

## Laurell WS-400A 6NPP/Lite

### Spinner SOP

## Equipment Uses and Restrictions

Each spinner in the NRF is dedicated to certain materials. The list of approved materials for each individual spinner is located near the spinner. These are the ONLY materials you may spin. If you have a new material, contact NRF Staff for review. If approved, it will then be added to the spinner approved materials list.

## Safety

- Moving Components – The User should be aware at all times of the moving components associated with this tool. The spinner lid must be closed while processing your sample. The spinner lid is interlocked and will not operate with the lid open. **DO NOT ATTEMPT TO DEFEAT THIS INTERLOCK.**

## Equipment Specifications:

Maximum RPM: 6000

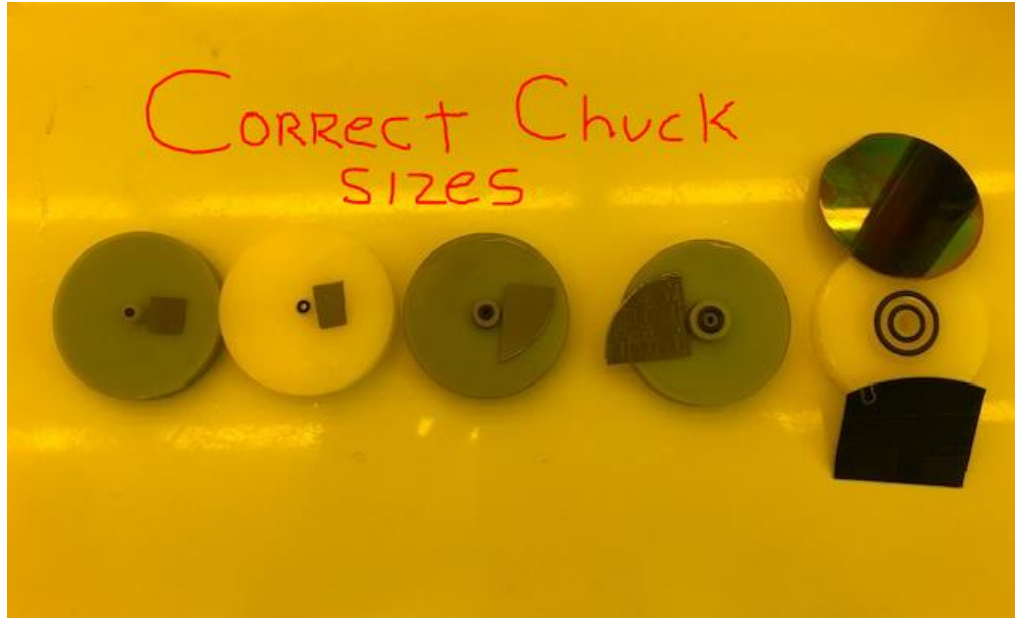
Max sample size: 6" diameter

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**Operating Instructions:****1) Fragment Coating – Static Dispense Only Allowed**

1. Only Static Dispense is allowed for samples smaller than 50mm. The exception being glass slides or asymmetrical substrates. Consult with staff if you have these type substrates.
2. The proper “Fragment Adapter” must be used or your sample will be broken. The vacuum o-ring should be approximately 25% to 50% of the smallest width of your sample. The pic below are examples of the correct chuck size for various substrate sizes.



3. Before placing the sample adapter chuck over the main chuck, verify that it is clean. It should not have any dark material inside the vacuum groove or in the vacuum hole. Look through the vacuum hole. Verify that single o-ring is in place. If cleaning is needed, use AZ EBR 70/30.
4. **CAUTION -- DO NOT ALLOW ANY FLUID TO ENTER THE VACUUM CHUCK OR UNDER THE CHUCK ASSEMBLY.**

**5. Coating Procedure**

- (1) Use single step recipe....Set recipe step 1 to Casting speed for

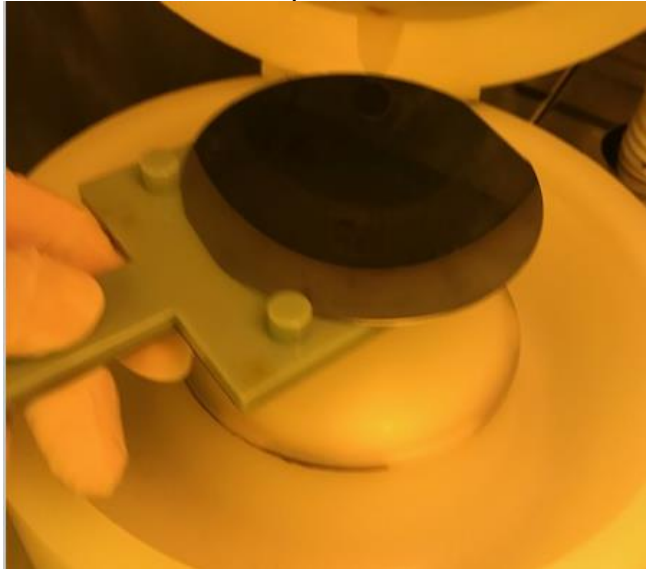
thickness you want per manufacturing datasheet. Time = 60 seconds, accel rate >10000rpm/sec (i.e. ACL value of >200)

- (2) Set the operation mode using the F1 key to OFF (not PGM mode)
- (3) Open the lid and Dispense enough fluid to cover 50% of the diameter of the sample at the widest point. *(If your sample is smaller than approx. 15mm, carefully dispense enough fluid to cover the top of the substrate and let surface tension hold the fluid on top. If you over dispense and it goes to the back, clean your sample and the chuck and start over. This may be done using AZ EBR7030). NOTE: If the casting speed you are using is ,<1800 RPM you will need a bigger fluid puddle >80% coverage.*
- (4) Close the lid and press run.

