DESIGN OF THE MERCURY HANDLING SYSTEM FOR A MUON COLLIDER/NEUTRINO FACTORY TARGET

(IPAC13, THPFI092)

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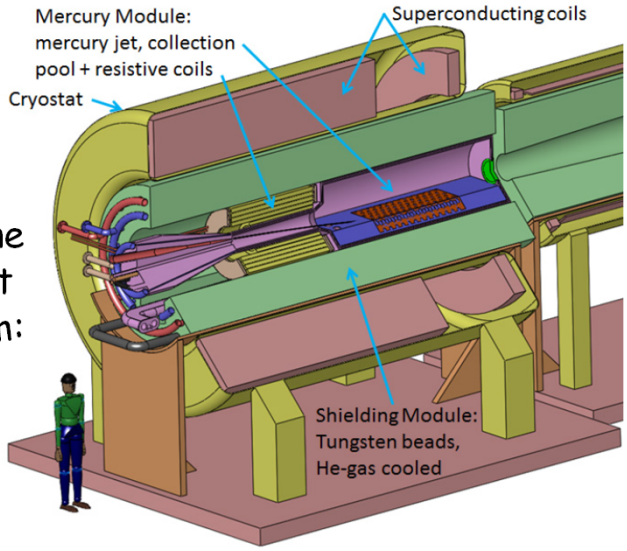
The baseline target concept for a Muon Collider or Neutrino Factory is a free mercury jet within a 20-T magnetic field being impacted by an 8-GeV proton beam.

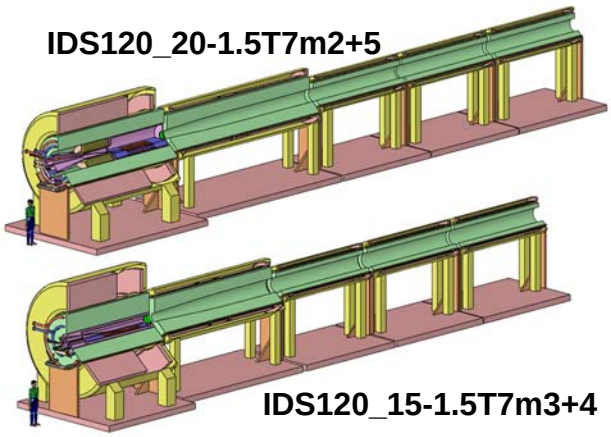
A pool of mercury serves as a receiving reservoir for the mercury and a dump for the unexpended proton beam.

Modifications to this baseline are presented in which the field at the target is reduced from 20 to 15 T, and in which the magnetic field drops from its peak value down to 1.5 T over 7 rather than 15 m.

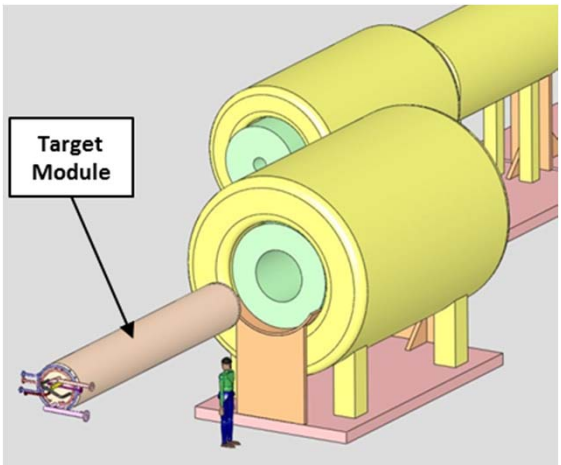
The Baseline Target System:



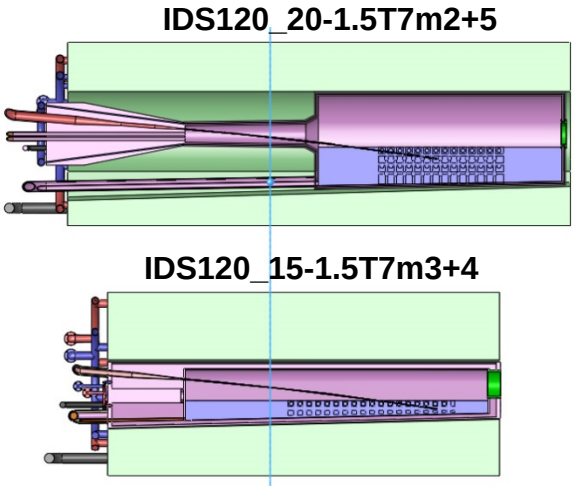
Target System options plus first 20 m of the Decay Channel: (TUPFI073)



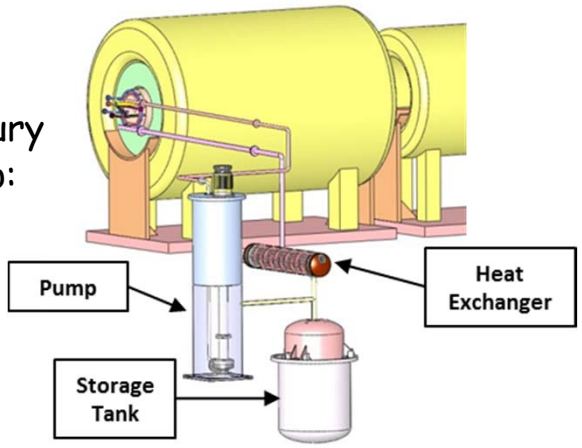
Insertion/ extraction of the Mercury Module:



Cross sections of the Mercury Modules for 20 T and 15 T:



The mercury flow loop:



Services for the Mercury Module and the Shielding Module: