

LOADING/EXCHANGING SAMPLES ON THE UHV CHAMBER

(With both Main and Load-lock chambers under High Vacuum conditions)

Abbreviations

GVC: Gate Valve Controller

VLD: Vacuum Logical Diagram

TP1: Turbo Pump 1

TP2: Turbo Pump 2

Maxi-Gauge channels and gauge

G1: High vacuum – Be double valve

G2: High vacuum - Load lock

G3: Low vacuum – Main chamber

G4: Low vacuum - Load Lock

G5: Low vacuum in rough pump

G6: High vacuum – Main chamber

P3: Rough pump

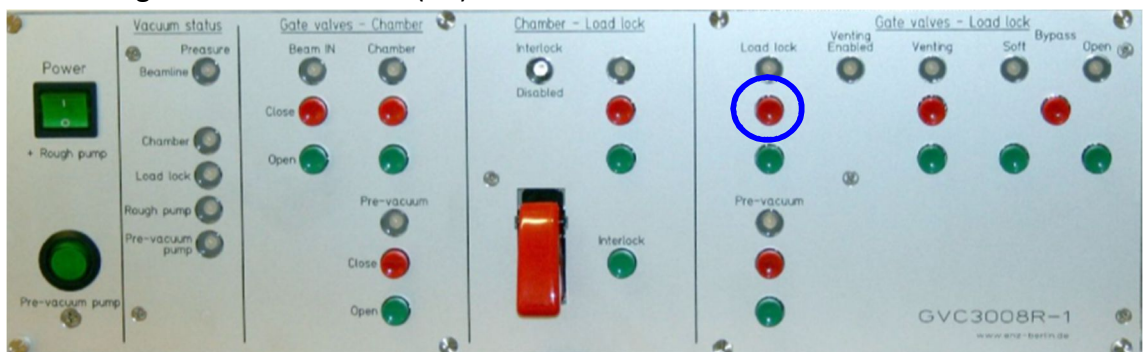
P4: Pre-Vacuum Pump

Please, kindly follow all of the next steps in the proper order:

1. Use the sample transfer system to retract the sample holder from the Main to the Load-lock chamber.
2. Close the Chamber/Load-lock gate valve (V1)



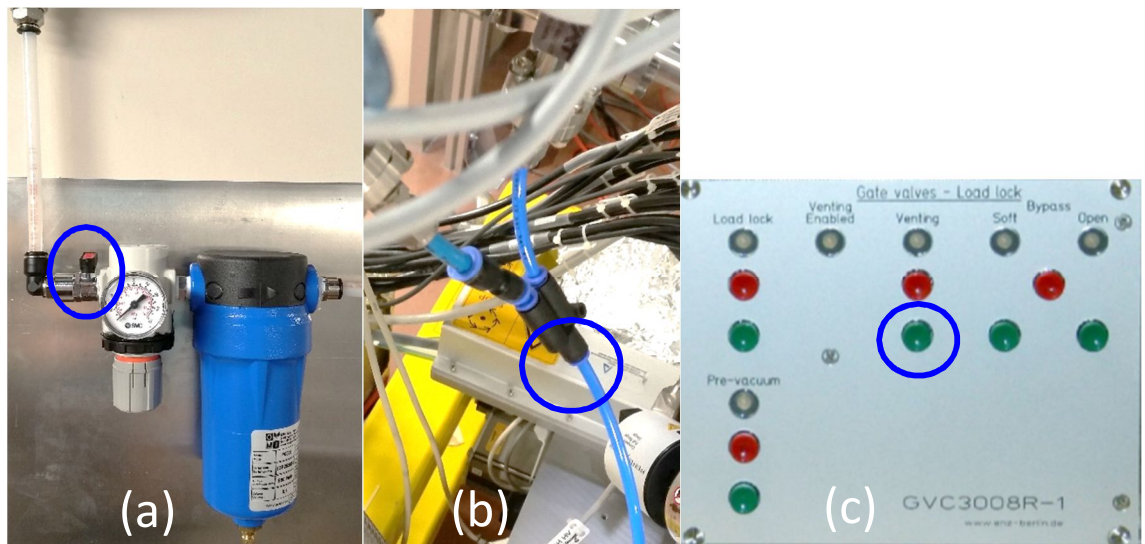
3. Close the gate valve of the TP2 (V3)



4. The venting option shall be enabled (green light). If it is not, close valve "V5" of the beamline (if this is the case, please contact local support).



