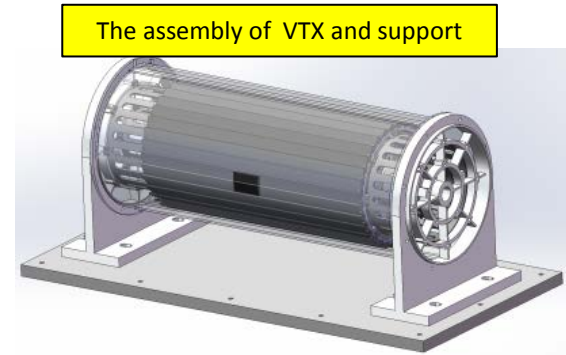
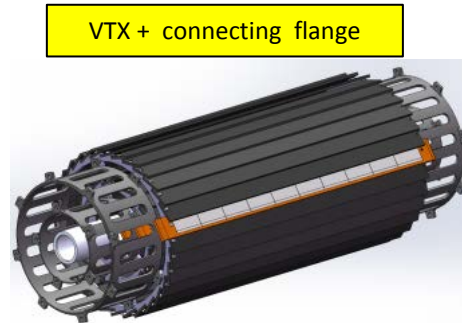
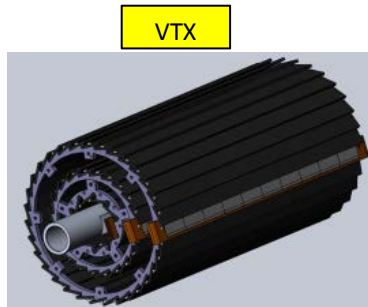


# Status of the mechanical support of VTX prototype

Jinyu Fu/IHEP

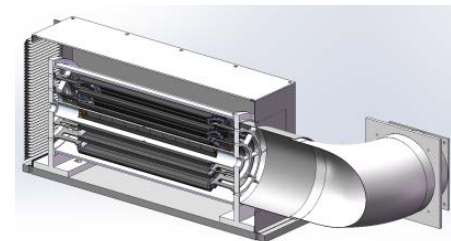
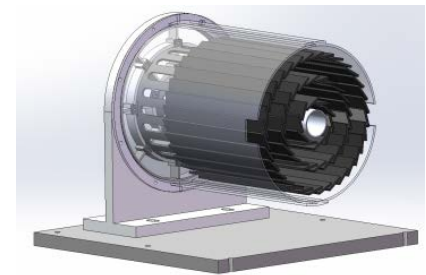
2021-3-10

# The Mechanical Support of VTX Prototype



*For the VTX prototype, the design of barrels with two halves assembled is also being considered.*

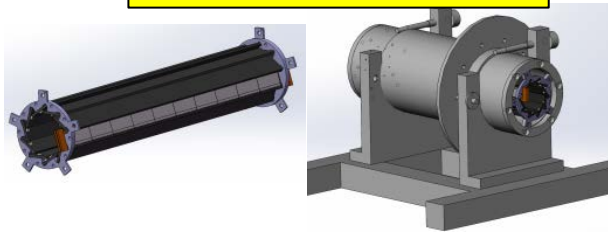
- Engineering drawings of some trial parts of the support structure (e.g. the side ring) are going on, the materials and manufacturers are also under investigation.
- Fabrication of some trial parts made of composite will start.



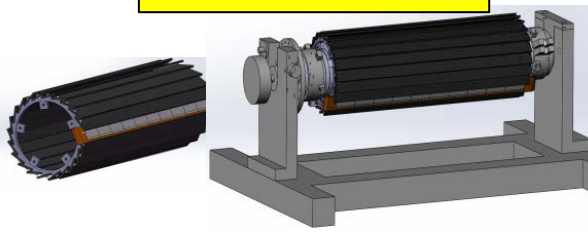
# Tooling Design for Barrels Assembling

- 3 sets of tooling for barrel assembling.
- tooling and customized tool for inner and middle barrels assembling.

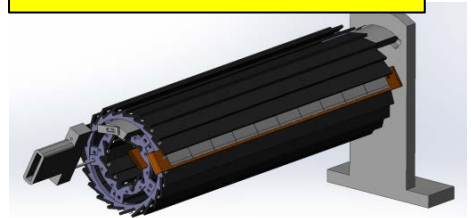
Inner barrel and tooling



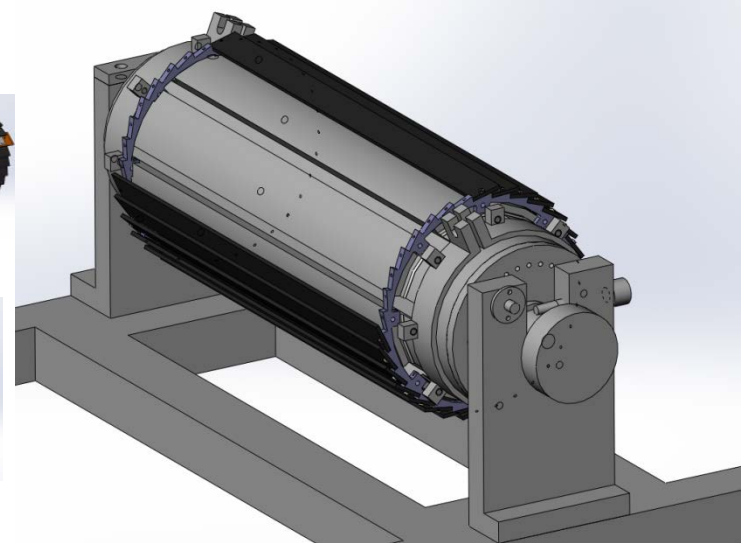
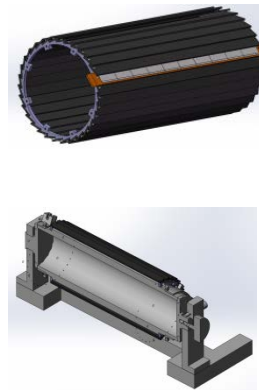
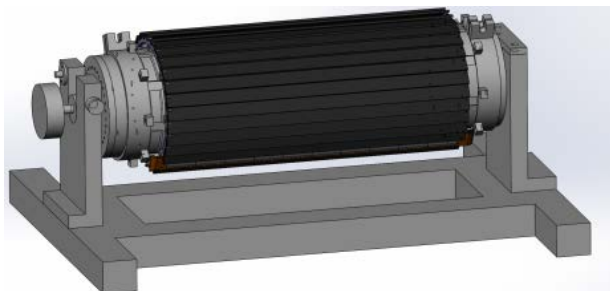
Middle barrel and tooling



