



Cryogenic Vessel & Infrastructure

Status Report for TG04

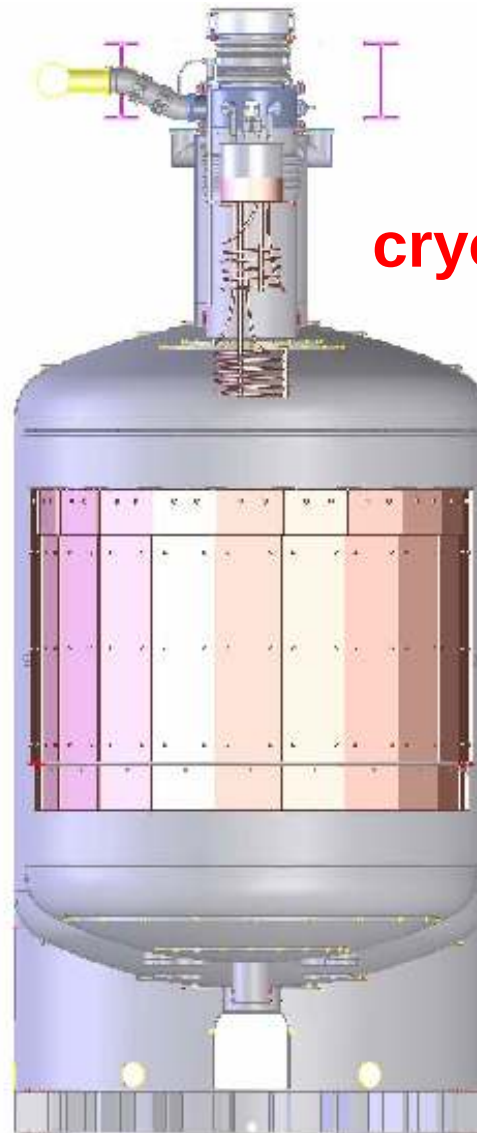
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GERDA Collaboration Meeting at LNGS
4 - 7 November 2007

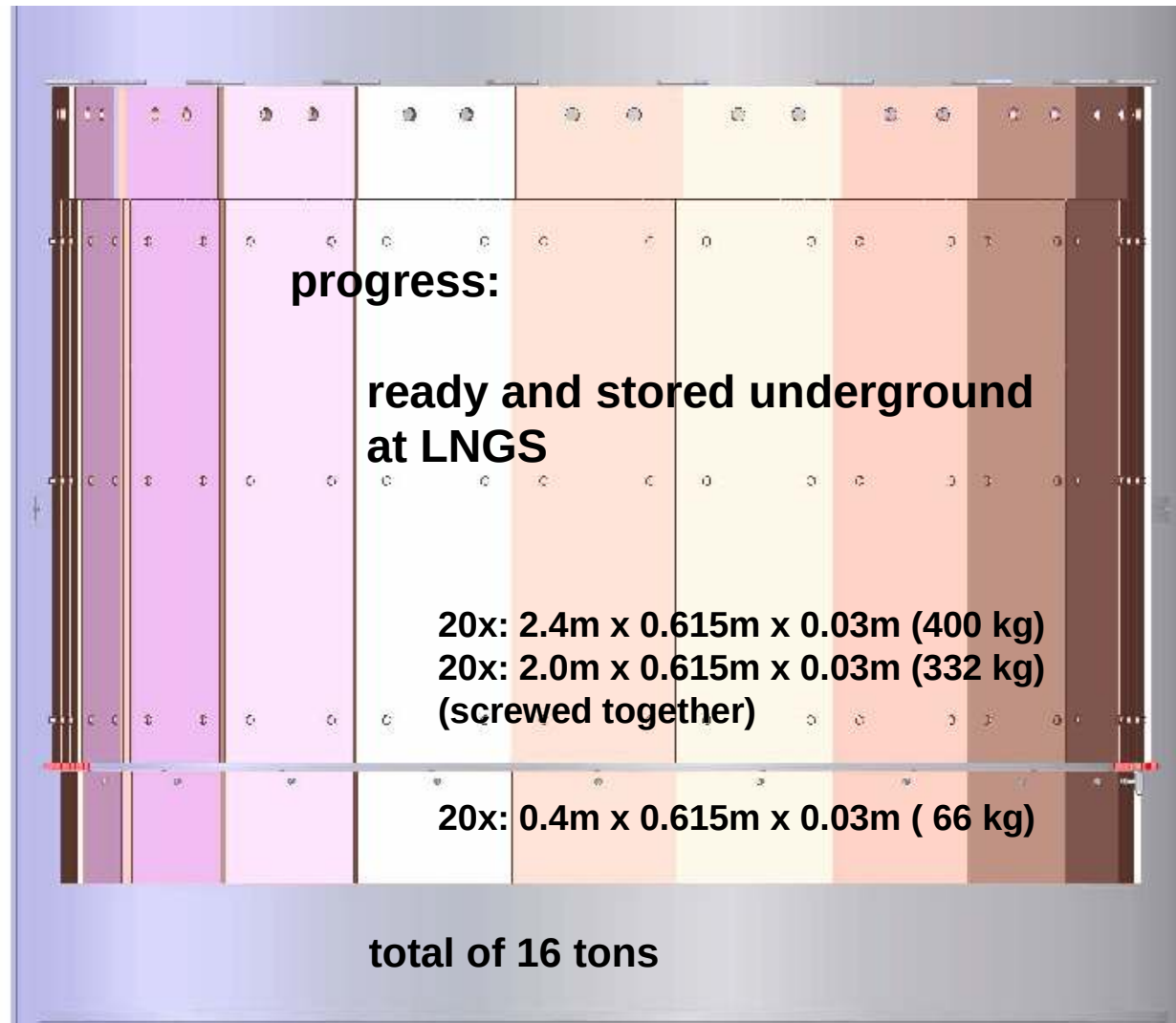
cryostat
at time of Geel meeting
delivery due by Oct 23

