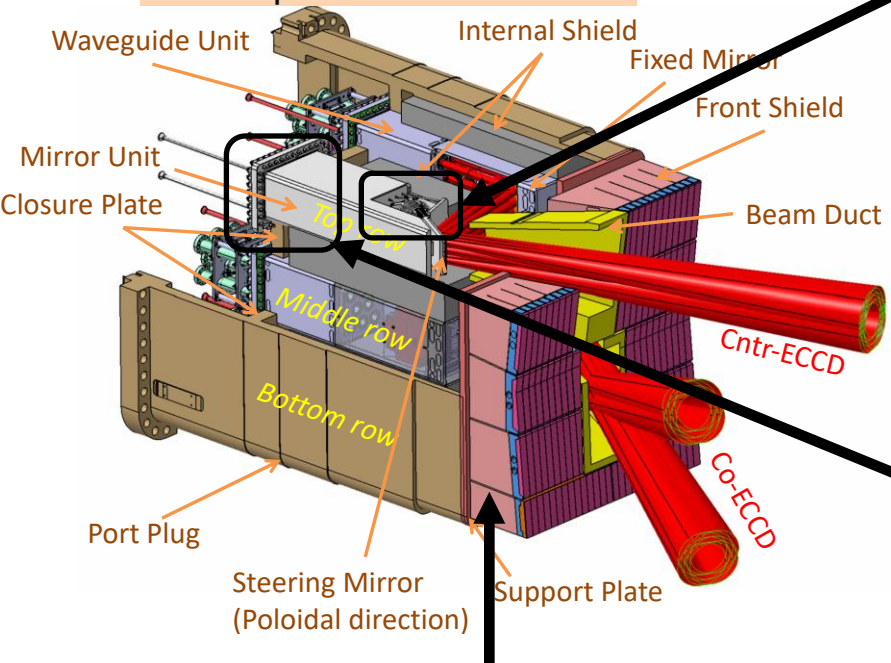


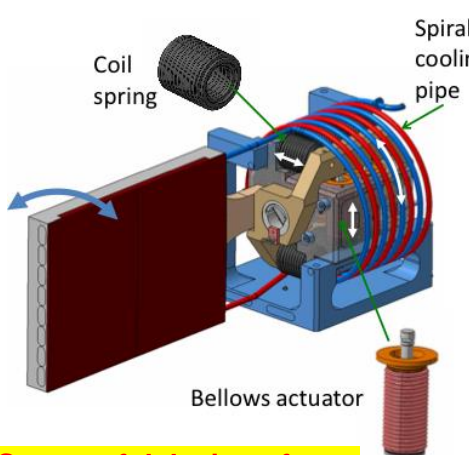
Improvement of ITER equatorial EC launcher design for poloidal steering compatibility

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ITER Equatorial EC Launcher



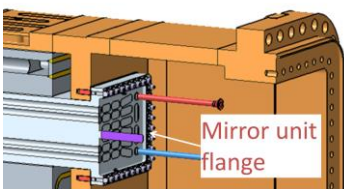
Successful design of steering mechanism.



Issue
 Original design is F4E for upper EC launcher (4 RF beams)
 Larger mirror and high power RF absorption (RF beam input 4 → 8)

Solution
 Large diameter of Spiral cooling pipe.
 Redesign of the coil spring and bellows to balance the new spiral pipe.

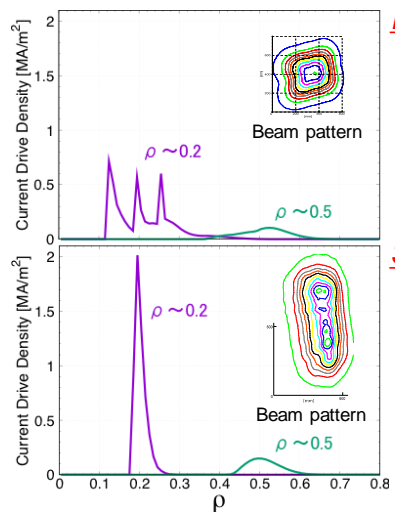
Successful design of mirror unit flange.



Issue
 Rectangular large flange.
 High pressure at the corner.

Solution
 Instead of Stainless bolt, Inconel 718 bolt is used.
 A simulation with Inconel 718 shows enough pressure.

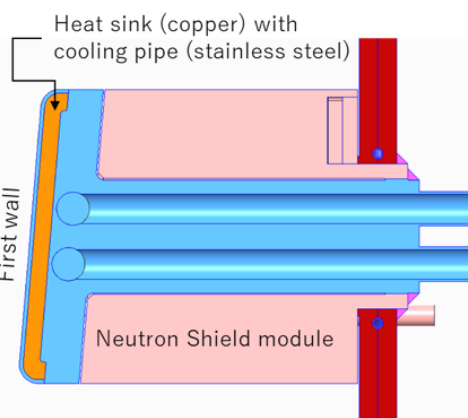
Improvement of the Electron Cyclotron Current Drive (ECCD) by introducing the ray-tracing code into optical design.



Issue
 Optical design is aimed to concentrate the beam.
 Concentrated beam does not promise the concentrated ECCD.

Solution
 Integrate the ray-tracing code into the optimization code of the optical design.
 Width of ECCD profile is largely decreased.

Improved design of Blanket Shield Module (BSM.)



Issue
 Temperature gradient is too high.
 Difficulty of the nondestructive inspection.

Solution
 Separate the first wall from neutron shielding module.
 Thermal stress decreased to half.

First wall

Neutron Shield module