Si Deep RIE Operating Instructions
Plasma Therm SLR with Bosch Process

Initial Conditions
1. ON button on lower left of screen should be yellow.
2. STANDBY button on lower left of screen should be yellow.
3. HOLD button on lower right of screen should not be yellow.

Wafer Load
4. Vent loadlock chamber: With pull down menu
   Utilities
        Loadlock
             Vent

5. Place wafer in center of arm. Make sure flat of wafer is located correctly on arm. Do not reposition or otherwise move arm. Do not touch wafer or substrate with hands, use only tweezers.

6. Evacuate loadlock chamber: With pull down menu
   Utilities
        Loadlock
             Pump

7. Hold lid down when loadlock chamber is first evacuated.
   Verify that wafer-sensing circuit is operating correctly by observing red Indicator behind loadlock chamber. If a wafer is in the loadlock chamber, the red indicator must be lit. If no wafer is in the loadlock chamber, the red indicator must be off. Any other condition will hang the system computer.

Load Batch Process

8. Activate the Batch Editor window by selecting:
   Process
        Batch

9. In the Batch Editor window, load the Batch Process by selecting:
   File
        Load
   Double click on the desired batch process, then click button labeled:
   OK

10. Exit Batch Editor by selecting:
    File
        Exit

Run Batch Process

11. Run the batch process by clicking the button on the lower right of the screen labeled:
    RUN

12. The tool will automatically move the wafer from the loadlock into the process chamber, run the selected process, then move the wafer back into the loadlock chamber.

Wafer Unload

13. Vent loadlock chamber:
    Utilities
        Loadlock
            Vent

14. Remove wafer, evacuate loadlock:
    Utilities
        Loadlock
            Pump
    Hold lid down when chamber is first evacuated.

Run Manual Mode

15. Standby button on lower left of screen should be yellow.

Wafer Load for Manual Mode with wafer in loadlock

16. Load wafer into the etch chamber using the wafer handling screen:
    Service
        Maintenance
            Wafer Handling
    Click Load button

17. After transferring wafer, exit wafer handling:
    Click Exit button

18. Enter Manual Mode:
    Service
        Manual Mode

19. Enter gas flow set points in sccm in the GAS(sccm) Panel.

20. Enter chamber pressure set points in milliTorr in the PRESSURE Panel.

21. Enter RF power set point in watts in the RF CONTROL panel in the Set window.

22. Enter etch time in the RF CONTROL panel in the Time window.

23. Start process gas flow by clicking the Gas ON button.

24. Start active chamber pressure control by clicking the Pressure ON button. Allow   chamber pressure to stabilize.

25. Start RF plasma by clicking the RF ON button. Verify plasma ignition, and low reflected power(<5 watts).

26. If desired, manually stop etch by clicking the ALL OFF button. Alternately, etch will terminate automatically at the end of programmed etch time.

27. Exit Manual Mode by clicking EXIT button.

Wafer Unload

28. Transfer wafer into Load lock chamber:
    Service
            Maintenance
                    Wafer Handling
    Click Unload button

29. After transferring wafer, exit wafer handling:
    Click Exit button

30. Vent load lock chamber:
    Utilities
            Load lock
                    Vent

31. Remove wafer, evacuate load lock:
    Utilities
            Load lock
                    Pump
    Hold lid down when chamber is first evacuated.

32. Record usage in logbook.

Custom Processes

   You are welcome to write custom processes for this tool. Please use the standard processes bosch.bch and bosch.prc as templates. All custom processes on these tools will need to use the following format:
(First 4 letters of user's last name)_(first letter of user's name)(digits 00 thru 00, allowing up to 100 custom processes for each user)

As an example, the name of John Smith's processes would be:

smit_j00

smit_j01

smit_j02

A batch process will end in .bch and a chamber process will end in .prc . The tool will automatically add these suffixes to your .bch and .prc processes. All processes will need to be stored in the process folder.