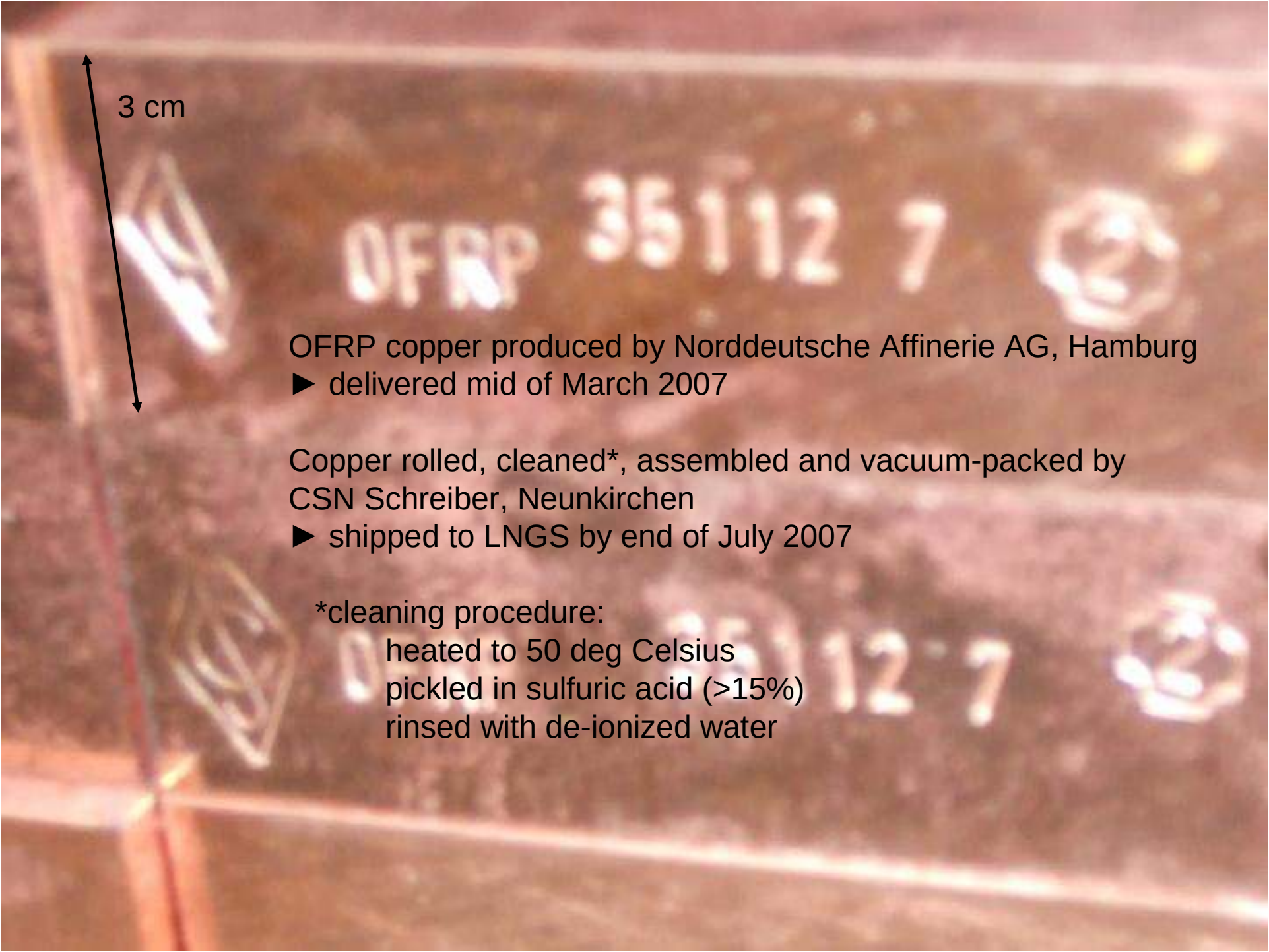
copper shield

cryogenic infrastructure



(schedule)





3 cm

OFRP copper produced by Norddeutsche Affinerie AG, Hamburg
► delivered mid of March 2007

Copper rolled, cleaned*, assembled and vacuum-packed by
CSN Schreiber, Neunkirchen
► shipped to LNGS by end of July 2007

*cleaning procedure:

heated to 50 deg Celsius
pickled in sulfuric acid (>15%)
rinsed with de-ionized water



assembly



wrapping



vacuum-packaging



total of 10 boxes

boxing
(2+2 segments)



(very slow) progress:

three vessel heads delivered in 03 Mar 07
4th head needed repair

delivery in 21 Jun 07 (6 months late!)

welding certification problems resolved
by August 07

production gaining momentum since
September 07 ► Photos of 22 Oct 07

continuous updates of schedules with
increasing delay of delivery date:

Rev 3 of 02 Apr 07 : 23 Oct 07

Rev 4 of 10 Jul 07 : 08 Feb 07

now

Rev 5 of 21 Sep 07: 13 Feb 07

handed out and confirmed by SIMIC owner
during visit at MPI HD on Sep 24, 2007



skirt

IV: top head

22oct07



22oct07



neck

OV: bot head

OV: top head

22oct07



skirt: top & bot fixation belts – tack welded

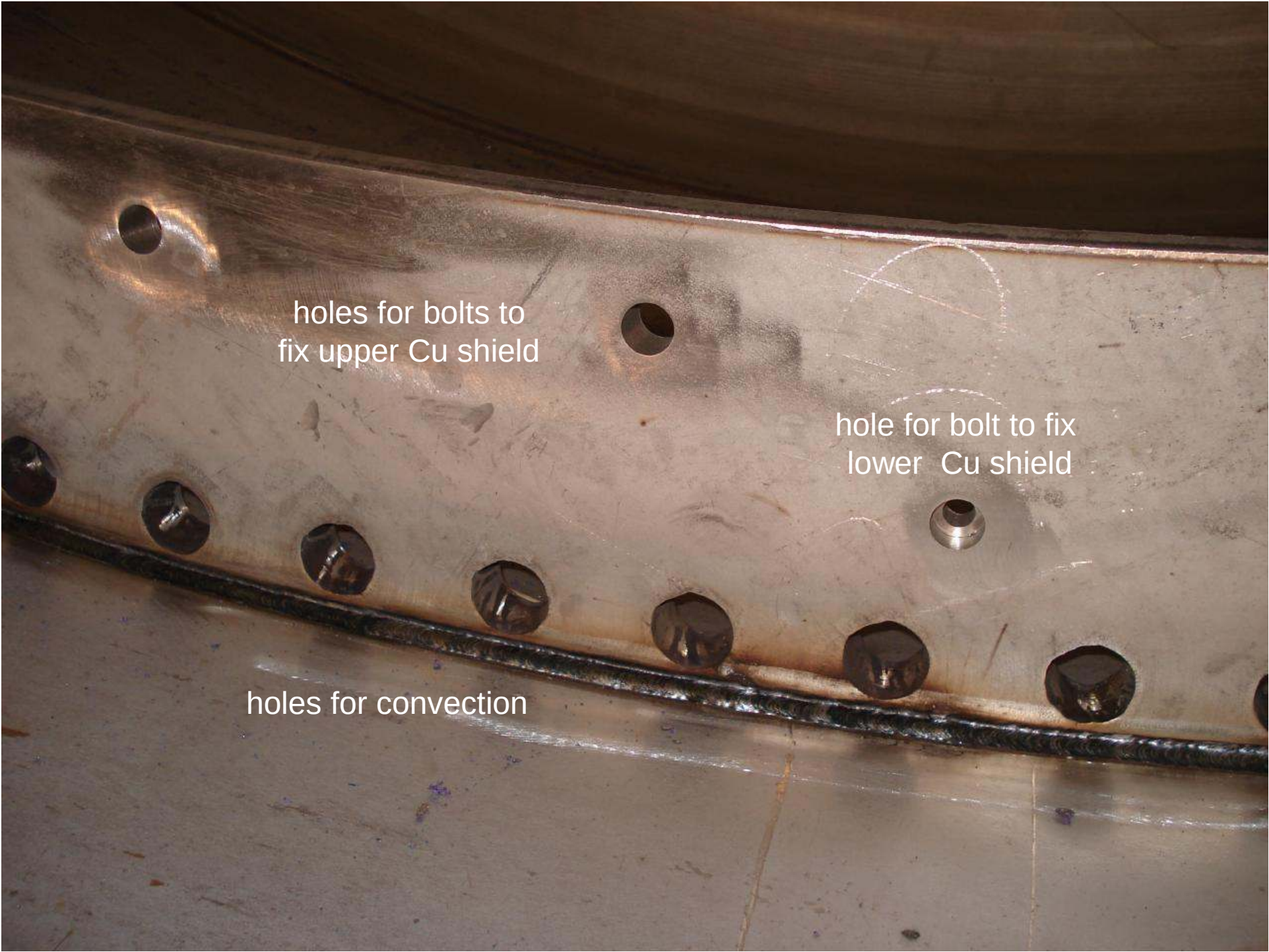


IV : supports for mounting tool

support ring for Cu shield



TIG welding



holes for bolts to
fix upper Cu shield

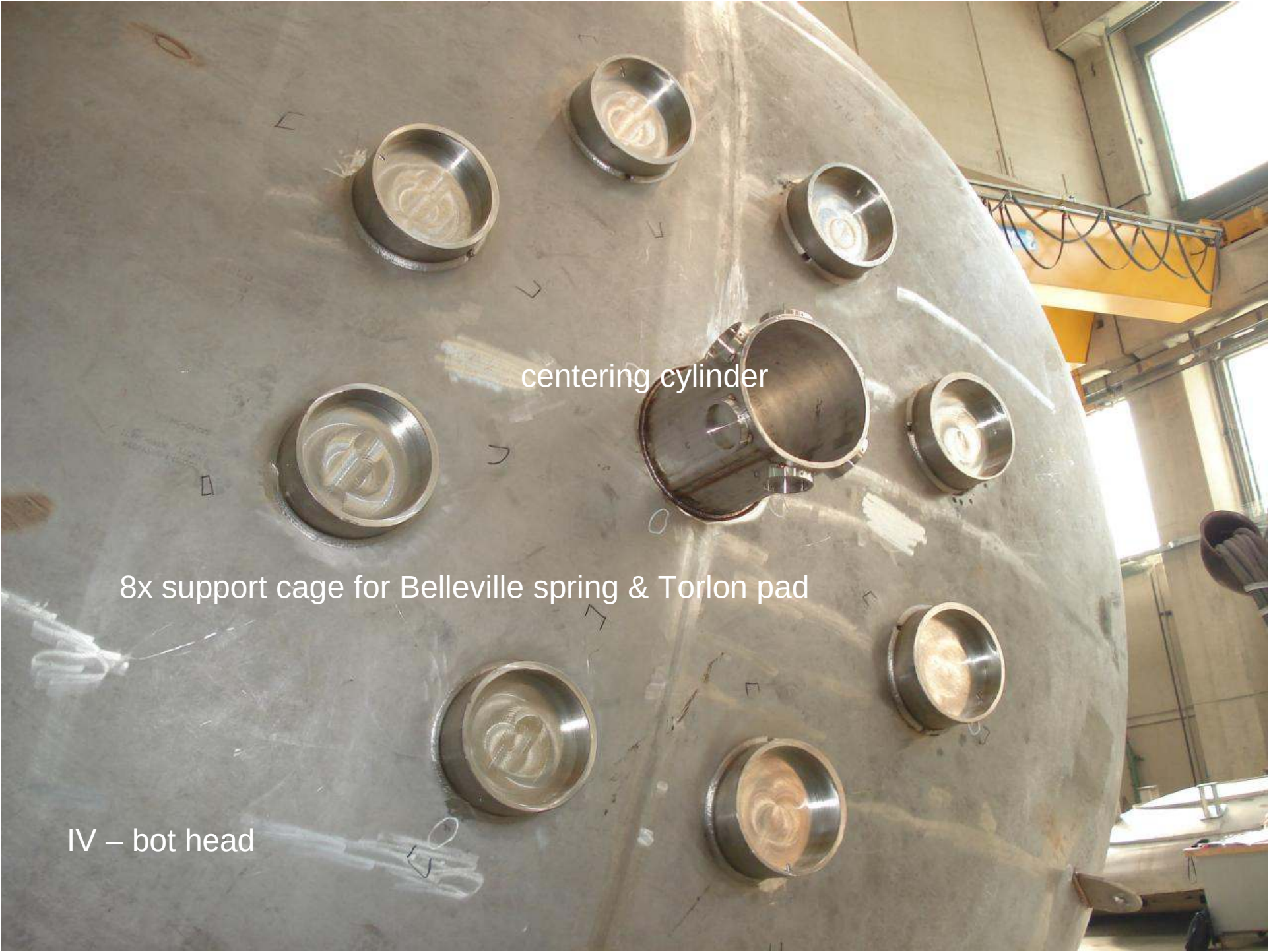
The image shows a close-up of a metal plate, likely copper, with several circular holes. Some of these holes contain bolts. The plate is part of a larger assembly, with a curved metal structure visible in the background. The surface of the plate shows signs of wear and discoloration.

hole for bolt to fix
lower Cu shield

This text points to a specific hole in the metal plate, which is intended for a bolt to secure the lower copper shield. The hole is located towards the right side of the plate.

holes for convection

This text points to a series of holes along the bottom edge of the metal plate, which are designed for convection purposes. These holes are spaced out along the length of the plate.



centering cylinder

The image shows a large, curved metal surface, likely the bottom head of a vessel. It features eight circular support cages arranged in a circular pattern around a central centering cylinder. The surface is marked with various symbols and numbers, including 'L', 'J', '0', 'F', and 'S'. The background shows a workshop environment with a yellow crane and windows.

