EUROPEAN
SPALLATION
SOURCE

NSS Design and progress
Ongoing projects

BBGOA's
In-Bunker Baseplates
Bunker wall steel feedthroughs

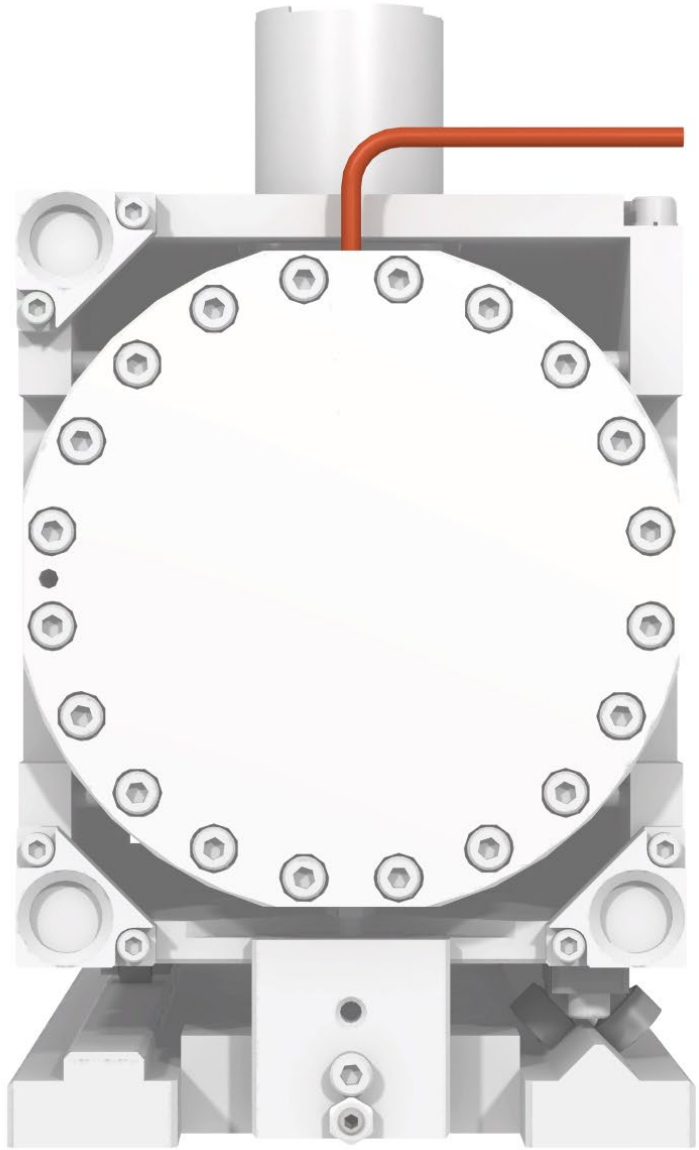
PRESENTED BY NICOLAS BRETON

2020-02-25

Summary

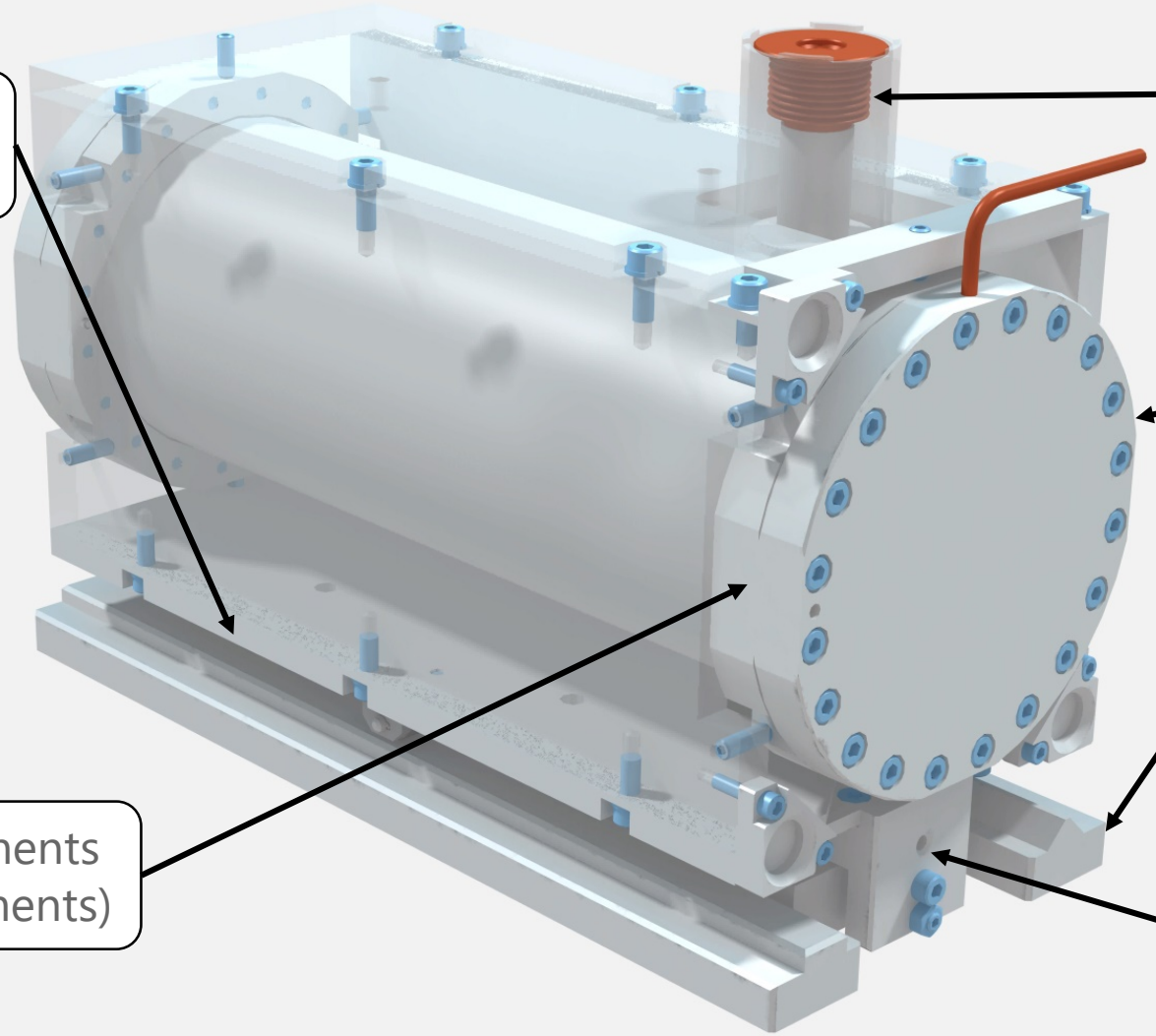
1

BBGOA’s



NSS Design and engineering Ongoing projects

1. BBGOA's



Standard frame
Aluminium 6061-T6

Pressure loss feature
(protoype on going)

19 unique chamber
assemblies

Standard rail plate
(one piece)
Pin hole custom position

CF160 for all instruments
(excl. special instruments)

