

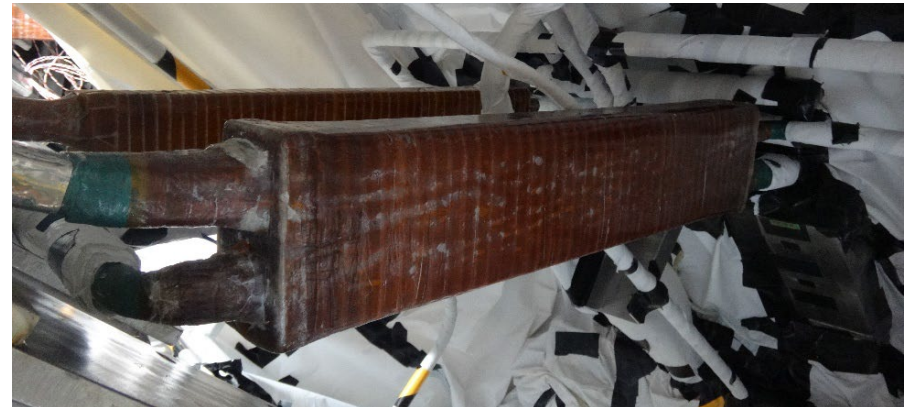
JT-60SA Update

An Overview

Enrico Di Pietro
(F4E)

What happened since March 2021 ?

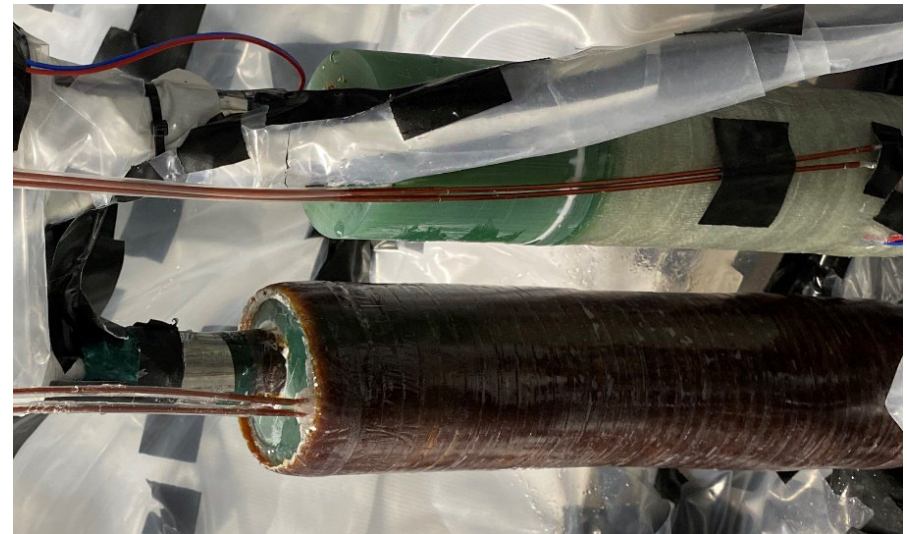
2 March 2021 – First ECRF plasma achieved



