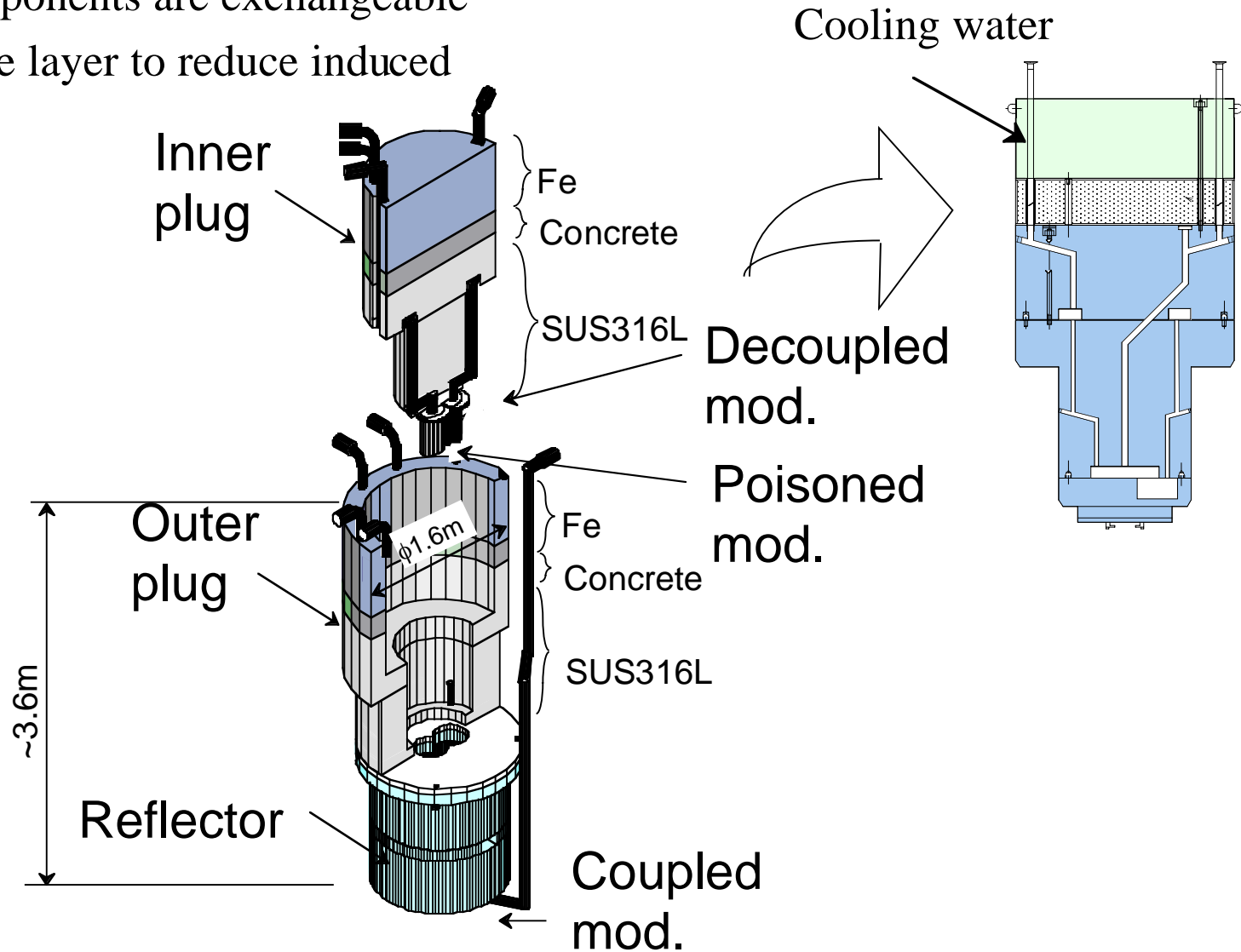


# Moderator reflector system overview

M. Teshigawara  
JAERI

# Components in