Standard Operating Manual

SAWATEC Hotplate HP-160

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SAWATEC Hotplate HP-160

1. Picture and Location



This tool is located at NFF Phase II Cleanroom Class 100.

2. Process Capabilities

2.1 Cleanliness Standard: Clean/Semi-Clean equipment
2.2 Substrate size: 2”-6”
2.3 Hotplate Temperature: 25 °C to 250°C with 0.1 resolution
2.4 Proximity pin: 0.1 to 8.2mm

3. Contact List and How to Become a Qualified User

3.1 Emergency Response and Communications

1. Security Control Center: 2358-8999 (24hr) & 2358-6565 (24hr)
2. Safety Officer: Mr. Wing Leong CHUNG 2358-7211 & 64406238
3. Deputy Safety Officer: Mr. Man Wai LEE 2358-7900 & 9621-7708
4. NFF Senior Technician: Mr. Henry YEUNG 2358-7896
5. NFF Technician: Mr. Charles TANG 23587896

3.2 Training to Become a Qualified User

Please follow the procedure below to become a SAWATEC Hotplate HP-160 qualified user.

1. Read through the on-line equipment operating manual of the equipment;

   http://www.nff.ust.hk/equipment-and-process/equipment-operation-manual.html
2. Attend the equipment hand-on operation training either by peer or NFF staff.
3. If training is provided by NFF staff, user must log in NFF equipment reservation system, and register these trainings.
4. Send an e-mail to Mr. Henry YEUNG requesting SAWATEC Hotplate HP-160 qualified exam.
5. Pass the examination for the equipment operation and security.

4. Operating Procedures

4.1 System Description

The Hotplate HP-160/250 is designed for temperature processes in the semiconductor industry. This includes lacquering and baking of silicon wafers.



1. Control Panel

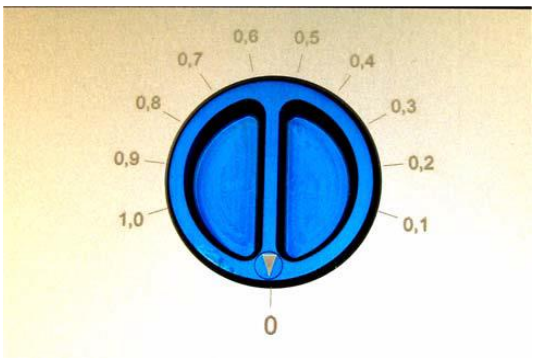
The User interface of the controller comprises an electroluminescent display and seven buttons: The display used to show the process conditions. The operator

buttons allow adjustments to be made to the control program.

Key	Function
	Page button Press to select a new list of parameters.
	Scroll button Press to select a new parameter in a list.
	Down button, Up button Press the Down button to decrease (the UP button to increase) a parameter value. Use these keys also in selection lists indicated with an up/down triangle like these: 1 : Program 1
	The left of these buttons is inactive. The middle button is used to call the Control Page The right button starts the selected program
	Pressing these two buttons simultaneously resets the program (same function as power on)

2. Loading Pins

Loading pins determine the distance of the substrate to the plate during the heating. The proximity value is set up with the turning knob on the rear of the hotplate. You can set values from 0 to 1mm in increments of 0.1mm. Set the value while the pins are in the lower position (Hotplate Off).



4.2 Safety Warnings

1. Follow NFF Health and Safety Manual.
2. Do not touch the heating plate after operation of the Hotplate HP-160.
3. Always use tweezer to remove the processed substrates from the hotplate.
4. When switching the hotplate on with the main switch, the lid may be lifted suddenly.

5. The hotplate must be operated only with a controlled exhaust. As soon as the exhaust is malfunctioning the hotplate must be switched off.
6. The hinges of the lid can create a strong force which can crush fingers. Keep off from the area of the hinges when the lid is open and is about to close.
7. The hotplate must not be switched off as long as the plate temperature is above 100°C!
8. According to the general fire emergency procedure of HKUST, please report the accident to the Security Control Center first. The nature of other emergencies will determine whether you will call police, staff, or both. If someone is injured, the 9-999 emergency number should be called before calling staff. If there is a facilities problem, such as a flood or a utility problem that does not present a danger to lab users but may result in damage to equipment, the staff or EMO need to be called. The 9-999 emergency should not be called for facility or equipment problem. Always call 9-999 when a potentially life threatening situation might exist (injury, fire, gas leak, etc.)