8x support cage for Belleville spring & Torlon pad

IV – bot head

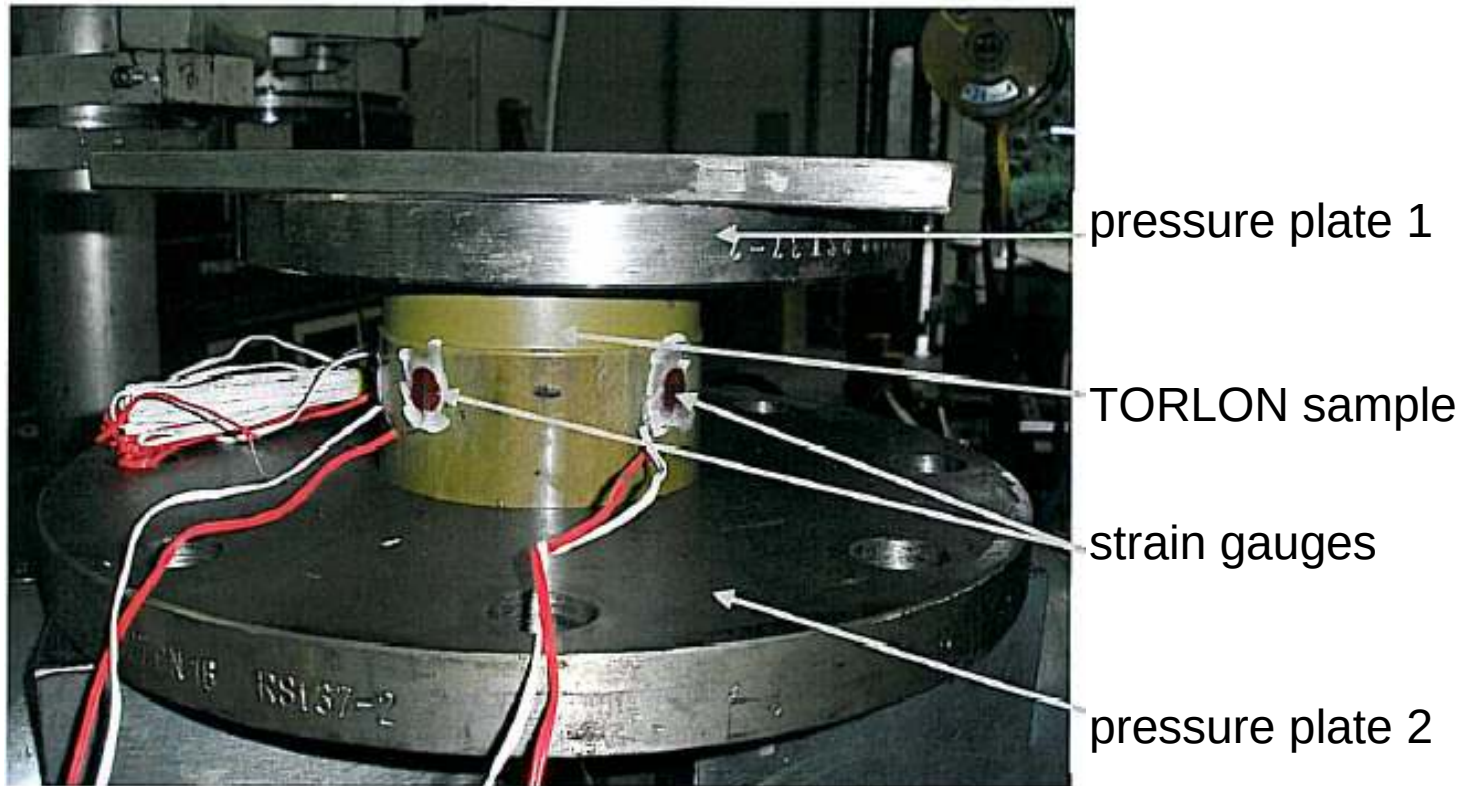
TORLON pads

8x supporting inner vessel
Ø 183 (100) x H 100

6x for centering inner vessel
Ø 95/92 (44) x H 61/20



pressure test of TORLON pads by TÜV



Successful test with load of 25 tons* – for details see safety pages!

