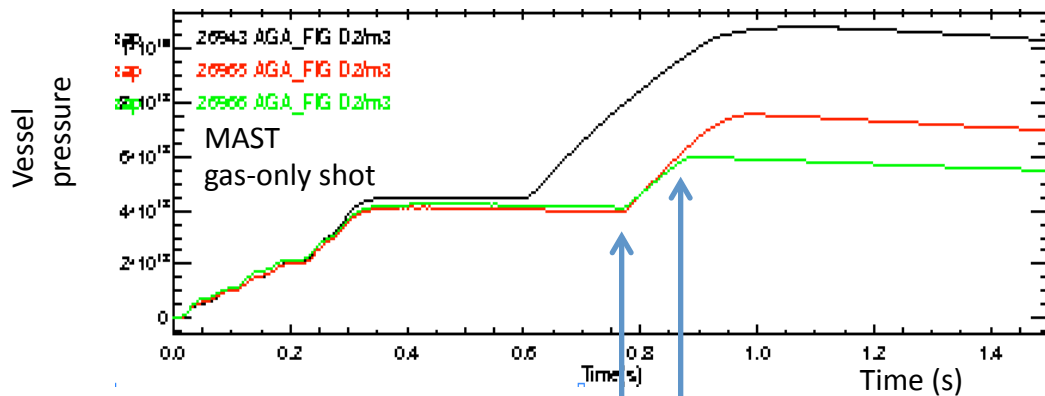


High Field Side Gas Injection shut-off valve

Charles Skinner

- Previous High Field Side Gas Injection had no shut-off valve complicating density control.
- Upgrade CS will have more available space.
- Propose shut-off valve actuated by in-pipe wire.
- MAST experience: (Geof Cunningham).

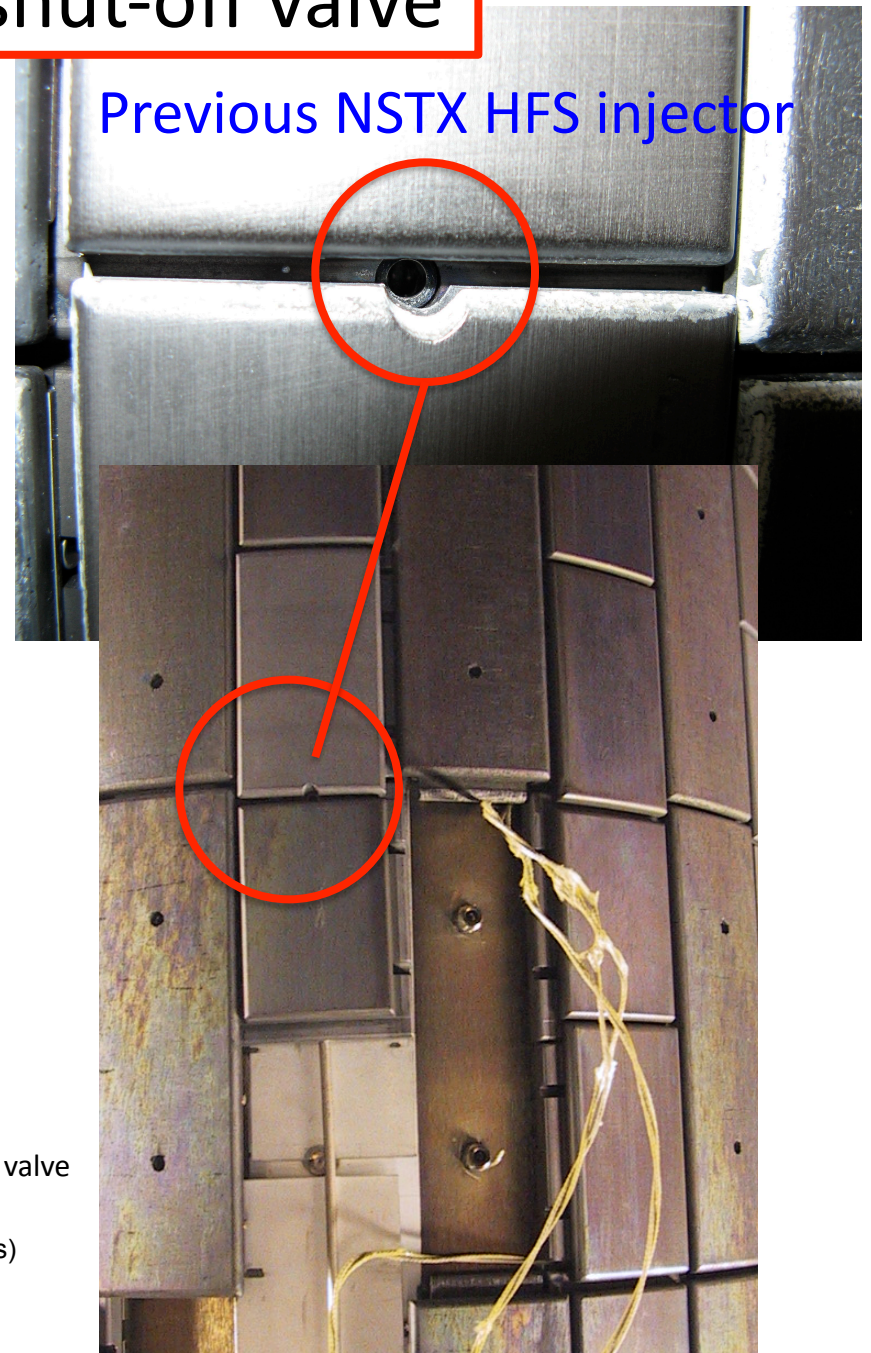


Gas input begins
(red/green
curves)

