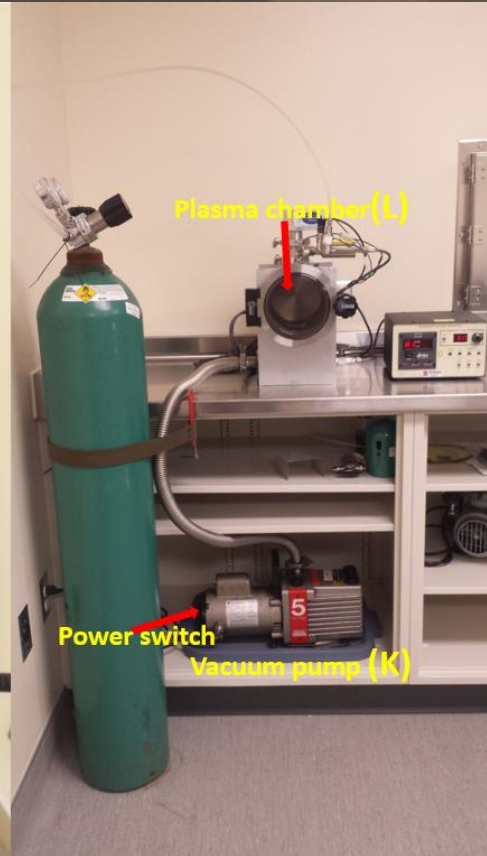
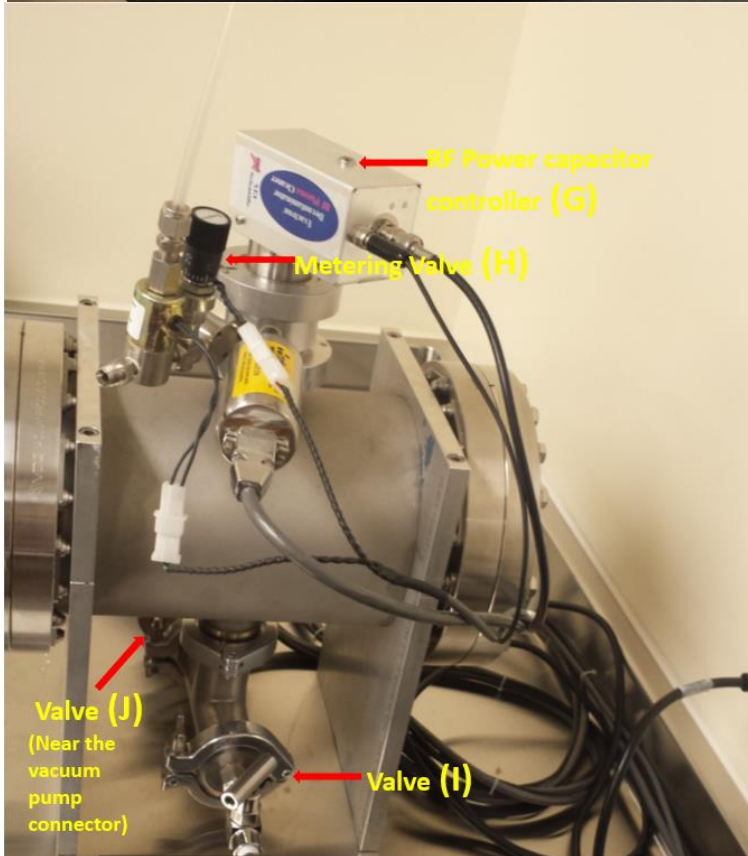


PLASMA GENERATOR

Standard Operating Procedure



Checklist:

- Inside of the plasma chamber should be clean
- Plumbing connectors should be tightened properly
- Should have enough Oxygen pressure (or the gas that you use)

Note: The flowing SOP will use the labeling letters as appears in above diagram

1. Place your sample inside the plasma chamber (L) and close the lid properly (Do not tight it too much)
2. TURN ON the Evactron controller power and set the pressure conditions (SET POINT ONE and SET POINT TWO) as required by adjusting the set point controllers (F). For Oxygen plasma generation, "SET POINT ONE" is set at 2.0 TORR and SET POINT TWO is NOT SET (nc)



3. Turn on the power of the Vacuum gauge (K) and VENT the Chamber. Check the pressure indicator, usually initial reading will say "HI (High)" and as the chamber vented pressure will drop down. In order to establish the proper vacuum, the valve (I) should be **CLOSED** and the valve (J) should be **OPEN**.



Once the chamber reached the SET PRESSURE, the **SET POINT ONE** light will go **ON** and **PLASMA VACUUM** light will also be **ON**

4. When the Plasma Vacuum Light goes on, TURN ON the GAS FLOW switch. This switch will not activate the valve unless the pressure is between Set point 1 and Set point 2 on the vacuum Gauge.
5. ADJUST the Metering valve (H) to stabilize the chamber pressure to between 0.4 Torr and 1.5 Torr as you desired.

The optimum pressure is about 0.6 Torr (for Oxygen plasma generation) and is adjusted by set points 1 and 2 controllers (F).



6. TURN ON the **PLASMA** switch (E). The plasma should ignite immediately. However, at low power (<8 watts as it appears on the power indicator (C) it may not. If it does not come on immediately, turn up the RF power until the plasma ignites, then turn it down to desired power level.

Note: To get the maximum efficiency in plasma generation, the reflected power (which reads on the power indicator when the Rf switch set into "Ref" mode) should be

minimum at the operating forward (fwd) power (which reads on the power indicator when the Rf switch set into "Fwd" mode). You can adjust it by tuning the Rf power capacitor (G).

Presence of plasma will be indicated by lighting up with "plasma on" light. You will not observe a pink glow (for oxygen plasma) as the efficiency of this plasma generator is not high enough. Instead, most of the cleaning will be done by oxygen free radicals. However you will observe a glow in the top middle of the plasma chamber where the Rf system connects.

CAUTION: Do not leave the RF power on for longer than 5 minutes if the "PLASMA ON" LED has not lit. Otherwise, the RF system can be damaged and will need replacement.

7. ADJUST the RF power. Adjust the RF power for maximum cleaning efficiency. The unit is factory calibrated so that a reading of 10 Watts gives an optimum sized plasma for cleaning with air.

CAUTION: Running the plasma at higher forward RF power (>16 Watts) for longer than 20 minutes may damage the RF system.

8. Clean with the RF plasma as desired.
9. After cleaning Turn off the RF switch (E) and the Gas Switch.
10. Slowly fill the Plasma chamber with air by opening valve (I) slowly until the air pressure is balanced and take off your sample.
11. Turn off the controller and close the gas supply.