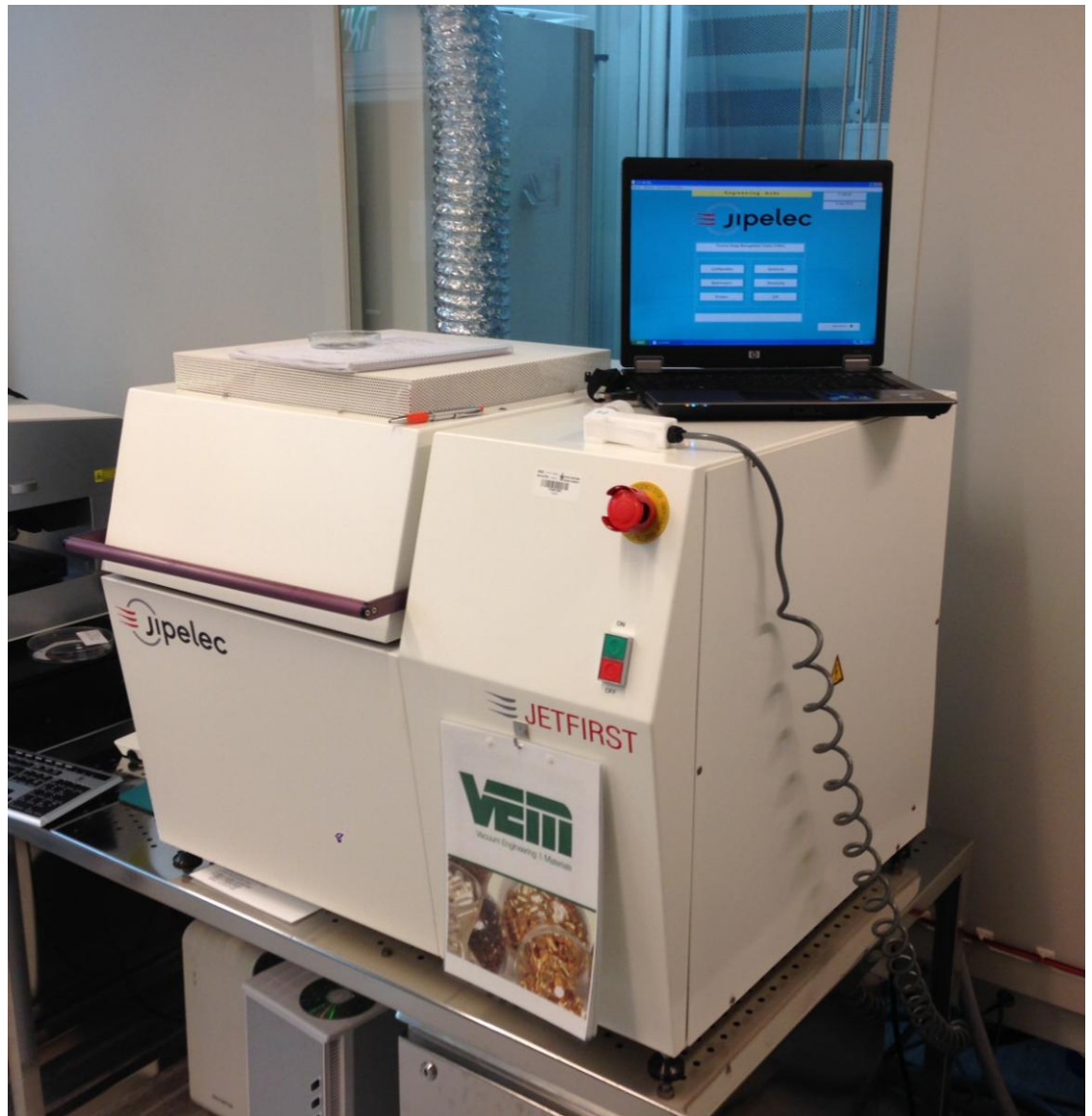

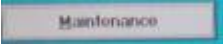
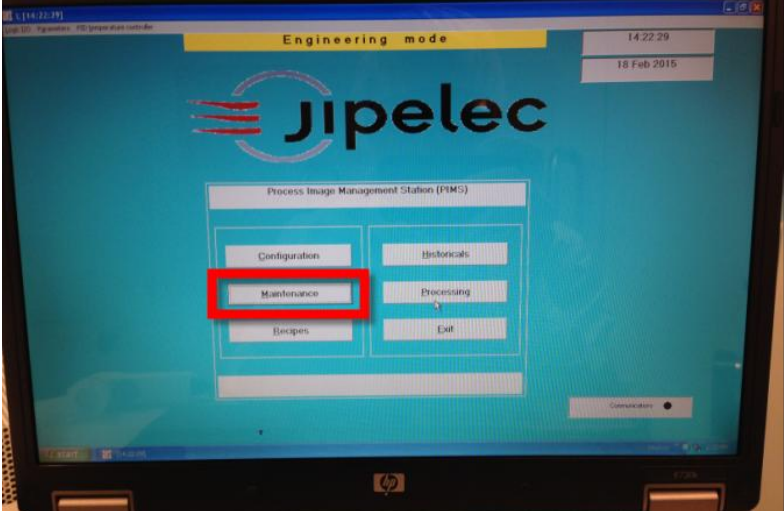
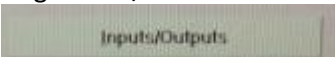
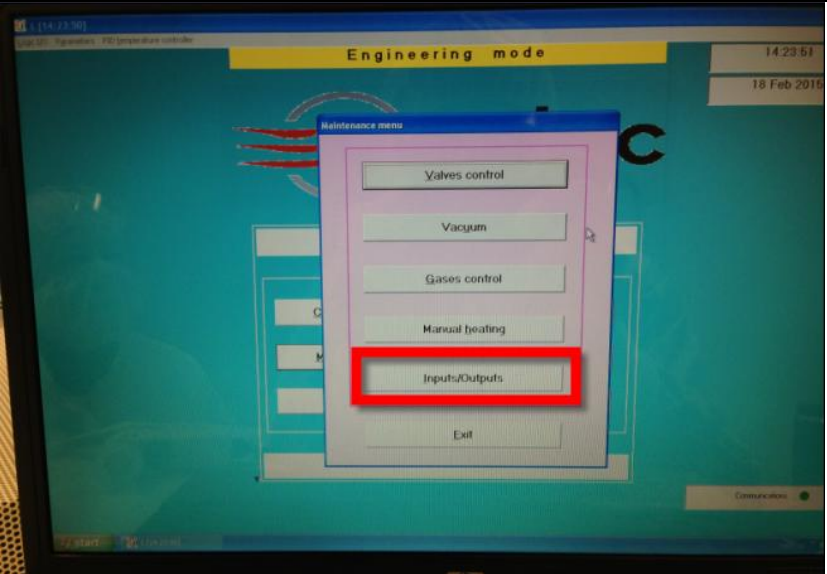