* corresponding to 12 resp. 40 N/mm²



8x support for Torlon pad

OV – bot head



OV shell

automatic
welding machine



still tack welded

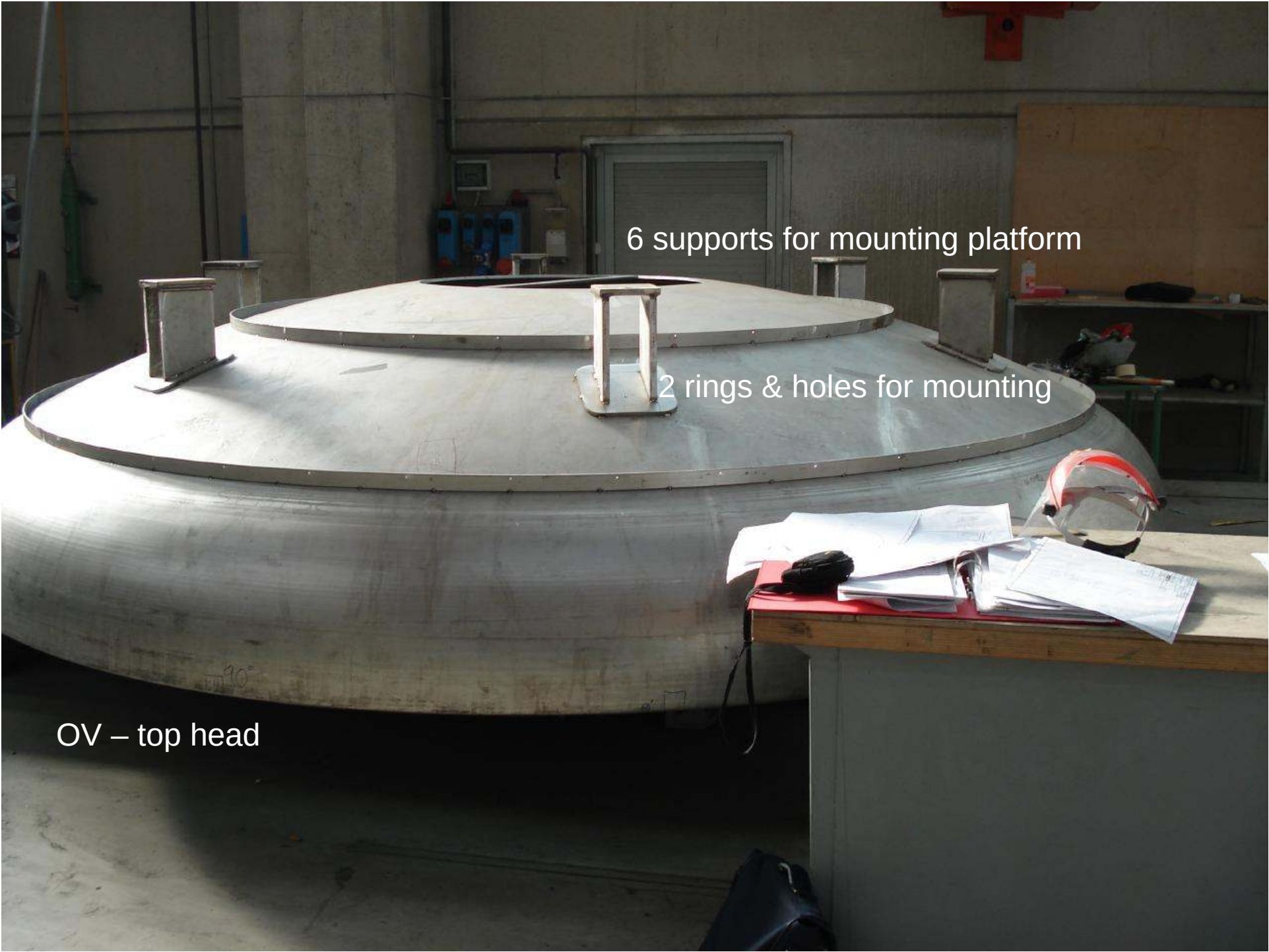
IV - neck



groove for Helicoflex

tool for inert gas containment

IV - neck



6 supports for mounting platform

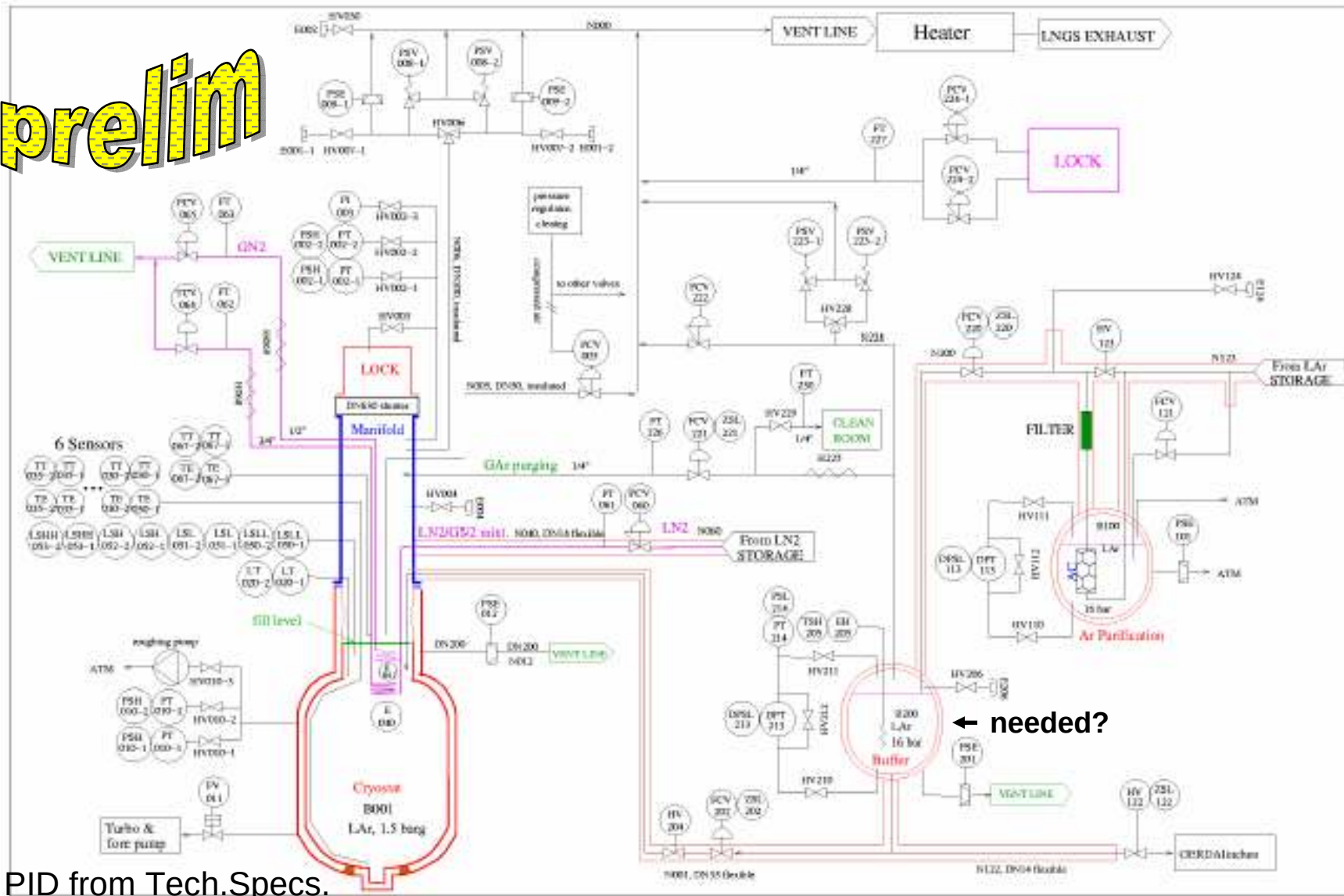
The image shows a large, circular, metallic top head of a vessel, likely a reactor or a large storage tank, in a workshop setting. The top head is made of a light-colored metal, possibly aluminum, and has a smooth, slightly reflective surface. It is mounted on a base, and there are six rectangular supports or brackets evenly spaced around its top edge. These supports are used for mounting a platform. The workshop environment is visible in the background, with concrete walls, a door, and various tools and equipment. In the foreground, a wooden workbench holds a red folder, papers, a black object, and a pair of safety glasses. The lighting is bright, coming from the left, casting shadows on the floor and the workbench.

2 rings & holes for mounting

OV – top head

cryogenic infrastructure

prelim



progress:

'Technical Specifications' for tender prepared & discussed with expert and two potential suppliers