vessel

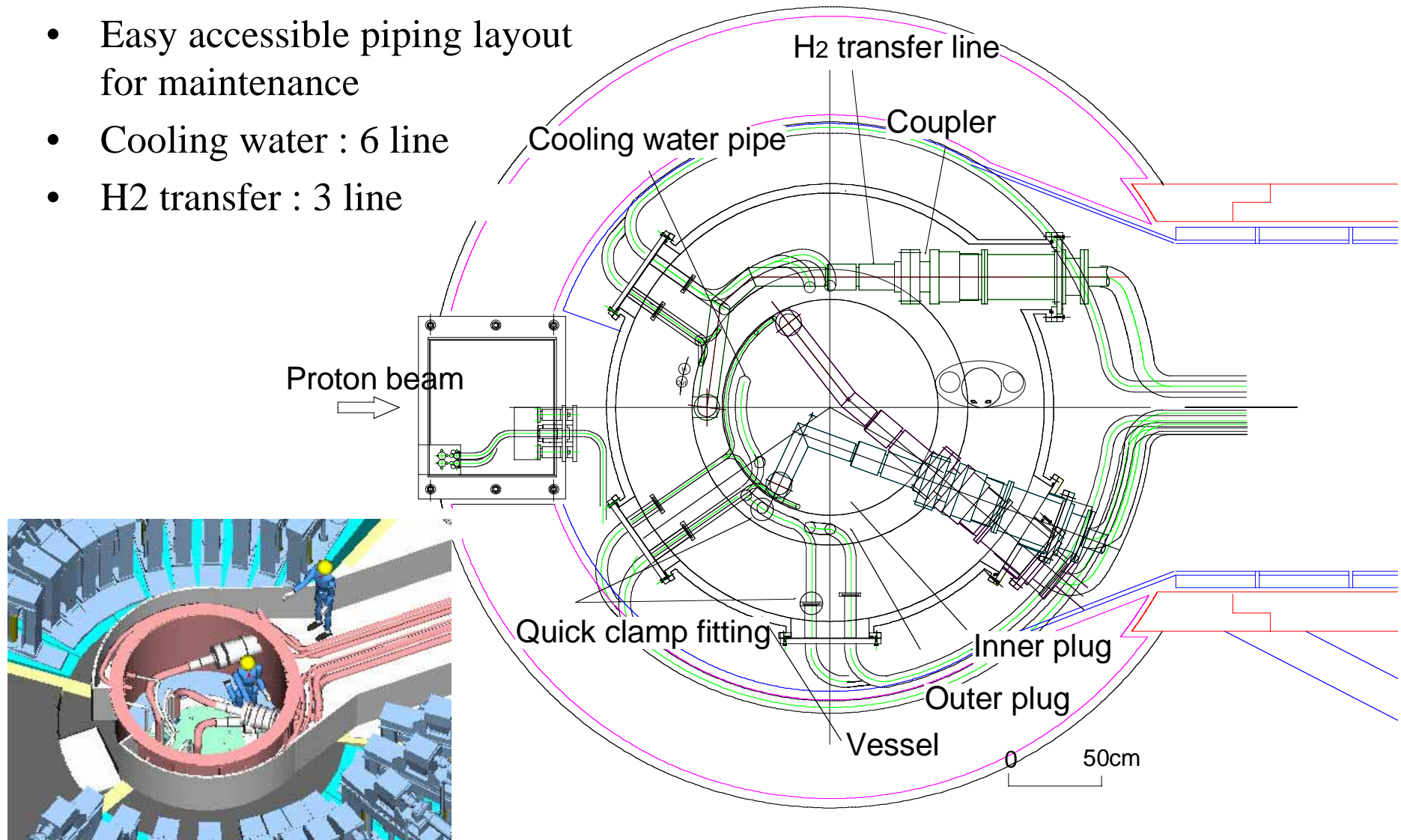
- All components are exchangeable
- Concrete layer to reduce induced activity