Inner and middle barrels combination and customized tool



Outer barrel tooling

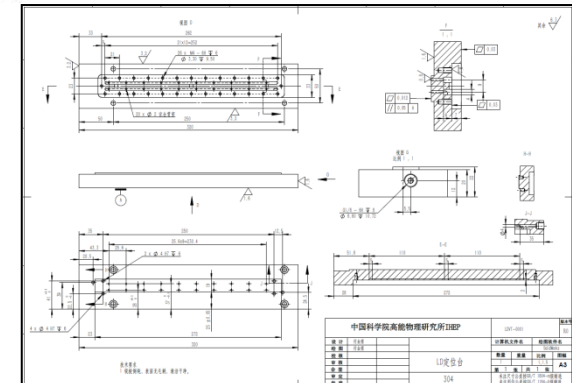
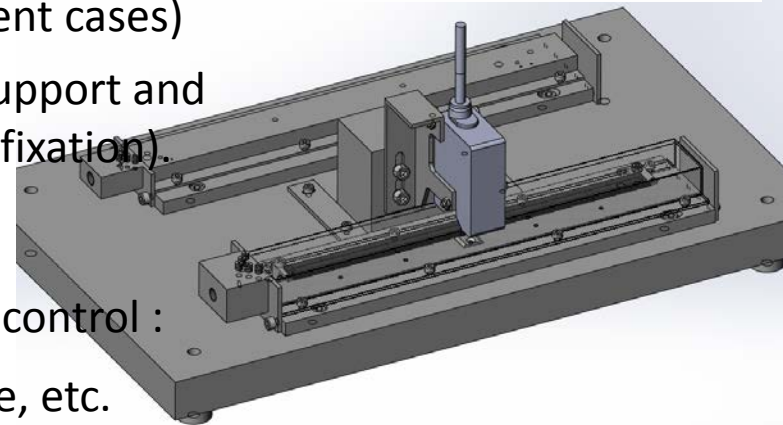
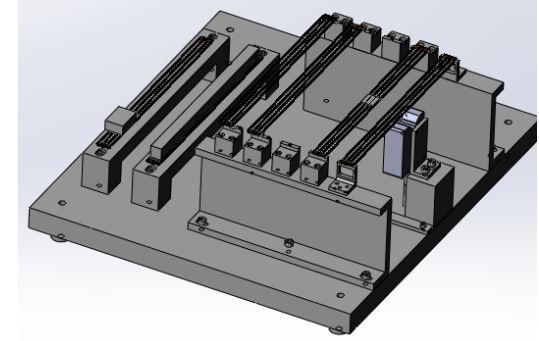


# Design of Platforms for Testing

Most of the ladder prototype (and VTX) test related items have been considered.

- Detailed designs of platform and tooling for different test.
  - Static (different support and load cases)
  - Vibration and cooling + pressed air (different cases)
  - Vacuum test - for surface check of ladder support and ladder and procedure training (i.g. module fixation).
- Auxiliary testing tools and instruments have been investigated and being purchased. To measure or control :  
Deformation, temperature, air speed, flow rate, etc.

For the above testing related structure, the designs have been finalized and engineering drawings have been drawn. The inquiry of the production is being made and the fabrication will start soon.

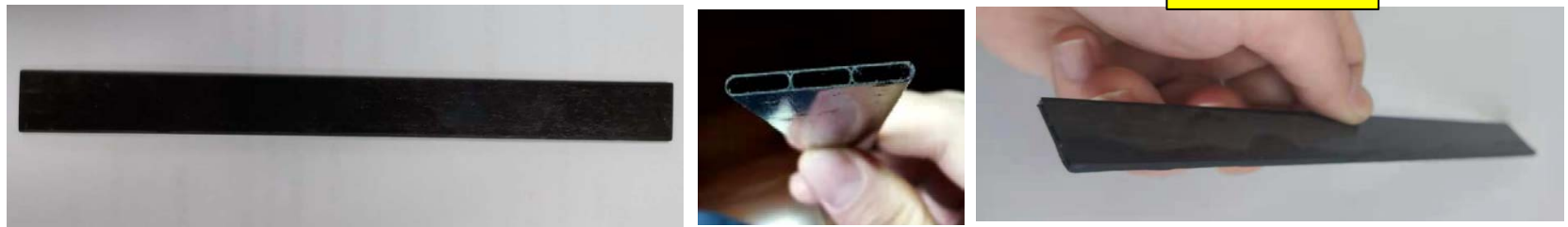


# Prototype of the Ladder Support

## The design model of ladder support



The trial production of the ladder support prototype are being conducted for process validation:



Section 16.8x2 mm, about 180 mm long (not full length) , thickness 0.12 mm.

The design has been validated to be feasible.

Fabrication of the ladder support prototype will start soon.

*Besides, we also try to produce two other ladder support designs I made before, and are communicating and conforming with the manufacturer.*

# Next

- The Ladder support prototype and test platforms will be fabricated and get ready (April). *The first batch of ladder support prototype will be available in March.*
- Testing of the bare ladder support (April).  
(Besides that, more testing of the “ladder” with dummy flex and dummy sensor can also be done once they are ready )
- Finalize the design of general support and tooling and finish the engineering drawings (July).
- Get all mechanical support of the VTX prototype fabricated and assembled (October).