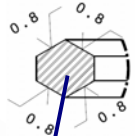
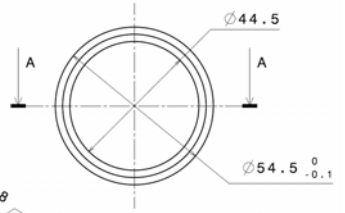
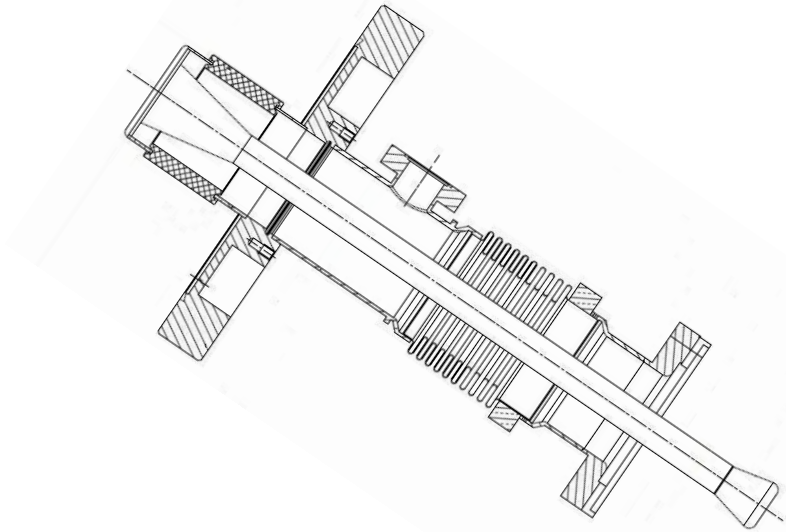
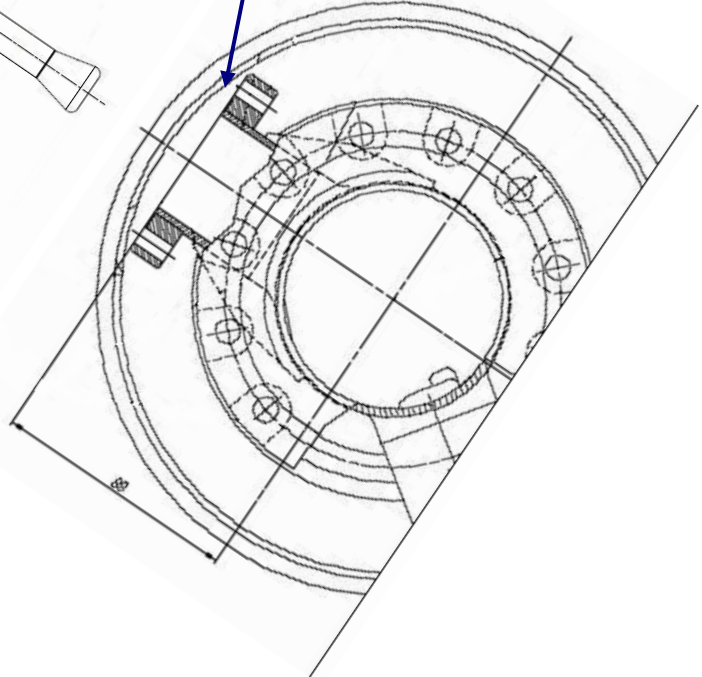


Interface of XFEL input couplers with cavity flange



Seal (Al Mg Si0.5 F22)





