

8” Spinner

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Allowed Substrates:2", 4", 6", 8" wafers as well as their small pieces

Authorization Procedure: Hands on training followed by practical cum written test. No authorization till both the tests is cleared.

Expiry of authorization: If user fails to operate the system for more than three months. Clearing both practical and written test mandatory for re-authorization

Violation Policy:

1. Proper shut down of the system including the Nitrogen supply and the mains power.
2. Entering the log book each time the system is used.
3. Proper cleaning of the process bowl and the lid after each use.

USE OF ALUMINUM FOIL MANDATORY

OPERATING PROCEDURE

- Turn ON GN2 to 4 bars and switch ON the vacuum pump of the spinner.
- Switch ON Mains of spinner and the step up/ step down voltage regulator.
- Press the switch on the rear bottom of spinner.
- For existing recipe of spinning, select the program by pressing Program select button.
- For writing new recipe, press F1 and write the program by using add step, delete step button and enter the values using the up and down arrow buttons. Press enter once the program is written.
- Each program step includes: time of step, wafer rotation speed in RPM, and acceleration/deceleration set point (acceleration/deceleration rate is shown in program mode only). Each program can have 51 steps.
- Place the wafer on the spinner chuck using the wafer alignment tool. Use 4" chuck for 4" and 8" wafers and 2" chuck for pieces and 2" wafers.
- Press vacuum on the keypad and gently remove the wafer alignment tool. The system will not work for vacuum < 15" Hg. If the vacuum falls below the required level the process will halt and an E04 error message will appear on LCD display. To restart the program after the vacuum has been re-established, RUN/STOP key needs to be pressed.
- As the vacuum valve is pneumatic sufficient pressure of Nitrogen is required which is 60 psi and above. In this case there is required vacuum but lack of N2 will flash CDA and cause an E10 error. Once purge pressure has been re-established, press the RUN/STOP key on the keypad to re-start the program.
- Close the lid. A safety lid interlock disallows motor rotation if an open lid condition is detected. In case lid is opened while running a program, the program will be interrupted and chuck rotation will stop slowly. LID indicator will be flashed on the LCD display. The program can be continued from the point at which it has stopped by closing the lid and pressing the RUN/STOP key.
- Select the program and perform a test run without the resist.
- Pour resist on the wafer with the help of a dropper. Close the lid Press RUN to start the process. If process needs to be aborted in between, press STOP.
- Shutdown the system by pressing the button at the rear end of the spinner body followed by switching OFF Mains and the transformer. Turn Off the vacuum pump as well as the Nitrogen supply.

Optimized Recipes

Resist Name	Steps	Time(sec)	Acceleration(rpm)	Thickness of film	Process Type
PMMA	1	5	500	300nm	Spread Spin
	2	45	3500		
	3	10	0		
HSQ	1	5	500	150nm	Spread Spin
	2	45	2000		
	3	10	0		
PPR-S1813	1	10	500	1.8 μ	Lift Off
	2	30	1500		
PPR-S1813	1	15	300	1.5 μ	Spread Spin
	2	30	3000		
PPR-S1813	1	30	300	1.4 μ	Small features
	2	45	6000		
	3	5	500		
SPR-700-1.8	1	15	300	2.1 μ	Spread Spin
	2	30	3000		
AZ4330	1	10	500	4.4 μ	Spread Spin
	2	30	4000		
AZ5241E	1	10	500	2 μ	Lift Off
	2	30	4000		
AZP4620	1	15	300	9.88 μ	Lift Off
	2	30	3000		

ERROR MESSAGES

The error messages expected during the operation of the spinner and the action required thereby is given as follows:

CODE	DESCRIPTION	ACTION
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E03	Motor did not reach specified RPM	Shut down spinner
E04	Vacuum below required minimum	Shut down spinner, check oil in the vacuum pump.
E05	Illegal command sent to spinner	Ignore
E07	Motor exceeded maximum RPM	Shut down spinner
E08	No RPM feedback, zero RPM	Shut down spinner, remove any restriction to spinner.
E10	Insufficient Nitrogen pressure	Check N2 pressure and increase it to 4 bars

First Level Tool Maintenance

- Clean process bowl and lid with IPA after each use, taking care to prevent any chemicals from entering the vacuum path. Ensure that N2 is on during cleaning so that seal purge is constantly present and leave the lid open to allow drying of residual moisture.
- Cover the chuck using a wafer held in place with vacuum or use a cover like a petri dish during bowl cleaning.
- Clean the keypad surface with a wet wipe. Never spray solvent like acetone directly onto the keypad surface as it may cause keypad failure.
- Clean the chuck O-ring. To do this, insert a thin blunt instrument into the O-ring groove and pull upward. Be careful not to damage the O-ring or the chuck. Wipe it with acetone and insert it back into the O-ring groove.