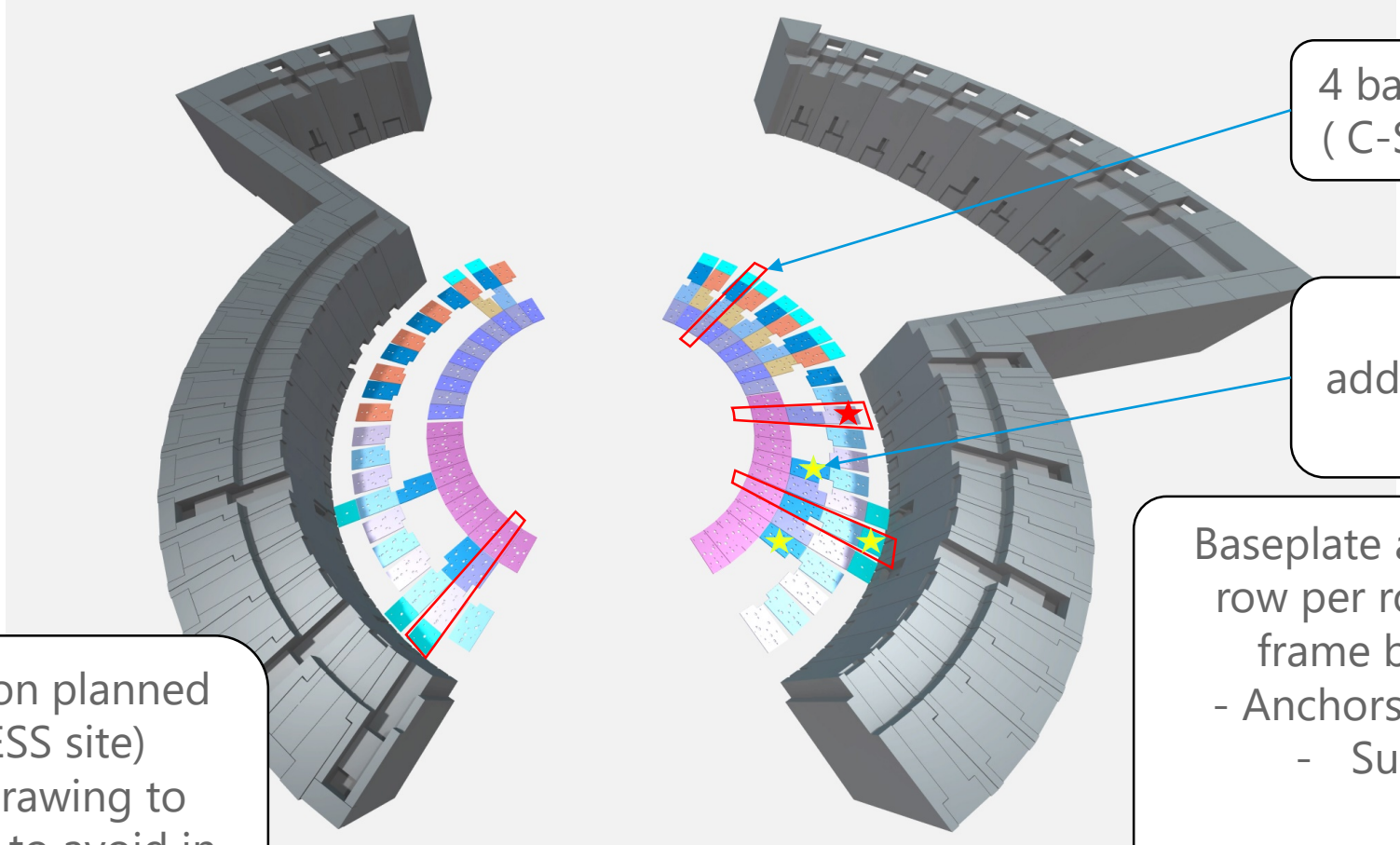
Remote Handling screw
removed

2

In-Bunker Baseplates

NSS Design and engineering Ongoing projects

2. In-Bunker Baseplates



4 baseplates rows customized (C-SPEC / TBL / LOKI / ESTIA)

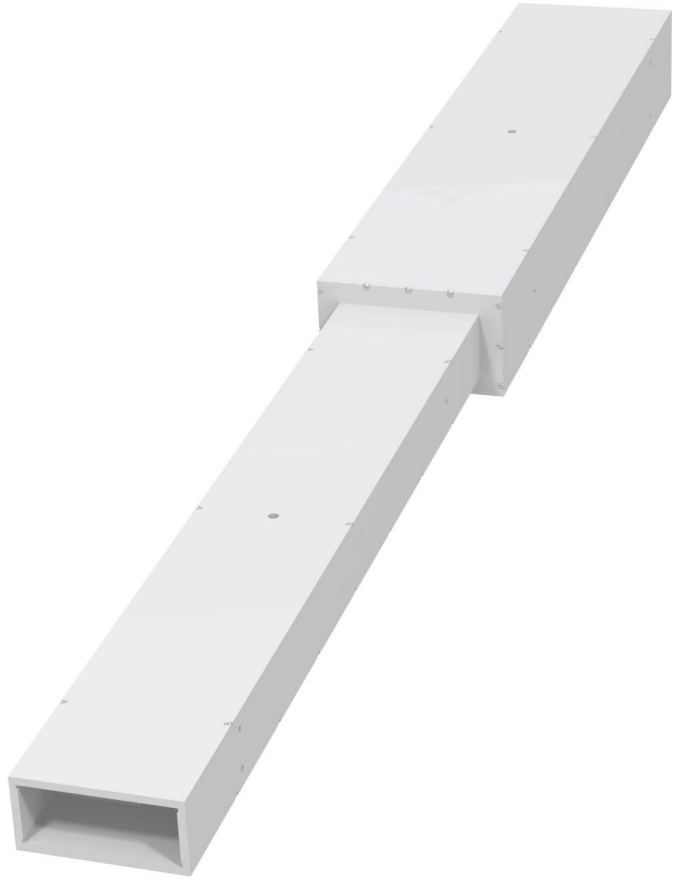
3 baseplates row with addition baseplates (N4-N6-N7)

Baseplate are planned to be casted row per row according to bunker frame baseplates installation
- Anchors hole drilling (template)
- Survey and alignment
- Casting
- Measurement and evaluation

Customization planned at TTC (ESS site)
STEP and drawing to deliver asap to avoid in situ drilling

