Model 1100 Wafer Dicing Saw

Version: 1.0

March, 2013

THE UNIVERSITY OF TEXAS AT ARLINGTON

Nanotechnology Research and Education Center
This SOP is for reference only. Training from an authorized staff member is required before using this equipment.

1. Turn on water, vacuum, and compressed air in the chase, they are all labeled ‘Saw’.
2. Open the door under the saw table and check the air pressure on the gage in front of you. It must be at least 65 psi. If it is lower than 65, do not use the saw and inform the staff.
3. Turn on the power to the saw by turning the red ON/OFF (EMO) switch. It will pop out and the saw will turn on.
4. Program the saw. The program keypad is on the left side of the saw. Ten programs can be saved. Do not change program 1. You can save your program in any other position.
5. Press PROG button to go to the program mode. Use PROG CALL, PROG SAVE, and PROG ERASE buttons to modify any program from position 2 to 10. The following program will cut 4 inch wafer into 10mm x 10mm dies.

<table>
<thead>
<tr>
<th>Mode</th>
<th>DIM1</th>
<th>DIM2</th>
<th>INDEX1</th>
<th>INDEX2</th>
<th>HEIGHT</th>
<th>THICKNESS</th>
<th>CUT SPEED</th>
<th>CUT INCREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>101 mm</td>
<td>101 mm</td>
<td>10 mm</td>
<td>10 mm</td>
<td>9.855 mm</td>
<td>10.135 mm</td>
<td>2.54 mm/sec</td>
<td>0</td>
</tr>
</tbody>
</table>

Plate is a square (actually octagon) aluminum plate. It reduces the vacuum hold area of the chuck from 6” to 4” when placed on the chuck. Its thickness is 9.700 mm (hence the wafer thickness in above program is 0.435 mm). If you are cutting a 6” wafer, you do not need a plate and its thickness should be assumed zero when calculating HEIGHT and THICKNESS for the program. If you are using any other plate, you should measure its thickness and include that in the program. Do not change any other value except DIM1, DIM2, INDEX1, INDEX2, and THICKNESS.

6. Do not use any of the TEACH function keys. All other keys on the program program keypad are self explanatory.
7. Press PROG key after you are done with the program to come out of the program mode.
8. Make sure there is nothing on the wafer chuck and nothing around it, and water shield is properly placed.
9. Press the RESET button (top button on the right side of the saw). It will reset the chuck. Wait until it lights up after flickering.
10. Press SPINDLE ON/OFF button to turn on the spindle. Wait until it lights up after flickering. (Note: Never power off the saw when spindle is running, see step 19 below).
11. Again make sure there is nothing on the chuck and around it. Plate or wafer must not be on the chuck while performing chuck zero function. Press CHUCK ZERO. It will move the chuck under the wafer and bring it up until it touches the blade, and then will bring it back.
12. If you are cutting 6” wafer, place it on the center of the chuck and press WAFER LOCK. This will turn on the chuck vacuum and wafer will be held on the chuck. Check with your hand if wafer is strongly held on the chuck. If you are using a smaller wafer, you must place a plate on the chuck that reduces the vacuum area to the size of your wafer, then place your wafer on top of the plate and press WAFER LOCK. Check with your hand to make sure wafer is held strongly.
13. Press WATER TEST. If water flows on your wafer, press WATER TEST again to stop the water. If water does not flow contact staff.
14. Press ALIGN button and use arrow buttons to align the wafer.
15. Press INDEX button and use arrow buttons to check your alignment.
16. Press AUTO CUT. It will cut the wafer into dies. You can make one cut at a time if you press SINGLE CUT.
17. When finished cutting the wafer, press WAFER RELEASE to release the wafer.
18. Remove your wafer. If you need to cut another wafer go back to step 12, otherwise remove the plate from the chuck (if using any).
19. Press SPINDLE ON/OFF to turn off the spindle. Wait until the spindle stops. You can tell this by looking at the blade hub, when spindle is stopped you will see four holes.
20. Press red ON/OFF switch to power off the saw only after spindle has completely stopped.
21. Go to the chase and turn off water, vacuum, and compressed air.
22. Enter the required information in the logbook.