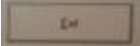
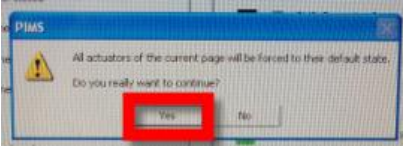
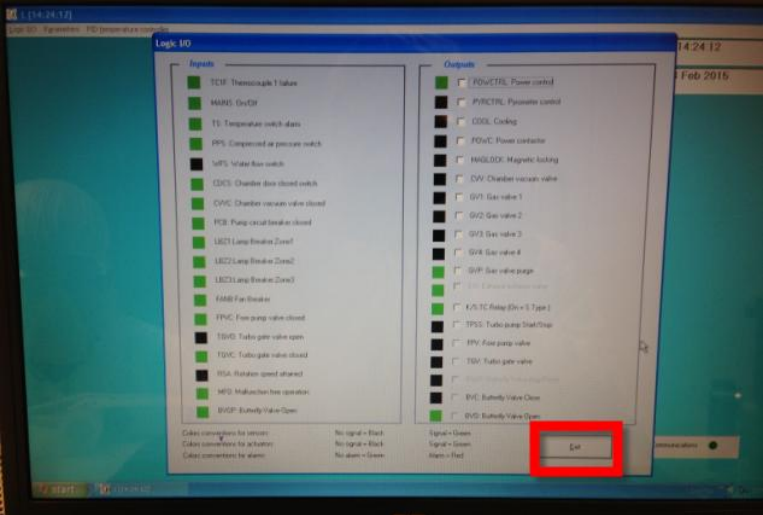
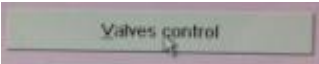
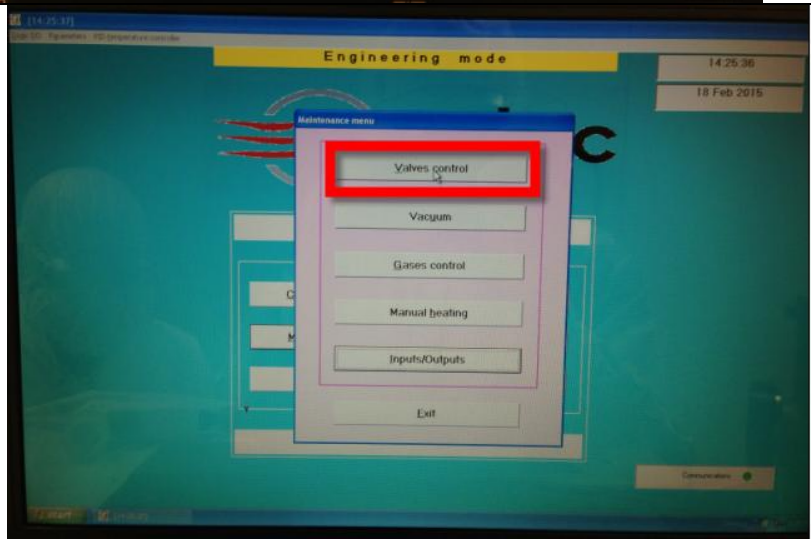
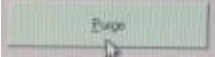

