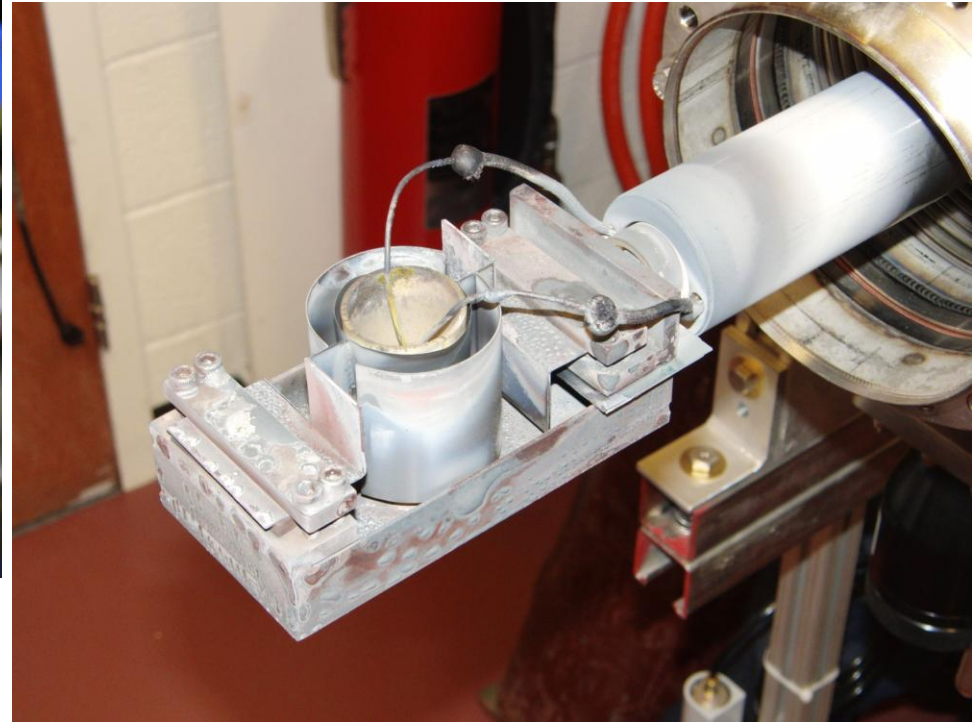
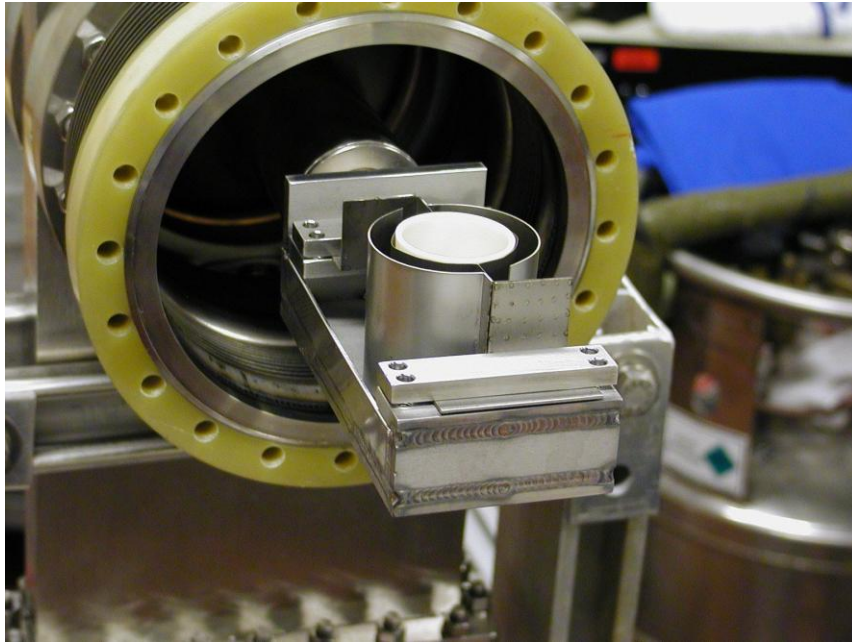


LTX – style lithium evaporators for NSTX

LTX



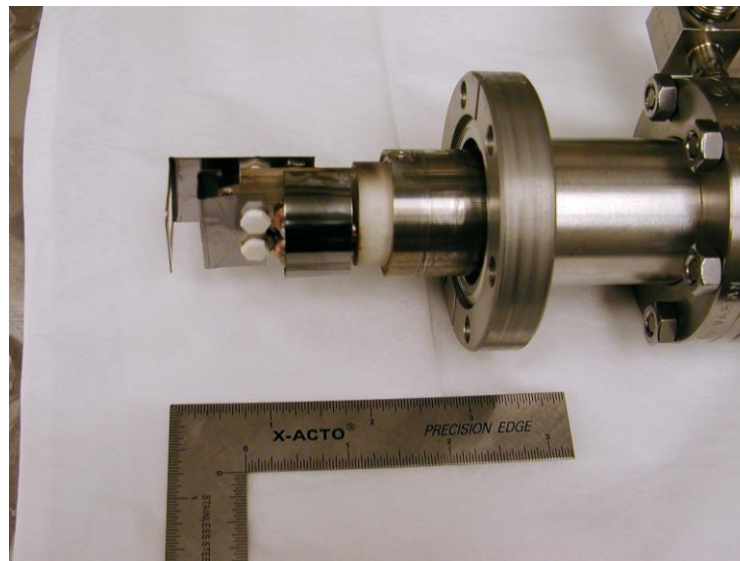
Y₂O₃ crucible, Ta heater

- ◆ Two evaporators with motion stages installed on LTX
- ◆ Capacity 8-10 of lithium
- ◆ Low mass crucible + heater for fast cooldown
 - Could add radiating fins for quicker cooldown
- ◆ Crucible can be prefilled & popped in very quickly

Stirred liquid lithium divertor target



- ◆ Only system to successfully produce visibly clean, liquid lithium PFC
 - 300g of lithium lasted for a year, was still going strong
- ◆ CDX used (LTX will use) a modest-power magnetically steered ebeam to stir the lithium; other approaches possible



- ◆ Lithium surface did not distort during flow (no surface ripples)
- ◆ LTX will further explore this concept with a fill of the lower shell
- ◆ Convective effects in liquid lithium can be estimated with 2-3 kG fields in LTX
 - Simple conduction not sufficient to keep lithium from overheating
- ◆ Radial motion of the lithium allowable in LTX (bathtub approach)
 - Discharge-induced toroidal motion never observed
- ◆ LTX uses a lithium-wet molybdenum limiter system to protect the shell lips