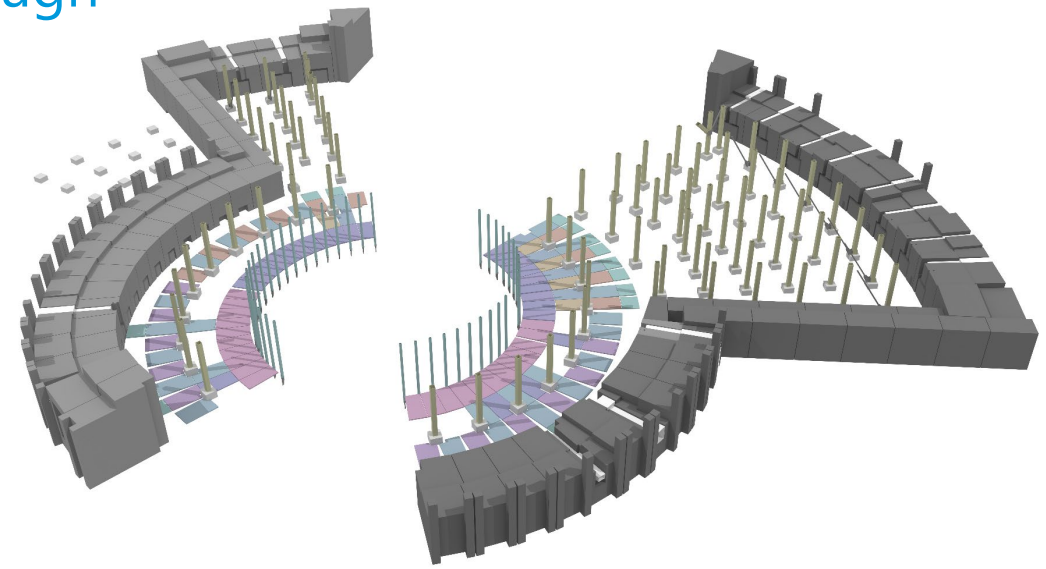
3

Bunker-wall steel case for optics feedthrough



NSS Design and engineering Ongoing projects

3. Bunker-wall steel case for optics feedthrough

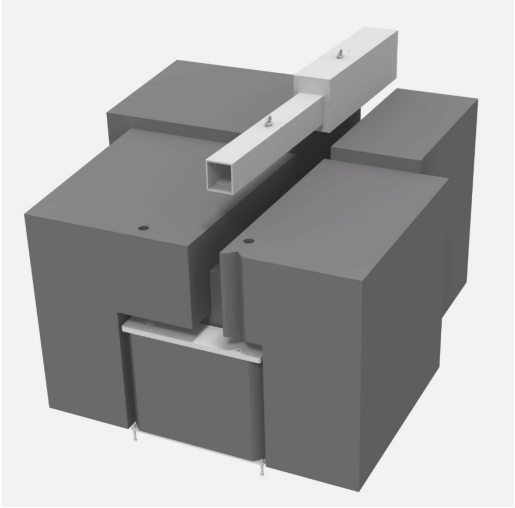


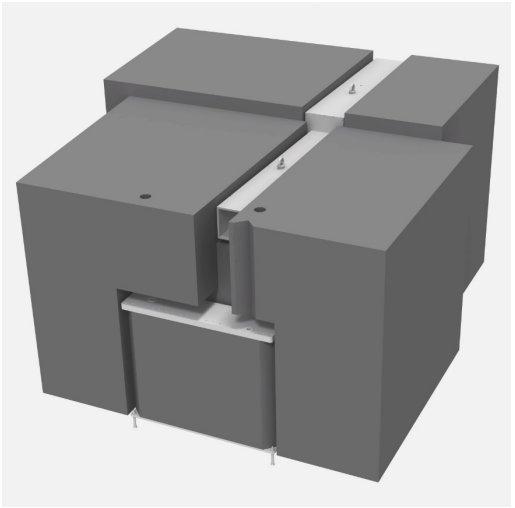
Goals

- Common shimming feedthrough solution for all 16 instruments
  - Different geometries
  - Different Coordinate systems (BFCS)
- Mitigate neutron streaming around the instruments optics feedthrough

