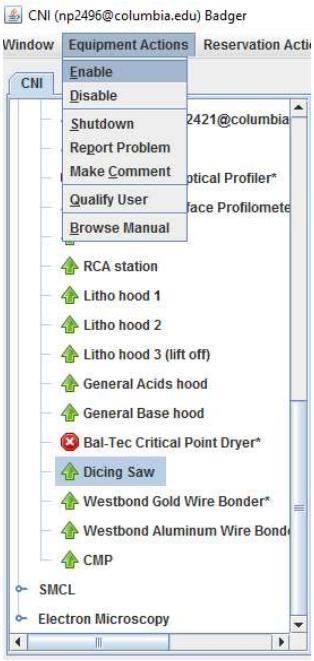
COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK
COLUMBIA NANO INITIATIVE / CENTER FOR INTEGRATED SCIENCE AND ENGINEERING

DICING SAW - DISCO DAD3220

These instructions are intended for reference only, and will *not* replace the thorough training required for proper system operation. Contact a clean room staff member with questions or to report a system problem.

1.	Enable the tool in **BADGER**	
2.	**Pay Attention to:** 2.1 **No GaAs**! If you don't know what you are dicing, find out and only dice when you know. 2.2 Check the latest log for which blade is installed. A small number of users are qualified to change the blade. **Don't change the blade unless you were qualified**. 2.3 Keep UV tape in covered package and put away in drawer when done. 2.4 Avoid shooting the air gun more than 1-2 sec at a time. If it alarms, disable the alarm and initialize. 2.5 Dry chuck with air gun when done.	

3.	**System Initialization** 3.1 Turn key to start dicing saw. Wait for the system to boot up. 3.2 Press System Initialize. Wait for message to say finished initializing. 3.3 Perform Non-contact alignment (under the blade setup menu) Optional: Do a hairline cut on a test wafer.	
4.	**Mount your wafer** Mount your wafer on the tape. Remember to put UV tape away and keep out of sunlight. Put the wafer on the chuck and center it. Close the cover and turn on the C/T vacuum.	
5.	**Define your process** 5.1 Go to device data 5.2 Go to your group's folder 5.3 Choose your recipe 5.4 Set the work piece size: to **avoid breaking the blade** it has to be a number larger than the dimensions	

	of your sample (at least 20mm larger) 5.5 Work thickness is your wafer thickness (e.g. 0.5 mm for 500 micron). Make sure the blade is correct for your thickness. 5.6 Tape thickness is 0.07; Check spindle speed – 30,000 rpm works for Silicon, 10,000 rpm for glass 5.7 CH1 0 degree: Cut mode A, Cut dir REAR means it cuts front to rear, so you define the first cut in the front of the wafer. Cut is the number of horizontal cuts. Leave the last three as 0. 5.8 Ch1 SEQ1: Blade height 0.05 to cut all the way through the wafer and .02mm through the tape. Remember y=0 at the bottom of the tape. Feed speed of 20-30 mm/sec should be fine for silicon, 5-10 mm/sec for glass. If known, enter y-index (pitch/ spacing between cuts). 5.9 CH1 SEQ 1: vertical cuts – enter parameters. Leave all other sequences e.g. SEQ2, set to 0 unless you want irregular spacing.	
6.	**RUN PROCESS** 6.1 Press enter 6.2 Press Full Auto (top right) 6.3 Press F4 Manual Align. Check lights are on (DIR ~ 15% usually works)	

	6.4 Place Hairline (crosshair) on street edge and press F5 Align Theta, machine will move to the right, move same hairline to same street edge and press F5 Align Theta. Machine moves back to the left. Read messages at the top while doing this. 6.5 Move hairline to street cut position (define first horizontal cut). 6.6 Press enter. [If you get an error 'press underlined y-axis…' then try selecting the wafer icon and jumping by one index and then back to where your first cut was. Now Enter should work.] 6.7 Machine will rotate to degree specified in program 6.8 Do F5 Align Theta as per first Channel 6.9 Move to Street cut position (first vertical cut) 6.10 Press enter 6.11 Press Start 6.12Machine will Cut both Channels. Monitor the current while it cuts. 6.13 If you want to pause at the end of the current cut – press stop in top right. If you want to pull up the blade immediately press Z_EM on top left.	

7.	**RETRIEVE SAMPLE** Blow water off – careful not to alarm, take frame out, cut wafer out of tape. Remove tape from frame. Dry frame. Make sure UV tape is put away. Blow water off chuck.	
8.	**RETURN TO NORMAL** Do blade setup non-contact alignment. Press system initial. Check no parts are on chuck. When done initializing, turn key to off.	
9.	**BADGER LOGOUT:** Don't forget to disable the tool in badger after you're done.