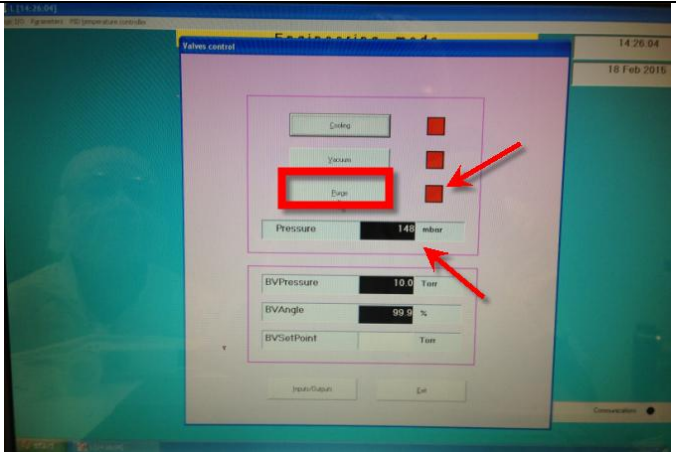


Step Preview:

- Log in.
- Turn on machine.
- Vent chamber.
- Load sample.
- Check thermocouple.
- Check the configuration.
- Load the PIDs.
- Set the recipe.
- Run the recipe.
- Vent chamber.
- Remove sample.
- Pump chamber.
- Turn off machine.
- Log off.



1	LOG IN!!!!	
2	<p>Turn on the machine by pressing the ON button. In any case, if something goes wrong or you are not sure, please call Youry @ 0523836163. Or contact another staff member.</p>	
3	<p>On the main menu screen, choose maintenance to open new window.</p> 	
4	<p>Press the Inputs/Outputs button to get the I/O window.</p> 	

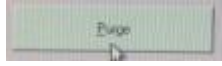
<p>5</p>	<p>Check that there are no red lights. If there are, STOP and contact staff.</p> <p>If no problem is indicated press </p> <p>And "YES" on the pop-up window </p> <p>"Yes" You want to continue.</p>	
<p>6</p>	<p>Press "Valves control"</p>  <p>To access the valves control menu.</p>	
<p>7</p>	<p>You can now vent the chamber by pressing "Purge"</p>  <p>The red square next to it will become green  and the pressure reading will go up.</p> <p>During this time you can prepare your sample and tweezers.</p> <p>Check that you have no organic residues on the back and front of your sample.</p> <p>You must avoid using metal tweezers if you need to use the subseptor.</p>	


8

Wait till the pressure reads above or 1125 mbar and open the chamber.

