ALD III
General information

- **ALD III has a loadlock integrated in a glove box**
- **No Copper, no Gold and no organics compatible**
- **ALD III is a thermal and plasma ALD system**
- **2 layers available : TiN and NbN**

TiN : Chamber: **250°C (to be set)**
Hot source pot Z20 (TDMAT): **75°C (to be set)**
8-10 Manifold (16): **100°C (to be set)**
8-10 line (13): **120°C (to be set)**
Plasma gas (H_2): RT

Deposition rate : +/- 0,05 A/cycle

NbN : Table Heater: **250°C (to be set)**
Hot source pot Z17 (TBTDEN): **95°C (to be set)**
5-7 Manifold (12): **110°C (to be set)**
5-7 line (9): **125°C (to be set)**
Plasma gas (H_2): RT

Deposition rate : +/- 0,05 A/cycle

HOW TO USE THE SYSTEM (1)

I. Login / logout

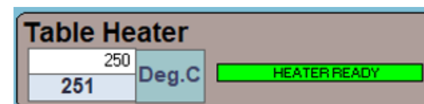
1. Login on the PC zone 18
2. Login on Oxford PC
   - Account : **OPT**
   - Password : **OPT**

II. Setting

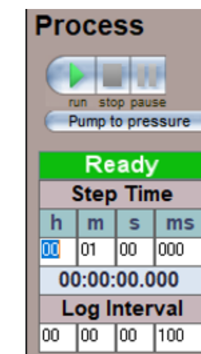
1. Click on « **Preset** » menu and switch on the heaters (see **General information**)
2. Click on « **Process Chamber** » menu and set the Table Heater

   NbN -> 250°C

   TiN -> 250°C

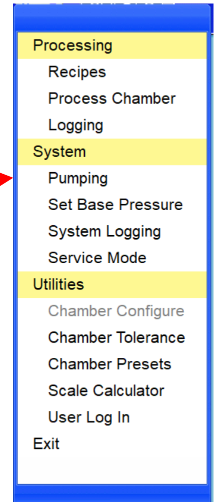


3. Start manually the process for 1s to validate the new temperature



HOW TO USE THE SYSTEM (2)

III. Wafer loading



1. Click on « **Pumping** » menu.

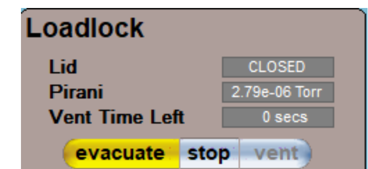
2. Click on « **stop** » in the loadlock window and then « **vent** ».
3. It takes 20 min to have the loadlock at atmospheric pressure.
4. During this time you can introduce your samples in the glove box

   For small sample, you can use the AnteChamber 2 in manual mode

   For large sample (4 to 8”), you have to use the AnteChamber 1 with automatic

   3 venting/pumping cycles

5. Once the loadlock is at atmospheric pressure, you can open the lid and install your wafer or your sample. You have pre-defined position for 4’’ and 8’’ wafers



6. Close the lid and press « **stop** » and then « **evacuate** ».

HOW TO USE THE SYSTEM (3)

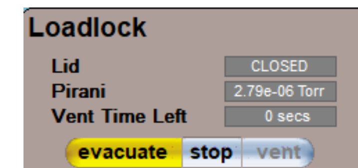
IV. Wafer unloading

1. Once the deposition is done, click on « **stop** » in the loadlock window and then « **vent** ».

2. It takes 20 min to have the loadlock at atmospheric pressure.

3. Once the loadlock is at atmospheric pressure, you can open the lid and transfer your wafer or sample in the glove box.

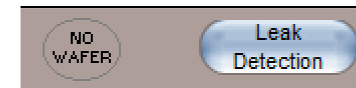
4. Close the lid and press « **stop** » and then « **evacuate** ».



HOW TO USE THE SYSTEM (4)

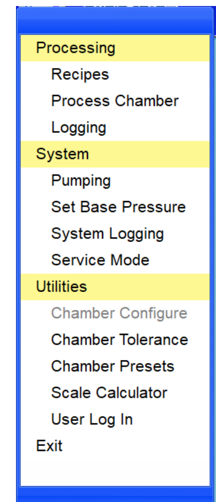
IV. Starting a recipe

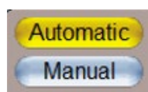
1. Before starting a recipe, a leak detection in the process chamber is strongly recommended. (see “How to do a leak test”).

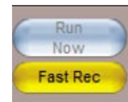


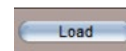
2. Open the precursor valve (3 full turns on the left for TBTDEN and TDMAT).

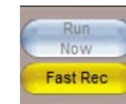
3. Go to **Recipe** menu and press **Automatic**, **Fast Rec, load,** select your recipe in the dropdown menu and press **Run Now.** During the deposition, you can record the presence of residual gas with the RGA system and the SeaBreeze software.











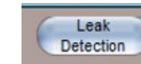
4. Once the deposition is done, close the precursor valve. The wafer/sample will be automatically transfer in the loadlock.

HOW TO USE THE SYSTEM (5)

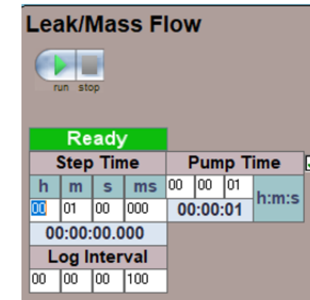
VI. How to do a leak test

1. Click on « **Process Chamber** » menu.

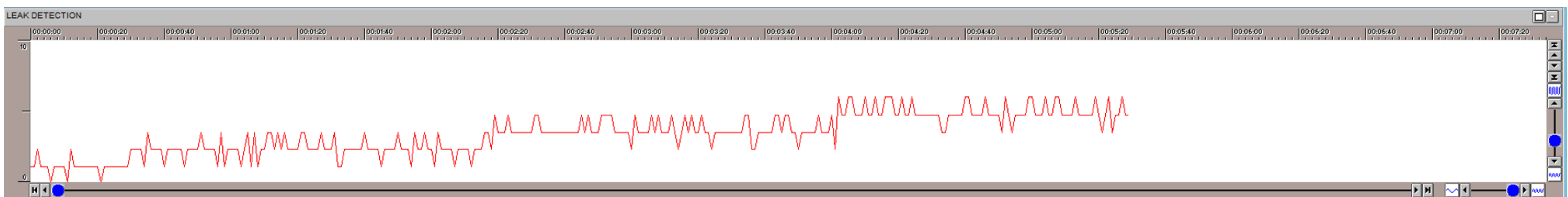
2. Press « **Leak Detection**» button on the top right of the screen



3. Set the pumping time (5 min recommended) and the step time (1 min recommended) and click on **“run”** (green triangular shape)



You should see a graph as below



To have the exact leak rate value, you have to open the log Viewer.

The **leak rate** should be **lower** than **1,0 mT/min**