



Comments on Cold Coupler Section Diameter and Plug Compatibility

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40 vs 60 mm Cold Sections

- Much experience with TTF3 40 mm cold sections although usually run below ILC input power level of 300 kW
- 40 mm design may be less lossy cryogenic wise but this should be checked since warm rf losses lower with 60 mm
- Strong multipactor bands from 300-600 kW in 40 mm tube although they process out – long term effect not clear
- 60 mm design likely increases power handling capability - see fairly gas-free operation of warm 60 mm sections – need to quantify
- 60 mm designs already developed at Orsay and KEK, and KEK has developed cavities with 60 mm ports (not difficult to adjust HOM accordingly). May need 60 mm coupler design for PX at FNAL
- As usual, ability to use either diameter is desirable, but regardless of diameter, should have adjustable Q

Plug Compatibility (PC)

- It is clear that XFEL will not change the diameter of their coupler cold sections
- However, consider two PC units
 - cavity + coupler cold section
 - coupler warm section and cryostat (or w/o cryostat)
then XFEL cavity + cold couplers can be used for ILC program if even ILC adopts 60 mm cold couplers
- Requires 60 mm cold designs (KEK and Orsay 60) and any new warm designs adapt to the TTF3 WG location and warm/cold interface (may not be possible matching-wise, but worth examining).

TTF-3 Coupler Design

