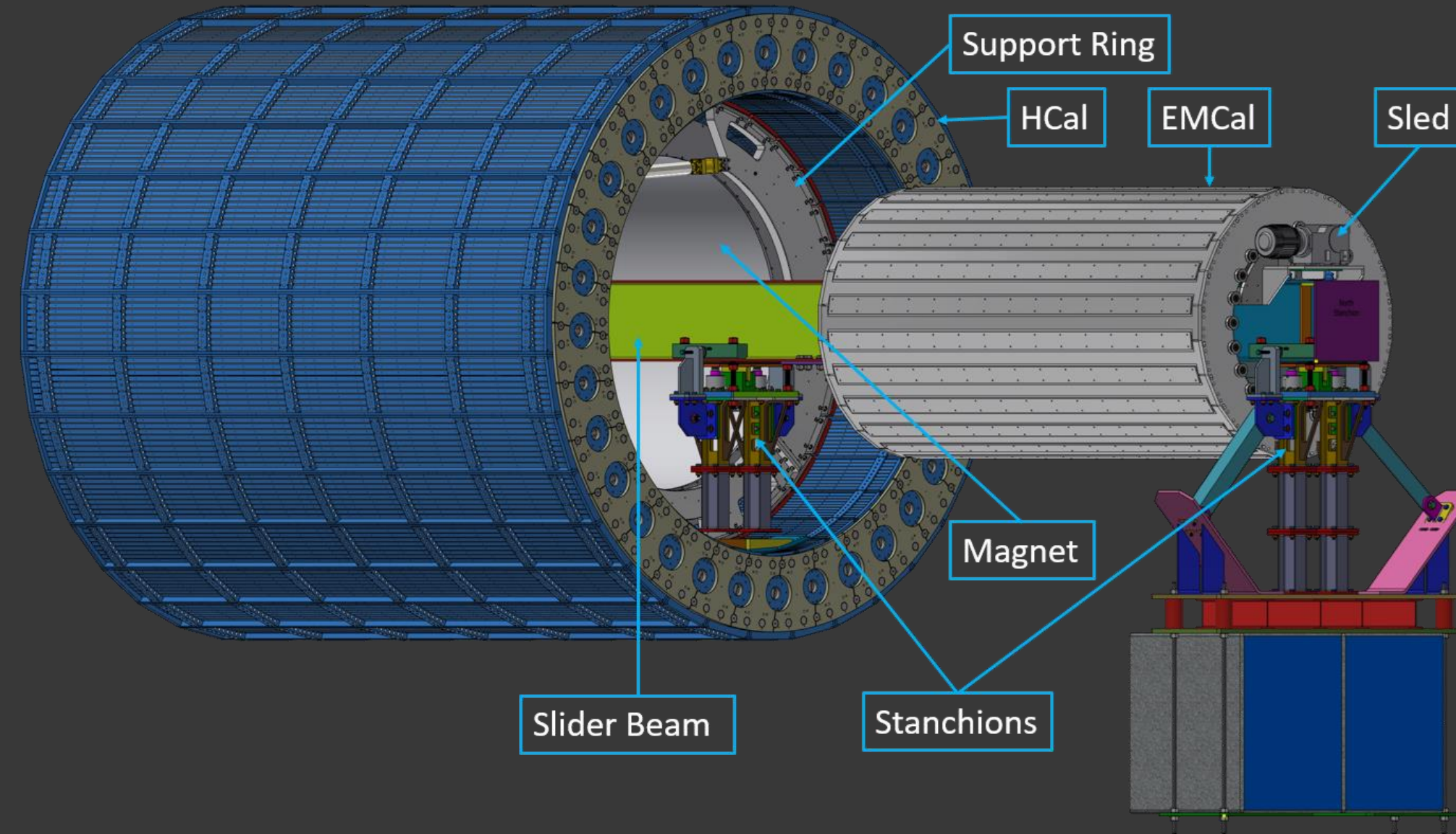
# Services

- Current estimate of services.
- South: divided into 6 groups around dRICH electronics boxes
- North: Need to avoid DIRC prisms.



