

## Spinner Operating Procedure

*Referred to BahenCR manual, version of August, 2005)*

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1. **If you need photoresist from the 500 ml stock bottle, take the bottle of the refrigerator. Warm up for 5 hrs (prevents water vapor in the air condensing inside the stock bottle) and transfer some photoresist into a small 5 ml bottle for your everyday use.**
2. Before you enter the cleanroom, go to the back corridor and make sure the small vacuum pump at the back of the wetbench is turned on.
3. **Fill in the spinner log sheet (date, name, time, description). The spinner in the North wet bench is only for positive photoresist .**
4. Ensure the spinner is clean.
5. If required, use wipes and acetone to clean the top of the chuck and the sides.
6. Use gentle spray from the nitrogen gun to blow off particulates inside the spinner.
7. Open nitrogen gas valve beside the spinner to purge the spinner, an audible hiss is heard. (Nitrogen gas is used to purge the electric motor so that no chemicals fume will accumulate to cause potential spark or fire.).
8. Plug the electrical cord into the covered electrical outlet.
9. Programming
  10. *See attached page or the Manual pages 35, 36 for an example.*
11. *A high value for "ACL" (acceleration) means the spinner will ramp up faster to the final speed. The number to the right of ACL is the approximate ramp up rate in revolutions per minute (up to 8000 rpm)*
12. *Note that the ramp up time is included in the time that you enter. (eg. if it takes 2 seconds to ramp up to full speed and you want to spin for 10 sec, you should enter  $10 + 2 = 12$  seconds.)*
13. If you are spinning a whole wafer (2, 3, 4 inch) do not use any adapter on top of the spinner chuck. If you are spinning a piece, use the appropriate adapter (one inch coin shaped disk with a small O-ring and hole in the center). The smallest piece that can be held is 4 mm by 4 mm ( 3/16 inch by 3/16 inch).
14. Ensure the piece covers the entire o-ring otherwise photoresist will be sucked into the vacuum system and a major repair job is necessary!
15. Press the "Vac" button to hold down the piece/wafer.
16. Close the Lid. There should be no flashing words on the readout. If the sign "Air" flashes, the nitrogen gas pressure in the Lab is low. Please wait five minutes and the sign should go off.
17. You can do a test spin without photoresist if you wish, to make sure the spinner is doing exactly what you want it to do.
18. Press "Run/Stop" to start the spin sequence
  - If you want to stop the spin before the program is timed out, press "Run/Stop".
  - Then press "F1" twice to reset to the beginning of the program.
19. After all spinning is complete, use wipes and acetone to clean the spinner to the state which you found it before you started. Pay attention to the side walls and the inner lip on the bottom of the lid. The next person will not be happy if you leave a dirty spinner.
20. Leave the spinner lid open (up position).
21. Shut off the valve for the nitrogen gas purge.
22. Shutoff the vacuum pump in the supporting area.
23. Disconnect the electrical cord.

24. Close the wetbench sliding sash before leaving.

**Hints**

1. Center your piece/wafer as best as you can by slowly turning the chuck with your hand.
2. After programming, you can test the spin sequence and spin times to make sure the spinner is doing what you want.
3. After spinning many pieces/wafers there will be a lot of acetone, alcohol, photoresist, etc on the sides and bottom of the spinner walls. The vapors from these chemicals will affect the photoresist thickness and uniformity of the next piece that will be spun.
4. Wipe up excess chemicals inside the spinner before spinning the next piece.
5. Do not agitate, bump the photoresist bottle as this can entrapped small air bubbles that will cause streaks. Try to minimize air sucked into pipets, eyedroppers used to dispense the photoresist. This is especially true if you are using a viscous photoresist.  
( See [www.brewerscience.com](http://www.brewerscience.com) (follow the “CEE” link) for examples of problems that can occur on the spun photoresist layer. )
6. Take extra care that flakes of dried photoresist on the bottle cap and particulates do not drop inside the photoresist bottle.
7. Take care when you store photoresist in a small container. There should be no plastic (such as eye droppers) in contact with the photoresist. Avoid having any rubber/soft material for the cap as water and air diffuses through these materials and affects the photoresist.