



# TG5: Infrastructure on top of the tank – a virtual tour

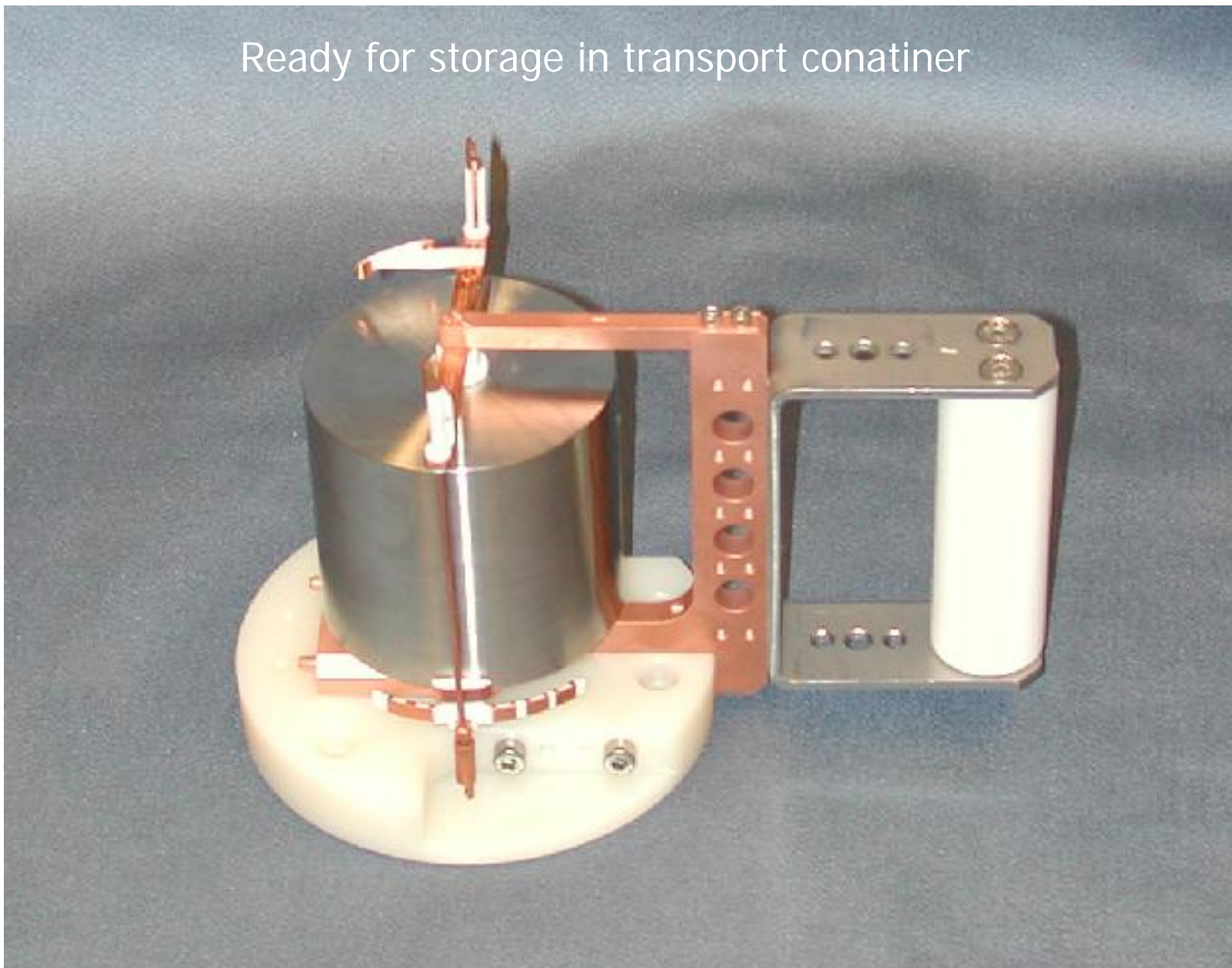
Béla Majorovits for the  
Max-Planck-Institut für Physik, München





## Assembly and test of the detector in Lingolsheim, France:

Ready for storage in transport container







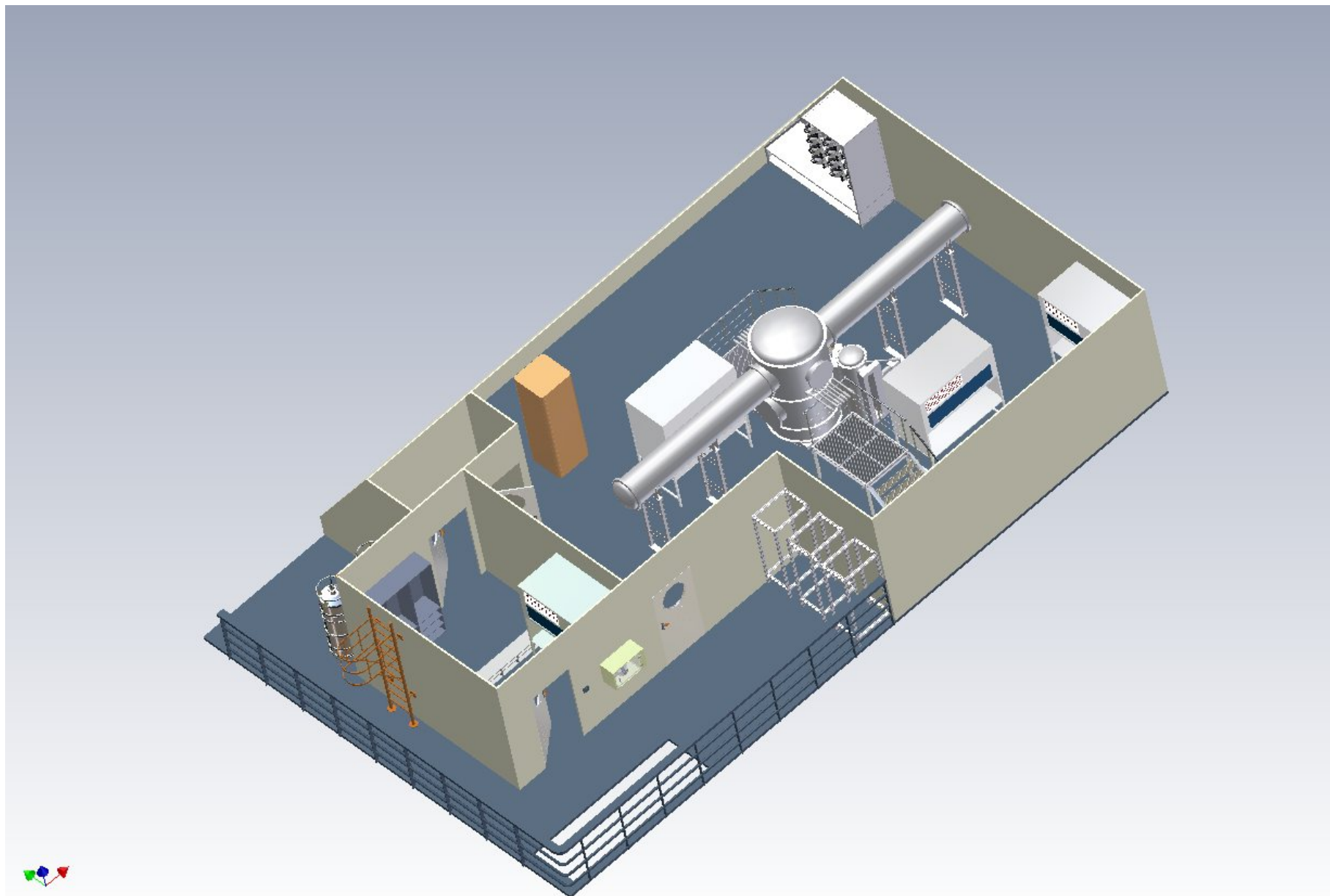
## Pack detector to transport container



Flush with dry nitrogen during storage, pump for transport



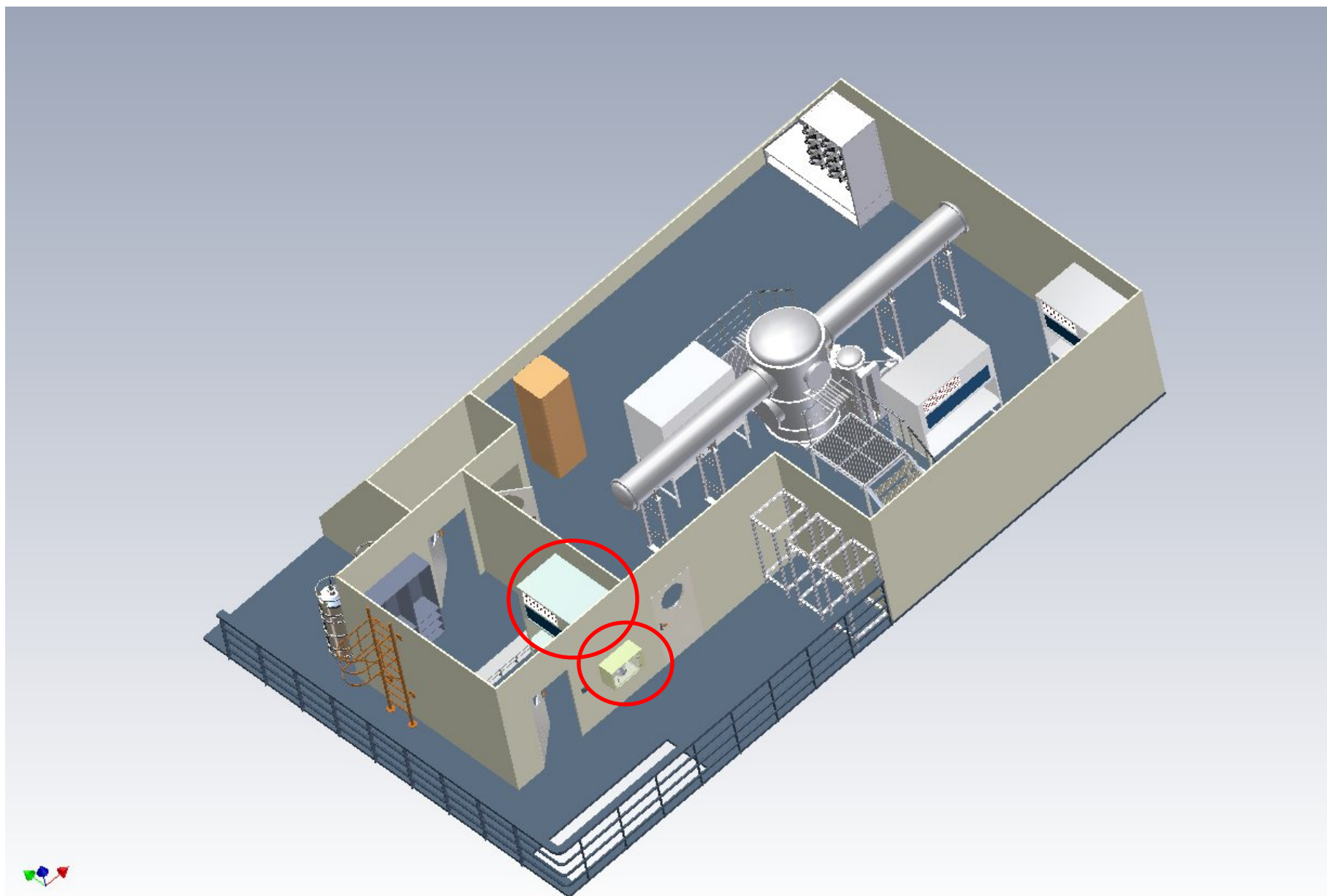
## Transport the container to hall A in LNGS







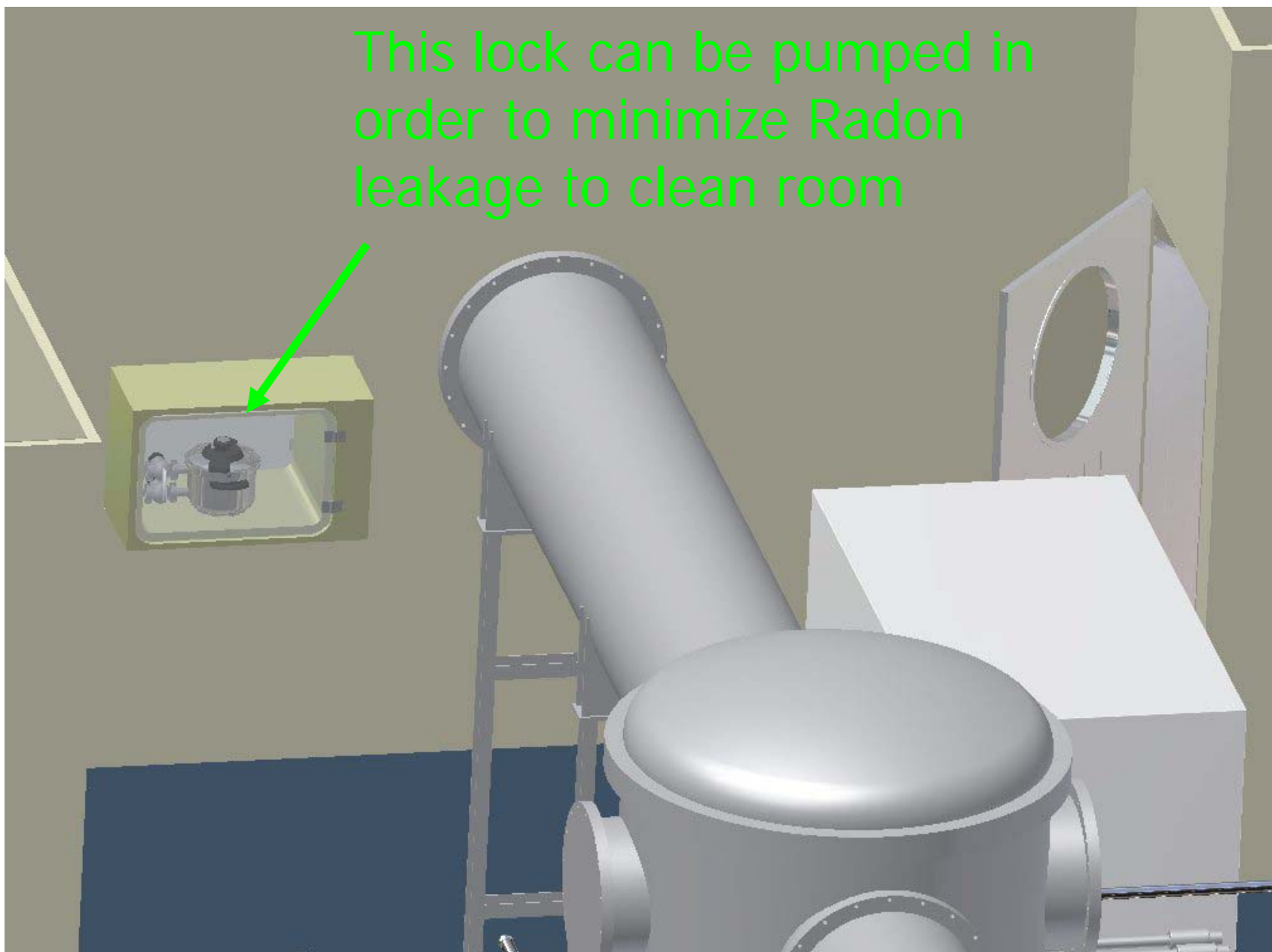
## Bring container to clean room through material lock





Bring container to clean room through material lock

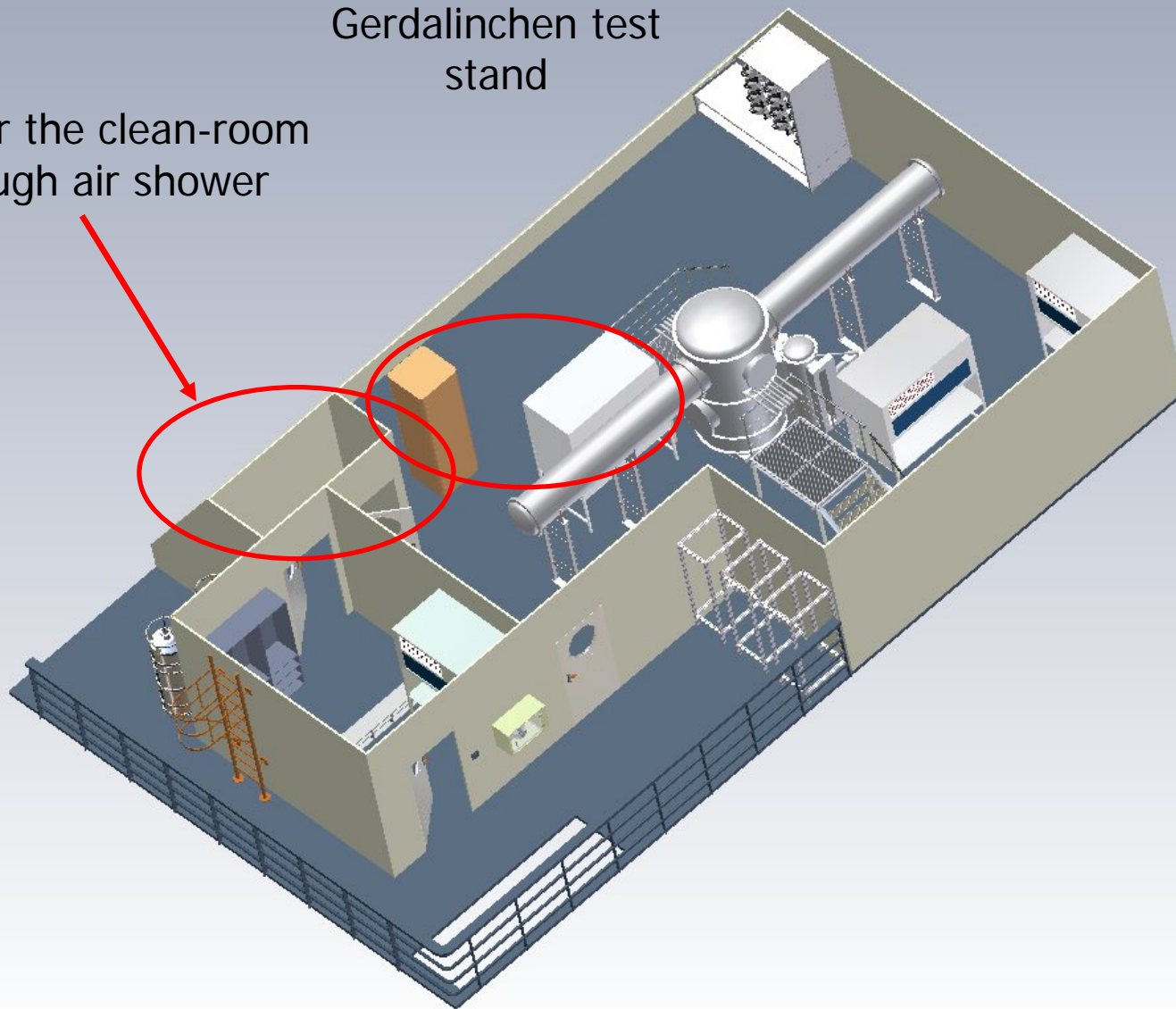
This lock can be pumped in order to minimize Radon leakage to clean room





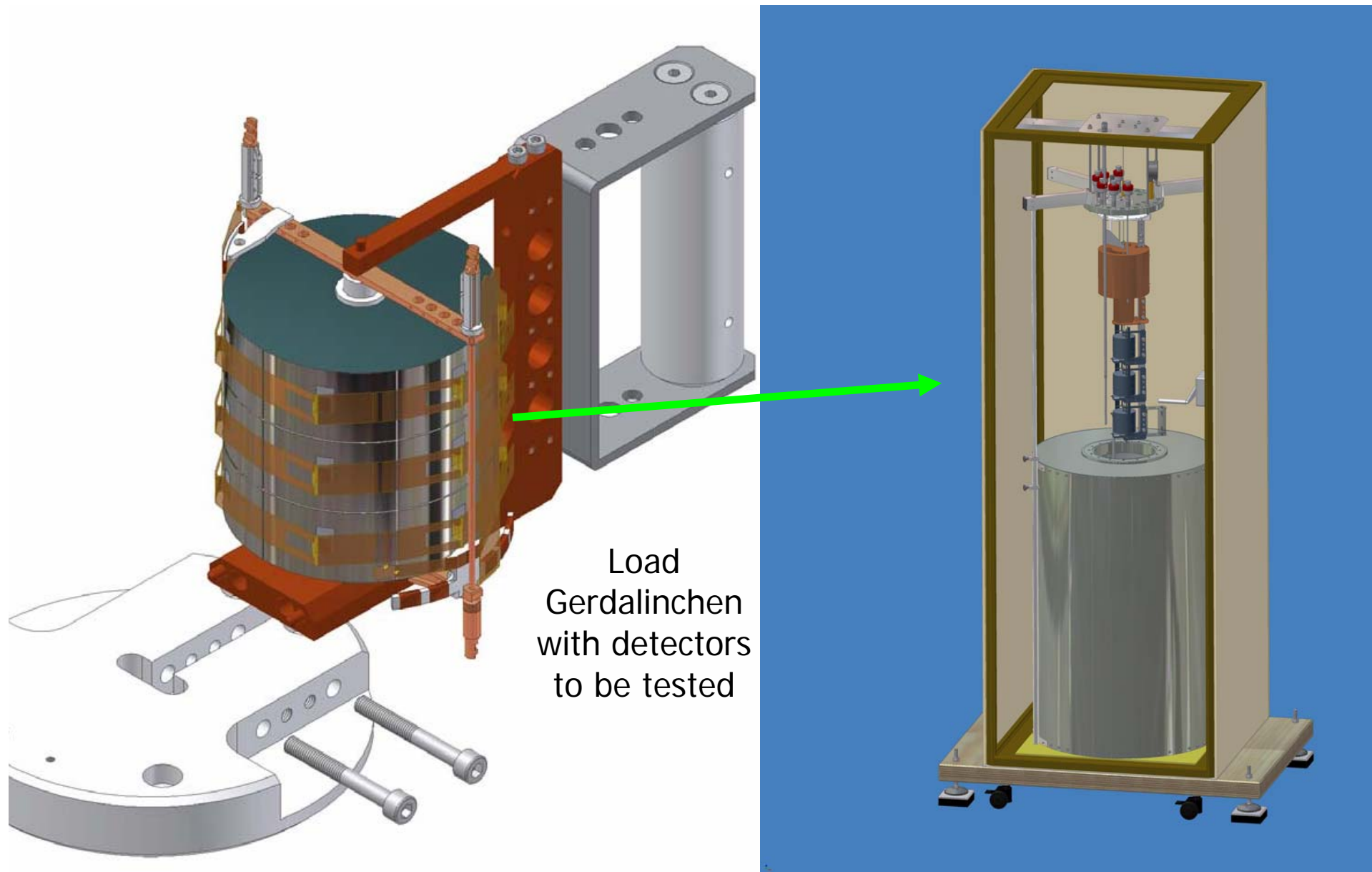
Enter the clean-room  
through air shower