# Installation Tooling

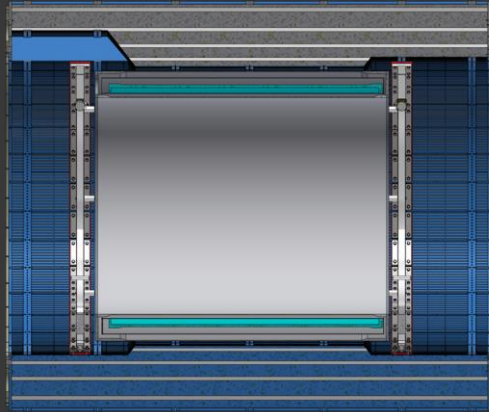
- Use existing installation tooling from sPHENIX that was used to install Inner HCal as shown in photo (modification needed).



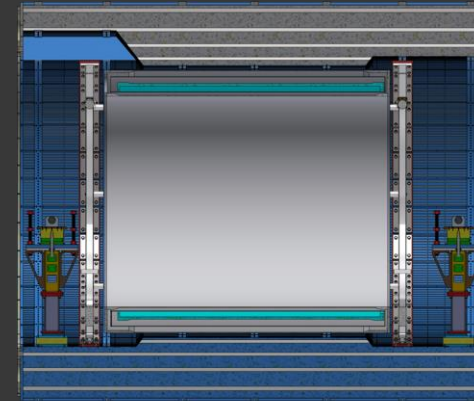
# Installation



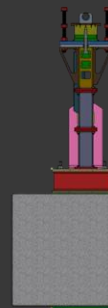
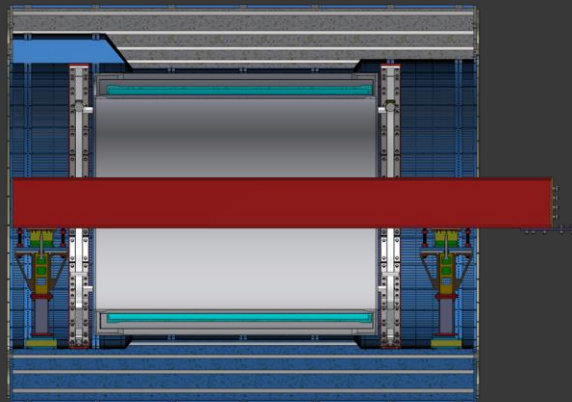
## 1. Prepare Area



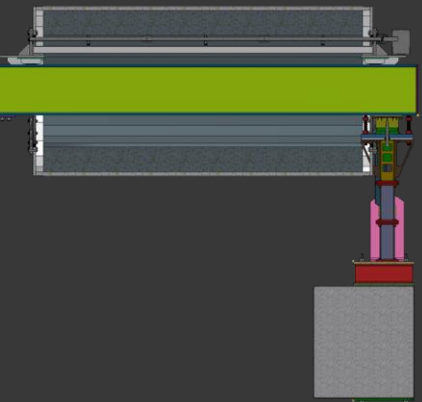
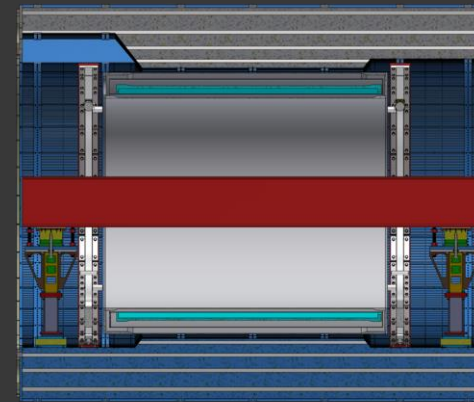
## 2. Install Stanchions