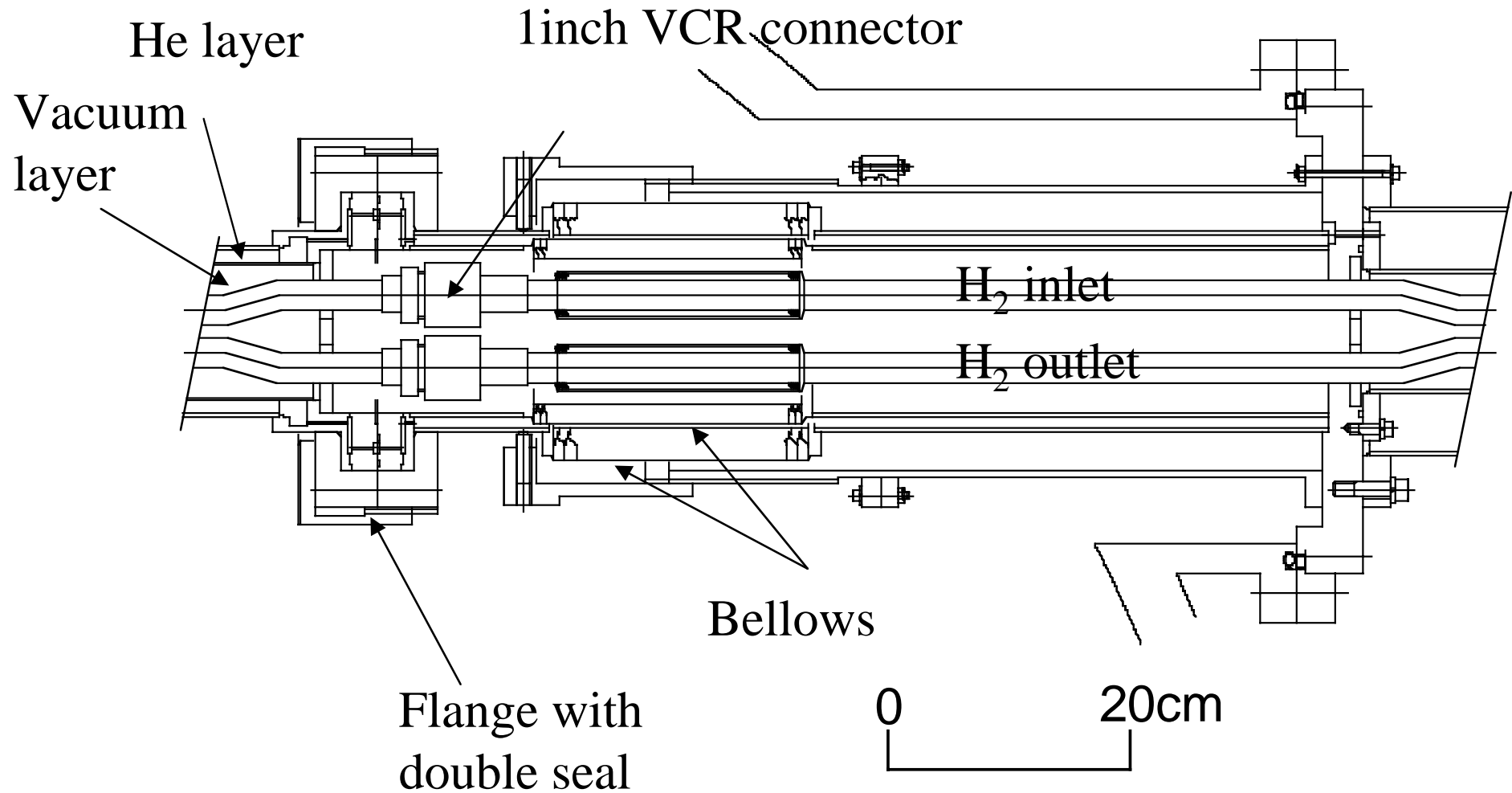
36 ton in total

# Piping layout on vessel top

- Easy accessible piping layout for maintenance
- Cooling water : 6 line
- H2 transfer : 3 line

