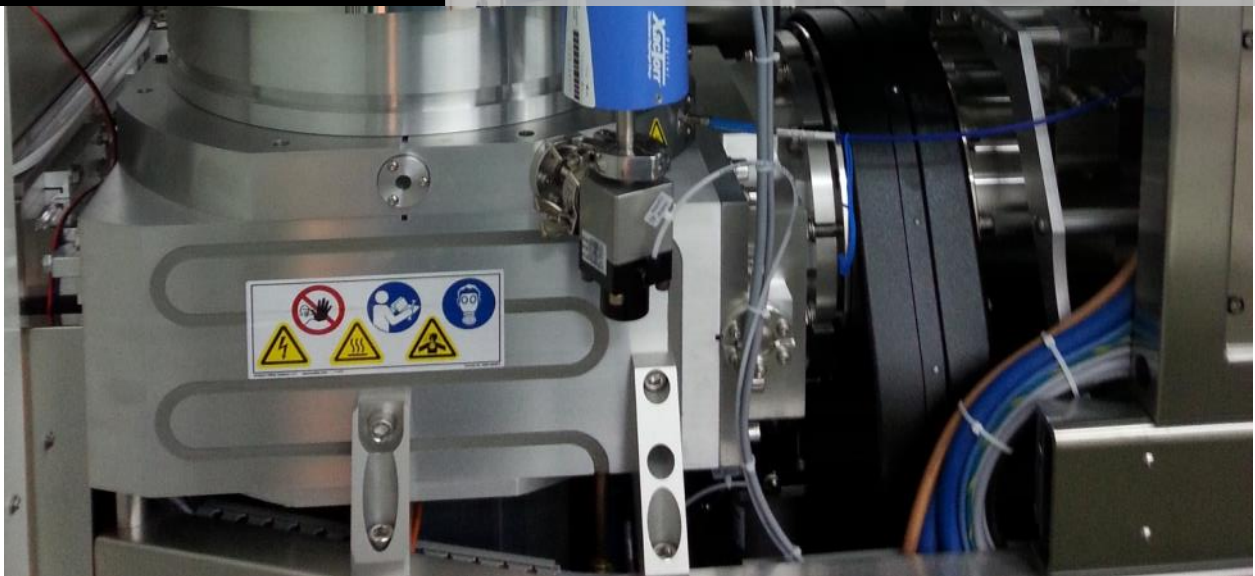


User's Guide

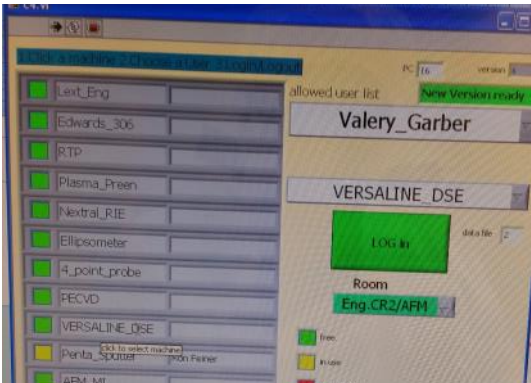
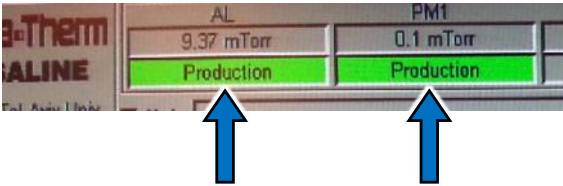
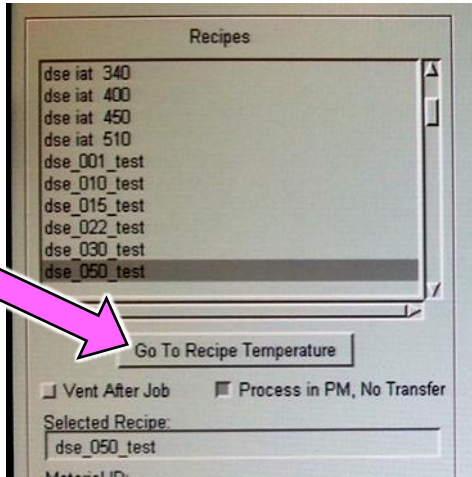