Schedule & synchronisation

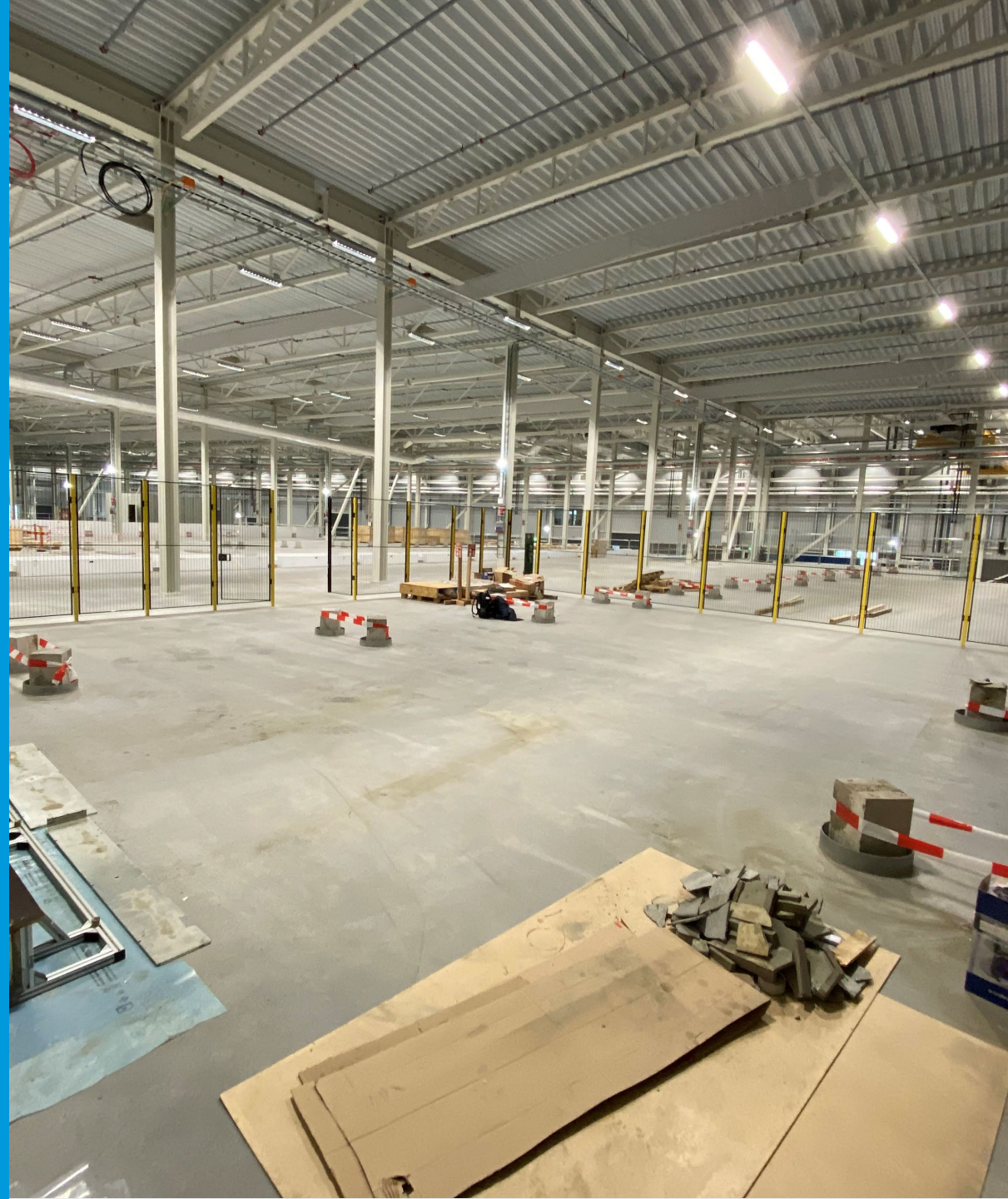
- Bunker wall blocks manufacturing
- Instrument guides feedthrough design





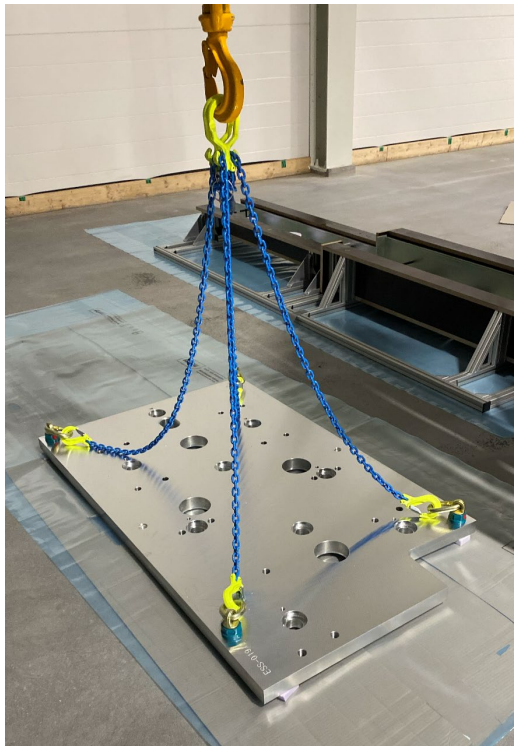
4

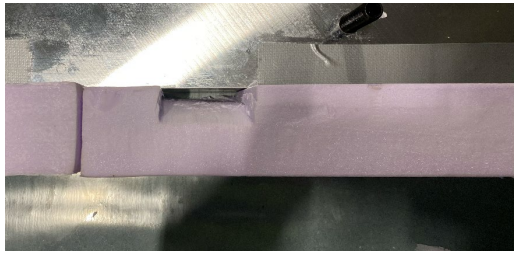
Installation mock-up in the E02 Halls



NSS Design and engineering Ongoing projects

4. Installation mock-up in the E02 Halls





Baseplates rigging and preparation for grouting : Foamwork – tape – grease

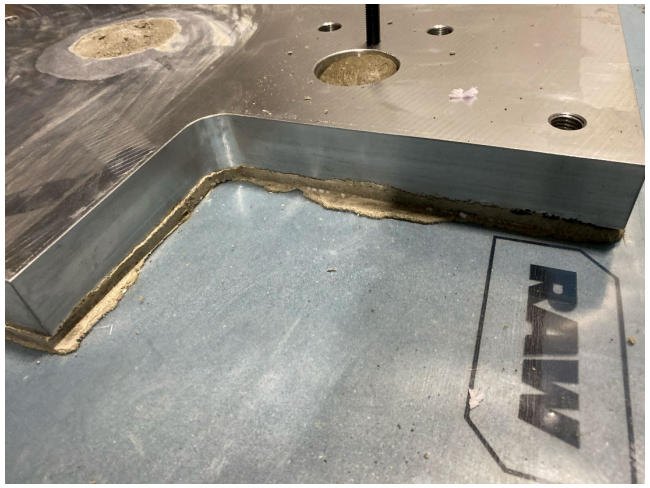
NSS Design and engineering Ongoing projects