Bring detector to  
Gerdalinen test  
stand





Remove detector from transport container and test contacts in GERDALINCHEN III







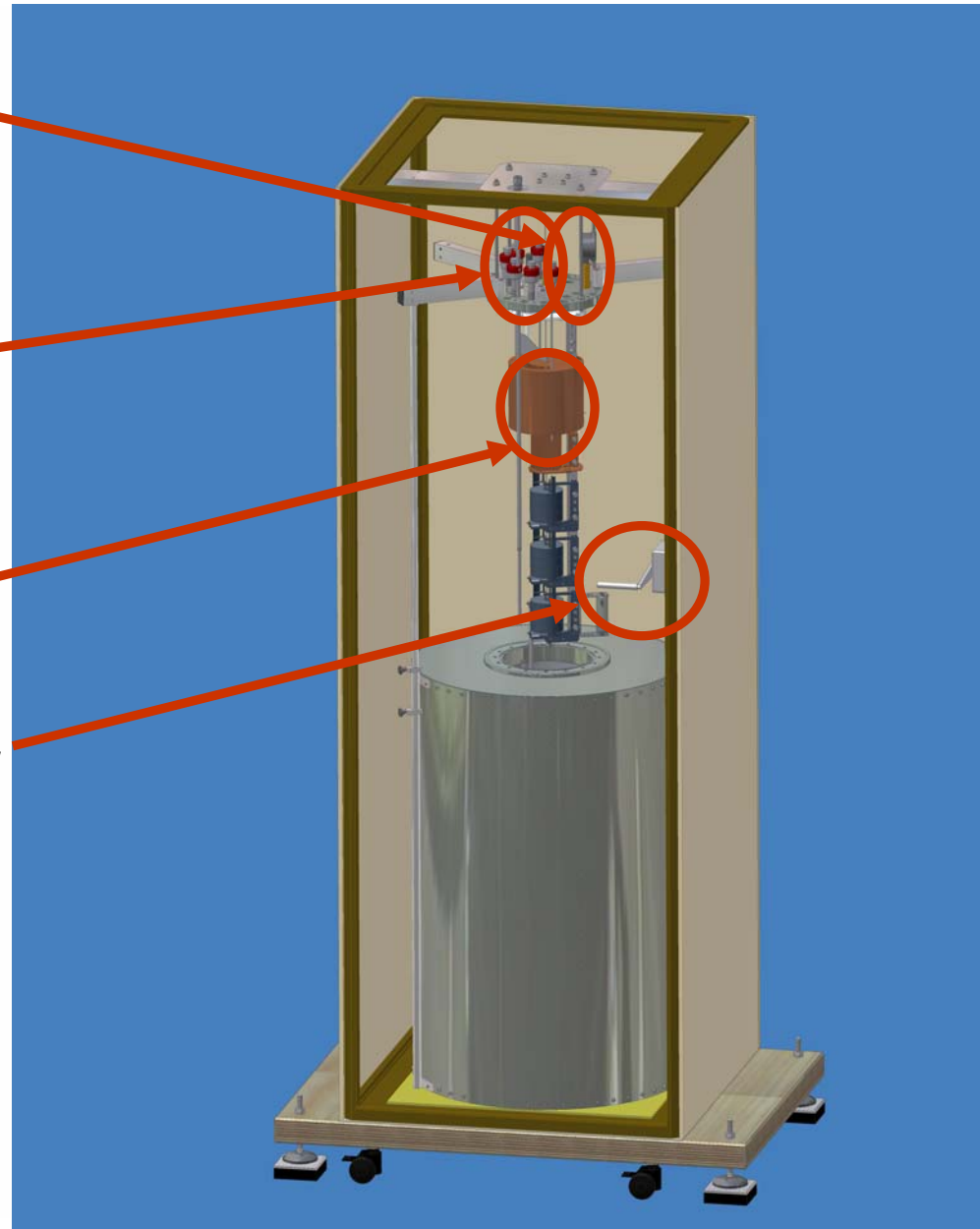
# Test of all contacts GERDALIN

Enough feedthroughs on top to check string with three detectors in one cycle

Liquid Nitrogen/Argon is filled/removed through fore-vacuum-tight feedthroughs

IR-shield

Detectors are lowered by crank lever

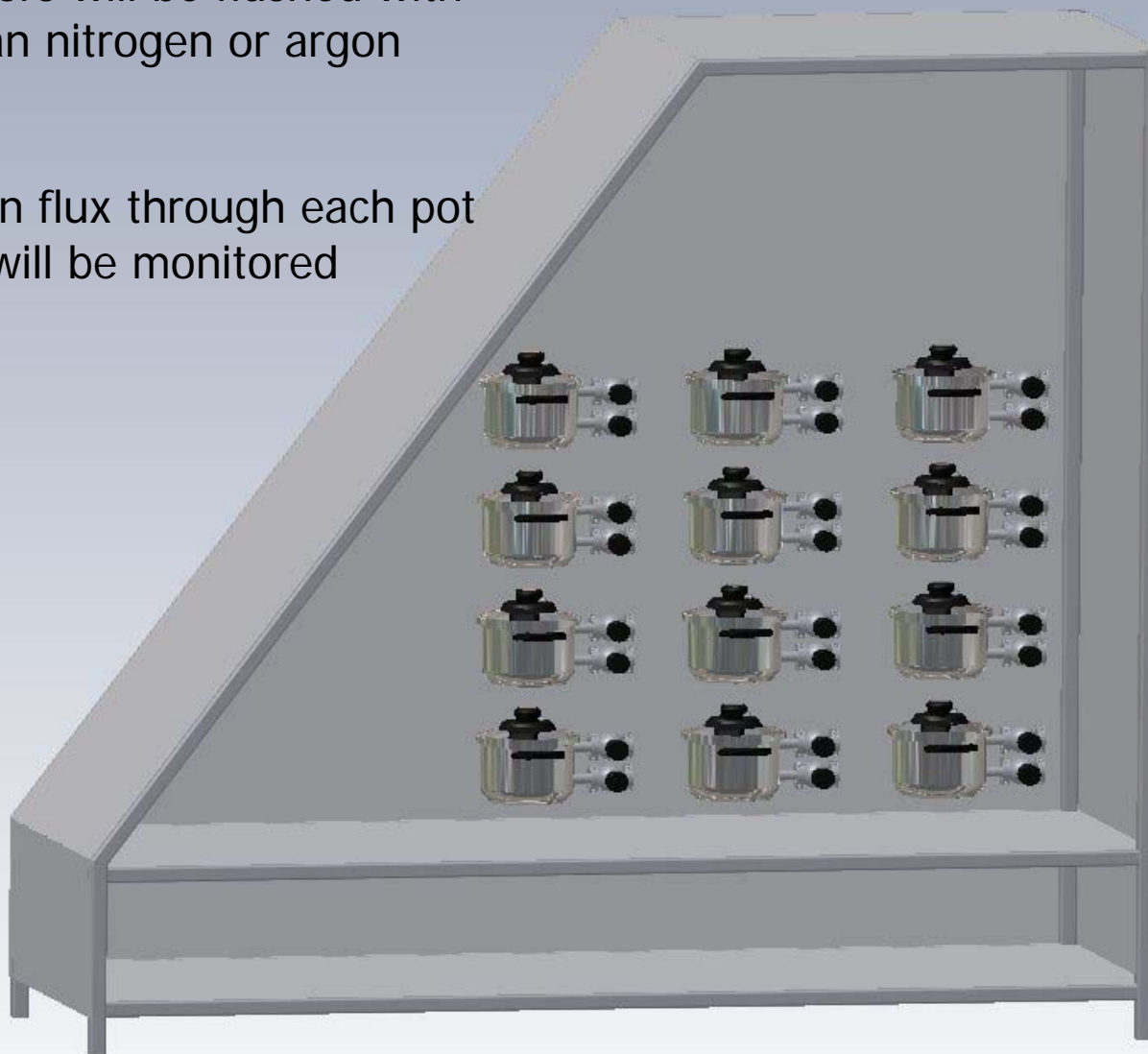




Store detector inside container in cupboard until detectors for one string are tested and ready for assembly of a whole string