**THE CENTER FOR
NANOSCIENCE AND
NANOTECHNOLOGY**

**VERSALINE DEEP SILICON
ETCH**

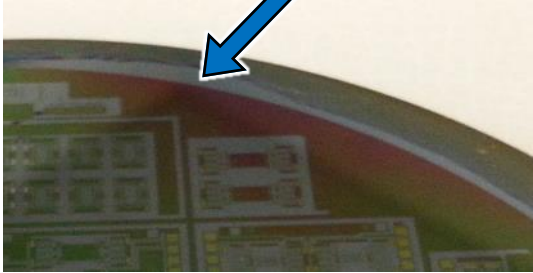

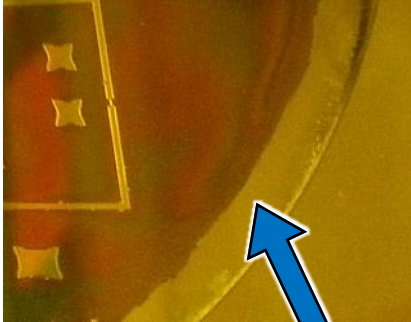


Initial Checks (1)

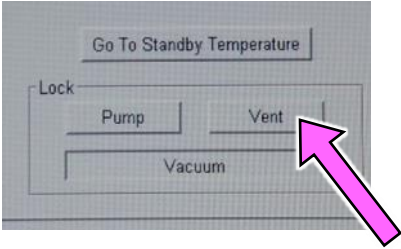

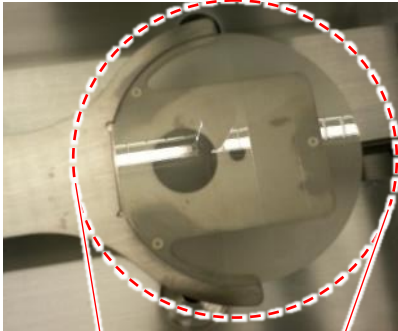

<p>1</p>	<p>Login to Control System with your username and password</p>																									
<p>2</p>	<p>Verify that the PM (Production Modul) and AL (Auto Load) are in production mode (Green).</p>																									
<p>3</p>	<p>Select recipe, and press the "Go to recipe temperature" button.</p> <p>Wait until the actual temperatures reach the set point temperatures</p> <p>While you wait continue to step four</p>	 <table border="1" data-bbox="759 1715 1350 1984"> <tr> <td>He Cooler Pressure</td> <td>0.0</td> <td>0.0</td> <td>mTorr</td> </tr> <tr> <td>He Cooler Flow</td> <td>0.0</td> <td>1.0e-2</td> <td>sccm</td> </tr> <tr> <td>Electrode Temp</td> <td>25.0</td> <td>23.4</td> <td>°C</td> </tr> <tr> <td>Spool Temp</td> <td>180.0</td> <td>180.0</td> <td>°C</td> </tr> <tr> <td>Lid Temp</td> <td>150.0</td> <td>149.8</td> <td>°C</td> </tr> <tr> <td>Liner Temp</td> <td>70.0</td> <td>69.9</td> <td>°C</td> </tr> </table>	He Cooler Pressure	0.0	0.0	mTorr	He Cooler Flow	0.0	1.0e-2	sccm	Electrode Temp	25.0	23.4	°C	Spool Temp	180.0	180.0	°C	Lid Temp	150.0	149.8	°C	Liner Temp	70.0	69.9	°C
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Lid Temp	150.0	149.8	°C																							
Liner Temp	70.0	69.9	°C																							



Initial Checks (2)

4	<p>Double check that you removed the photoresist from the wafer's outer ring (wafer edge) <u>completely</u></p>	<p>Poorly removed resist</p>  <p>Unremoved resist</p> 
5	<p>If necessary, use acetone on swab to remove all of the resist</p>	 <p>Properly cleared of resist</p>
6	<p>After removing resist at edge with acetone, place the wafer on hot plate for ~30 sec @ 90C</p>	