TF terminals insulated with pre-preg GK on the tokamak



9 March 2021 – Double Fault to ground on EF coil terminals



Cylindrical EF terminals reinforced with wet-wrapped GK on the tokamak

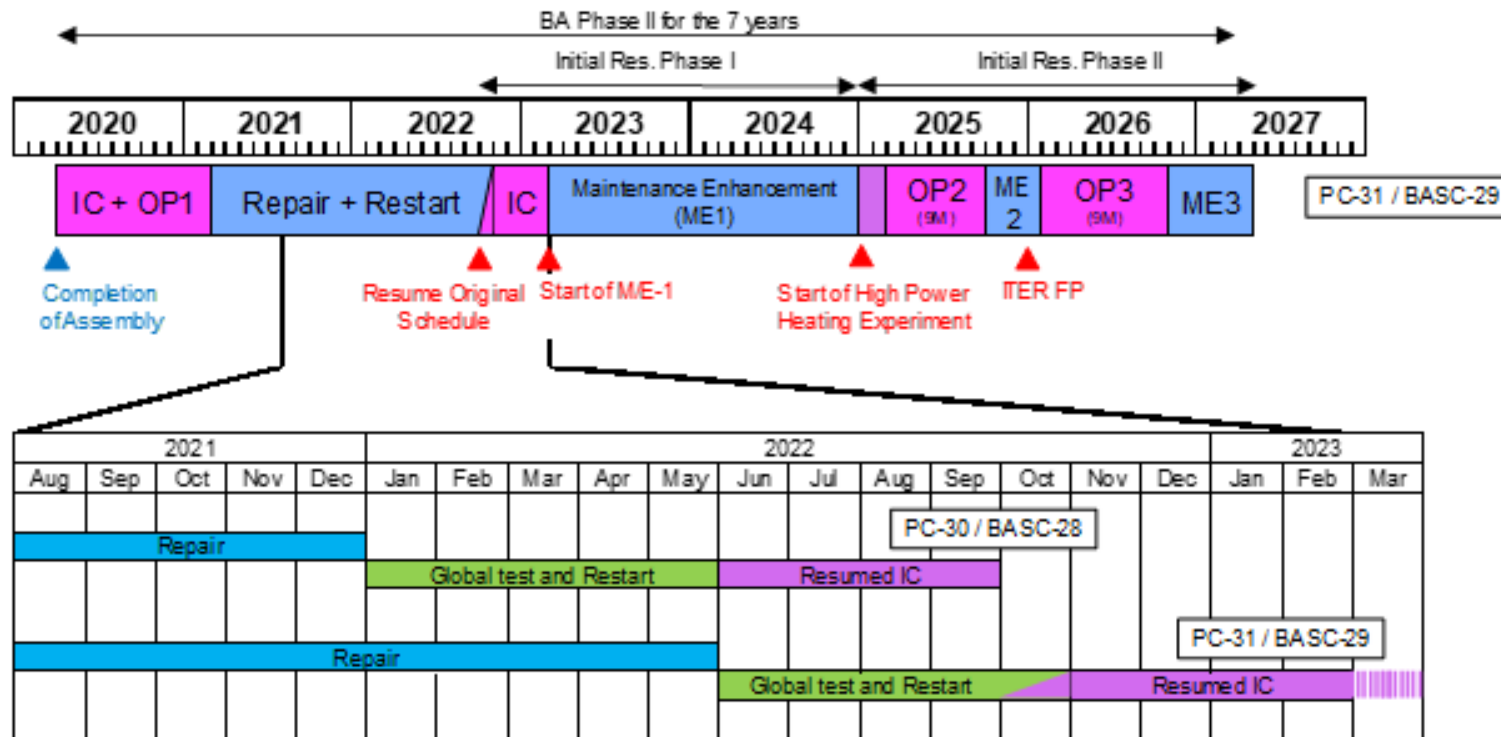
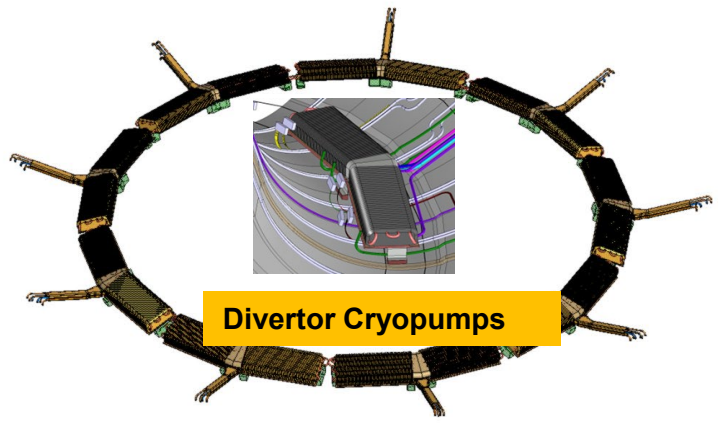
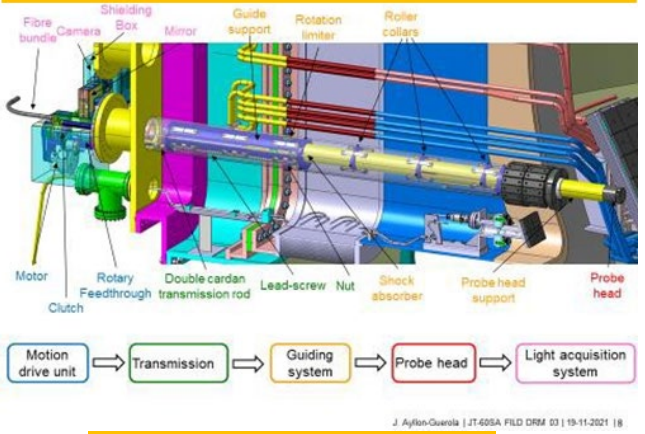


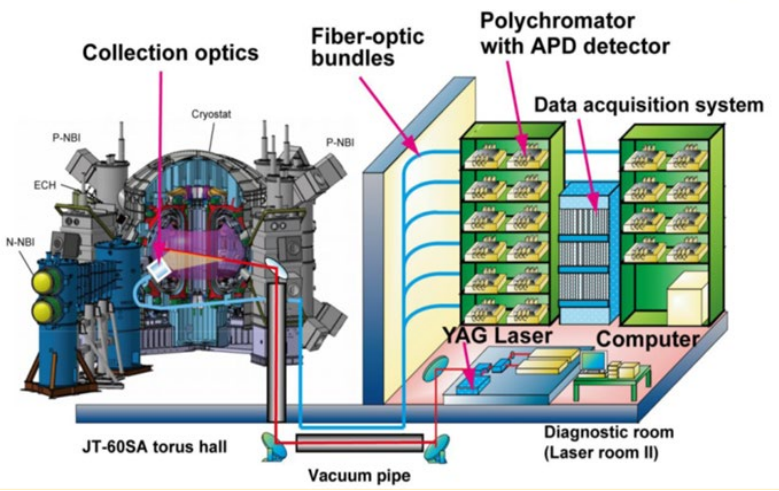
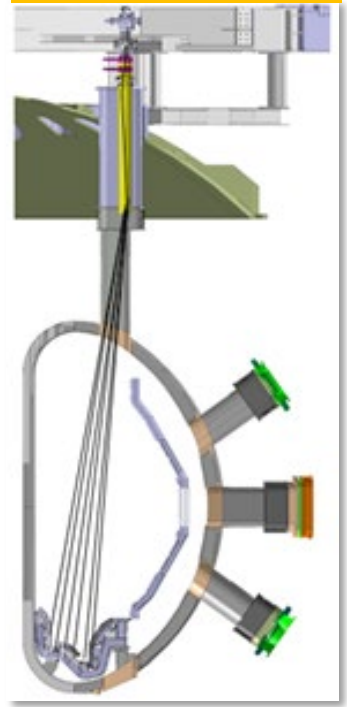
Fig. 4-2. Updated schedule of operation, machine enhancements and maintenance in BA Phase II.



