

Open Load Atomic Layer Deposition System

System Power Up:

1. Ensure that all manually operated cooling water taps are turned ON.
2. Ensure that the compressed air supply is ON.
3. If you are certain that the gas lines do not contain air, turn all the manually operated gas taps to ON (on gas cylinders etc.)
4. Ensure that all covers and panels are fitted and secured.
5. Open the console door, then set all Remote/Local switches on the panel-mounted units (RF Generator, etc) to REMOTE.
6. Switch ON all the panel-mounted units
7. Ensure that all serial communications cable from the remote PC system controller is plugged into the 'D' socket located at the rear of the console.
8. Check that the Emergency Stop button is OUT.
9. Set the wall-mounted safety isolation box switch to ON.
10. Ensure that the Power On LED (located on the system console) is illuminated.
11. Operate System ON button (colored green), located on the console front panel behind the console door.
12. Ensure that the System On LED (located on the system console) is illuminated.
13. Switch the remote PC system controller ON.

Opening the Process Chamber:

1. After the process chamber has been fully vented, set the up/down selection switch to its Chamber Up position
2. Press both hoist buttons simultaneously. The chamber lid will raise and rotate.
3. When the chamber lid is fully raised and rotated, release both hoist buttons.

Closing the Process Chamber:

1. At the control panel, set the up/down selection switch to its Chamber Down position.
2. Press both hoist buttons simultaneously. The chamber lid will lower and rotate.
3. When the chamber lid is fully lowered and rotated, release both hoist buttons.

Pumping the System Down:

1. Ensure that the Pump Control page is displayed.
2. Ensure that the status indicators are colored green.
3. Ensure that the process chamber lid is in its DOWN position. If you intend to carry out a manual or automatic process run, you will need to open the process chamber lid, place a wafer on the wafer holder in the process chamber, then close the process chamber lid.
4. Select the SET BASE PRESSURE button, and then enter the required process chamber base pressure if different from the default. Click OK
5. Select the Evacuate button from the process chamber. You will be prompted to enter a wafer identity; either enter the identity and click OK, or click CANCEL (to pump down without a wafer in the process chamber). The relevant valves will operate and the process chamber will be pumped down.

Venting the System:

1. Ensure that the Pump Control page is displayed (if necessary, select the System Menu, then the Pumping option).
2. Select the STOP button, then VENT button for the process chamber. Note, the vent sequence is controlled by a timer to allow for the turbo pumps to be purged controls the vent sequence.

Manual Process Run:

1. Pump the system down.
2. Check that the system has pumped down to base pressure (The process chamber message panel should display 'Base Pressure reached').
3. Select the Process Menu, then the Chamber 1 option. The Process Control page is displayed.
4. Enter the parameters required for the manual process run (Step time, RF generator power, Table temperature, chamber pressure, and gas demands).
5. Click the START button. (Note that if this button is not active, the chamber has not reached base pressure.) The process will commence.

Automatic Process Run:

1. Pump the system down.
2. Check that the system has pumped down to base pressure.
3. Select the Process Menu, then the Recipe option. The recipe page is displayed.

4. Select the Chamber button.
5. Select the Load button then select the required recipe from the displayed list. Click OK.
6. To run the loaded recipe, select the Run button. The recipe will be automatically run and the Chamber 1 page will be displayed to allow you to monitor its progress.

Single Button Automatic Process Run:

1. Place the wafer to be processed on the table.
2. Close the process chamber lid.
3. In PC 2000, select the system menu and then the Recipe option. The Recipe page is displayed.
4. Load the recipe required.
5. Select the Run button. The following sequence will be automatically carried out:
 - a. The process chamber will start to evacuate.
 - b. When the process chamber reaches base pressure, the process will commence.
 - c. When all of the process steps have completed, the process chamber will be vented.
6. When the vent sequence is completed, open the process chamber and remove the wafer.

Routine System Shutdown:

1. Ensure that the system has been vented, and all pumps are switched off.
2. Exit from the PC 2000 software by clicking on the System button, then on the Exit option.
3. Exit from windows.
4. Turn the PC controller OFF.
5. At the Main Console, press the OFF button (colored red)
6. Switch off and lock off the wall-mounted safety isolation box.
7. Turn off the compressed air supply.
8. Ensure that all heated components have cooled to ambient temperature, and then turn off the cooling water.
9. Turn all manual gas taps on the Main Console, gas pod, and compressed gas cylinders OFF.

Shutting the System Down in an Emergency:

If you need to shut the system down in an emergency, press the Emergency Stop button, located on the control panel at the front of the console. This action will switch off all electrical power with the following exceptions.

- a. Mains input cable.
- b. Main contract breaker and associated contactor in the power box.
- c. 24V dc Power Supply in the power box.
- d. Power box cooling fan