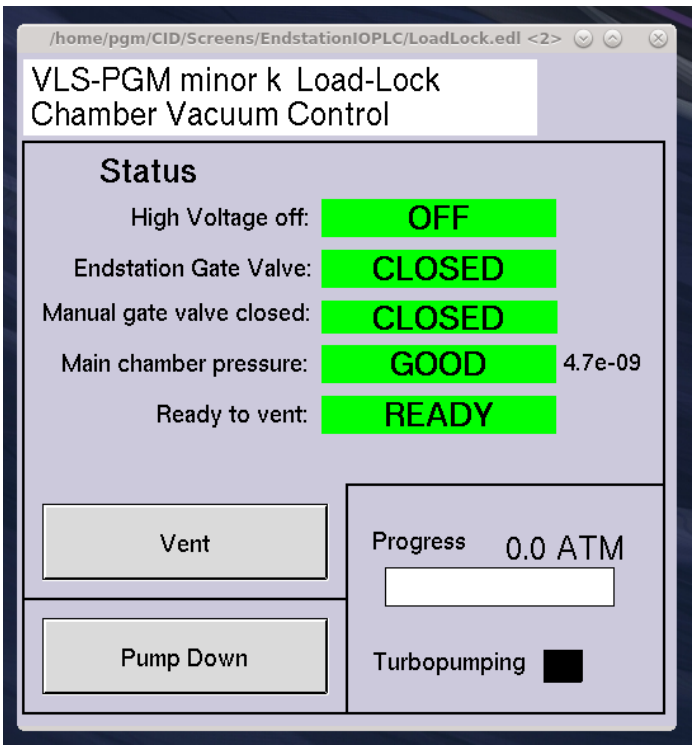
XAS chamber: sample loading & unloading procedure

The instructions on how to place the sample in the chamber are outlined in here.

Every time the Load-lock chamber is vented, 3 sample holders can be loaded on what is called the “ladder”. Only one sample holder can be introduced from the ladder to the main chamber when the load-lock chamber reaches the required vacuum.

Controlled vent of the Load-lock chamber

From the VLS-PGM Load-Lock Chamber Vacuum Control check the following requirements:



- the high voltage is OFF
- the End-Station gate valve is CLOSED
- the Manual gate valve between the main chamber and the load-lock chamber is CLOSED
- the system is READY to vent.

After all requirements are verified, you can start venting the load-lock chamber:

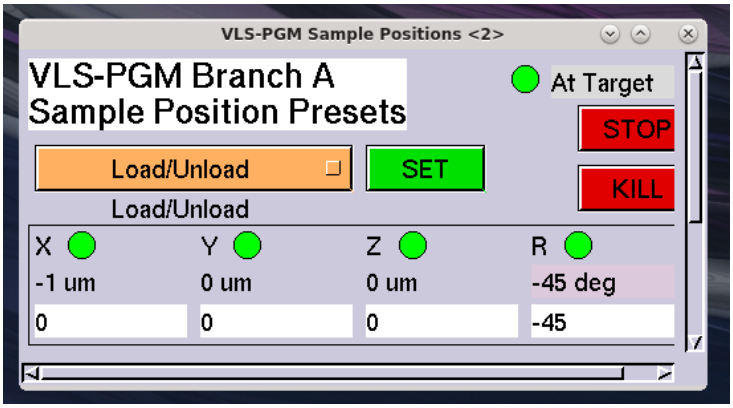
1. Push the VENT button
2. The Turbopumping square box will get **BLACK** in colour, indicating the pump has stopped
3. Wait the Progress bar is 100% **GREEN** in colour, and the pressure reads 1.0 ATM

Open the viewport door in the glove box and raise the ladder.

Sample loading procedure

With the load-lock section up-to-air, load the samples on the ladder. Lower the ladder, close and finger-tighten the viewport door.

Pump down the load-lock chamber to the required vacuum by pushing the PUMP DOWN button in the Load-Lock Vacuum Control GUI. Wait the Progress bar is white in colour, and the pressure reads 0.0 ATM. The Turbopumping square box will also get GREEN in colour, indicating the pump is ON.



Check the Sample Position Preset is set to "Load/Unload".

If not, set the sample in Load/Unload, allow the motors to finish the movements, and the At Target is **GREEN** in colour.

Once the light on the box on top of the Manual Gate Valve has switched from **RED** to **GREEN**, open the manual gate valve between the load-lock and the main chamber; the pressure in the main chamber should stay better than $2x10^{-6}$ Torr (i.e. $1.8x10^{-6}$ Torr).

Using the transfer arm, grab the sample. Push the transfer arm into the main chamber and gently slide the sample into the holder.

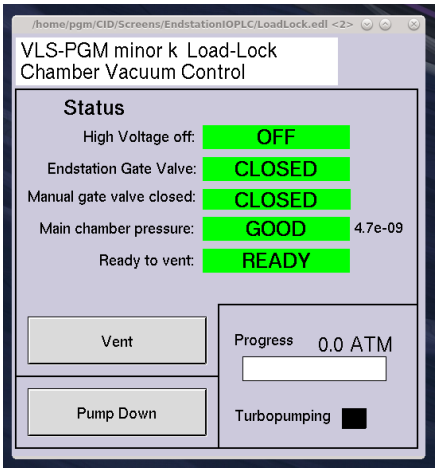
Fully retract the transfer arm back into the load-lock and close the manual gate valve.

Set the sample in the desired position (MCP; SDD) from the GUI and allow the motors to finish the movements.

If the pressure in the main chamber is reasonable (better than $5x10^{-7}$ Torr; i.e. $4.8x10^{-7}$ Torr) you can start to run your scan.

Sample un-loading procedure

From the VLS-PGM Load-Lock Chamber Vacuum Control check the following requirements:



- the high voltage is OFF
- the End-Station gate valve is CLOSED

Set the sample in Load/Unload position from the GUI and allow the motors to finish the movements.

Check that the light on the box on top of the Manual Gate Valve is **GREEN**

Open the manual gate valve connecting the load-lock to the main chamber.

Push the transfer arm into the main chamber. Lock onto your sample.

Smoothly fully retract the transfer arm back into the load-lock, CAREFUL not to open the jaws. Place the sample onto the ladder.

Close the manual gate valve.

Do you have more samples on the ladder that need to be analyzed? Proceed with loading the next sample in the main chamber.

Have you analyzed all the samples on the ladder? Proceed with the controlled venting of the load-lock to remove or replace the samples.