Fast Ion Loss Detector

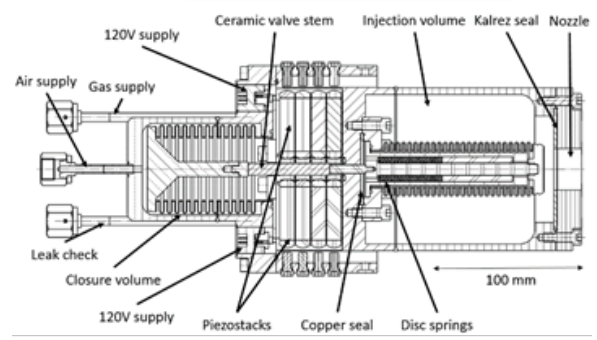


VUV Spectrometer

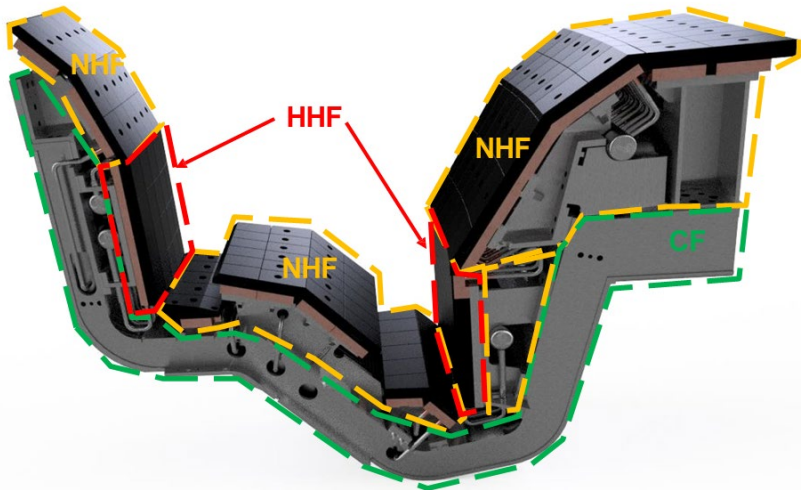


Core & Edge Thomson Scattering

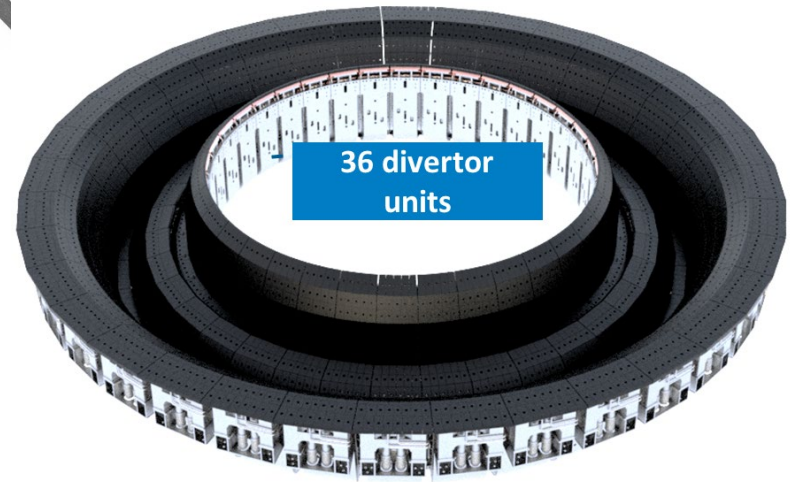
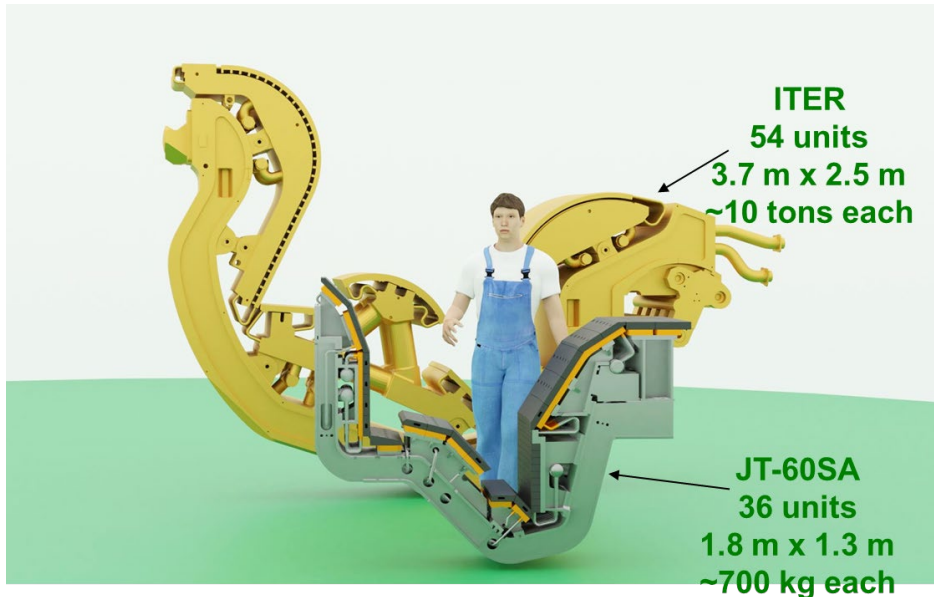
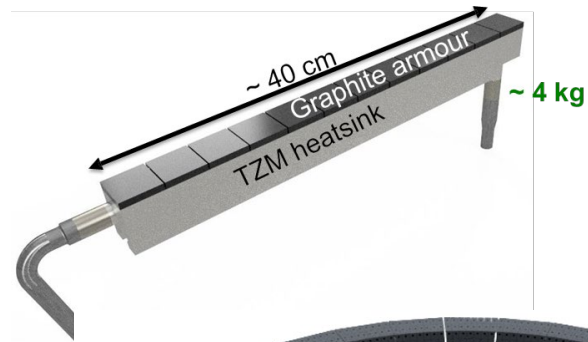
Pellet Launching System