Loading Samples into the Load Lock

7	<p>Click on the "VENT" button.</p> <p>Wait for atmospheric pressure.</p>	 <p>The image shows a control panel with a 'Go To Standby Temperature' button at the top. Below it, there is a 'Lock' section containing 'Pump' and 'Vent' buttons. A 'Vacuum' button is located below the 'Lock' section. A pink arrow points to the 'Vent' button.</p>
8	<p>Raise the load lock's lid.</p>	 <p>The photograph shows a large, industrial-grade metal load lock with its lid open, revealing the interior chamber and a central arm.</p>
9	<p>Place wafer on arm</p> <p>Make sure the wafer's flat is aligned with the arm's flat</p>	 <p>The image is a close-up of the wafer mounted on the arm. A red dashed circle highlights the central area where the wafer's flat surface meets the arm's flat surface.</p>
10	<p>When placing the wafer on the arm, stand to the side of the load lock.</p> <p>If you view the chuck at another angle it is highly likely that the wafer's flat will not be properly aligned to the arm's flat.</p>	 <p>The photograph shows a person wearing a blue cleanroom suit and a hairnet, standing to the side of the load lock. A red dashed circle highlights the person's position relative to the load lock.</p>



Loading Samples into the Load Lock

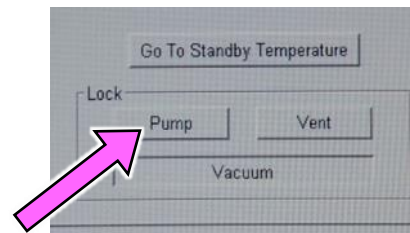
11

Holding the lid handle, move latch from detents (stops) and close the load lock

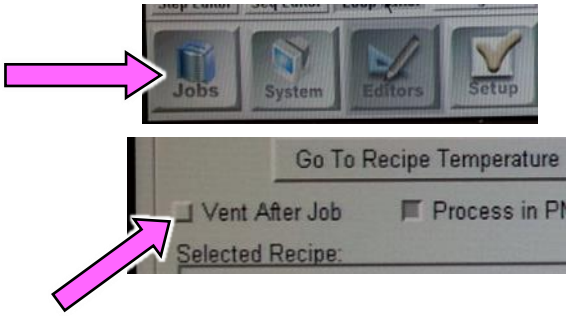
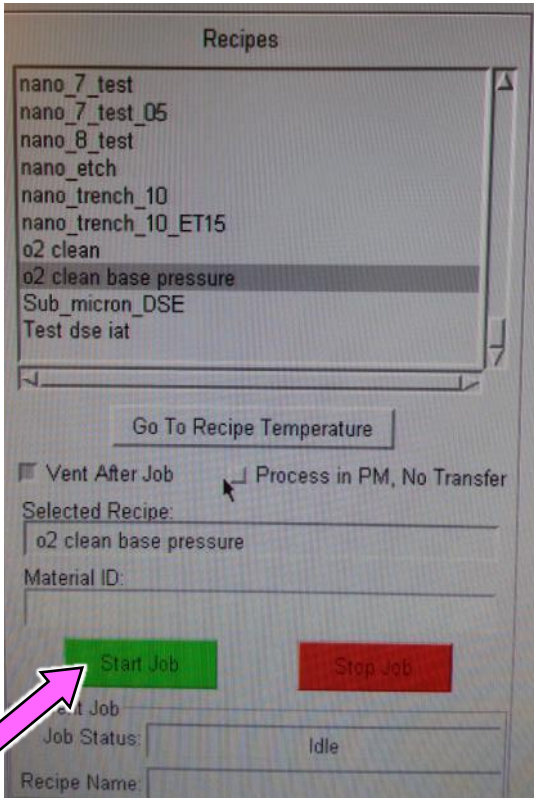


12

Press the “pump” button


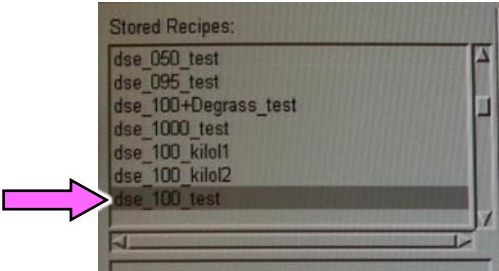
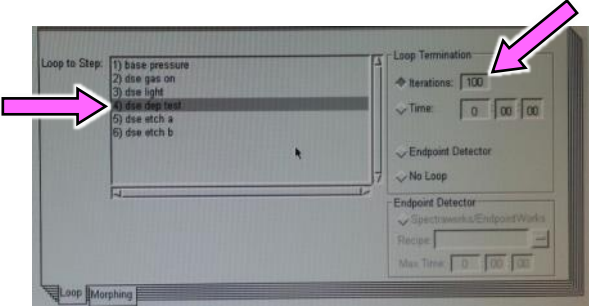
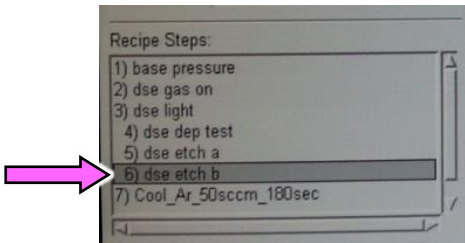
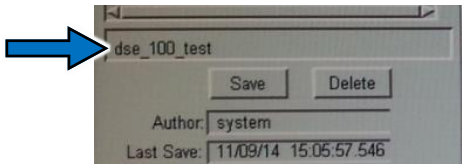