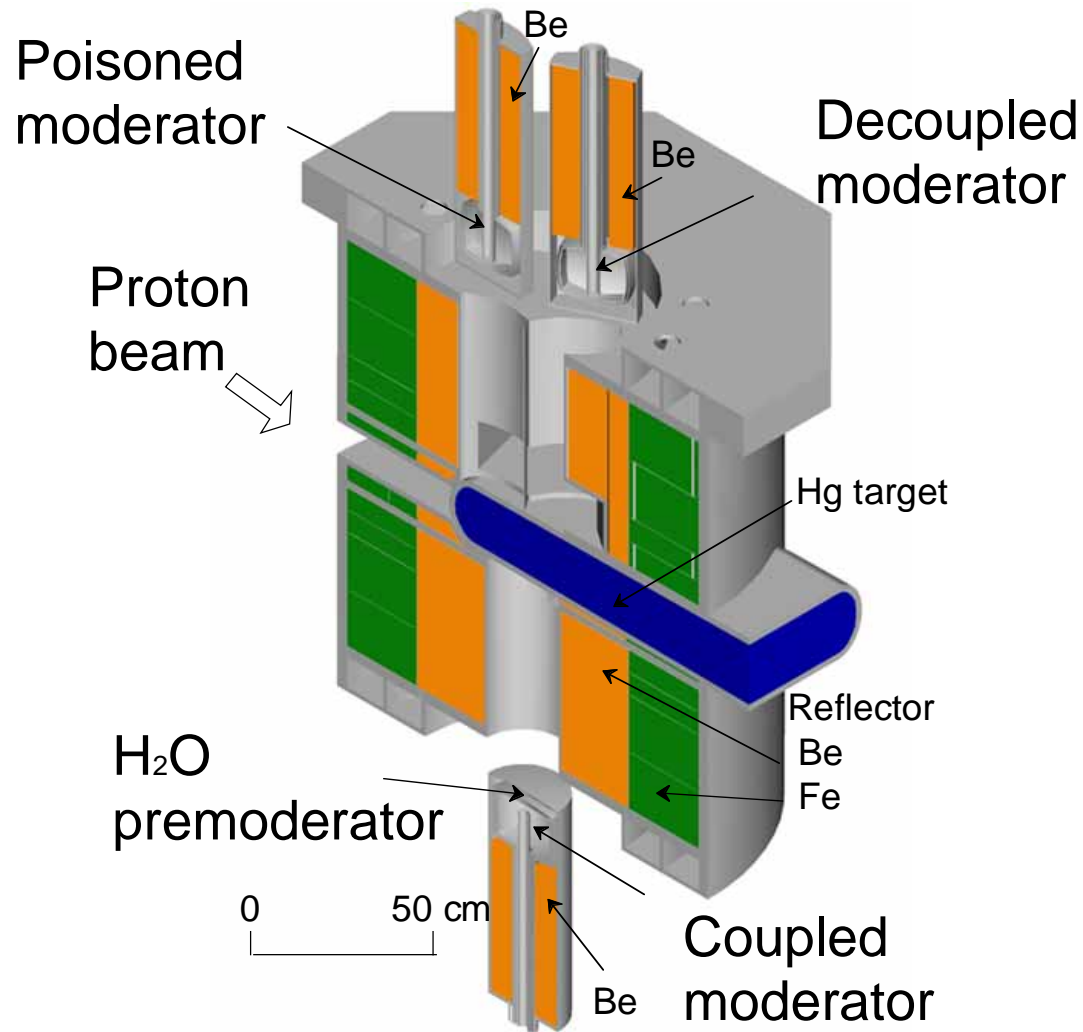


# Newly designed compact coupler for H<sub>2</sub> transfer line



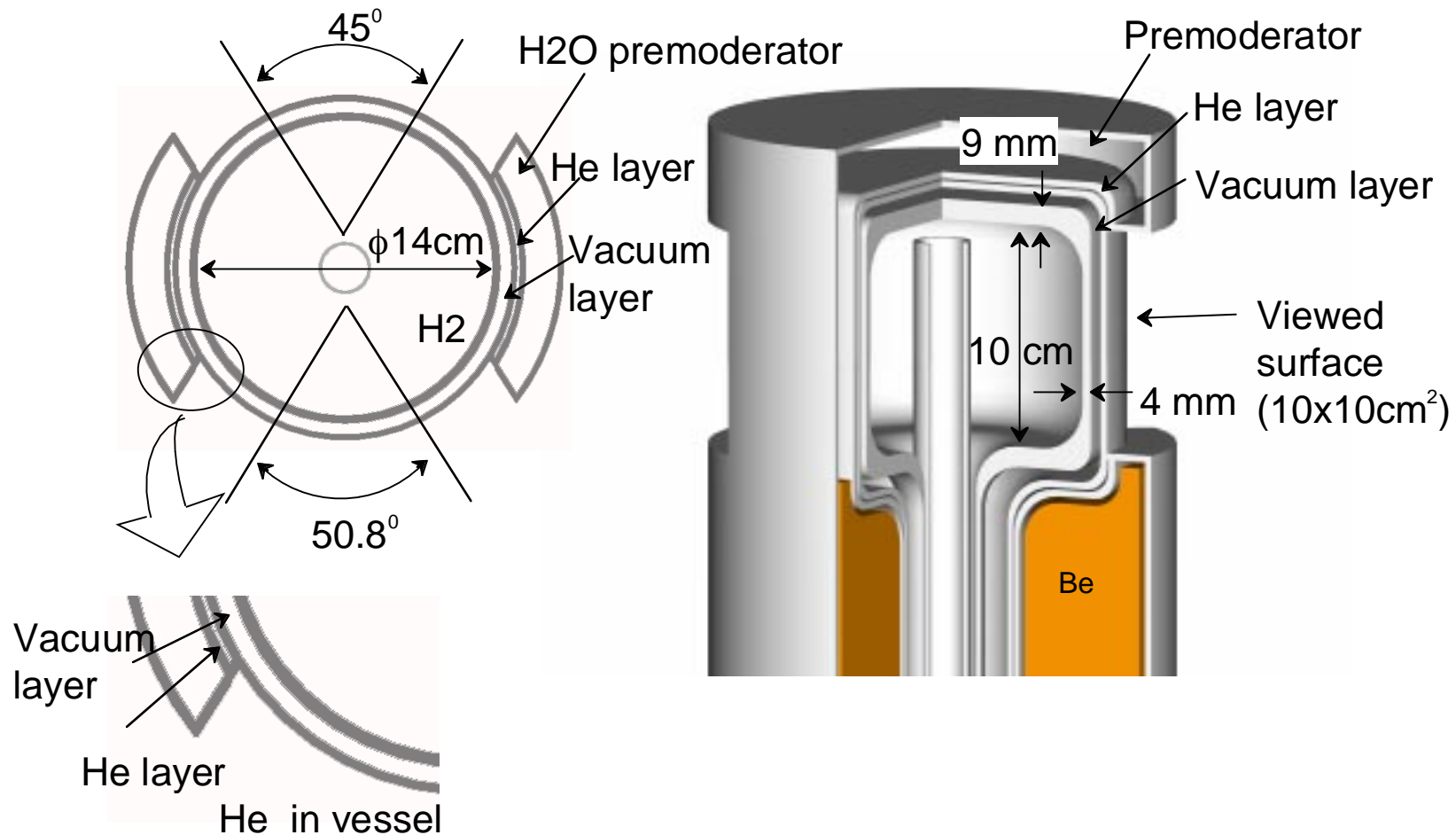
# Moderator arrangement

- All 3 moderator : Super critical H<sub>2</sub>, exchangeable
- Moderator chamber material : A5083/A6061