MGI valves



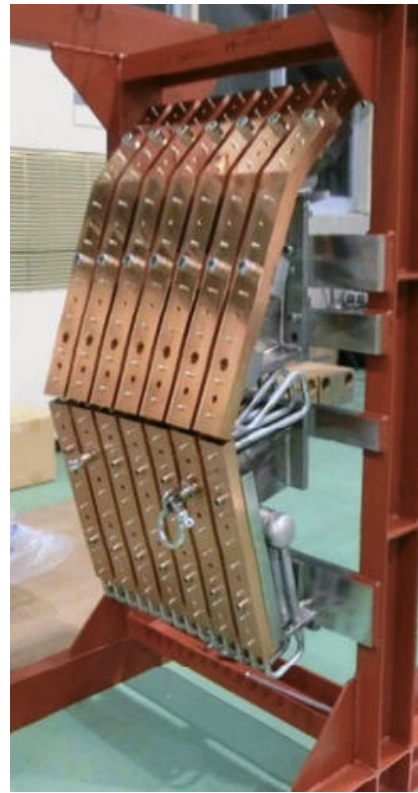
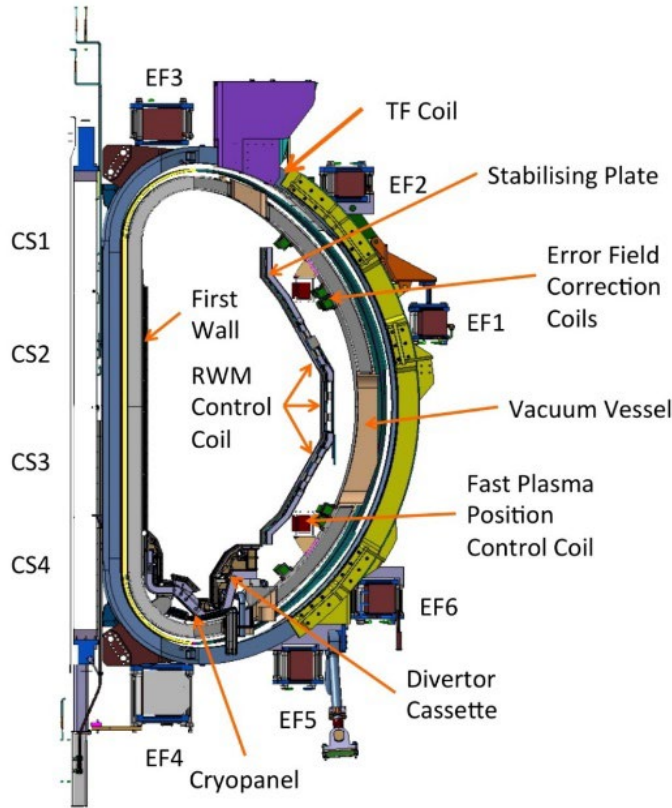
- *HHF components tender completed.*
- *NHF components tender started*
- *Divertor Cassettes specs finalised*
- *Integration Specs In preparation*



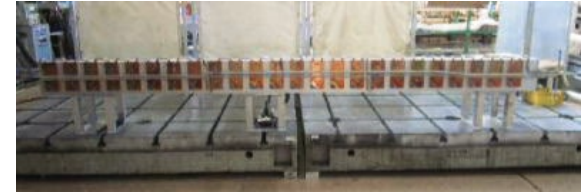
In-vessel components (JA)



- Design/analysis, mock-up test of in-vessel components are in progress.
- Fabrication of stabilizing plate, divertor cassette inner target, first wall heat sink, RWMC, AT probe, and so on have been or to be started.



Divertor cassette inner target (under assembly)



First wall heat sink

Tokamak Device (JA)

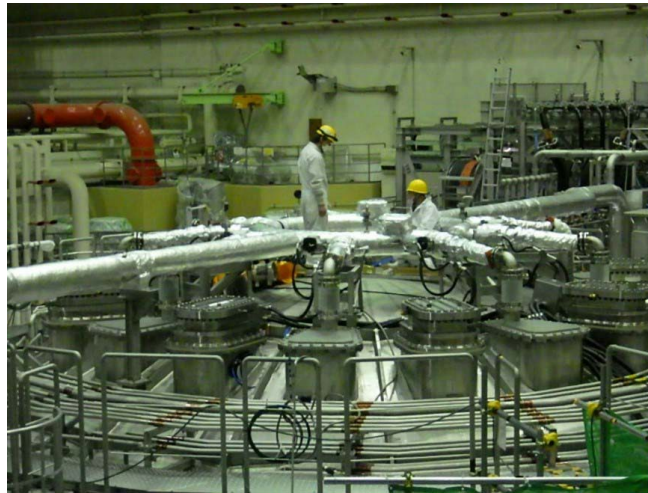
Some work originally planned at M/E-1 has been being anticipated.