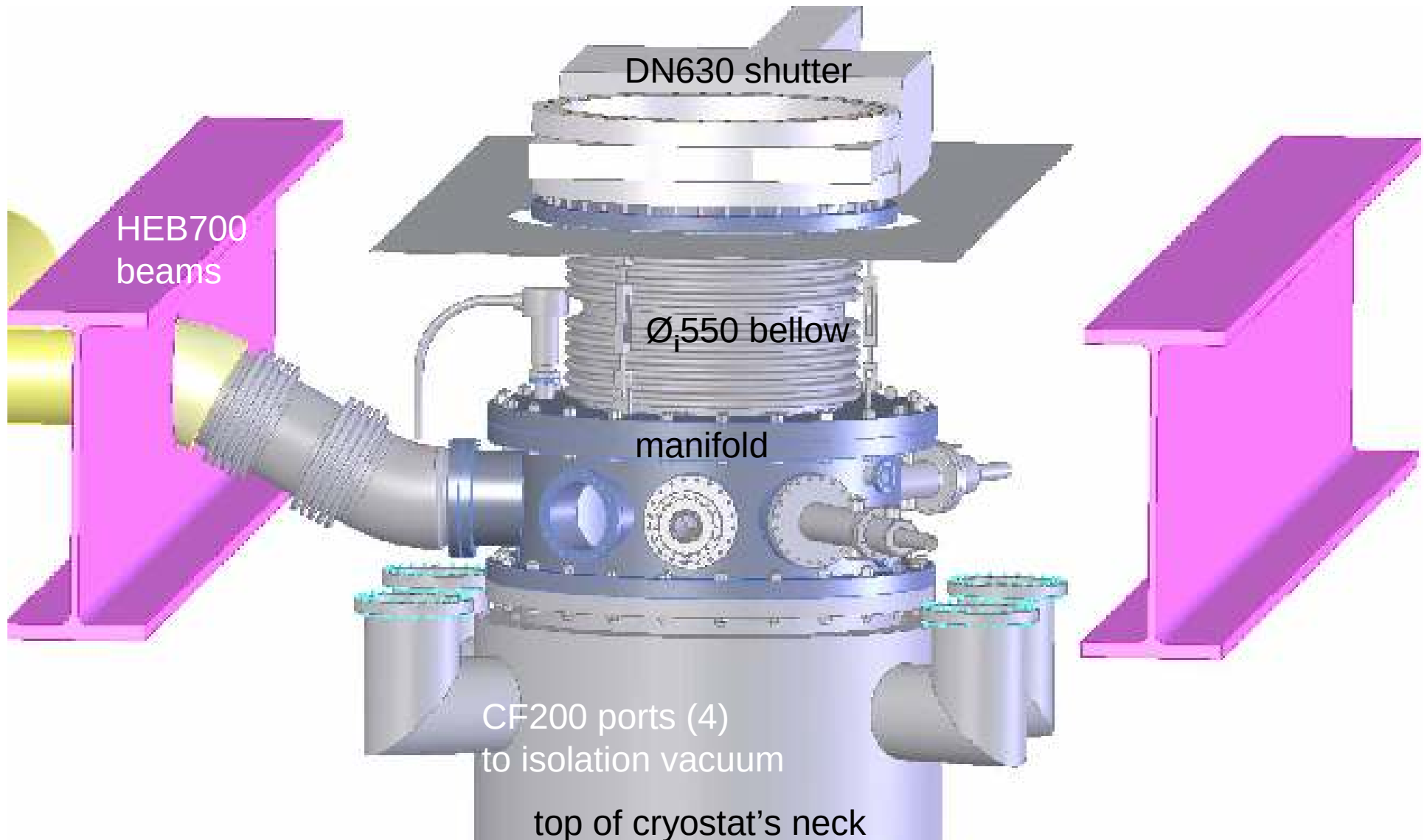
Rn emanation/tightness of cryogenic valves measured, suitable candidates indentified

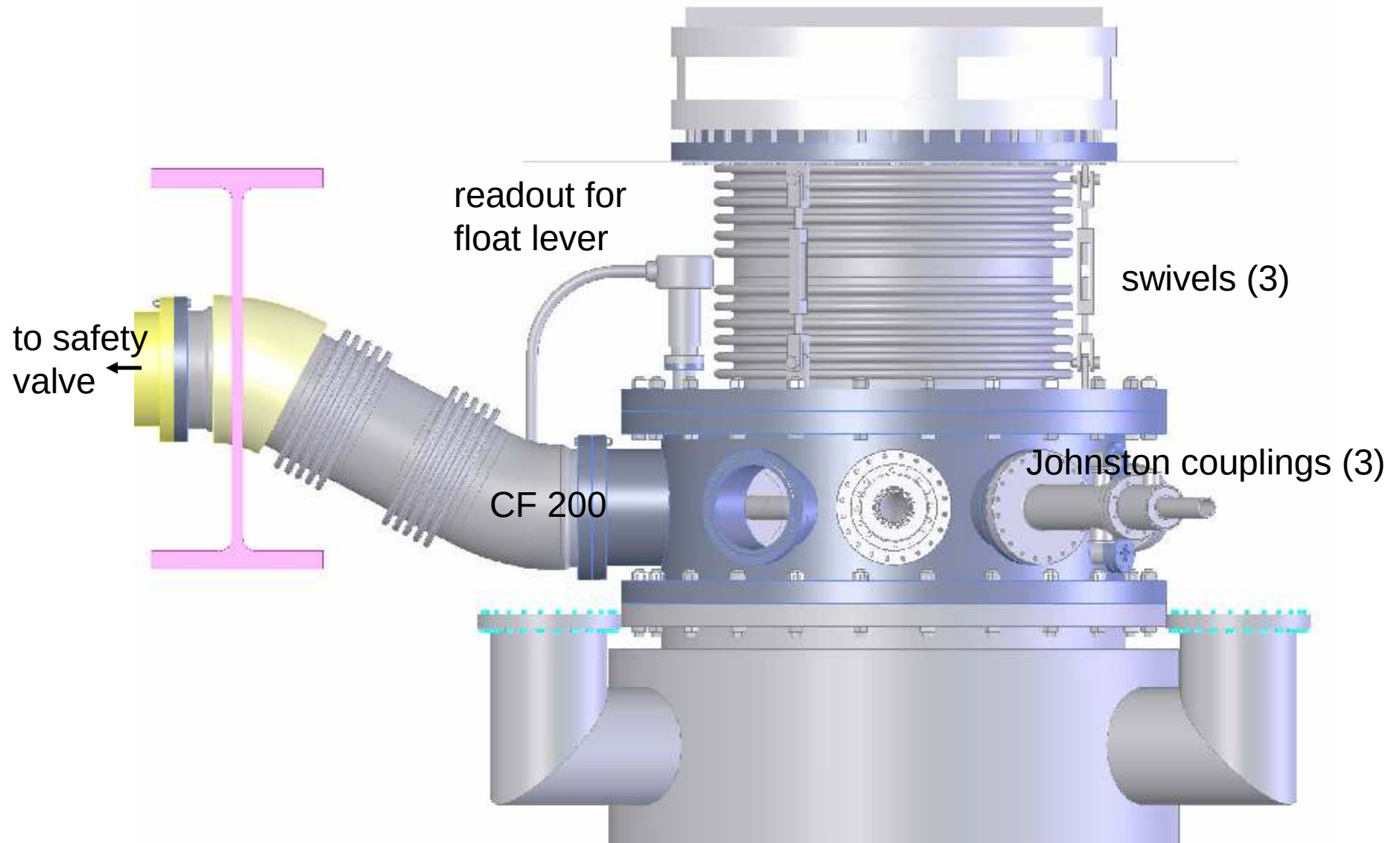
close to final design of manifold and neck instrumentation available ► figures

open issues:

