

**Follow all CNF safety rules for chemical fume hoods
(sign in; no buddy system is required)
(goggles and face shield)**

Instructions for the Laurell Tech. WS-400A series Spinner

1. Plug the spinner into the outlet on the face of the fume hood. Or press any key to activate the spinner if it has automatically powered down.
2. Place substrate on the chuck.
3. Press the “VACUUM” button on the control panel.
4. Open the vacuum valve on the front of the fume hood until the vacuum value on the display stops flashing. A value of $\geq 15-20$ is generally sufficient. “Vacuum” should stop flashing on the display.
5. Close the lid. “LID” should stop flashing on the display.

The unit will operate only if the vacuum is above 15 and the lid is fully closed. The run will automatically stop if the lid is opened or vacuum is disrupted during the run. If the program was incomplete, press F1 twice to reset the program to the beginning.

6. Use the “program select” button to select a preset program (A – T), or enter new values for a program.
7. To change program settings, press F1 to go get into the program mode. (PGM) will be displayed in the upper left corner.
Use arrow keys: Right and Left to scroll through each value or
Up and Down to change numerical values.
Use “Add step” key to add another step to the program
Use “Del step” key followed by the “Enter” key to delete a step
8. Press the F1 key to return to the spinning mode.
9. Press the “RUN/STOP” button to start the program.
The chuck is slightly sticky. If acceleration and pre-spin values are low (100 rpm with an acceleration factor ≤ 10) the chuck is likely to delay spinning by 20s or fail (show an error of “E08” in the upper left corner). To account for this, increase the speed and acceleration factor of the pre-spin step and factor in for a possible 20-s delay. Press “RUN/STOP” again to resume the program. It may take a few tries to initiate the spin. To start from the beginning of the program, press the F1 button twice.
10. When finished, open the lid. Press the “VACUUM” button to release the substrate. When finished for the day, turn off the vacuum supply and unplug the spinner.

Relevant values:

Recommended sustained max RPM = 3500

Maximum RPM = 5500

Calculated acceleration values (a product of time, acceleration factor) can not exceed 2000 RPM. The spinner will not operate that program step.