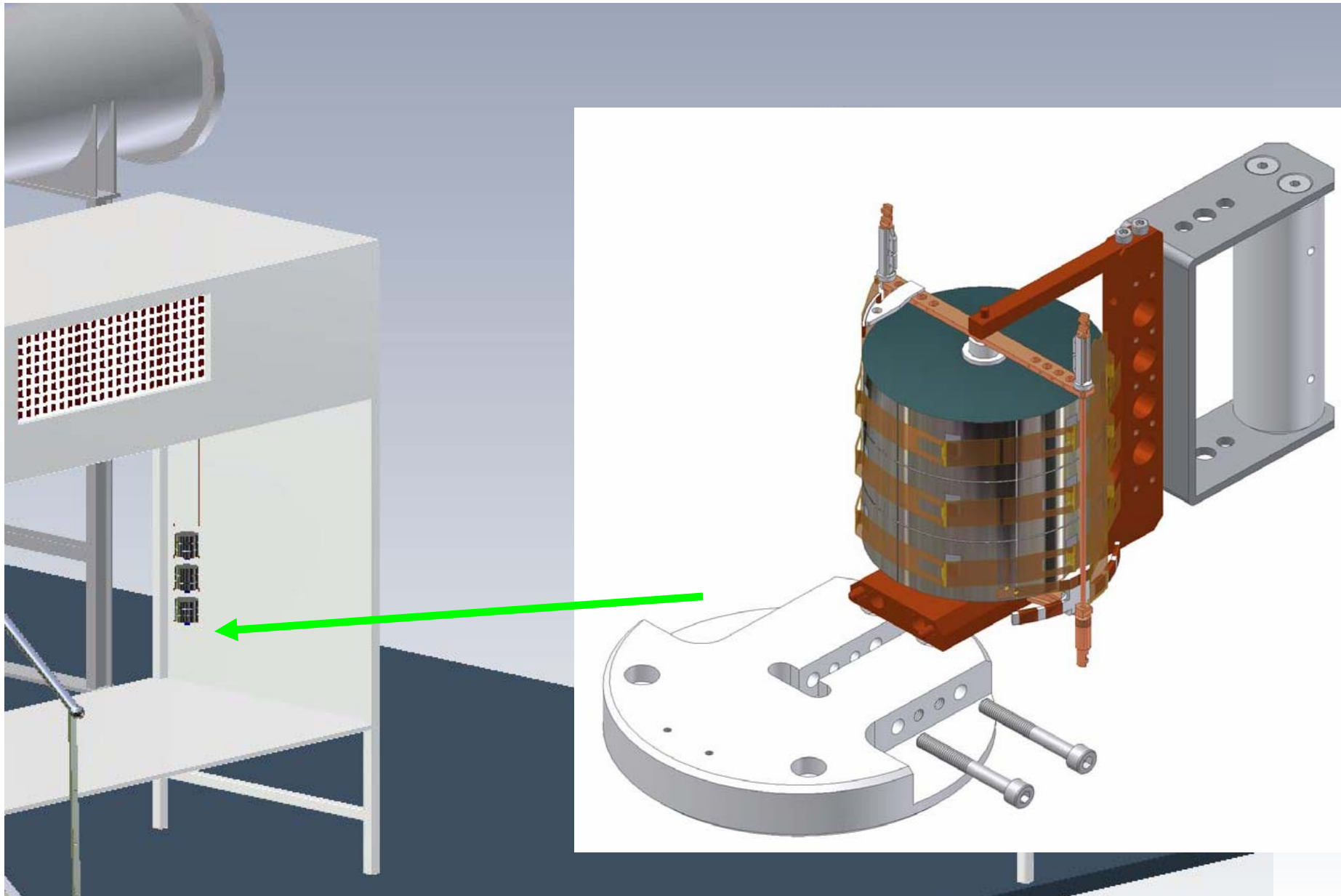
Detectors will be flushed with clean nitrogen or argon

Nitrogen flux through each pot will be monitored





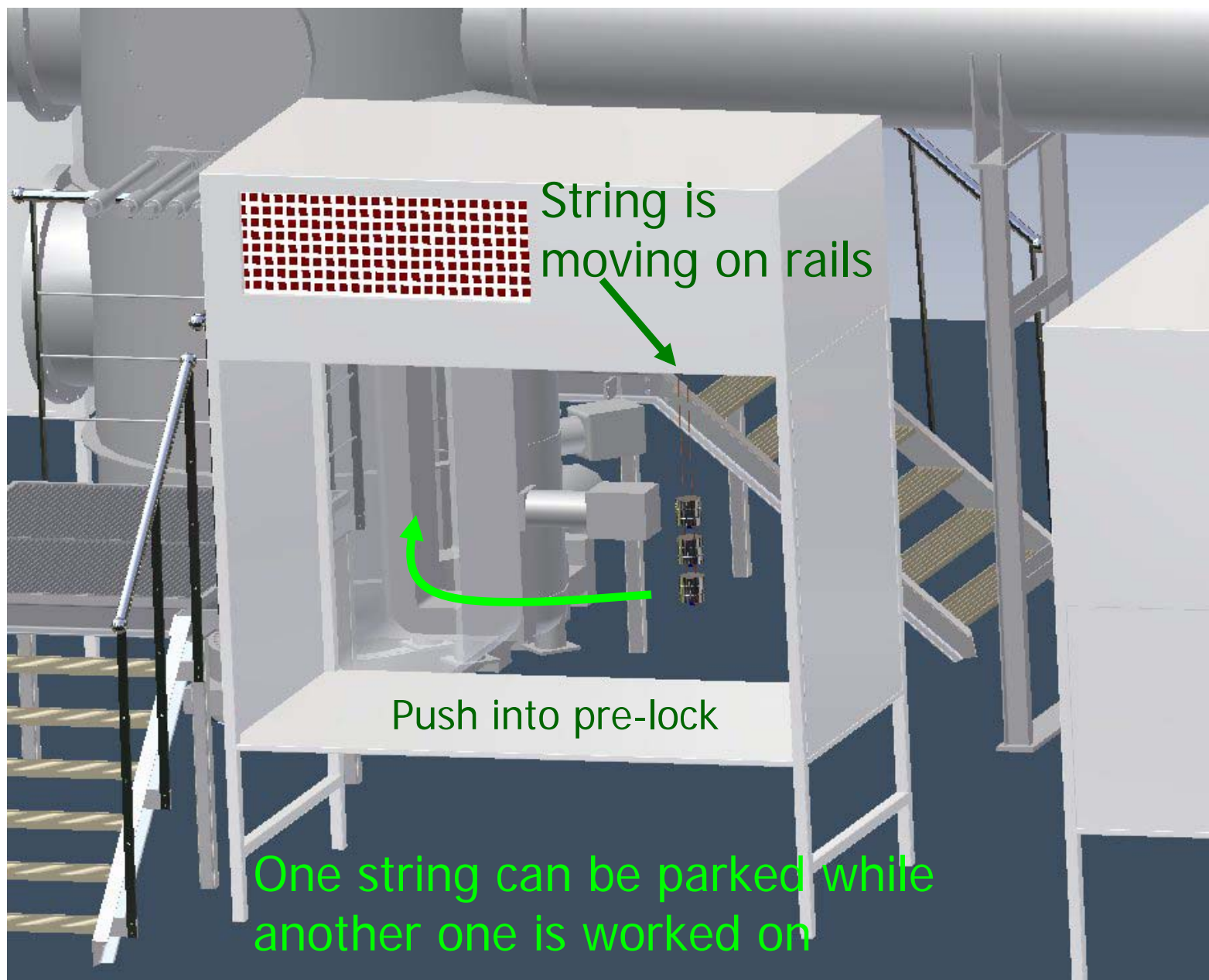
Prepare Assembly station. Prepare first string (mount detectors, make contacts).