- Upper vertical ports (even No.) were installed and all the nine were mounted onto the Vacuum Vessel and jointed with the Cryostat by the end of Jan. 2022
- Piping in basement for the primary water-cooling system were developed from the primary water-cooling building to just underneath of the **tokamak hall**.



Installing the port into the tokamak (P-14)



Completion of the upper vertical port installation



Piping developed to just underneath of the tokamak hall.

Preparatory work to restart of the NBI was proceeded. Main activities in Q4/2021 and Q1/2022 are as follows.

1. Overhaul of eight positive ion sources of the total of 16 were completed. Precise brazing technology to fix thin water tubes (Cu) on grids (Mo) are re-established for this work.
2. In the negative ion based-NBI (N-NBI) beamline, water & gas pipes, maintenance stages around the ion sources, resistors and ground conductor was successfully reassembled based on careful investigation of equipment after long-term storage.

N-NBI beamline 

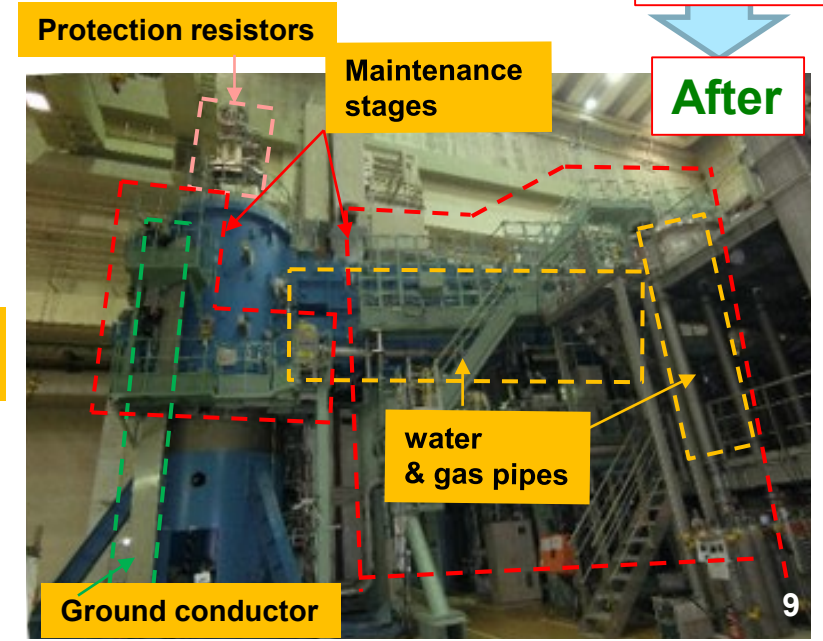
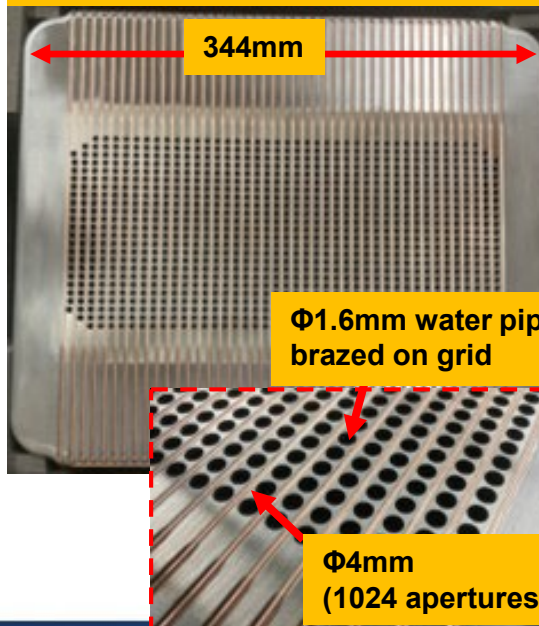


Before

Positive ion source



Newly produced grid



After

- Complex repair activities close to completion.
- Restart of commissioning in Summer 2022.
- With an optimistic view, it could be possible to have all magnetic system fully commissioned by October 2022 and first plasma operation may be achieved between October 2022 and February 2023.
- EU activities (with important collaborations between F4E and EUROfusion Laboratories) are progressing with the objective to deliver in time for assigned milestones (a great effort will be needed to be ready for OP 2!)
- JA Activities progressing in parallel also with reasonable chances to match deadlines for OP2