## 3. Install Long Slider Beam



## 4. Attach Short Slider Beam with EMCal/Sled

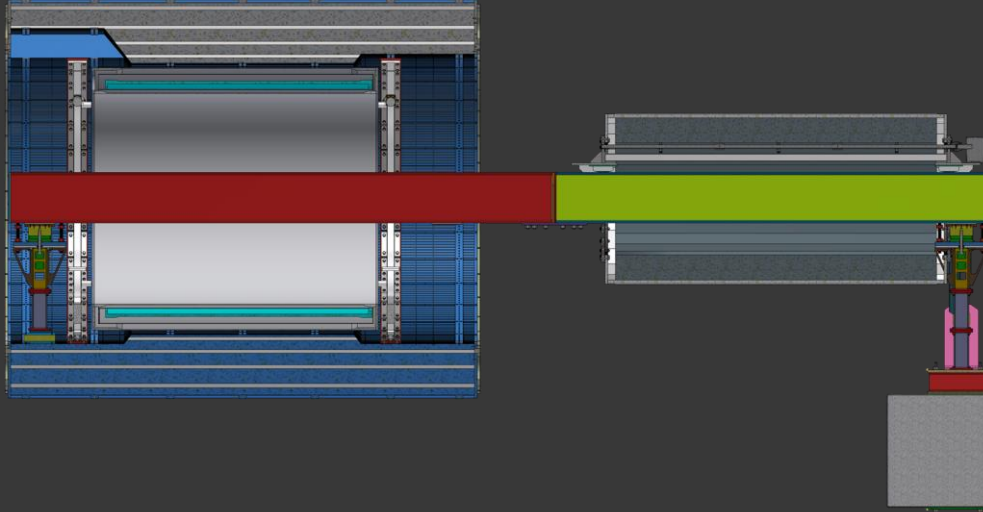




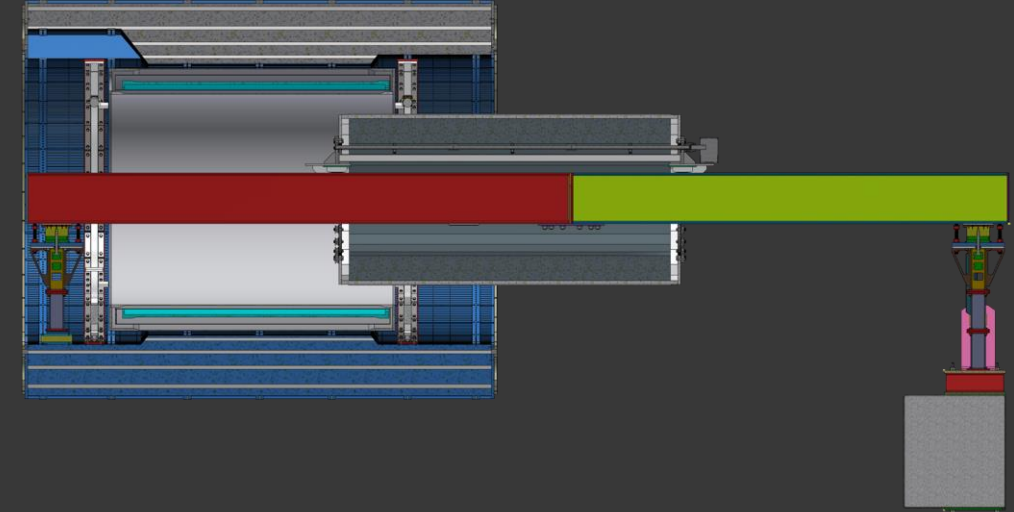
# Installation



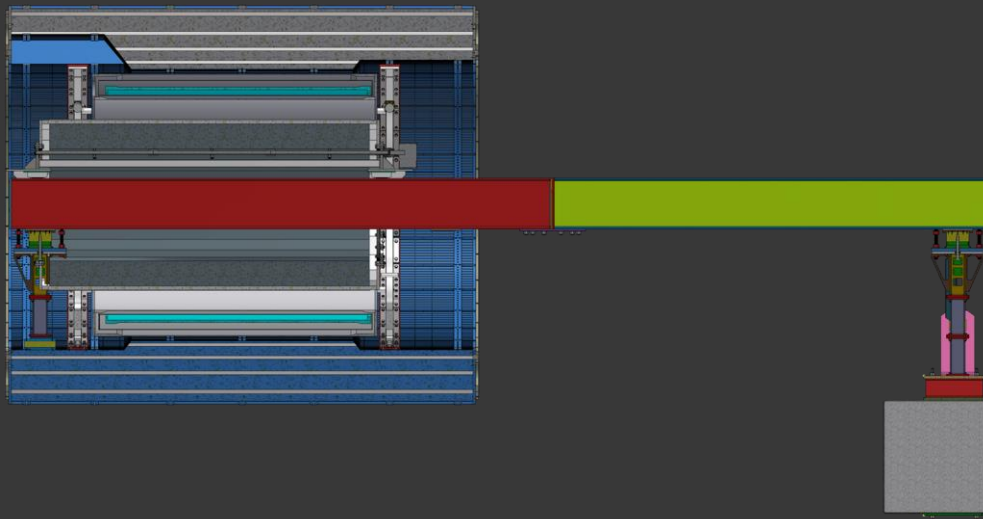