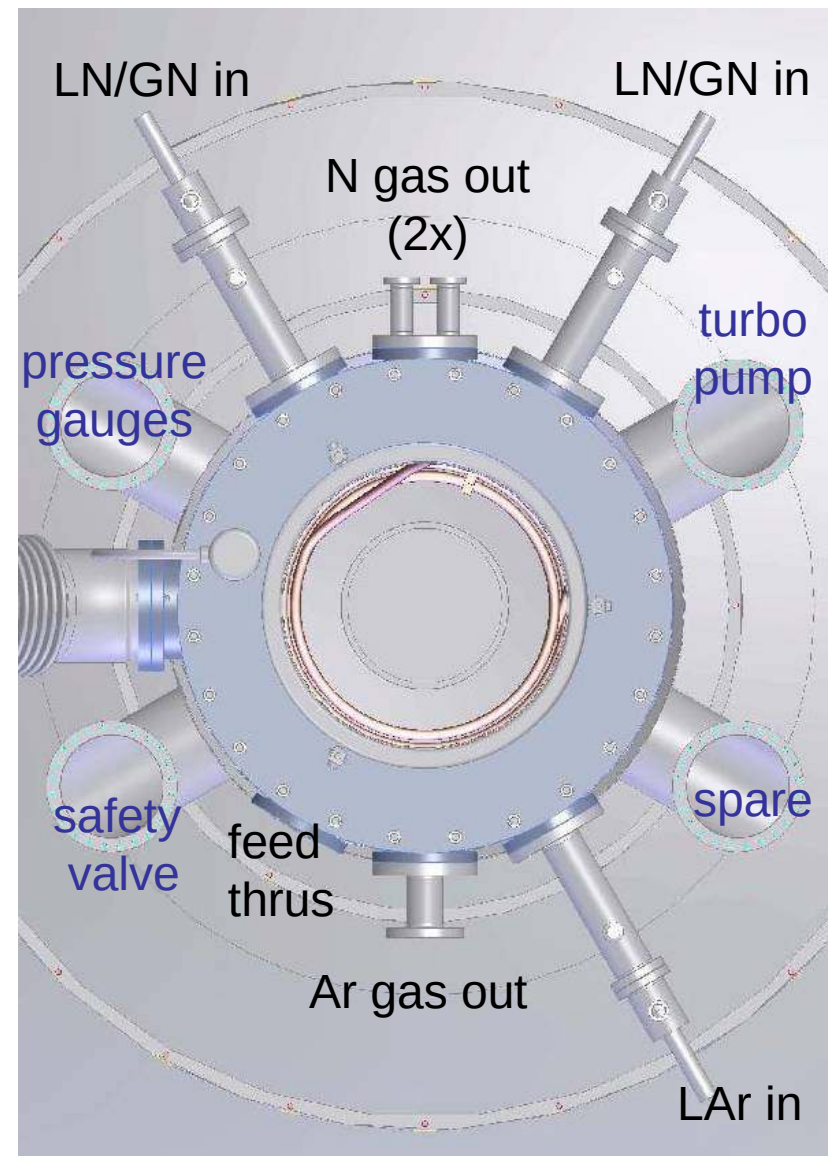
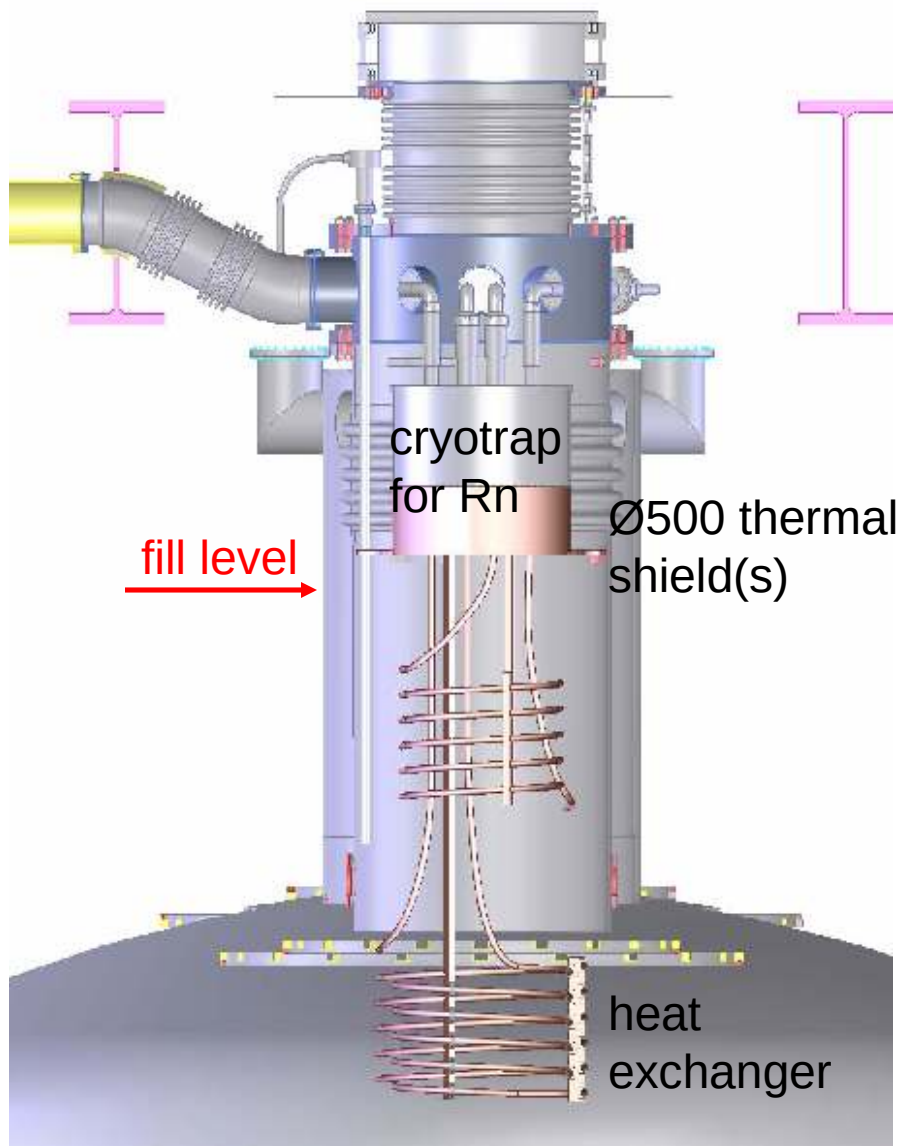
Rn emanation of safety valves (cast stainless steel) still to be shown to be acceptable

specs for heater of Ar exhaust gas (emergency case)