# Structure of coupled mod.

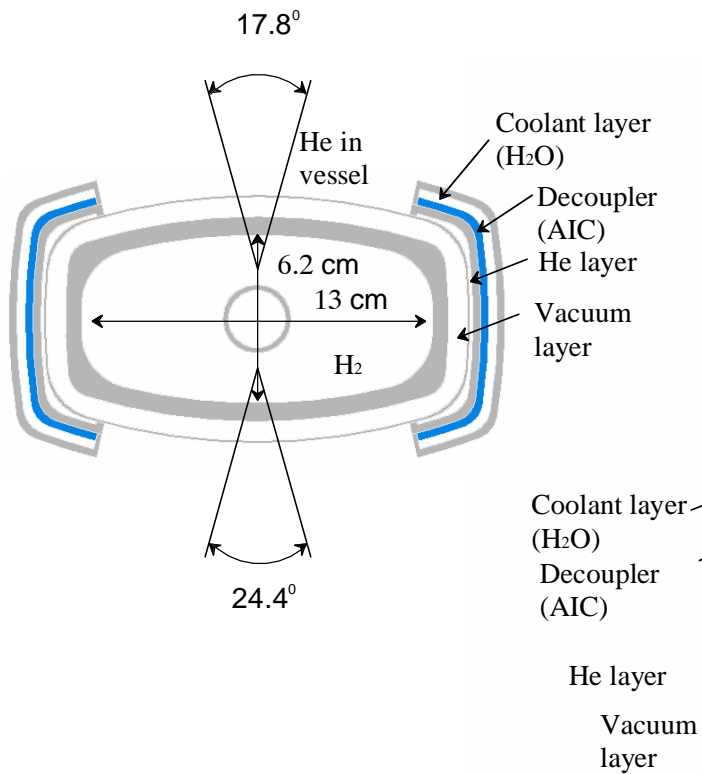
- Wide angular coverage
- Cylindrical shape
- Big moderator
- Optimized by 100 para H<sub>2</sub>



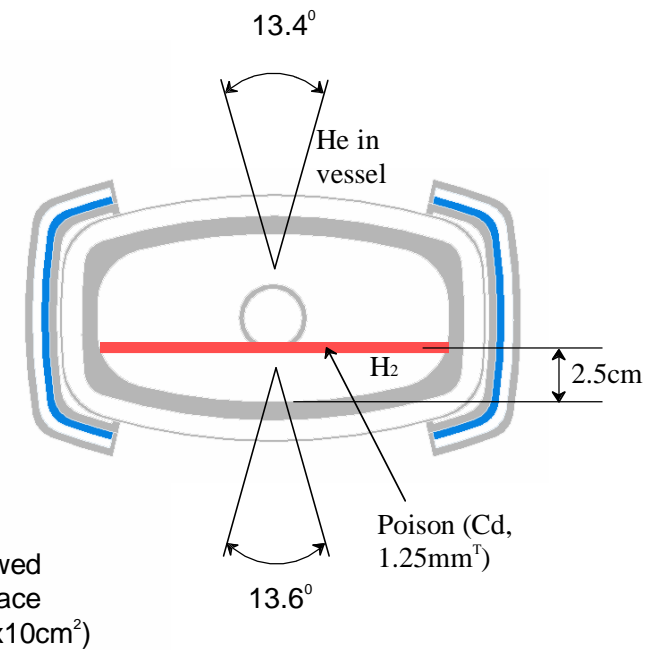
# Structure of 2 decoupled mod.s

- Decoupler : Ag-In-Cd (AIC) alloy (3mm<sup>T</sup>) bonded to mod. outer chamber by HIP
- E<sub>d</sub> : ~1eV