Input coupler with Ø 40mm cold end

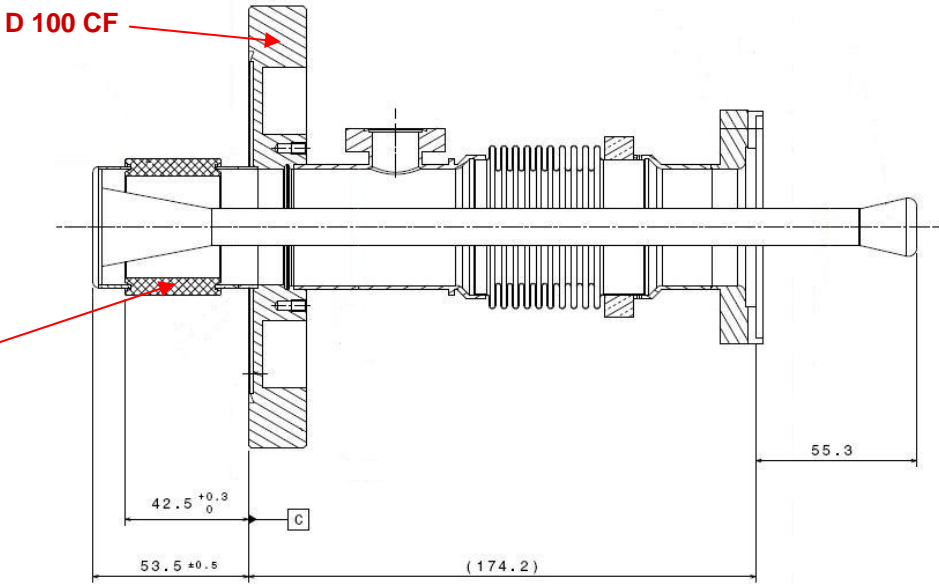


Input coupler with Ø 60mm cold end

Comparison between Ø40 and Ø60
Cold parts

XFEL coupler

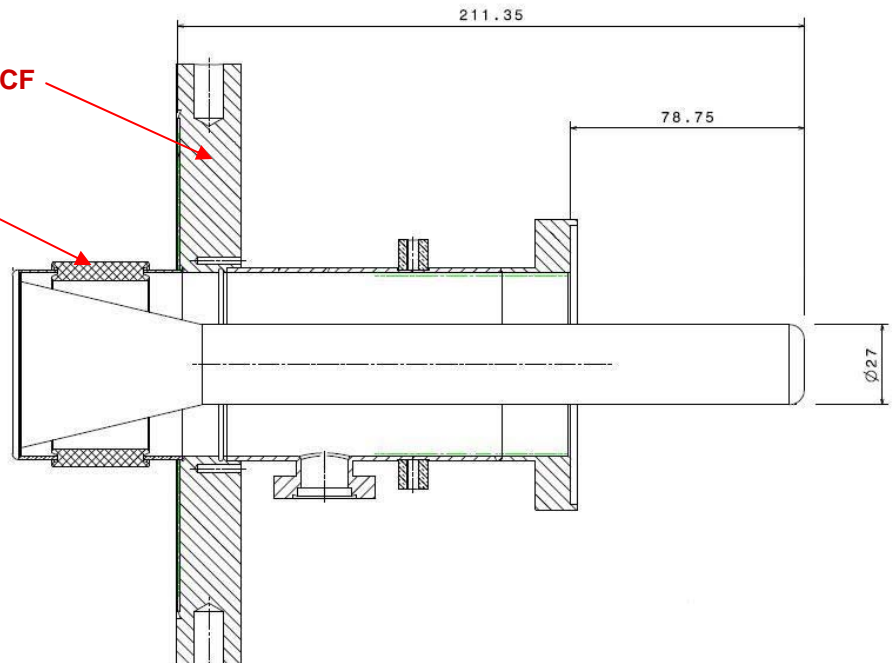
Window Ø 47mm



TTF5 coupler
(Bellows for tuning
could be added)