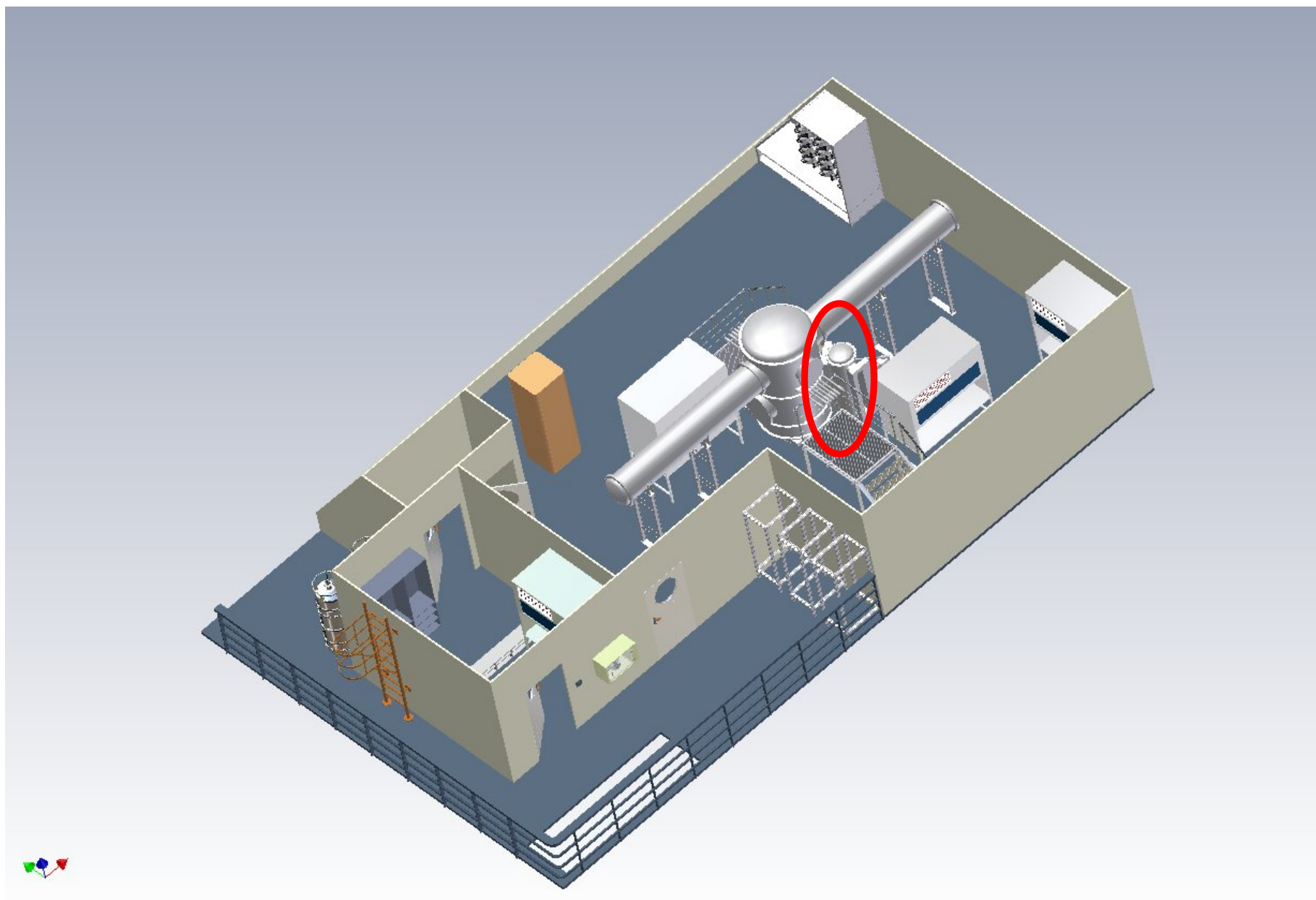


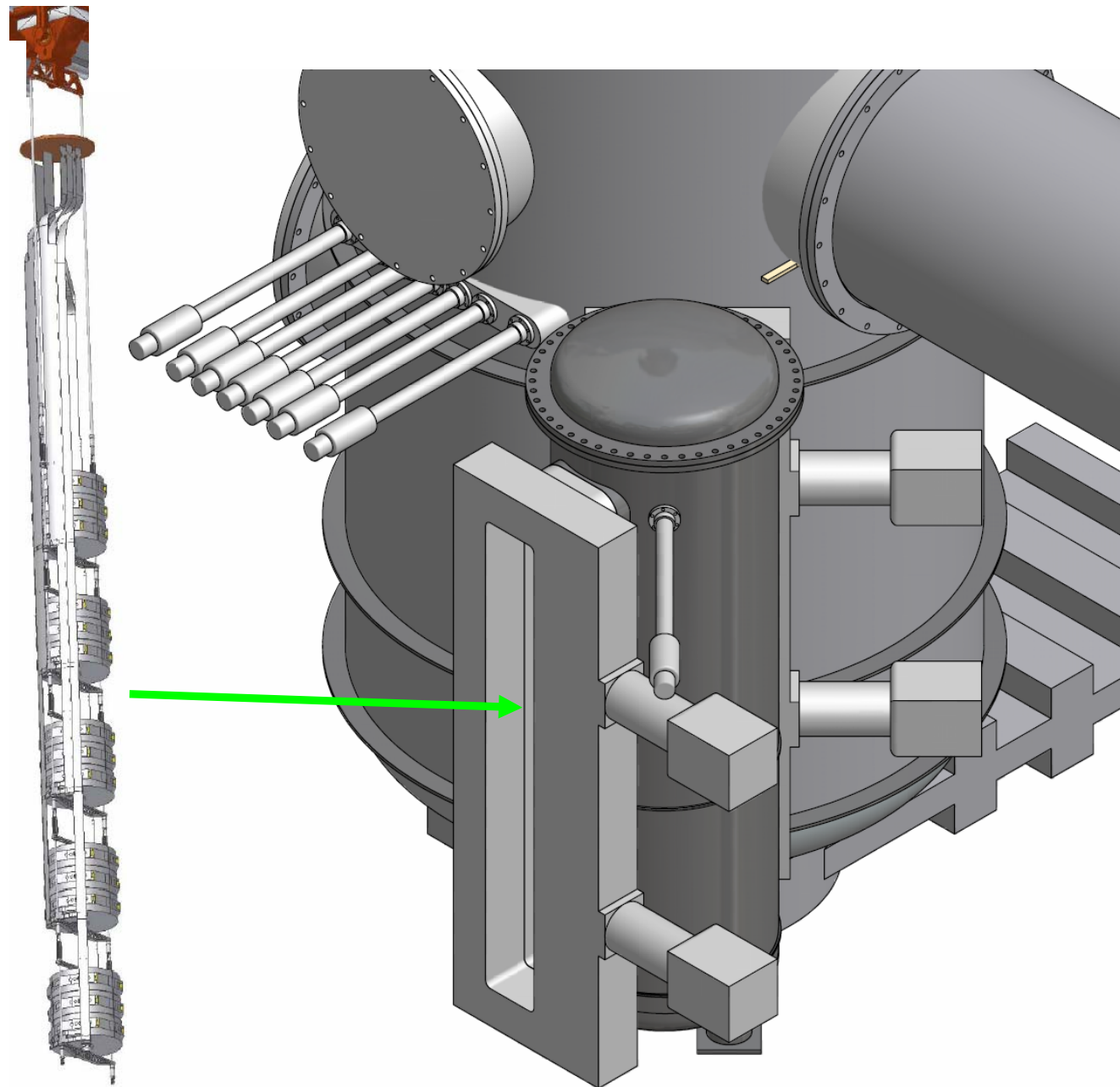




## Push string inside prelock





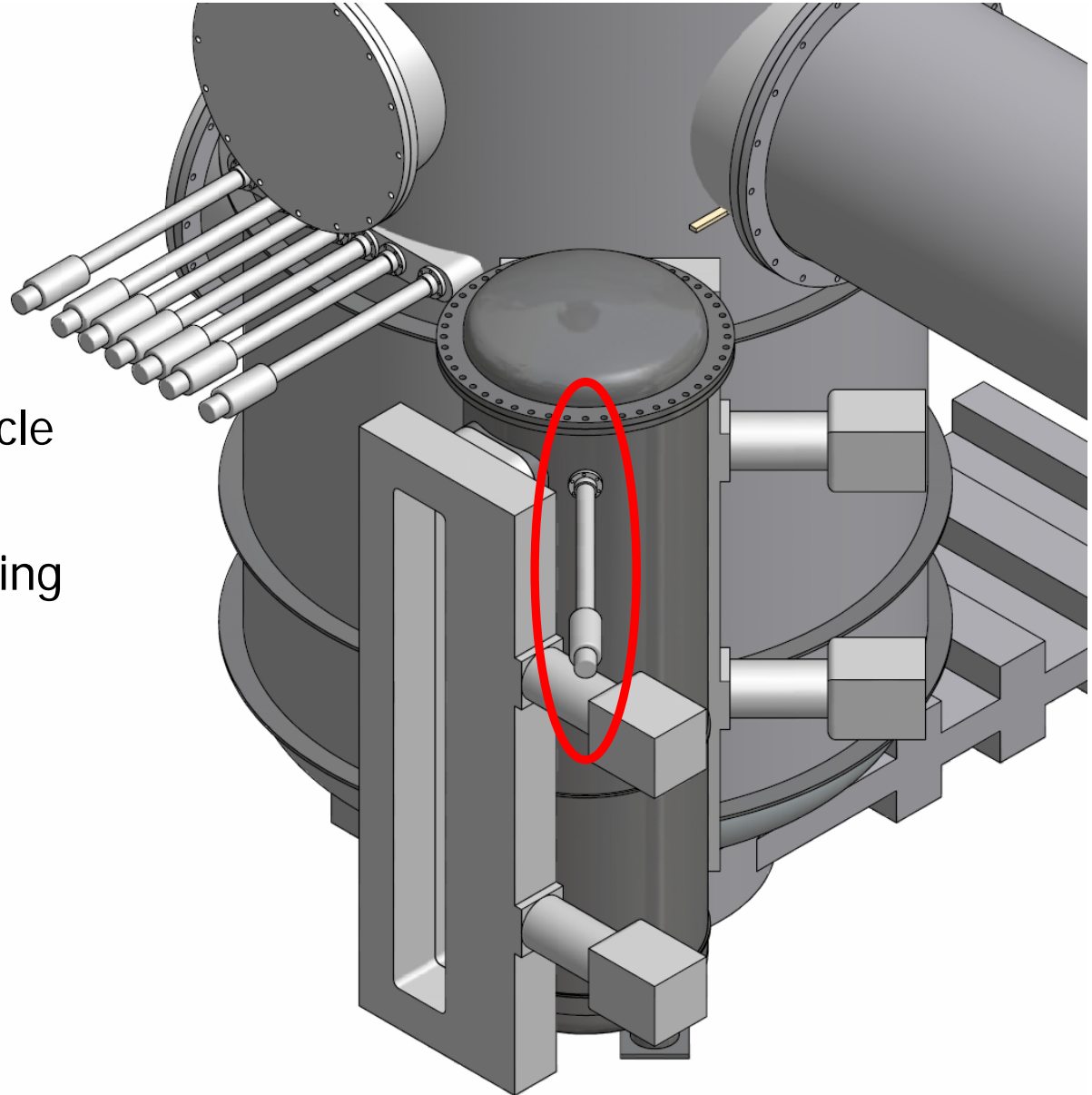


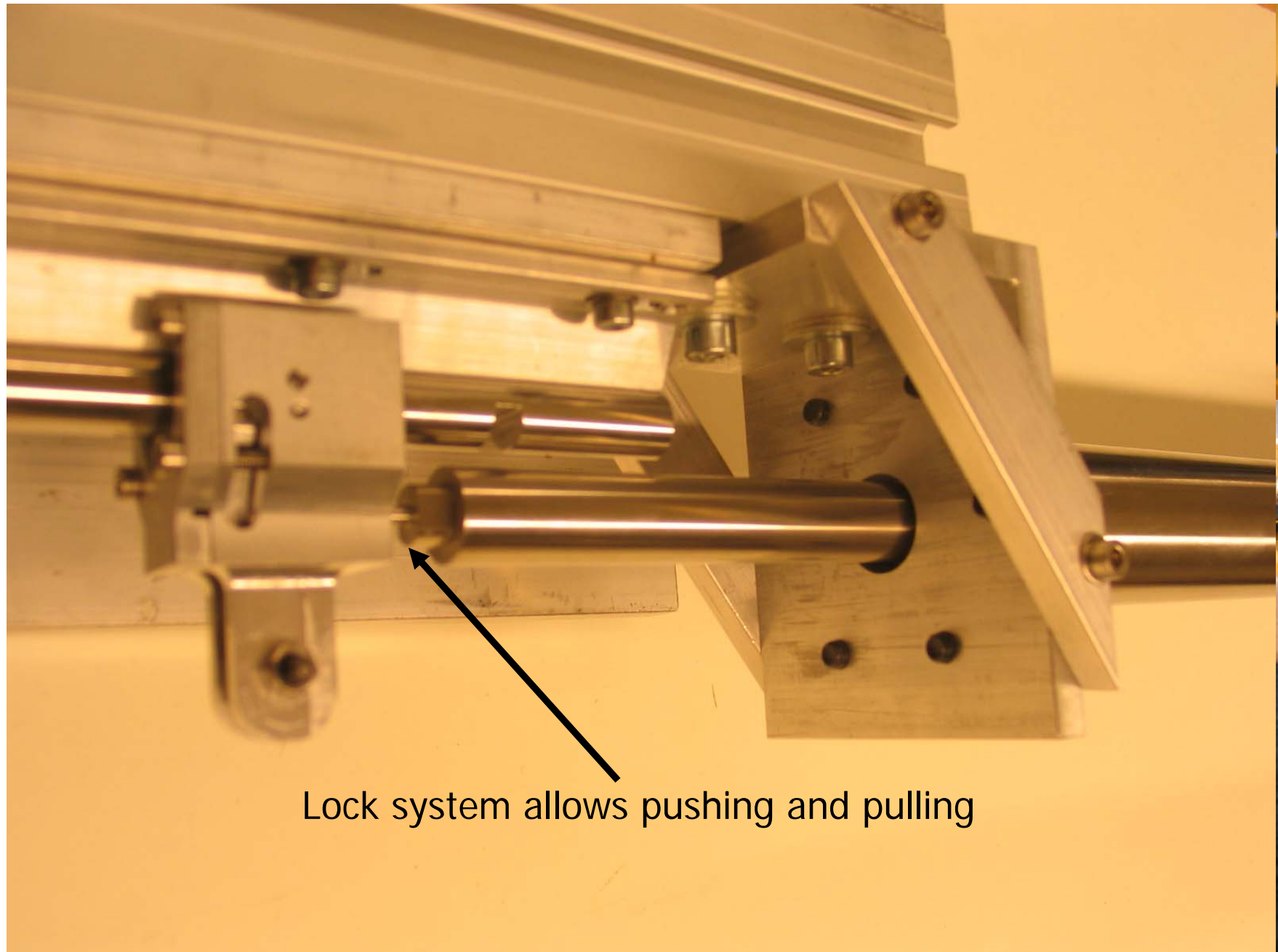


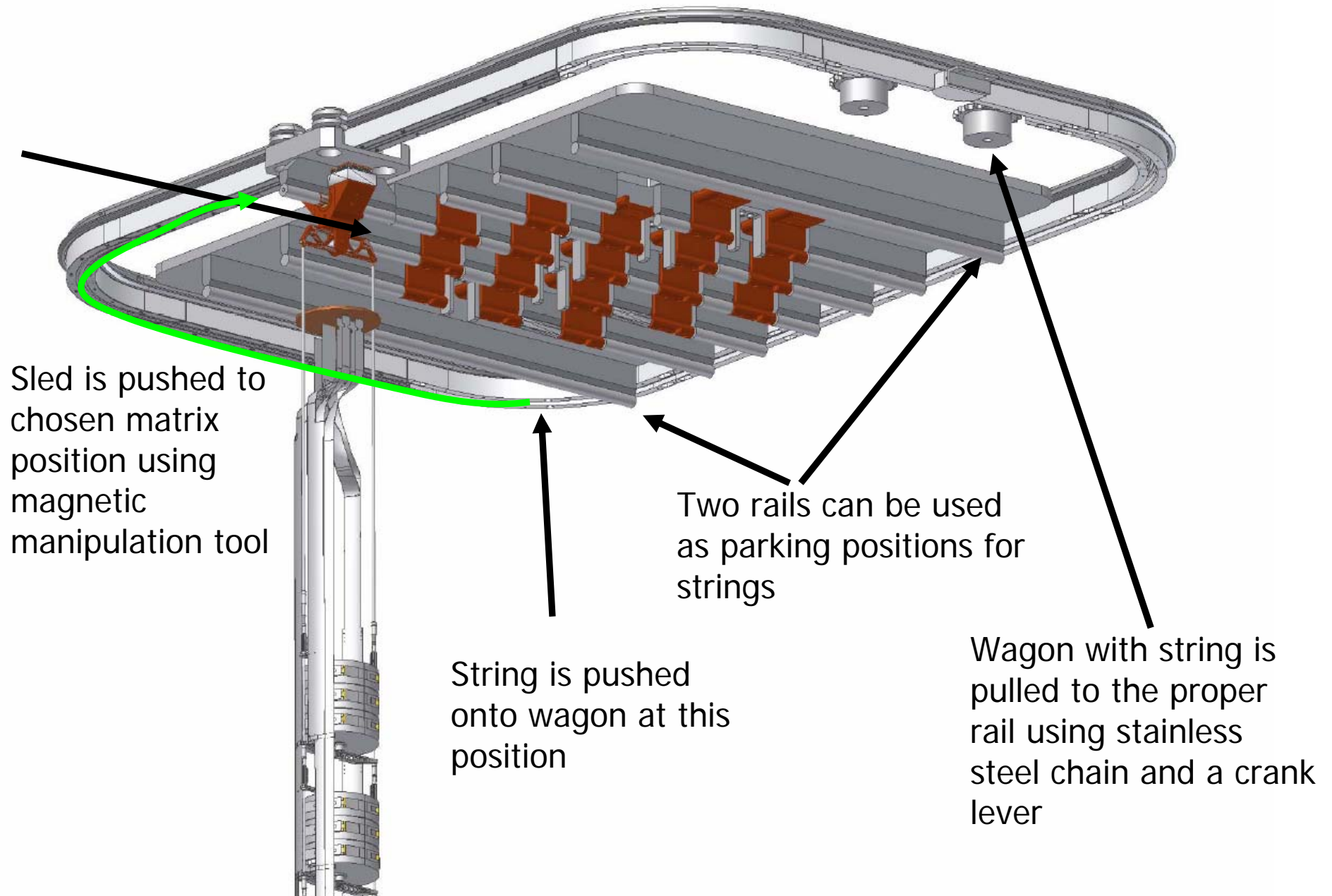


## Get string through pre-lock

- Close valve to pre-lock
- Pump pre-lock
- Flush pre-lock with N-Ar
- Repeat pumping-flushing cycle