Unpoisoned moderator

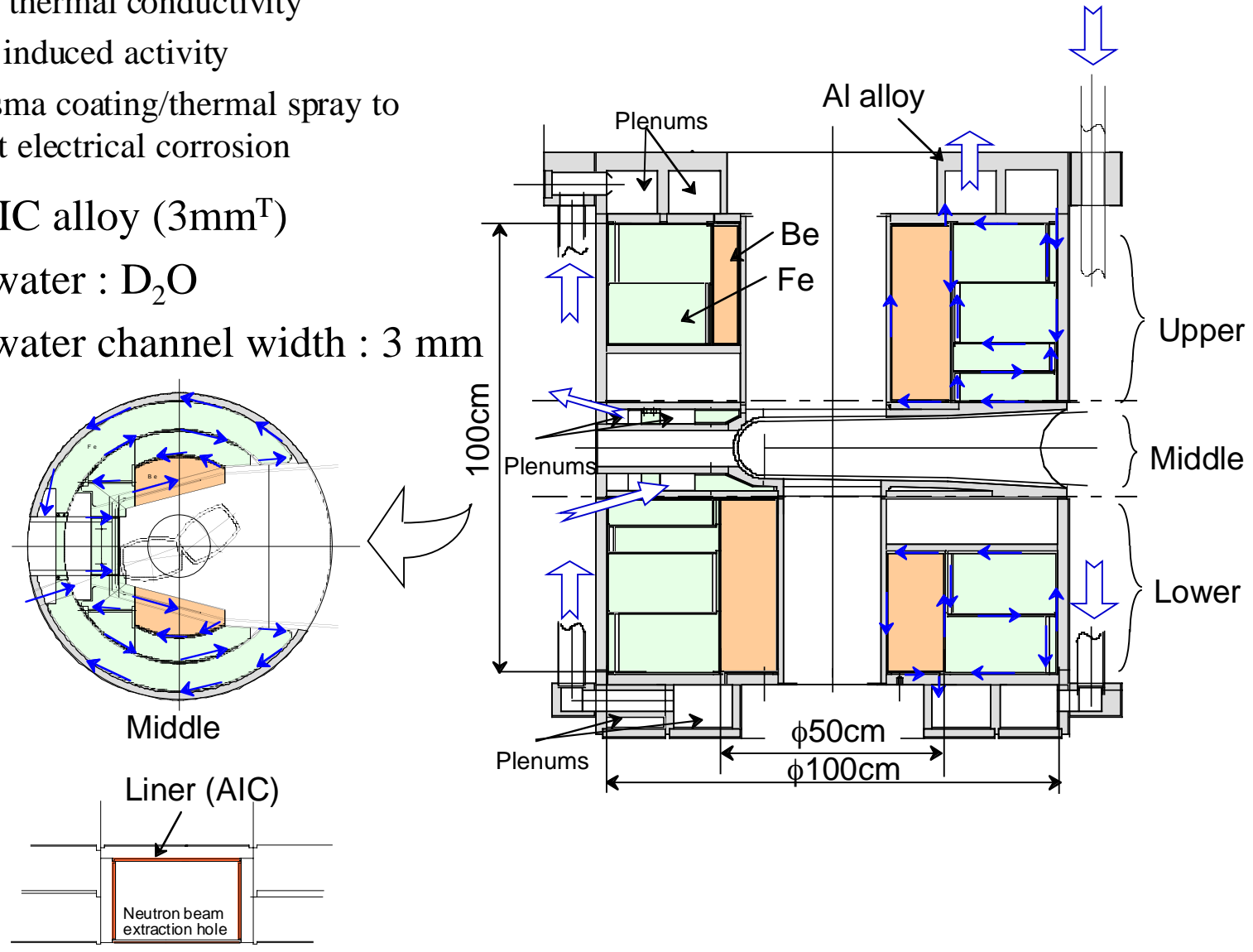


Poisoned moderator



# Structure of reflector

- Fe was selected
  - Higher thermal conductivity
  - Lower induced activity
  - Al plasma coating/thermal spray to prevent electrical corrosion
- Liner : AIC alloy (3mm<sup>T</sup>)
- Cooling water : D<sub>2</sub>O
- Cooling water channel width : 3 mm





# Summary & Questions

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- He layer is needed at neutron extraction part ?
- Material : A6061 vs. A5083?
- Independent repairing
- Newly designed H<sub>2</sub> coupler