5. Open the Nitrogen faucet (pic "a") completely (the proper N-pressure was already set) and connect the nitrogen supply hose on the back of the load-lock chamber (pic "b"). Open then quickly the Venting gate valve (V4) (pic "c"). After that unlock, but do not open, the Load-lock hatch and wait until low vacuum gauge (channel 4 of MaxiGauge) reaches atmospheric pressure (~980 mbar). Reaching this pressure can demand few minutes.



6. Open the Load-lock hatch and exchange/load the samples.
For closing the hatch, it is suggested to close first the Load-lock hatch and then close the N-supply quickly (pic "a" of previous step). After that, close the valve V4 (see next pic).



7. Enable operation of the pre-vacuum pump (P4) by switching on the green button on the lower-left part of the GVC. Wait for a couple of minutes.



8. Enable Soft operation of the Bypass-Gate valve (V9) in the Load Lock and wait until the pressure reaches $5 \cdot 10^{-1}$ mbar in the channel 2 of the MaxiGauge.



9. Close the Soft operation of the Bypass-Gate valve (V9) and enable the operation of the full Bypass until a pressure of 10^{-2} mbar in the channel 2 of the MaxiGauge is reached.



10. Then Close Bypass gate valve (V9)



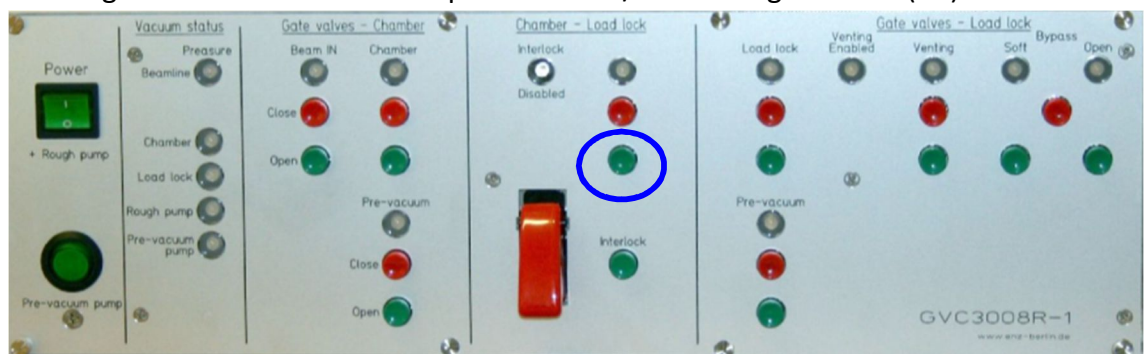
11. Open Gate Valve of the Load Lock (V3).



12. Turn off the Pre-Vacuum pump (P4) in the lower-left part of the GCV (green button).



13. Wait until the vacuum in the channel 2 of the MaxiGauge reaches a pressure in the range of 10^{-7} mbar and then open Chamber/Load-lock gate valve (V1).



14. Samples can be now loaded inside the Main chamber. After that, **please remember to retract the sample transfer system completely.**

During the normal operation of the end-station, channels 2 and 6 of the MaxiGauge should show HV levels (10^{-7} - 10^{-8} mbar).

The following is an example of the GVC status during normal operation. After applying all of the previous steps, the GVC should show open valves (green lights) in all of the valves contained in the blue inset and close valves (red lights) in the black inset. If it is not the case, please check the steps.