- Open valve to lock
- Use magnet arm to push string into position on wagon



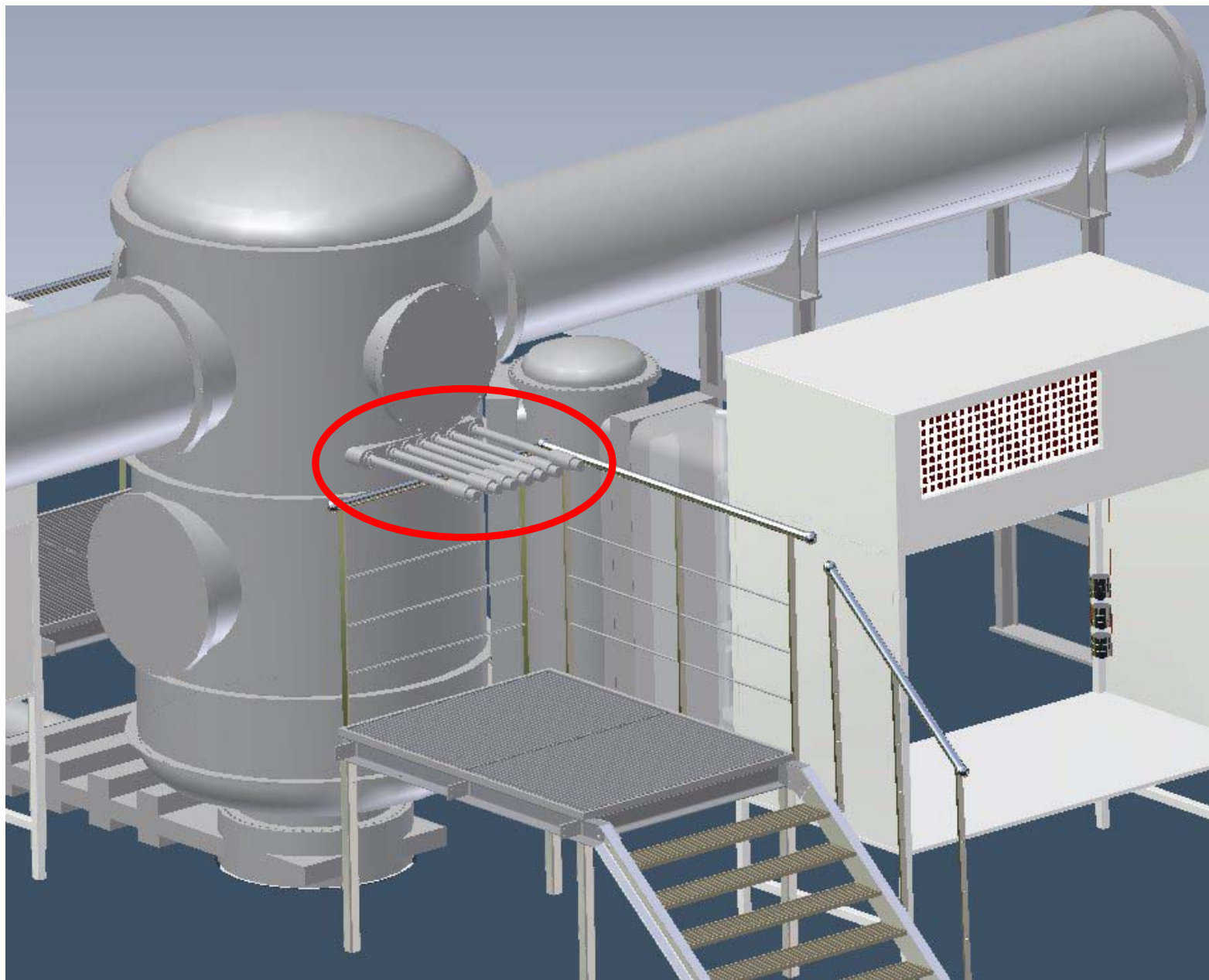








## Position Wagon to chosen rail using manipulation arms





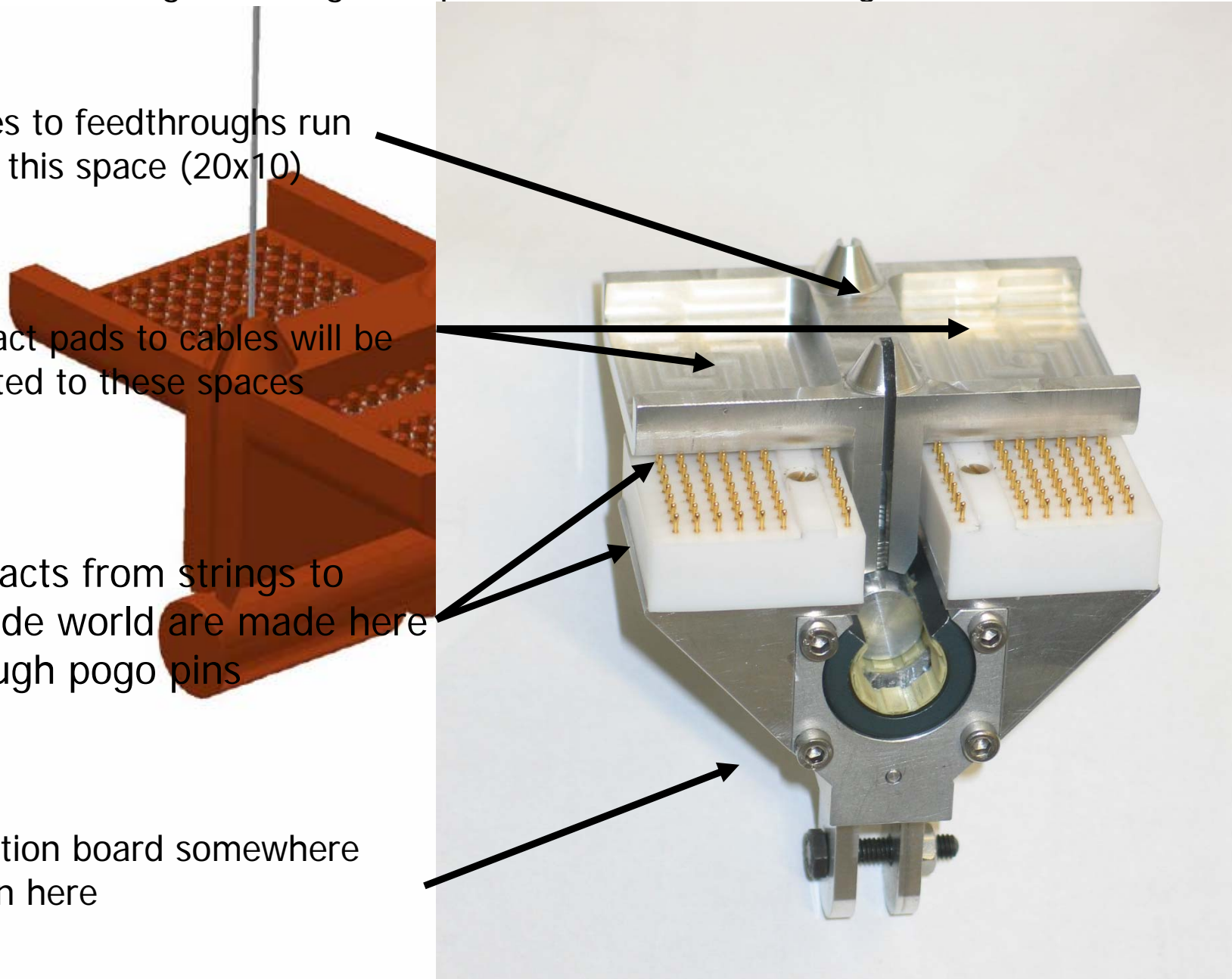
Push string from wagon to position on matrix ensuring contacts are made

Cables to feedthroughs run up in this space (20x10)

