

LASER GAS CHANGE PROCEDURE

IGC=inside gas cabinet

OGC=on gas cabinet

LCP=laser control panel

Warning

*Never touch valves **MV07** or **MV01**. This will result in KrF premix flowing into the room.*

Evacuate laser tube

1. (IGC) Open He tank and line to the laser.
 - Open **MV02**, then **MV03**, turn **R01** to set **PI01** to 5 bar, then open **MV11**.
2. (LCP) Press PURGE RESERVOIR → (*select*) PURGE RESERVOIR → ENTER → EXE
 - Pressure will go down to 30 mbar and up to 1 atm (1081 mBar) with He.
3. (IGC) Close **MV11**.
4. (OGC) Flip lockout/tagout switch.
5. Switch N₂ tank from load lock to gas cabinet
6. Set N₂ tank to 80 psi.
7. (OGC) Set N₂ Purge Control to 10.
8. (IGC) Open KrF tank.
9. (OGC) Press **F2**.
10. (IGC) Open **MV06**. Turn **R02** to set **PI02** to 50 psi.

Clean Lines & Fill

1. (IGC) Open **MV09** for a second (*until gas stops flowing*), then close **MV09**.
2. (LCP) FLUSH LINE → (*select*) BUFFER → ENTER → EXE
3. Repeat 1 and 2 three times.
4. Leave **MV09** open.
5. (LCP) NEW FILL → ENTER → EXE
 - Pressure will go down to 30 mbar and up to 3000 mBar with KrF.
6. (OGC) Press **F2**.
7. (IGC) Close KrF tank.

Flush Lines

1. (IGC) Close **MV09**.
2. (LCP) FLUSH LINE → (*select*) BUFFER → ENTER → EXE
3. (IGC) Open **MV09** for a second (*until gas stops flowing*), then close **MV09**.
4. Repeat 2 and 3 until **PSW02** and **PI02** show 0 bar.
5. (IGC) Close **MV06**.
6. (IGC) Open **MV04**, then **MV06**, **F3** (*check PI01 is still at 5 bar*).
7. (IGC) Open **MV09** for a second (*until gas stops flowing*), then close **MV09**.
8. PURGE LINE → BUFFER → ENTER → EXE
9. (IGC) Close (in order) **F3**, **MV04**, **MV06**, **MV09** (*Everything should be closed now, except He tank*)
 - a) Vacuum lines
 - (IGC) Open (*in order*) **MV10**, **MV08**, **MV06**, **F3** (*wait approx. 5 sec*)
 - (IGC) Close (*in order*) **F3**, **MV06**, **MV08**, **MV10** (*PI02 goes to 0 bar*)
 - b) Purge Lines
 - (IGC) Open (in order) **MV04**, **MV06**, **F3** (*MV02, and MV03 still open?*)
 - (IGC) Close (in order) **F3**, **MV06**, **MV04** (*PI02 goes to 60 psi*)
10. Repeat Vacuum/Purge 3-4 times, ending on Vacuum cycle.
11. (IGC) Close **R02**, **R01**, cylinders (KrF and He), **MV02**, **MV03** (*Everything should be closed now*)
12. Press F4 on control panel to check filter.
13. Switch N₂ tank from gas cabinet to load lock

Calibrate Laser Energy Monitor

1. Set REPRATE → 10 Hz → Enter
2. Set HV → 27 kV → Enter
3. Turn on *Coherent* power meter (set to read in mJ, and to not AVG)
 - a. Place sensor over laser exit
4. Make sure red light on RUN STOP is off
5. Set TRIGGER INT/EXT → (*select*) INT
6. Press ENG CAL → EXE
 - a. In the second LCP display line “Wait...” appears for a short time. The laser starts operation with the chosen rep. rate and HV.
 - b. Observe the LCP displayed values. They must be within a range of 99 to 200.
 - i. If LCP displayed values are not (laser will attempt to adjust them and the LCP will display ENERGY CAL ERROR if unsuccessful)
 - If this happens see page 162, number 24 in the Compex Laser user manual for further instructions.
 - ii. If displayed values are good LCP will display ENERGY CAL CONT
7. LCP display will change to READING=
8. Input on LCP the energy reading from the *Coherent* meter in mJ → Enter
9. Laser is now calibrated
 - a. While keeping the power meter over the laser exit, press RUN STOP, laser will begin operation
 - i. Compare the energy reading on *Coherent* meter with LCP display
 - Values should not differ by more than 3%
10. Set TRIGGER INT/EXT → (*select*) EXT
11. Make sure red light on RUN STOP is off