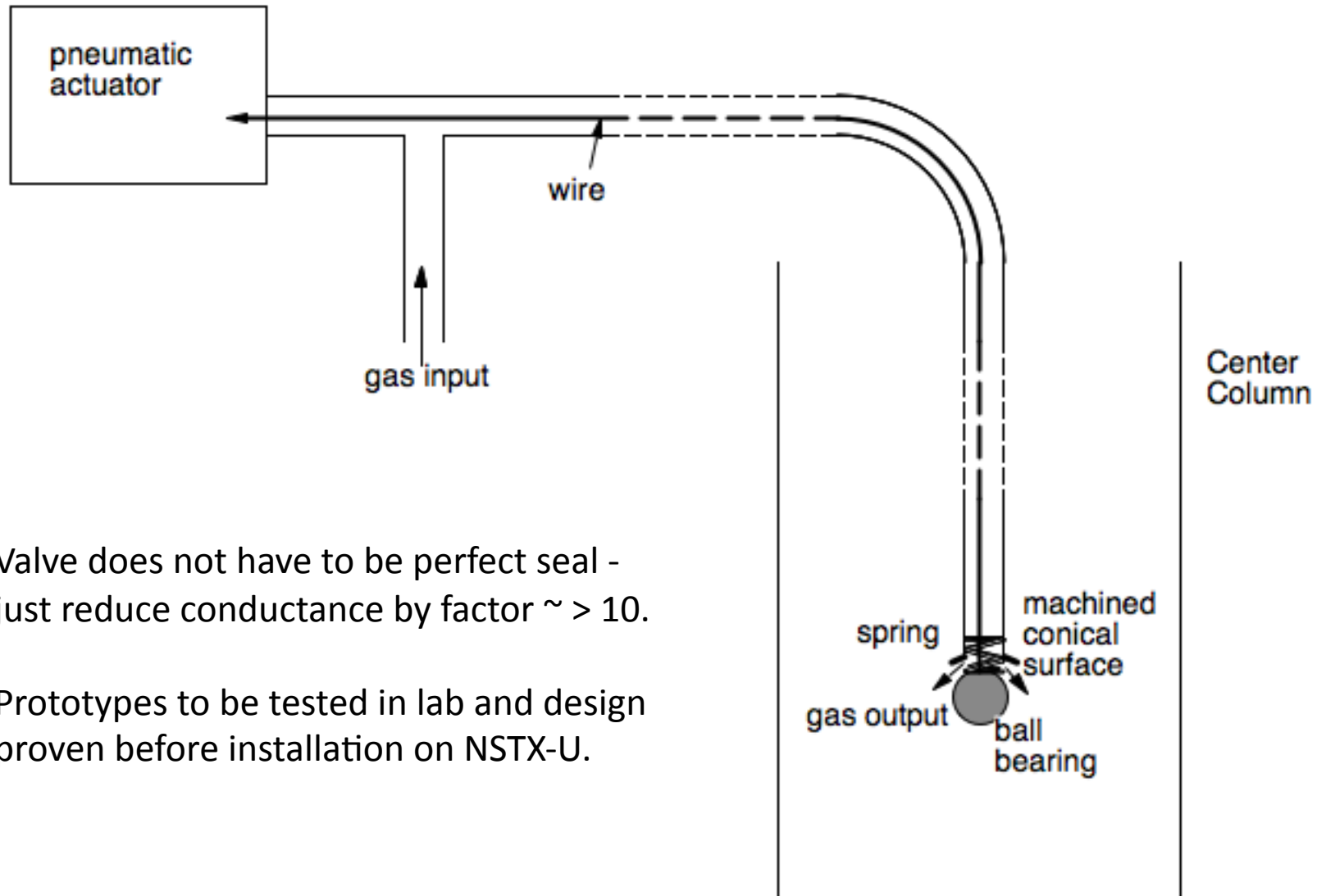
Gas input terminated
by shut-off valve
in 5 ms (green curve)
compared to 100 ms without valve
(red curve)

(The black curve was recorded the previous day prior to some mechanical adjustments)

NSTX-U facility enhancement brainstorming Feb. 7 and 8 2012.



Shut-off valve initial conceptual design



- Valve does not have to be perfect seal - just reduce conductance by factor $\sim > 10$.
- Prototypes to be tested in lab and design proven before installation on NSTX-U.