4.3 Operation Precautions and Rules

1. Do not operate the equipment unless you are properly trained and approved by NFF staff.
2. All recipe programming is done by NFF Staff. If you need a special recipe, you may request a new recipe to Staff.
3. Substrate backside should not have any resist.

4.4 Initial Status Checks

1. Please check the status of shutdown notice posted in the NFF Notice Board.
2. Before operate the machine, please check the checklist and fill all the details of

the log sheet attached.

4.5 Initial System Checks

1. Verify proper function of exhaust and vacuum.
2. Verify the compressed air available.

4.6 System Startup

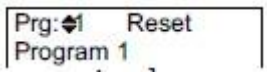
1. Switch on the hotplate with switch on the rear.



2. The lid will be lifted suddenly with great force. This is dangerous for you.
3. The switch is lit when the hotplate is switched on.
4. The controller panel shows the default display.

4.7 Select a program

1. Press the scroll key  to select the scroll list of program Table 1.



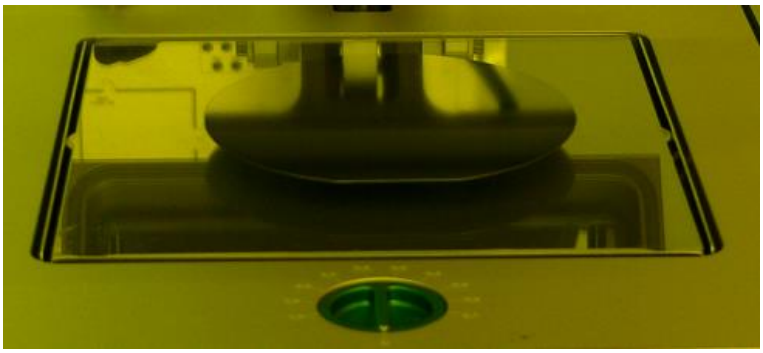
2. Use  or  to select the required program.

Table 1: Programs of Sawatec Hotplate HP-160

Program	Temperature (°C)	Time (sec)
1	90	60
2	90	90
3	90	120
4	100	90
5	100	150
6	110	60
7	110	180
8	115	95
9	120	60
10-15	Defined by User	
16-20	Not Used	

4.8 Load the substrate

Put a substrate on the lifting pins of the hotplate.



4.9 Start selected Program

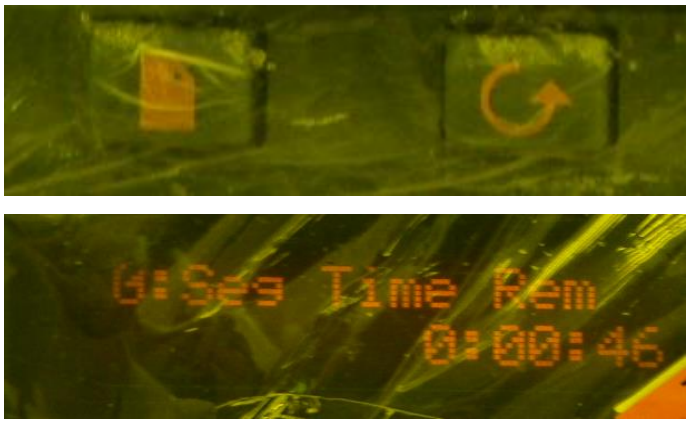
You can start with a dummy run (without substrate) to make sure that is your desired temperature and time.

1. To start the selected program, press the right round key labeled Run/Hold



2. The lifting pins retreat and the substrate is held on the hotplate by the vacuum, cover close.

3. The timer display counts the process time backwards (per seconds).
4. The remaining process time can be display by press theses two button simultaneously.



5. When process time is over the substrate is lifted and cover open automatically.
6. Remove the substrate with suitable tweezers.

4.10 Heating Process Hold/Stop

1. Press the right round key (Run/Hold) shortly (<1 sec) to hold a process or from hold to resume a held process
2. Press the right round key (Run/Hold) long (>2 sec) to reset or stop the process.

4.11 Switch off (For Staff only!)

1. Run “Cooling Down” Recipe if have.
2. Switch off the hotplate with the main switch. The switch is dark when the hotplate is switched off.