4. Installation mock-up in the E02 Halls

Installation feedback :
- Fluidity and pooring time needs to be well controled (EXM 701 or equivalent required and 15-20 pooring time max

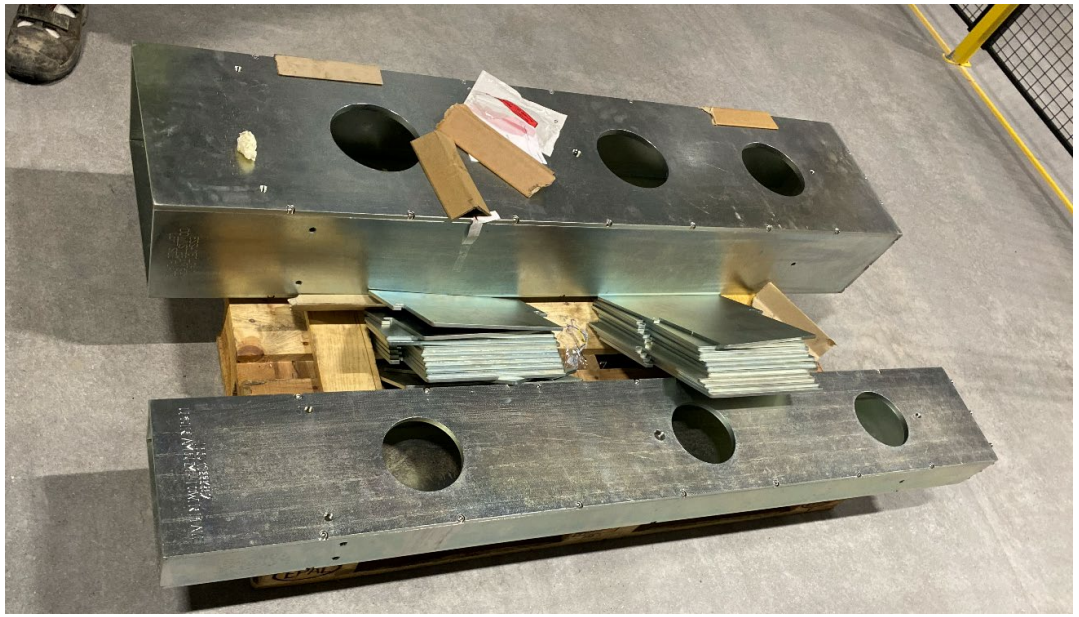
-No holes can be left uncovered and simple tape or plastic will deform (convex) under the expansion

-coverage and final aspect are as expected



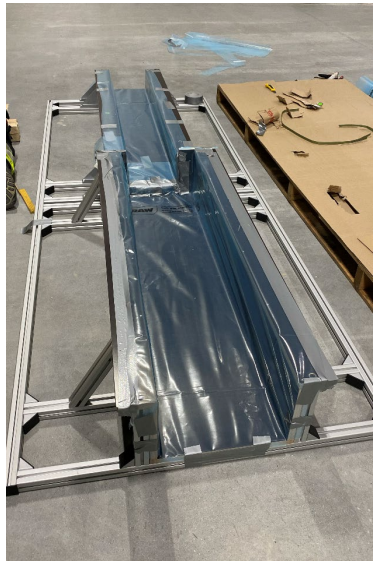
NSS Design and engineering Ongoing projects

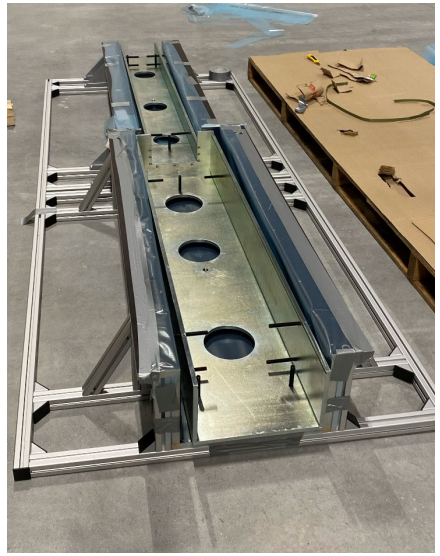
4. Installation mock-up in the E02 Halls