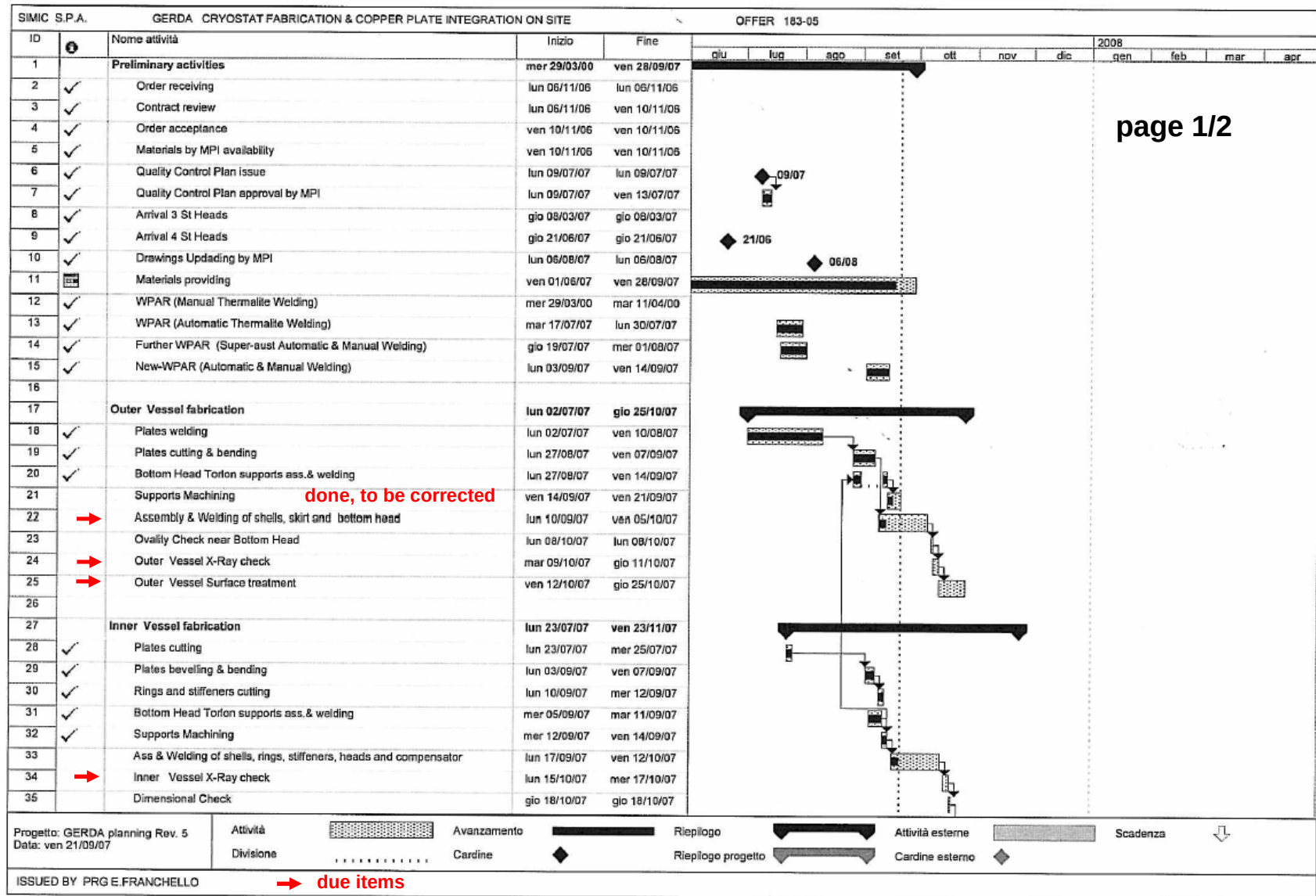




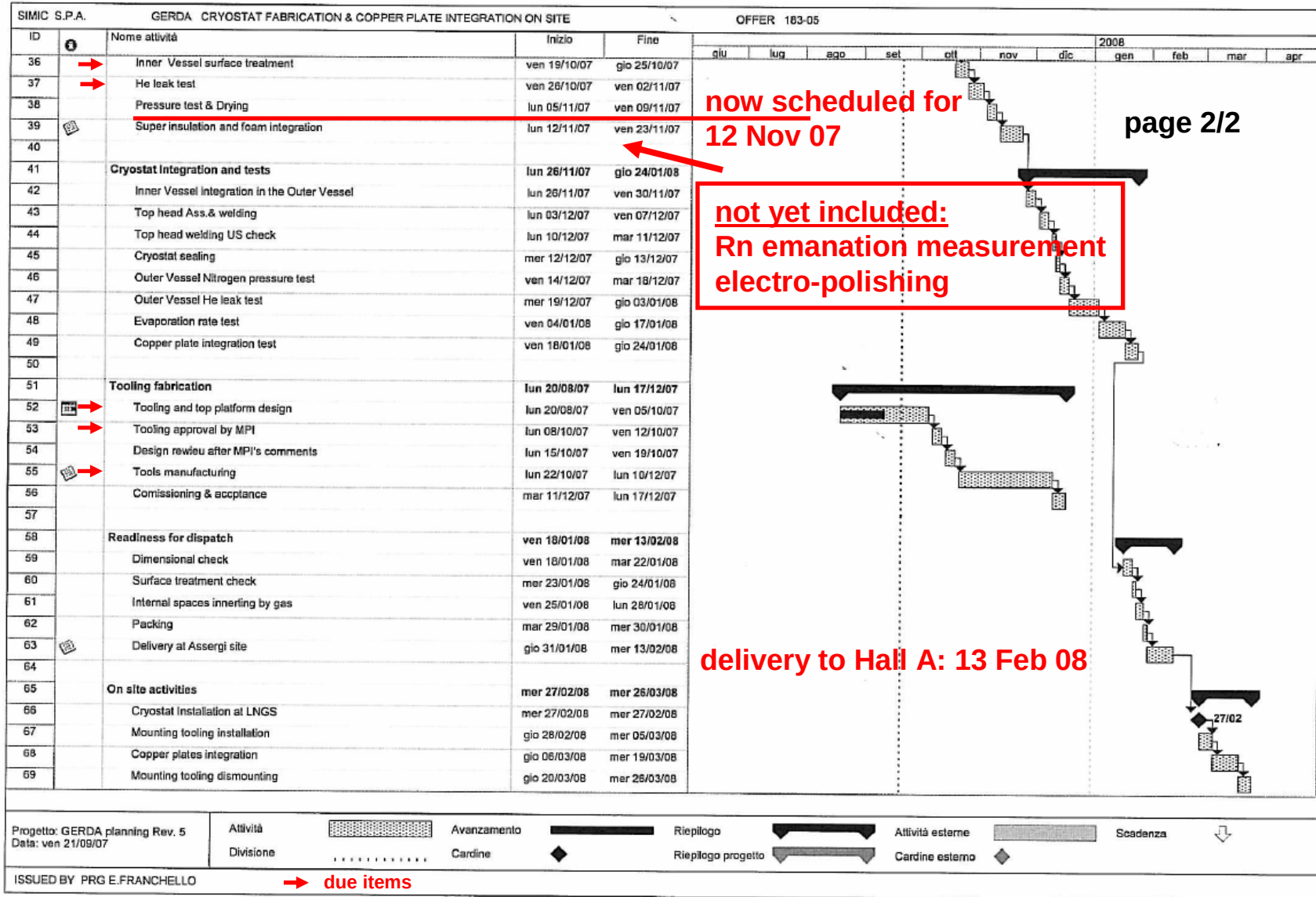
cryogenic infrastructure



schedule: rev 5 of Sep 21



schedule: rev 5 of Sep 21



waiting for cryostat ...



The End
