research instruments

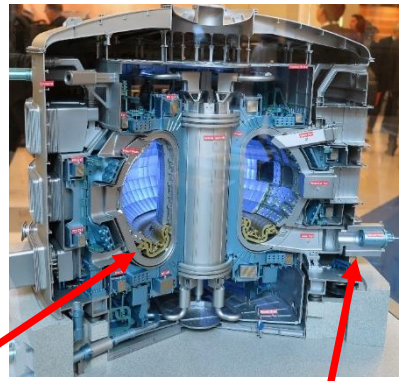
RF components for the upper launcher

Michael Pekeler, 05.06.2023

RI Fusion projects (running contracts)

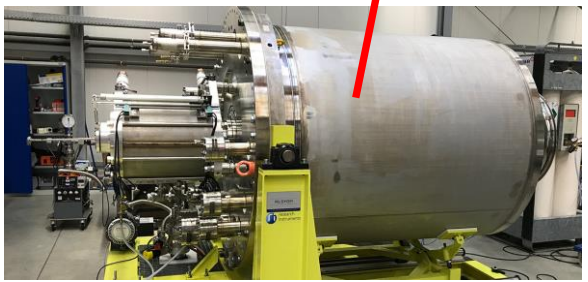
RI in a nutshell:

- Located in Bergisch Gladbach
- 340 employees
  - 130 physicist/engineers
  - 160 manufacturing specialists
- Production of high-tech components and systems for Big Science (Accelerator, Fusion) and Industry (Semicon)



8x Valve boxes: delivery in May 2023

IVT Series Contract:
Start of the fabrication in 2024

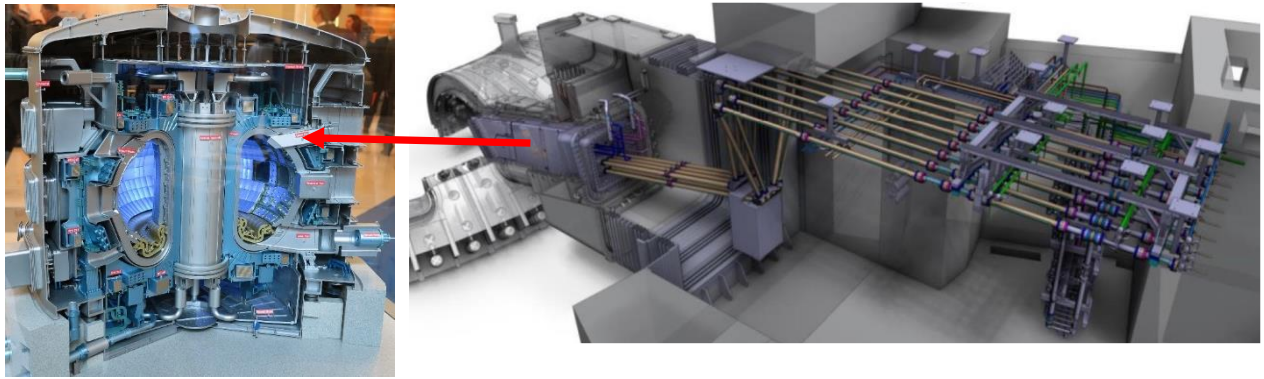


Cryopumps (consortium with ALSYMEX):
delivery of the 1st pump in 2023

RF components for upper launcher

Consortium RI/TBB has received a contract from consortium IDOM/ALSYMEX

- The upper launcher is part of the microwave heating system of ITER
- In 2022 the IDOM/ALSYMEX consortium had won a tender from F4E on the upper launcher production
- Part of the upper launcher project is the design and production of RF components which transfer the RF power generated at gyrotrons into the plasma of ITER
- RI together with Tiefbohrbär (TBB) a Swiss company specialized on deep drilling have now won the contract for design and production of those waveguide components

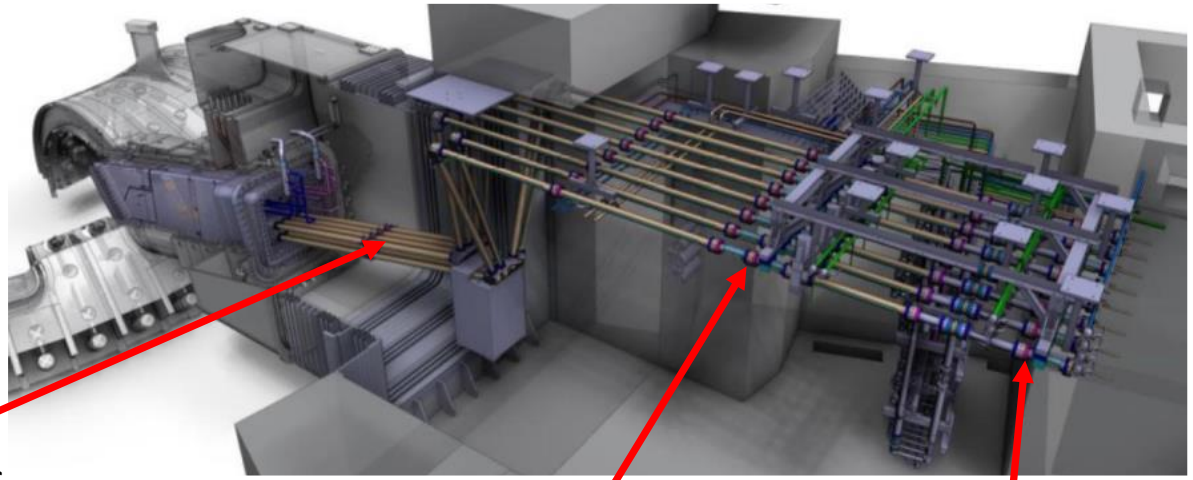


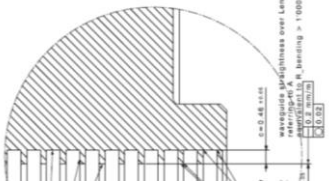
- German BGTB (Beratene Gesellschaft für Tiefbohren, Dortmund, Germany) and DAES (Switzerland) will contribute as subcontractors of RI/TBB

Content of the contract

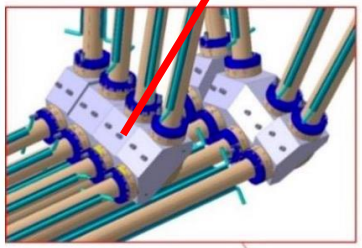
Design of the RF components
- First confinement
- Earthquake safety calculations
- Thermal, mechanical and RF analysis, assembly strategy and tool design

Production
- 800 m corrugated waveguides
- 115 miter bends
- 50 diamond windows

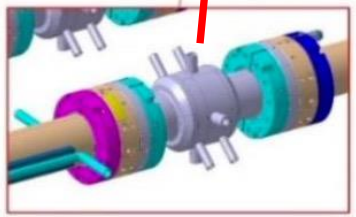




“corrugations”
(0.46 mm grooves in 0.6 mm period)



Miter bends



Diamond windows