## 5. Remove Center Stanchion



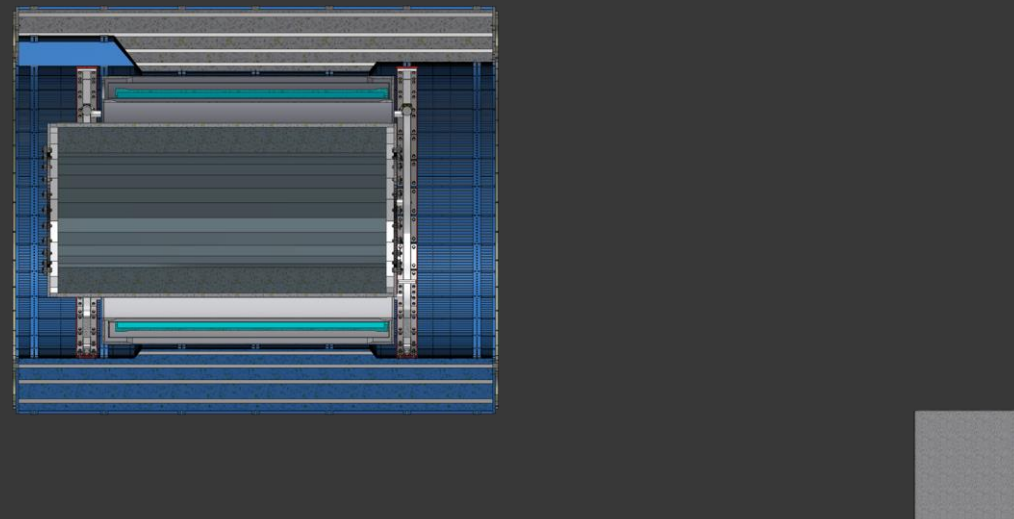
## 6. Install EMCaI



## 7. Attach EMCaI to Support Rings

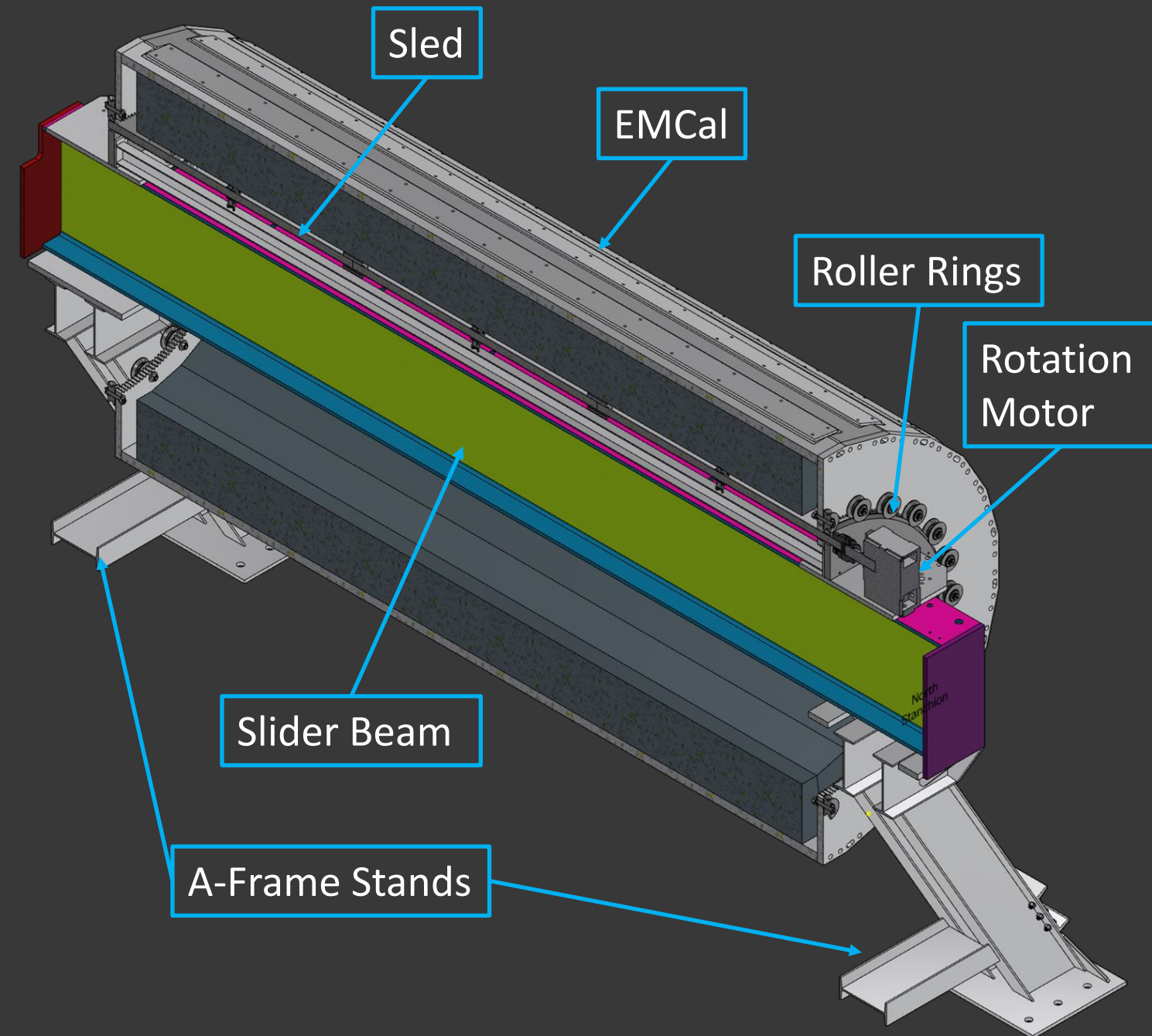


