

VENT & LOAD OPERATING PROCEDURE CHA Metal Evaporation System

Rev. 11/28/2001

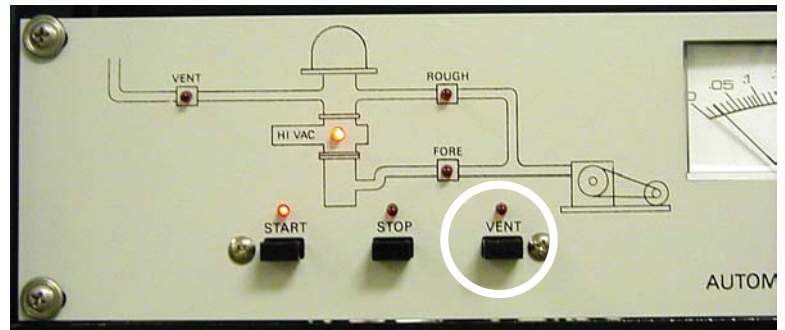
Pre-Run Check

1. Ensure that the Cryo pump is on. The temperature should read $< 20^{\circ}\text{K}$.
2. Ensure that the CVC AVC-485 is in AUTO mode.
3. Ensure that the water-cooling valve is closed (fully clockwise).
4. Check the logbook and the side panel display for the present materials in the system. If you change materials carefully note the new material arrangement both in the logbook and on the side panel.



Vent

1. Ensure the **Automatic Valve Control** is in **Auto**.
2. Press **VENT** on the left side of the **Automatic Valve Control**.
3. Wait for the **VACUUM INDICATOR** light to turn off.
4. Turn and hold the **HOIST** switch in the **RAISE** position. The bell jar will lift.



Release the **HOIST** switch once the bell jar has risen above the substrate holder.

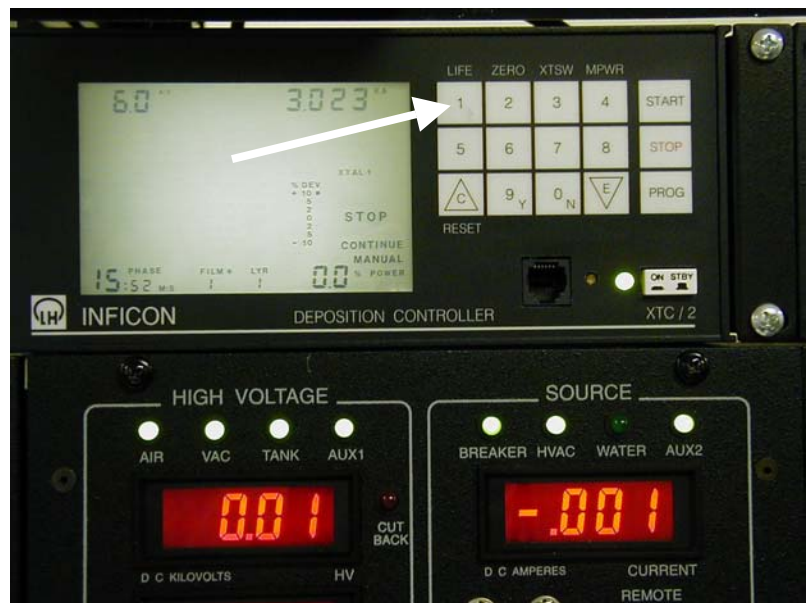


Loading the Substrates

1. Place the correct substrate holder onto the support ring
 - a. There are now **three** substrate holders: a **3” wafer dome**, a **4” wafer dome**, and a **square drop-in** (same as previous).
 - b. Remove the substrate holder you want to use from the dry box and place it on the tabletop.
 - c. Load your substrates onto the substrate holder. Place “dummy” wafers into any wafer positions that you are not using.
 - d. Pick up the substrate holder by placing the “**dome tool**” into the hole in the dome or the hole in the angle on top of the square drop-in.
 - e. Using the “**dome tool**”, place the substrate holder into the system. Position the substrate holder onto the support ring, pushing it back until the substrate holder rests against the posts on the back of the support ring.



2. Check crystal life – push **#1 on Keypad** for **LIFE**, reading should be **< 15%**.
 - a. There are now two crystals, one above the substrate holders and one beneath.
 - b. **XTAL 1** is above the substrate holder. This is active when the shutter is open or closed.
 - c. **XTAL 2** is beneath the substrate holder. This is active **IF** you are using a wafer dome **and** have left an opening in the dome for the deposition to reach the XTAL.



NOTE: XTAL 2 is not installed at this time.

3. Place your materials in the hearth.
4. **OPEN** the shutter and reach through the shutter opening to place the material in the hearth. Ensure you know what direction to turn the hearth rotation to change the materials during the deposition.
5. **Clean** or replace mirror. Pull the mirror up and out of the metal mirror holder, **DO NOT** loosen the metal mirror holders
6. **Close** the **shutter** under the substrate. Ensure that you understand the proper direction to turn the shutter handle.
7. Turn and hold the **HOIST** switch in the **LOWER** position. The bell jar will lower. Release the **HOIST** switch once the bell jar is resting on the collar. Center the bell jar on the collar.



Pump down

1. Using the controller labeled CVC AVC-485:
Press **START** on the **Automatic Valve Control**
Wait (typically 2 hours) for the system to reach a low base pressure (less than 2.1×10^{-6}).
2. The base pressure can be checked on the Ion Gauge Controller.
Press the **FILAMENT ON/OFF** switch to light the filament.
Read the pressure on the display above the switch.
3. Place “System In Use” card in and record in logbook.

LOG BOOK RECORD

You are to record the follow information in the logbook:

1. Name and date.
2. Time in.
3. Pressure at start of deposition
4. Material (s) deposited
5. Parameters of deposition such as current, deposition rate and thickness of deposition.
6. Time out.