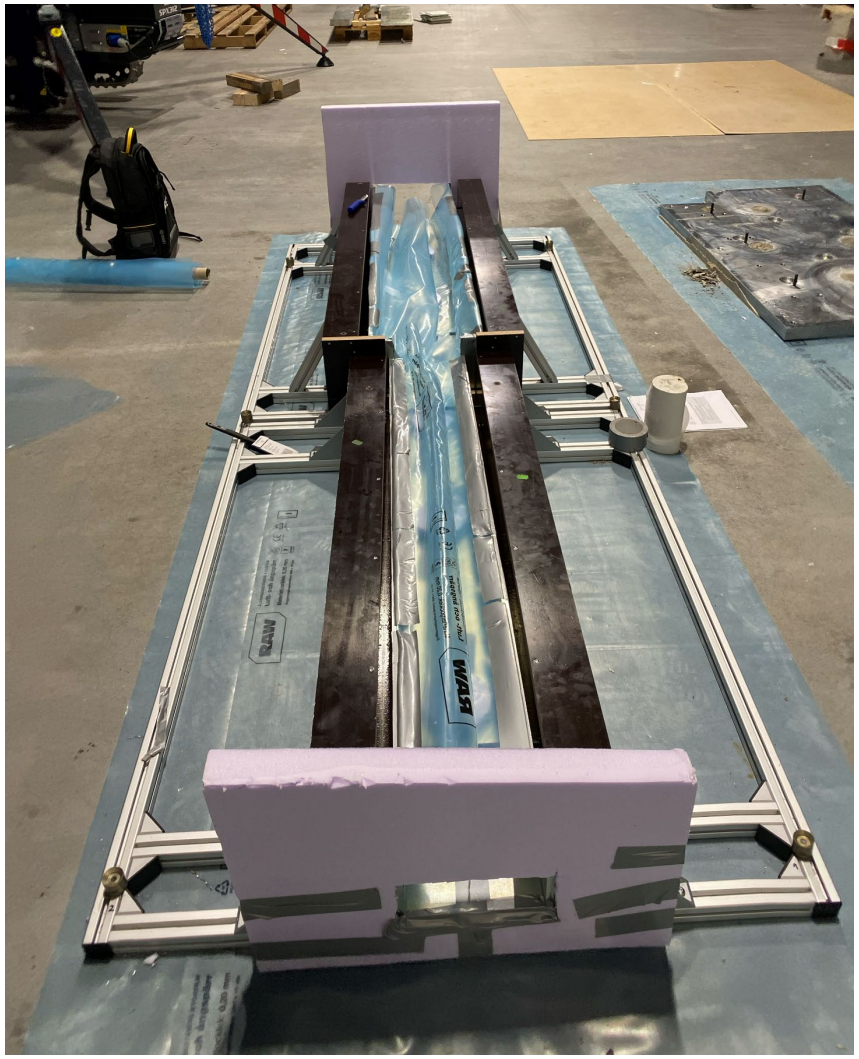


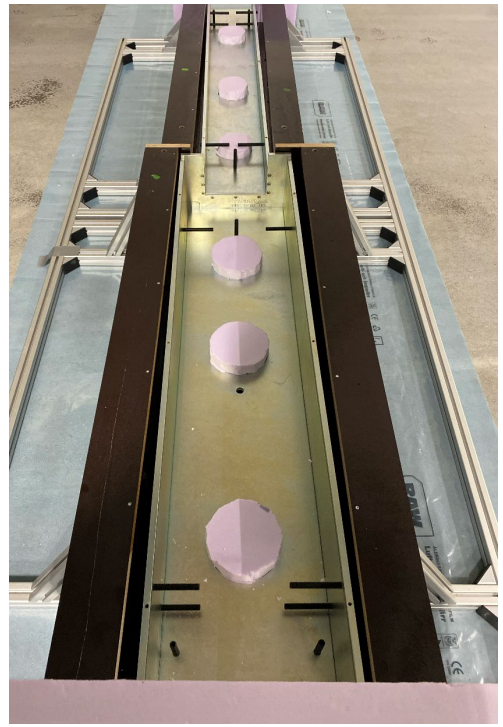
NSS Design and engineering Ongoing projects