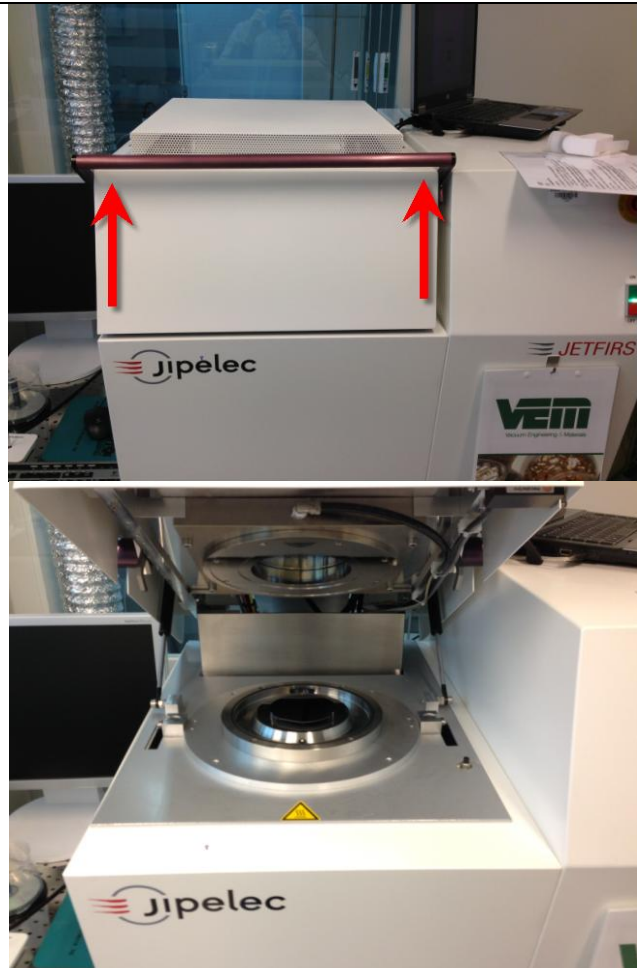
Use both hands (see picture) and push the bar and then the chamber door up.

Once you have opened the chamber, stop the purge by pressing "Purge" again



, the square will turn red. 

Before placing your samples, check that the Quartz window that covers the lamps is clear and without any colorful residues ...



9

Check that the thermocouple and the substrate are set the way you use it for your process (i.e. subseptor/Si wafer; K/S Type thermocouple).

If something is wrong, please DO NOT START YOUR PROCESS and call the staff.



10

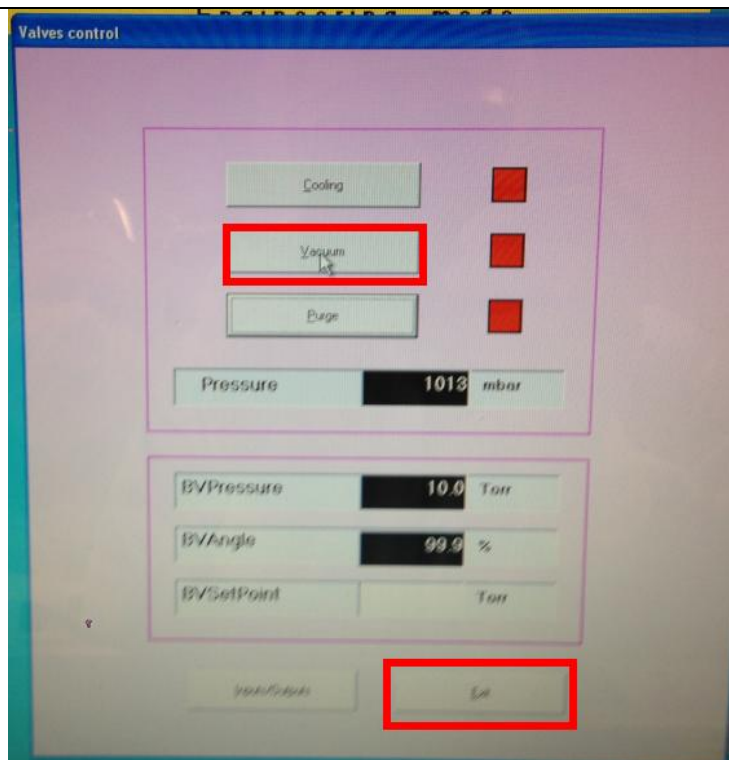
After making sure that your sample does not have any **organic residues** you can place your sample using **plastic tweezers** and close the chamber **with both hands!**

Pump the chamber by pressing "Vacuum"



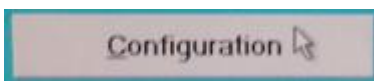
in valves control menu.