Running a Recipe

13	<p>Go back to "JOBS" tab.</p> <p>Make sure the "vent after job is finished" button is set on/off as you wish.</p>	 <p>The screenshot shows a top navigation bar with four icons: 'Jobs', 'System', 'Editors', and 'Setup'. A pink arrow points to the 'Jobs' icon. Below this, a panel titled 'Go To Recipe Temperature' contains a checkbox labeled 'Vent After Job' which is checked, and another checkbox labeled 'Process in PM'. A second pink arrow points to the 'Vent After Job' checkbox. Below these is a field labeled 'Selected Recipe:'.</p>
14	<p>Select the recipe you wish to run.</p> <p>Press "START JOB".</p>	 <p>The screenshot shows a window titled 'Recipes' with a list of recipe names: nano_7_test, nano_7_test_05, nano_8_test, nano_etch, nano_trench_10, nano_trench_10_ET15, o2 clean, o2 clean base pressure, Sub_micron_DSE, and Test dse iat. The 'o2 clean base pressure' recipe is selected and highlighted. Below the list is a 'Go To Recipe Temperature' button. There are two checkboxes: 'Vent After Job' (checked) and 'Process in PM, No Transfer' (unchecked). Below these are fields for 'Selected Recipe:' (containing 'o2 clean base pressure') and 'Material ID:'. At the bottom, there are two buttons: a green 'Start Job' button and a red 'Stop Job' button. A pink arrow points to the 'Start Job' button. Below the buttons are fields for 'Job Status:' (containing 'Idle') and 'Recipe Name:'.</p>

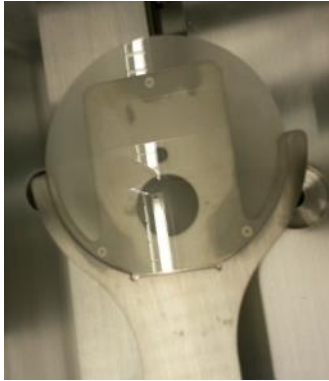
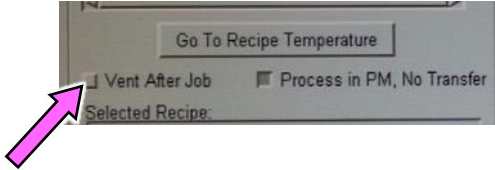



Modifying recipes

<p>15</p>	<p>If the desired number of loops is not already available for the recipe of your choice, you may create a new one.</p> <p>Start by going to the “EDITORS” and selecting “LOOP EDITOR”</p> <p>Do not use: “Step Editor” or “Sequence Editor”</p>	
<p>16</p>	<p>Select the recipe you wish to run in “Stored Recipe”.</p>	
<p>17</p>	<p>Under “Loop To Step” table select the first step of the loop.</p> <p>Input the desired number of loops (“iterations”).</p>	
<p>18</p>	<p>Under “Recipe Steps” table select the last step of the loop.</p>	
<p>19</p>	<p>Rename the recipe accordingly and save.</p>	

Finishing and Cleaning

CLEANING THE CHAMBER IS MANDATORY

20	<p>Remove your wafer from the load lock</p> <p>Insert the sapphire wafer</p>	
20	<p>Make sure the machine will not vent after the job is finished</p> <p>(unclick "vent after job" if marked)</p>	
21	<p>Choose "O2_clean_base_pressure" recipe.</p> <p>Press "Start Job" to run it</p>	
22	<p>Log off the control system</p>	

