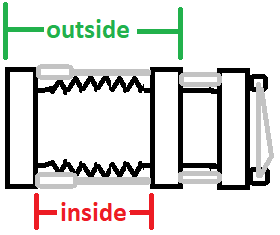
**LEED start up and shut down procedures**

1. **Make sure AES (Auger) is clear.** Move Sample manipulator to 1280. Then move LEED holder to X=3.0 inches (inside to inside) or X = 4.78125 inches (outside to outside). The outside to outside is labeled in green, and the inside to inside measurements is labeled in red in the figure below.

****

1. Set Anode offset to 475 V.
2. Warm up filament
   1. Two options to do this:
      1. Option 1:
         1. Turn filament current to 1 Amp for 10 mins
         2. Slowly turn up to 2.5 Amps for operation (emission current is about 20 microamps)
      2. Option 2:
         1. Slowly turn up filament by small half turn (inner 0-5) increments every 1-2 minutes.

**Key note**: is that pressure does not go near 5E-9. \*If so this could damage the filament in the LEED while LEED is probably outgassing.\*

1. Set Wehnelt = 0.
2. Turn Suppression all the way up (about 4.5)
3. Turn off the RGA filament and the Ion gauge.

**DO NOT TURN ON THE SCREEN HV UNTIL ALL LIGHTS ARE OFF!**

1. Set energy to desired level (ex: 50 eV)
2. Turn off room lights and make sure that no light is going near/into LEED.
3. Turn on Screen HV switch and set to 6.00 on the knob (this is the outer 6)
4. Adjust L3 (prop) and L2 (offset) to get a good pattern.

* L2 offset requires a bit of course L2 before measurements shown on LEED display for L2 offset

**Remember: Turn off the screen HV before turning the lights on.**

1. Pull LEED out to X=6.0 inches (inside to inside) or X = 7.78125 inches (outside to outside).

-This allows you to move the sample holder if you want to do something else after LEED.