4. Installation mock-up in the E02 Halls



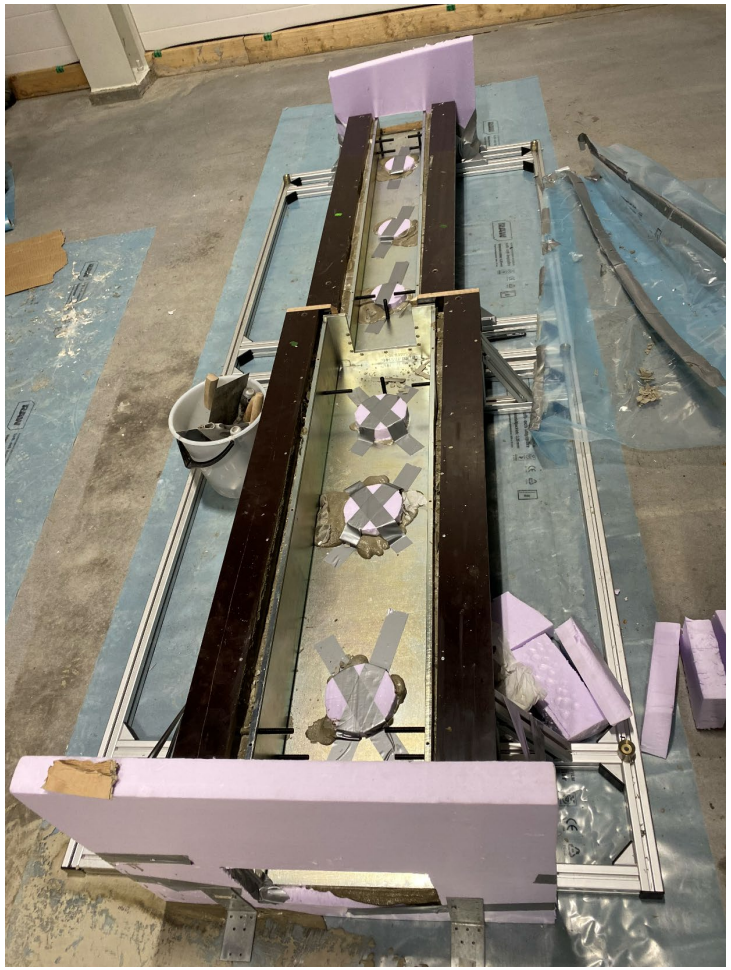




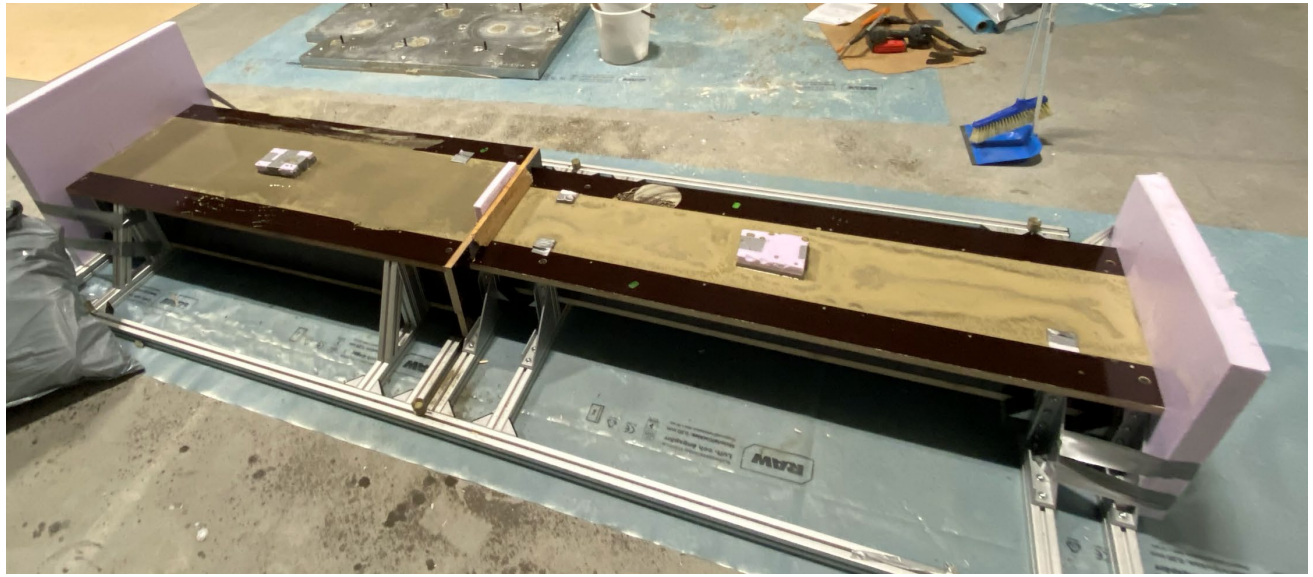


NSS Design and engineering Ongoing projects

4. Installation mock-up in the E02 Halls



- First grout step : Bottom layer
- Removal of the protection work
- Lid replacement and tightening
- Second grout step : Flush with ”Bunker block)



NSS Design and engineering Ongoing projects

4. Installation mock-up in the E02 Halls

Installation feedback :

- Shaking was not advised (on the mock-up frame)
- Foamwork needs to avoid creating weak edges. (round shapes)
- Silicon gun should be used in addition to tape to avoid leakage du to the expansion
- Additionnal set screws for beam direction
- Grouting holes were not used to be removed

5

NSS Project forecast

NSS Design and engineering Ongoing projects

5. NSS Projects forecasts

BBGOA's	IN-BUNKER BASEPLATES	BUNKER WALL FEEDTHROUGH
- Pressure loss prototype to be concluded around end of march - BBGOA prototype to be ordered after (end march/april)	- Attempt to do a second cast (EXM 701 to be used) - Customization in the TTC starting in March-April	- Design to be updated - Procedure and documentation will be produced according to installation feedback
- BBGOA will be installed in accordance to instrument schedule	- The baseplates will be installed according to the Bunker frame baseplates schedule	- The bunker wall Feedthroughs sleeves installation will match the Instrument installation schedule

Thank you for your attention