Go back to the main menu by pressing Exit (two times).

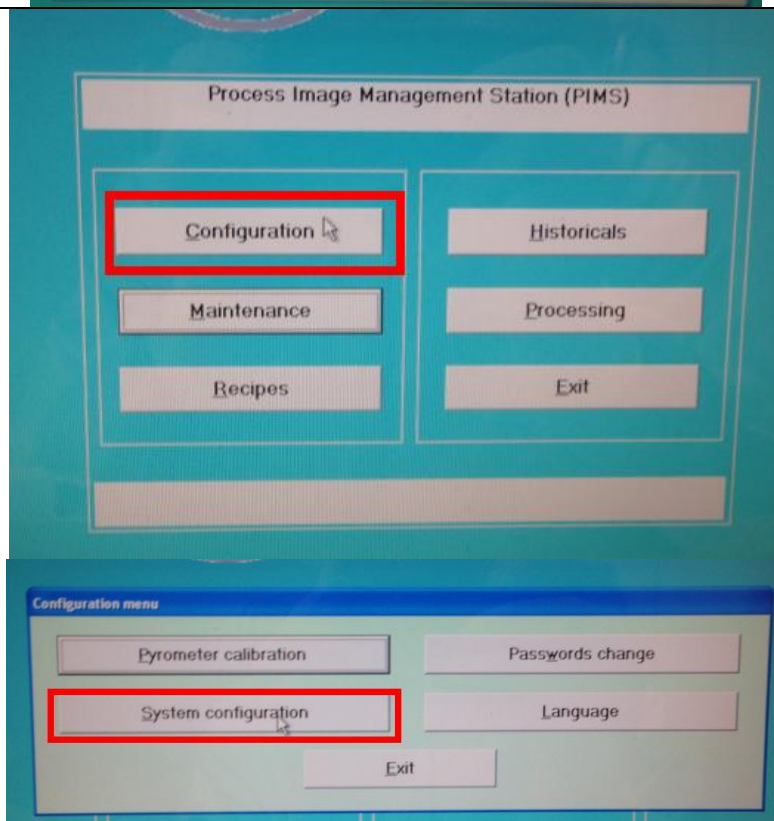
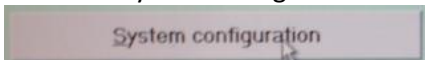


11

Check the "System Configuration" by pressing "Configuration"

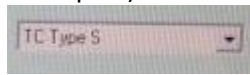


And then System configuration:

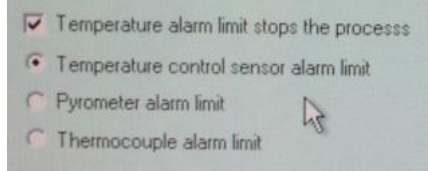


12

In "system configuration" check the thermocouple type ("TC Type S" –for silicon or "TC Type K" –for subsector)



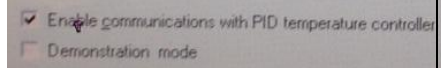
The other parameters should be as shown in the picture:



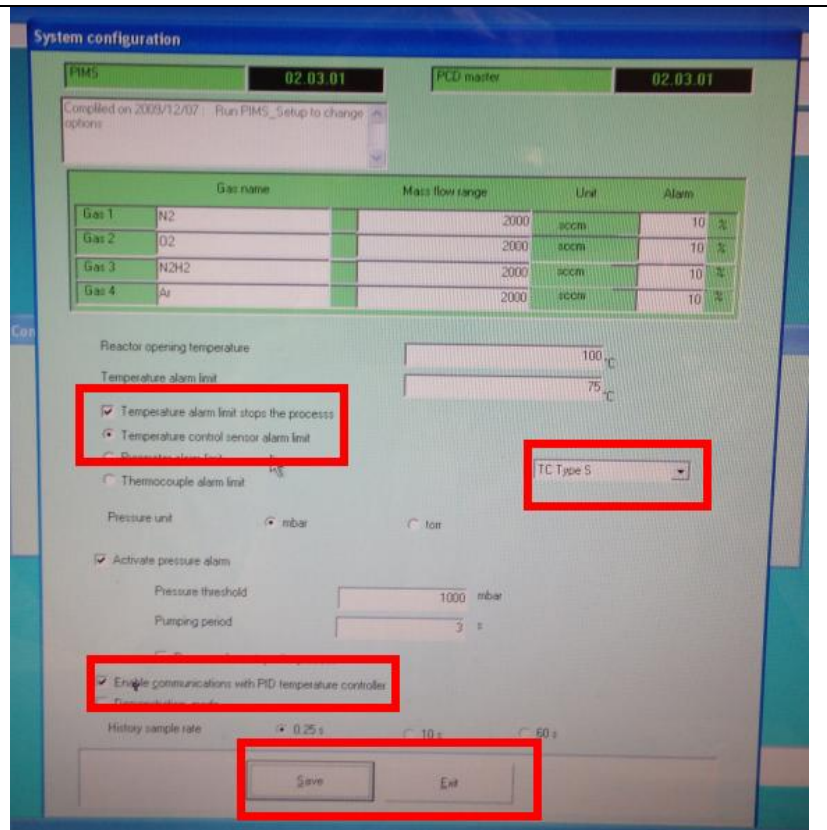
"Temperature alarm limit stops the process"