Window Ø 69mm

D 160 CF



Comparison between Ø40 and Ø60

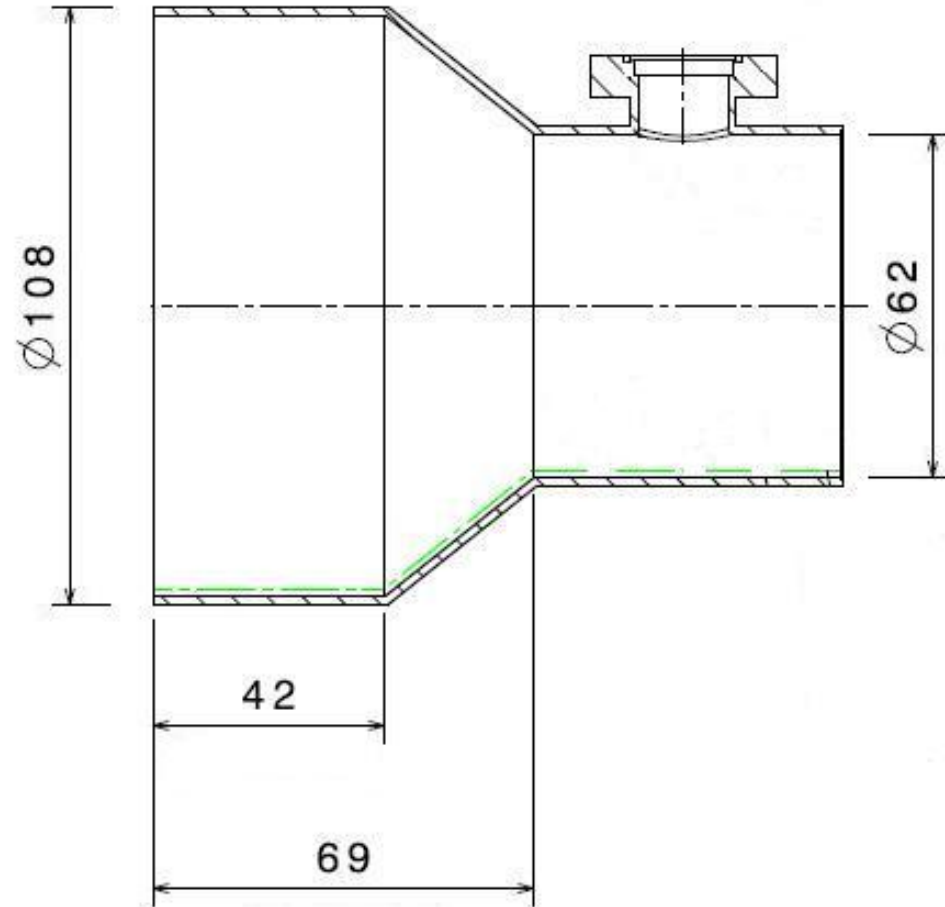
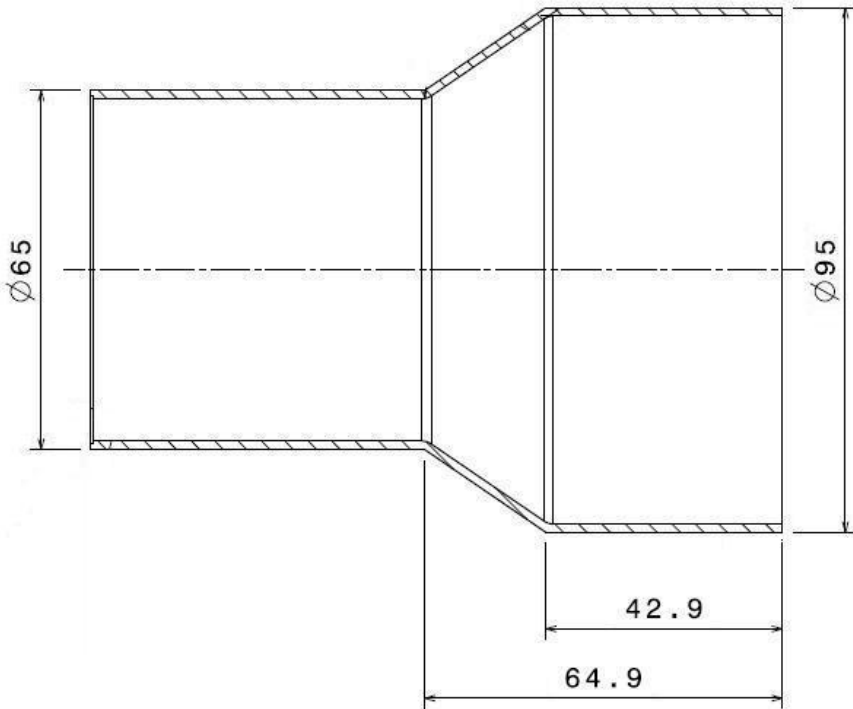
Warm parts

- D 100 CF → D 160 CF

- conical part bigger

for Ø40

for Ø60



Modifications and resulting cost increase for Ø60 cold end

Change of geometry only → no change of manufacturing technology

Cold part:

- all cylindrical parts have diameter increase by 50%
- CF100 replaced by CF160
- Cu plated surface increased by 50%

- ## Warm part:
- conical part size increased
 - CF100 replaced by CF160

- ## Assembly:
- handling more difficult due to weight of parts
 - total weight of coupler increased by 15 kg
 - assembly tooling has to be stronger due to weight of parts
 - transition cavity for test bigger & more expensive

Vacuum vessel:

- size of porthole has to be increased: 213 → ~ 260 mm to allow room for hands (crowded space)

Unit cost increase
estimation:
~ 12 %