## 8. Reverse install steps to remove beams



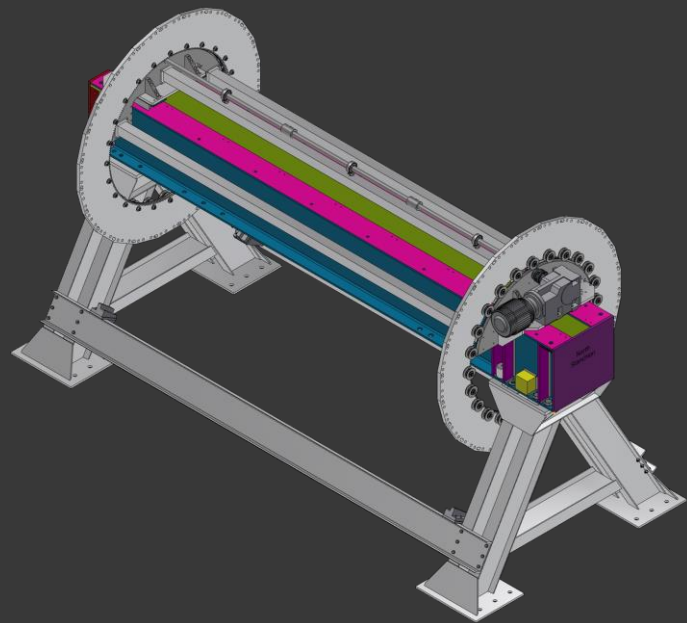
# Assembly Fixture

- A-frames used if under 40Tons (AH crane limit).
- Otherwise assemble during step 4 of installation.
- Assembly steps the same either way.