"Temperature control sensor alarm limit"

And:

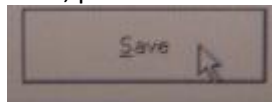


"Enable communication with PID temperature controller"



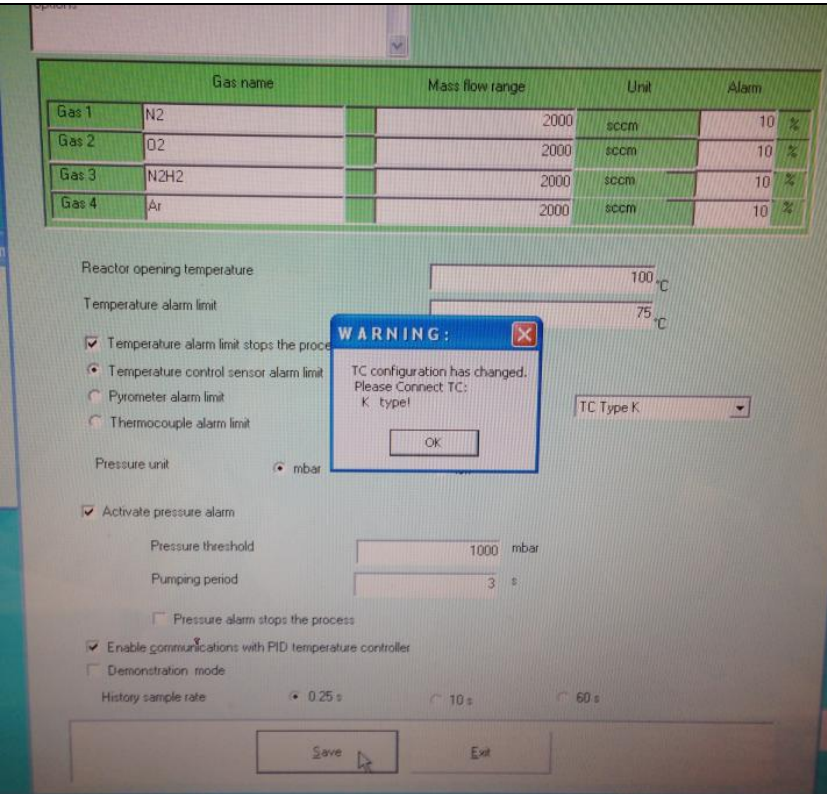
13

Next, press "Save"



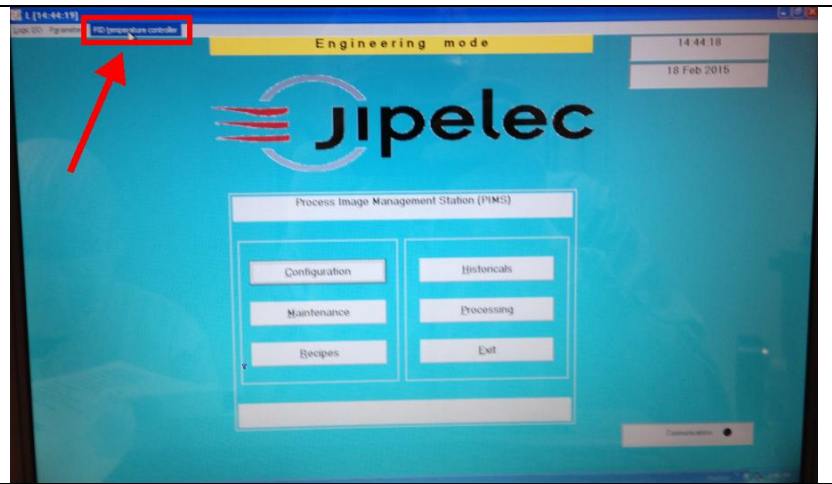
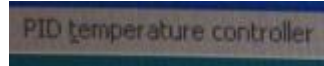
A window will pop up (in case you changed the Termocouple configuration)

