

**DO NOT USE WITHOUT TRAINING**

SOP for (RTA)

**RAPID THERMAL ANNEALER HEAT PULSE 210T-02**

(prepared on the basis of the manual by: Alina Kulpa)

**MAX time 300 seconds**

**MAX temperature 1050 °C**

**NEVER** hit “D” or “U” buttons on the RTA computer - if you do, push RESET immediately.

The wafers to be heated must be **CLEAN**.

**NEVER** heat any material on a photoresist coated wafer - it will CONTAMINATE the annealing chamber.

**REMEMBER ABOUT NITROGEN GAS AND WATER:**

The nitrogen cylinder is located outside -open the main and the small valves before getting to the cleanroom.

The water valve is inside the cleanroom - open the water valve, and also turn ON the water pump white switch that is on the wall above the electrical black plug.

**FOR PROCESSES WITH FORMING GAS:**

The forming gas cylinder is outside the cleanroom.

To use forming gas:

inside the cleanroom open the valve of the house nitrogen (green valve) and set the black valve to PURGE position - this will allow house nitrogen to flow through the system - check the flowmeter - it should be between 30 mm and 60 mm.

Outside the cleanroom connect the forming gas line and open the valves. It is not recommended to use the forming gas without a proper purging process first.

After finishing the process with forming gas make sure to switch the black valve to purge gas before opening the system.

### NEW QUARTZ TRAY:

The new quartz tray requires extreme care when you are loading and unloading your samples - make sure that NOTHING is touching the sides or the top of the quartz chamber.

To load a sample open the RTA door very carefully and also very carefully slide out the stage. Load your CLEAN sample on the tray wafer, and slide the stage very carefully inside. Lock the door in counter clockwise order starting from the TOP RIGHT lock. Make sure that the door is locked, so it will NOT open during process!

### On the RTA front panel:

METER SELECT - **OFF** (display shows temperature divided by ten (2.1 means 21 °C ))

LAMP CONTROL - **AUTO**

POWER - **ON**

gas flow meter must be at **30 mm** or more but not higher than **60 mm**

### RTA COMPUTER

to turn ON/OFF the white switch at the back

to RESET - the red switch at the back

**AUTOMATIC MODE** the control is menu driven

**NOTE: SAFETY FEATURE** -to turn off the RTA at any time when is running in “Automatic Mode” press any key **except** “U” or “D”

MENU - DRIVEN CONTROL [can be used as Temperature Control (it is default mode) or as Intensity Control - not recommended for inexperienced users]

**1/ Temperature Control** (put inputs in BOLD PRINT)

To set parameters press “S” while in the Main Menu

the display then reads

SET A (TIME), T(TEMP), M

Command:

Function:

A

Set anneal time in sec (0<t<300 sec)

- T Set anneal temperature in °C ( $300 < T < 1050$ ) there are two different temperature controllers  
- in use only 300 °C - 600 °C range controller
- M Toggles between Intensity and Temperature Modes (Do not use if you are inexperienced)

To set up the process in this mode:

press "S" then "A" for the time and enter the anneal time in seconds. Use the Delete key if you need to correct the number or press the Return key to enter

press "S" then "T" for the temperature and enter the anneal temperature in °C and press the Return key to enter if correct, or the Delete key if correction is needed

To check the parameters that you have just set up press "L" (list), if any changes are needed you have to reenter your values. If the parameters are as you wanted you may start annealing process by pressing "A" (automatic).

After the process is completed turn off the water pump (white switch on the wall) but leave the N<sub>2</sub> running till temperature reaches 200 °C.

Remove your sample. Clean up the water if any visible.