6. Proceed to section 3 "Cleaning" when done.

## 2) Wafer Coating / Dynamic Dispense

1. Verify the display reads PGM in the upper left corner, if not depress F1.
2. For 4" wafers place wafer on the wafer centering tool. Place the wafer on the chuck and depress the vacuum button.



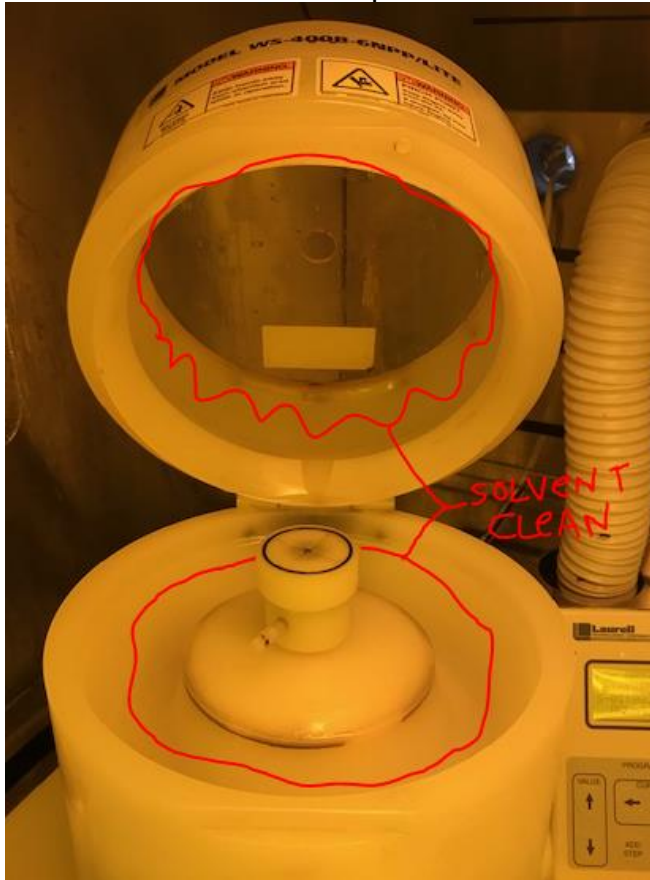
3. Select spin recipe. Verify the spin speed parameters are correct.
4. If you want to use the pipette holder fixture, load the pipette with 1.5ml of fluid and insert into the holder and place as shown below, no spacer.



5. Set the step 1 speed for 800rpm. Press run. Dispense fluid while spinning at 800rpm. When done squeezing the pipette bulb immediately press the “Step” button to go to step 2 which should be programmed with the correct speed for the desired thickness i.e. casting step.
6. The spin time for the casting step should be long enough so that the film does not change color for at least 10 seconds. Typical films like LOR 3A will dry completely within 30 seconds depending on speed. Letting it dry longer is OK. Cutting the dry time short may change the final film thickness. If in doubt, let it spin for 1 minute. Thickness will not be affected. Note: Very thick materials may require longer dry times; watch for no color changes and then stop the sample.
7. Press the VACUUM and remove the sample.
8. Proceed to section 3 “Cleaning”.

### 3) Cleaning

1. When cleaning immediately after use (as should always be done), use Isopropanol.
2. If the material is dried in the bowl (i.e. it's been more than 1 hour since it was dispensed) use AZ EBR 7030 to clean the bowl.
3. Using the lab squirt bottle, apply liberal amounts of Propanol in the areas shown in red in the pic below.



4. Wipe the areas with clean wipes. Apply more solvent and wipe again until the bowl is extremely clean. It should not feel slick when it is clean. Also, there will be no more color changes to the wipe when the bowl is clean.
5. If using PRS3000 to clean, follow up with a DI soaked clean wipe to remove the PRS3000.
6. Verify that the vacuum chuck is not contaminated. If it is, clean the surface and contact staff so that we can determine why material is being sucked onto vacuum chuck.
7. Place contaminated wipes in the solvent waste can.
8. FAILURE to clean the bowl properly will cause you to loose privileges on this spinner.

#### 4) Programming

1. Place the system in "Programming" mode by pressing the F1 key. PGM will be displayed in the upper left corner of the display.
2. Select the program letter (H-R) to be modified using the up/down arrow keys. The program letter selection will be indicated in the upper right hand area of the display.
3. To change step values, use the up/down arrows. To move the edit cursor between fields, use the </> arrows. Press the enter key every time you change values within a step. This must be done for each step.
4. Use ADD STEP to create new steps and the DEL STEP keys to remove steps. Up to 51 steps can be programmed.
5. Note: the ACL at the bottom of each step screen stands for acceleration. A setting of 015 is fine for most applications. Increasing this value will change the acceleration or deceleration from one step to the next. The number to the right is the calculated acceleration (not actual) based on the ACL value. Calculated deceleration values should not exceed 100 RPM/sec and acceleration should not exceed 32000 RPM/sec.
6. Use the STEP key to step through the program and verify the correctness of all values.