

Where to put valves, I suspect we need two, one by gun, one by dump, they can be manual valves I think...

Of course, we won't install pictured buncher

Height of gun and sheep chamber, relative to table and beamline?

Would a 4<sup>th</sup> viewer cross be good? We have one available

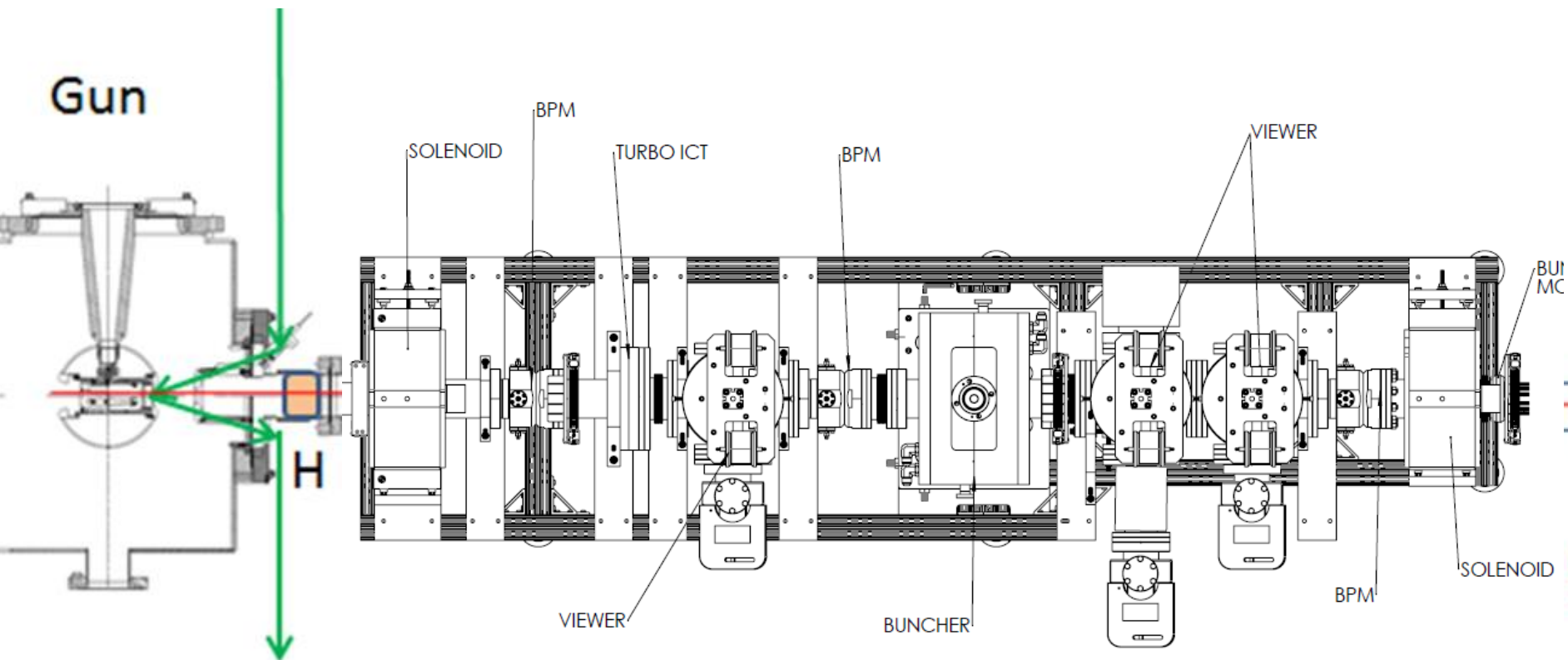
WE have a dif pump can in the cabinet

WE have a big dump

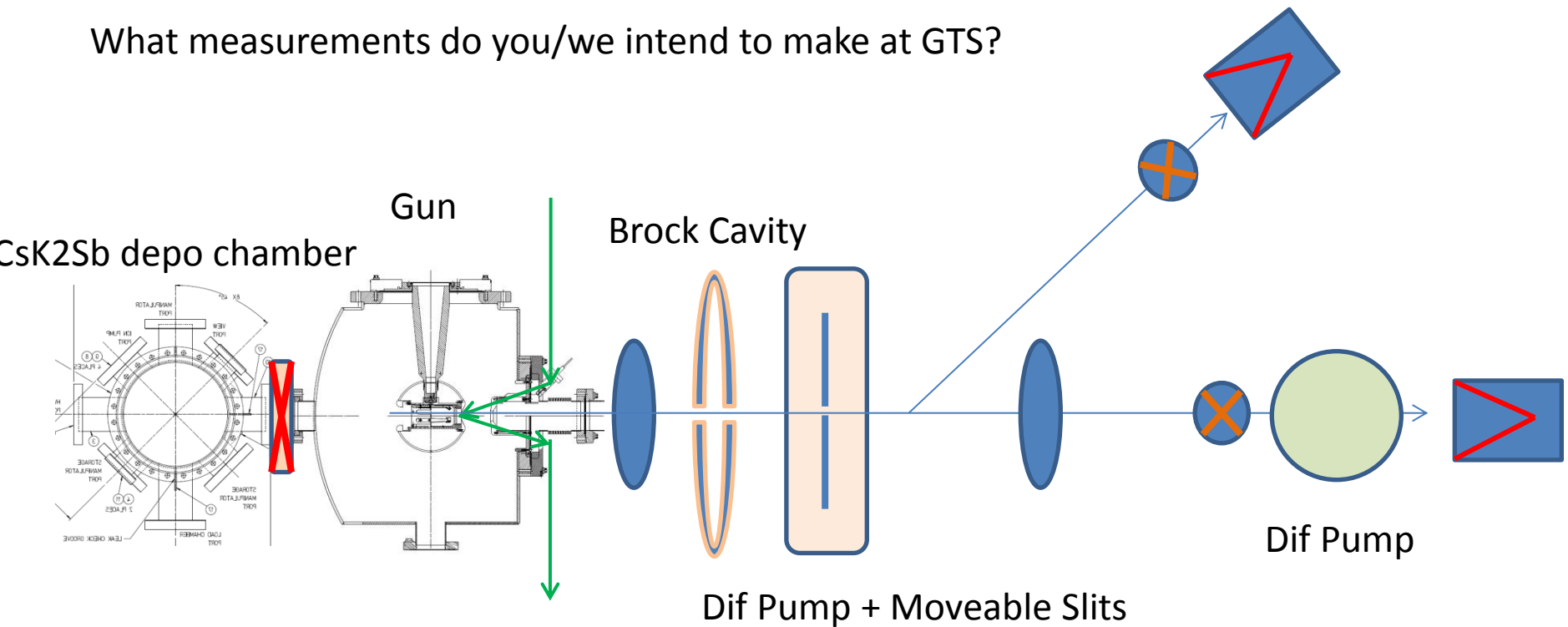
Modify the front flange John bought to accommodate a haimson

We might need to make steering coils that attach to 3" pipe used on VA

Gun



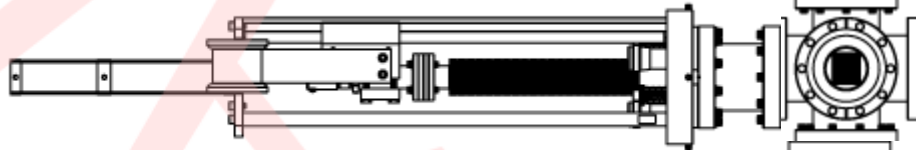
What measurements do you/we intend to make at GTS?



- 1) Transverse emittance: divergent beam on narrow slit, move slit, capture beam profile on YAG viewer with video frame grabber (dipole OFF, solenoid 2 OFF)
- 2) Energy Spread: divergent beam on narrow slit, dipole ON, capture beam profile on YAG viewer with video frame grabber
- 3) Bunchlength: use brock cavity
- 4) Kicker: tilt the brock cavity, drive it with RF, look at beam on downstream viewer (dipole OFF, solenoids ON, slit OUT)
- 5) Lifetime: high current beam to dump, both solenoids ON, slit OUT, dipole OFF

Pneumatic, with viewer

Vertical slit, could be on stepper motor stage



Horizontal slit, could be on stepper motor stage

- Pavel imagined translation stages in the horizontal plane, these would be used for studies and then removed when installed at FEL vault, or after gun studies. They are not presently on the VA beamline
- Besides the useful viewer, one or more of these crosses will accommodate slits needed to make beamlettes that do not suffer space charge forces
- We need to determine if the FEL manufactured slits or not
- Epics control of these devices?

## 1) Gun

- a) we need to add WP1250 NEG pumps, with semi-circle shape, upstream and downstream of the electrode
- b) use the 5 hole anode and the 10" flange John designed (unfortunately, the half nipple on this flange is not long enough for a haimson)
- c) we need height supports for the gun chamber, such that gun ion pump clears table top

## 2) CsK2Sb depo chamber (sheep chamber)

- a) height consistent with gun
- b) manipulators
- c) heaters
- d) other things....

## 3) Beamline

- a) A simple beamline to start with, mate the VA beamline to gun
- b) add a dif pump can and dump to the other end of VA beamline

## 4) Overall

- a) where to put the gun and beamline in the small room, rigid HV cable from supply to gun, manipulators, a spectrometer beamline, how to ensure walkway.