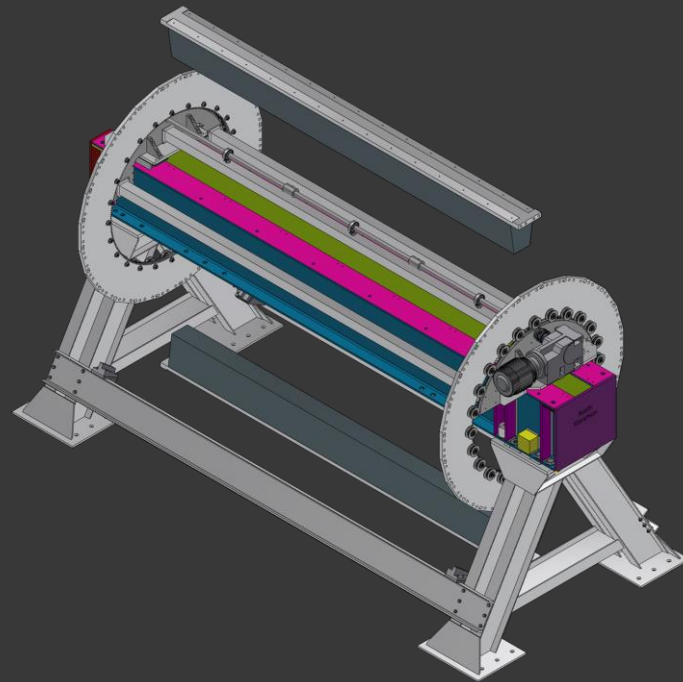


# Assembly

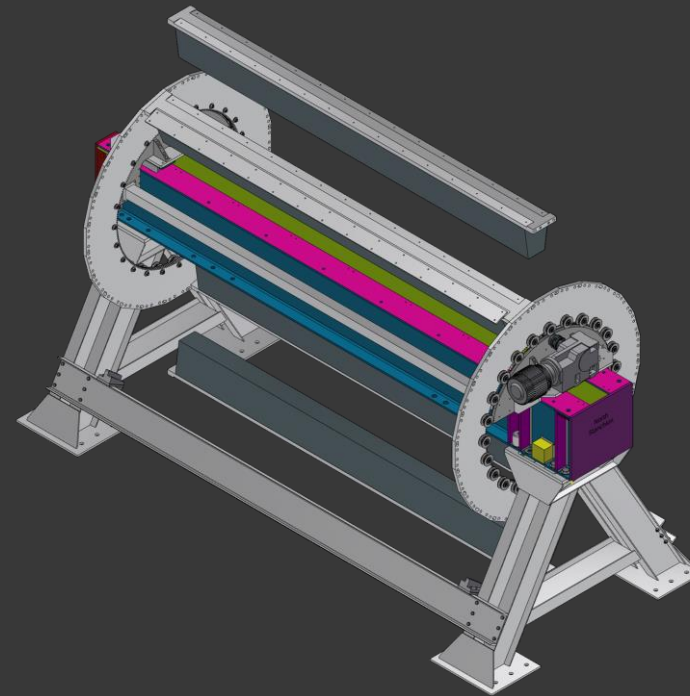
## 1. End Rings in Place, No Sectors



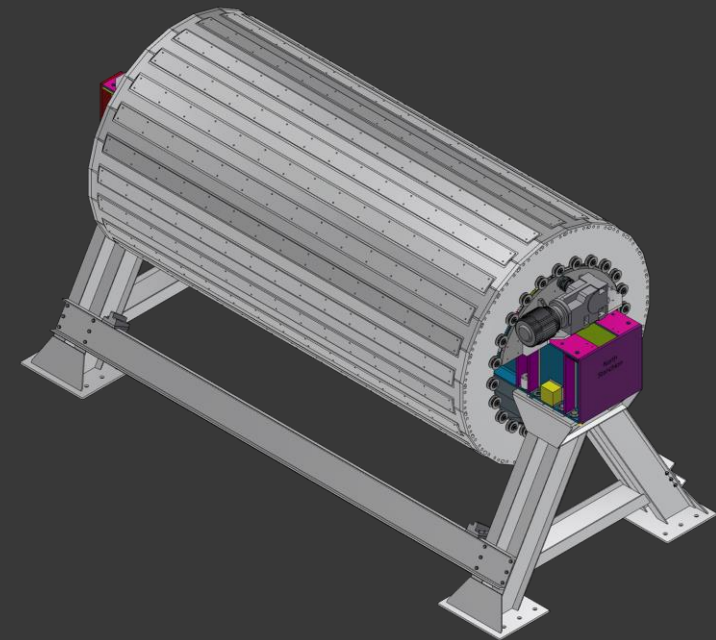
## 2. Install Top and Bottom Sectors



## 3. Attach Sector, Rotate and Repeat



## 4. All Sectors Installed

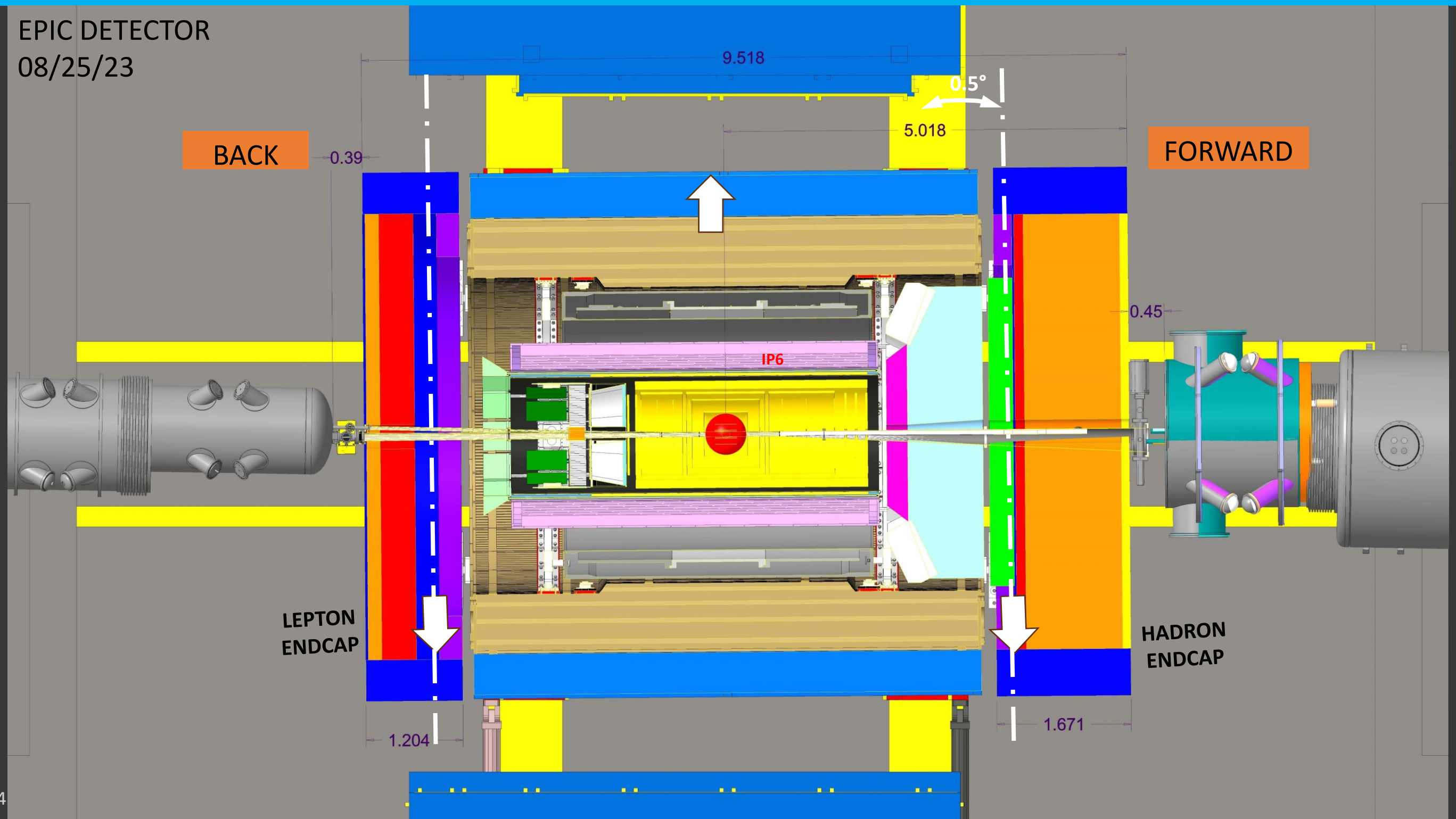




# Backup

# Top-Down Cross-Section

EPIC DETECTOR  
08/25/23



# Installation Sequence