Contact pads to cables will be inserted to these spaces

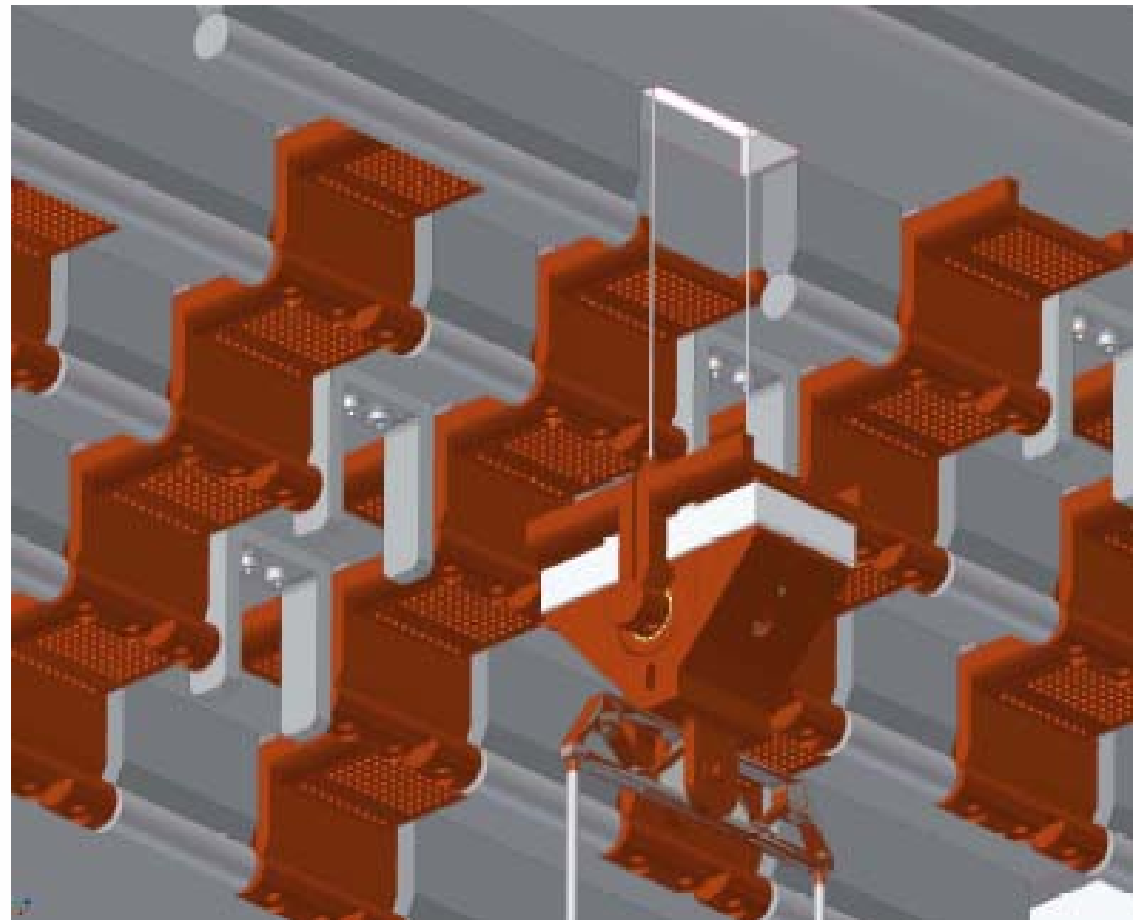
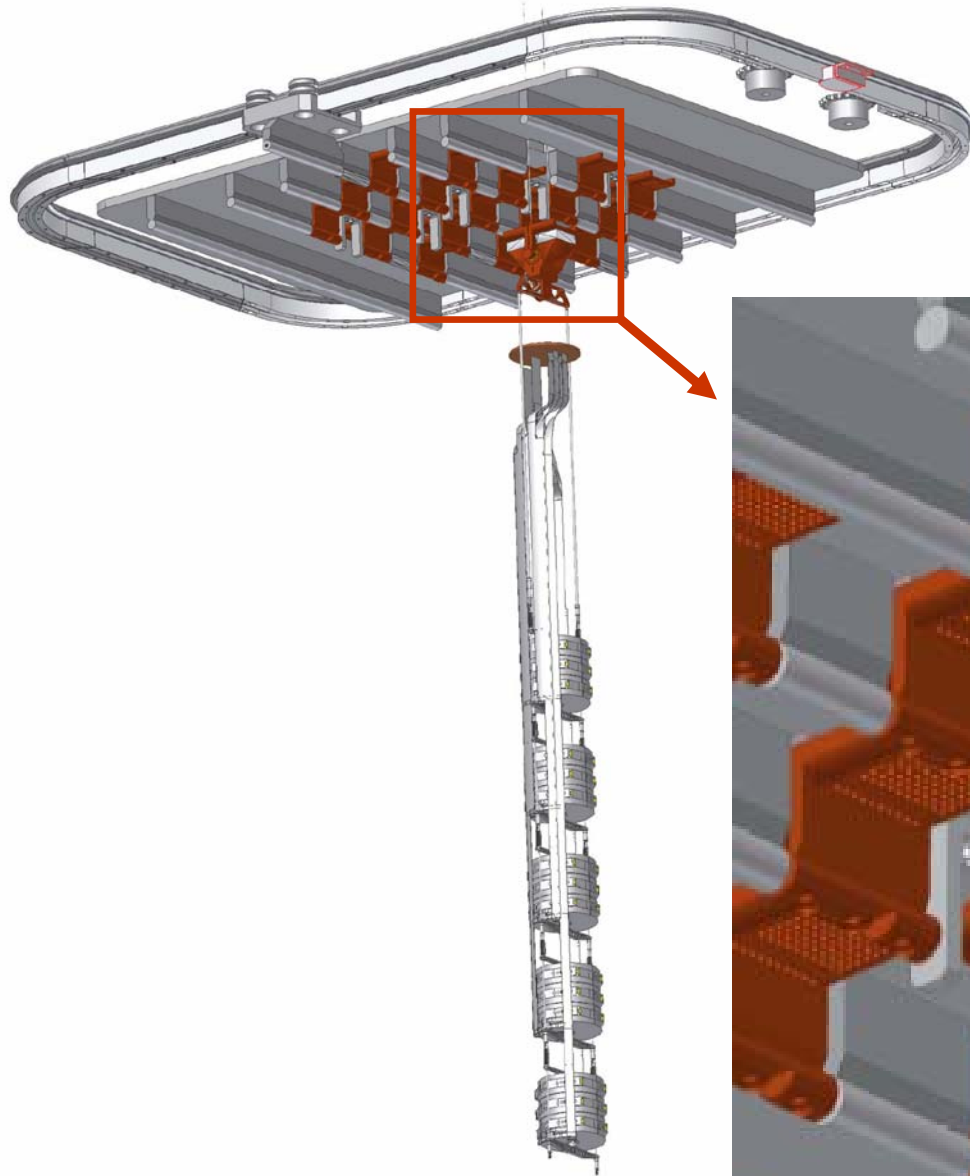
Contacts from strings to outside world are made here through pogo pins

Junction board somewhere down here



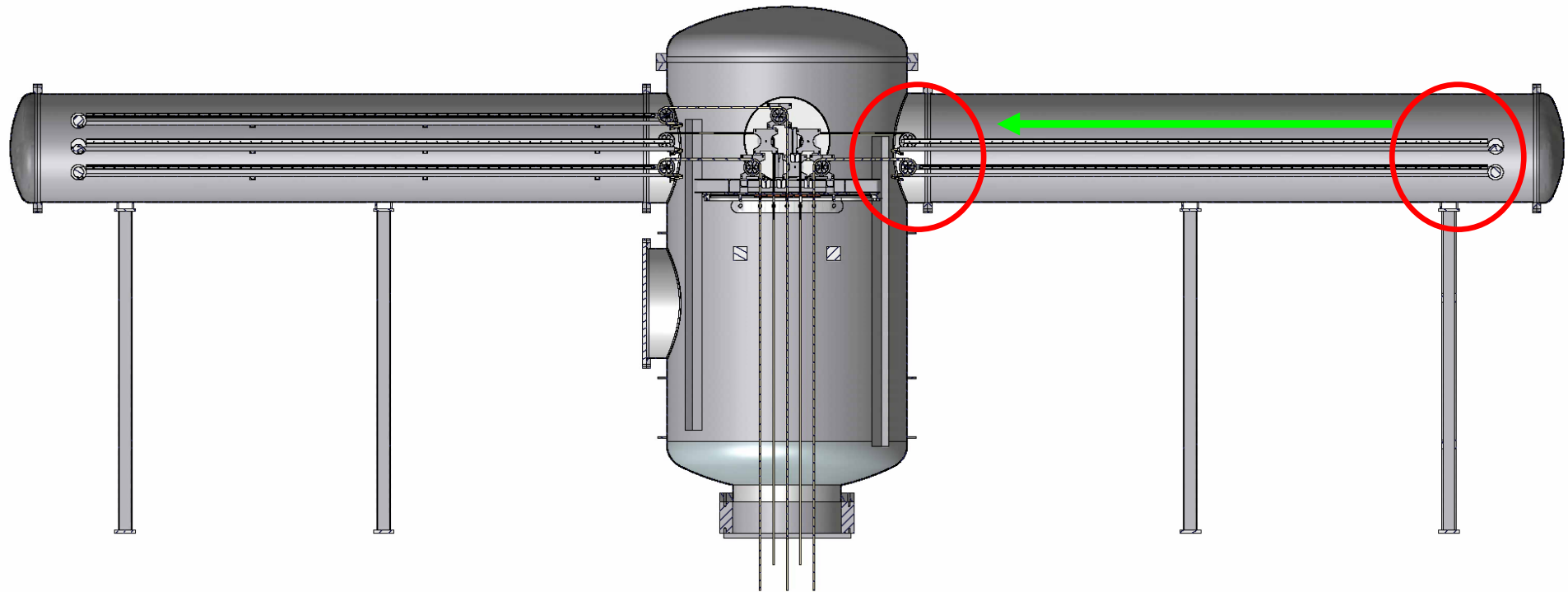


Lower string to cooling medium.





Lower string to cooling medium by moving cable pulley  
in cable tubes towards center



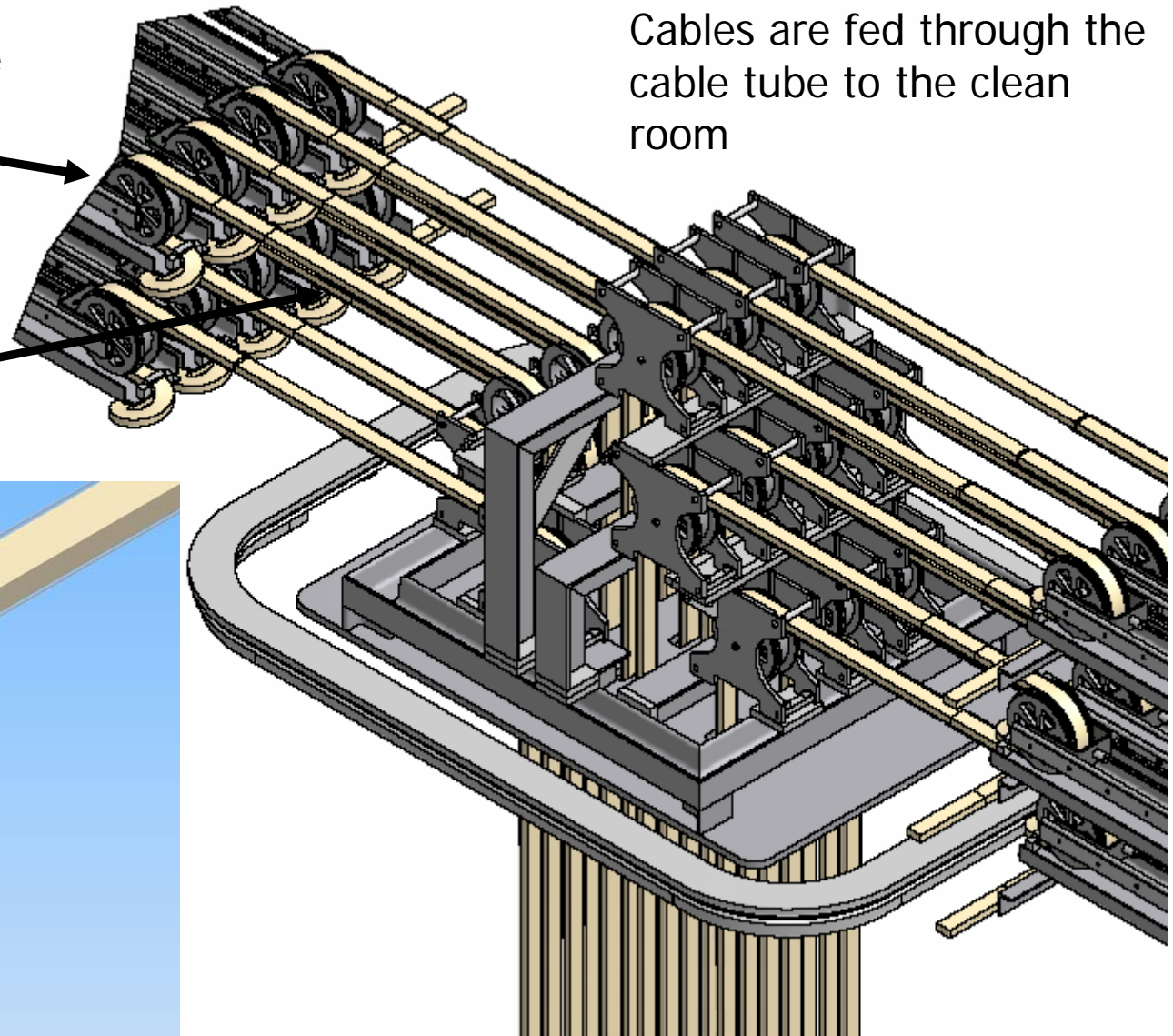
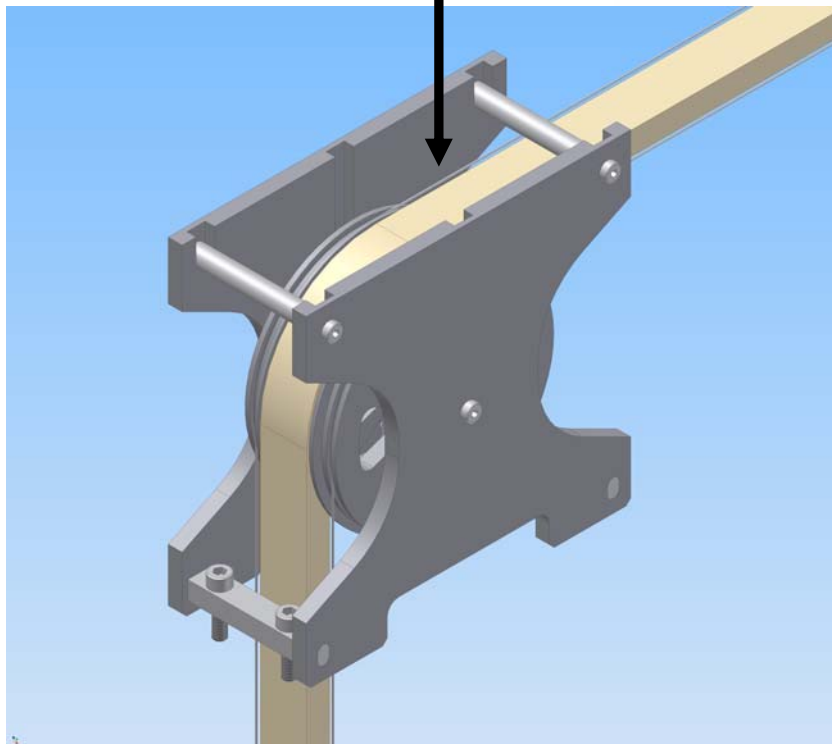




By moving the pulleys to the end of the cable tube the strings are lowered or elevated

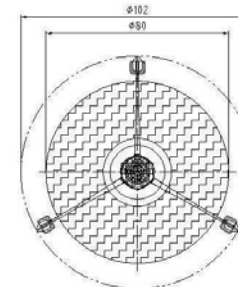
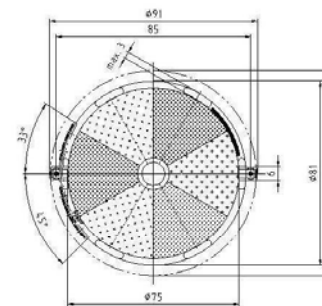
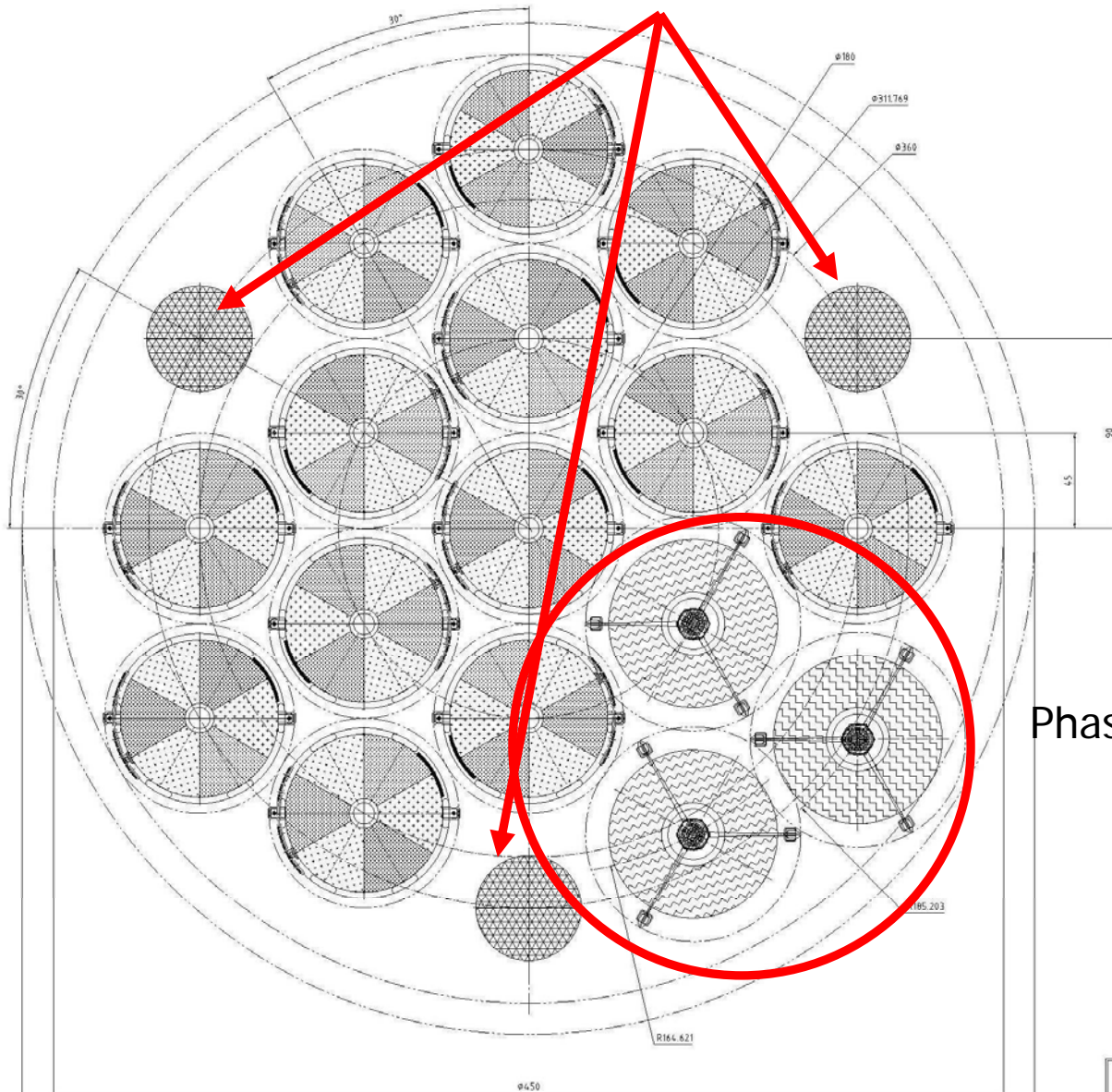
Cables are running up between steel suspension wires

Cables are fed through the cable tube to the clean room

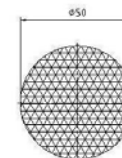




### Calibration source positions



Ge-Zylinder Heidelberg  $\phi$  80mm  
Halterung  $\phi$  102mm mit 3 Aufhänge-  
positionen



Eichquelle  $\phi$  50mm  
mit 2 Aufhängepositionen

### Phase I detector positions

#### Stringzahl

- Zentrum 1 Stück
  - 1. Ring auf  $\phi$ 180 6 Stück
  - 2. Ring auf  $\phi$ 311,769 5 Stück  
und  $\phi$ 329,242 1 Stück  
und  $\phi$ 360 2 Stück & 3 Eichquellenstrings  
und  $\phi$ 370,406 1 Stück
- 16 Stück

1	Die fertigen Halterungen und Eichquellen neu anfertigen	17.04.2006 Payer 34
2	Ge-Zylinder Heidelberg Halterung $\phi$ 102mm und Lithquarz einfügen	16.07.2006 Payer 51
3	aktuelle Stand nachtragen, Halterung von BK auf BK, clip, Lippen $\phi$ 11	03.03.2006 Ackermann
4	Änderungen	datum name

				Projekt: GERDA Informationszeichnungen		Überleben: <input type="checkbox"/> ja Fliese ohne Toleranzangabe nach DIN 9134-100	
gezeichnet	MAJ	MAJ	MAJ	MAX-PLANCK-INSTITUT FÜR PHYSIK MÜNCHEN (WIENER-ANSTALTENS-INSTITUT)		Verantwortl.: Zeichnungsnummer / EDI Nr.: 37000184	
geprüft	AK	AK	AK				
gezeichnet	AK	AK	AK				
1:1 Detektoranordnung Vers. 4a							

Nur zur Information!  
 Only for the information!  
 letztes Update: 27.04.2006  
 last Update:



Special thanks to our construction department at  
MPI Munich:

- K. Ackermann
- S. Vogt
- St. Mayer

And to our engineer

- F. Stelzer