Approve it and press Exit again and again until you get back to main menu.



14

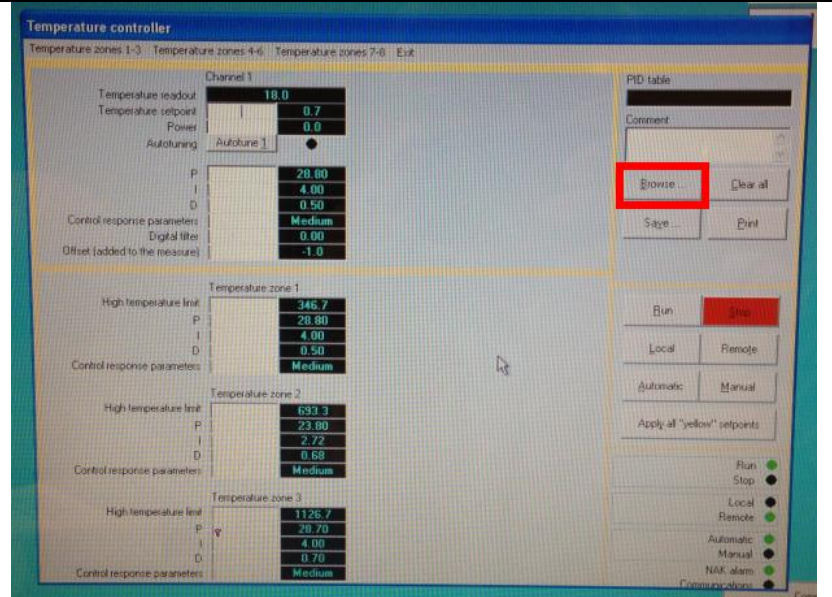
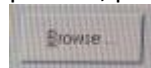
Choose "PID temperature controller" in the upper left corner.



15

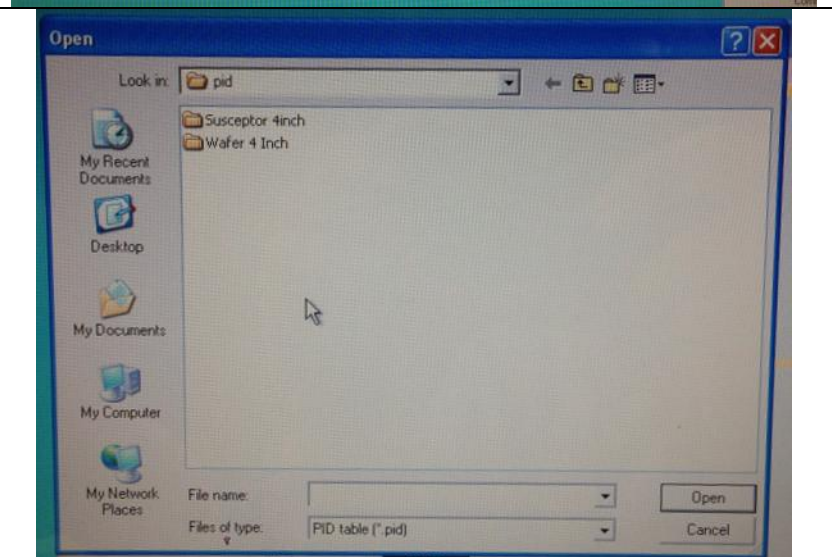
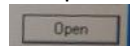
The proportional-integral-derivative controller (PID), controls the heating procedure and prevents temperature overshoots and other inaccuracies.

To load the parameters for your process, press "Browse"



16

Choose the parameters for your process (if you do not know what are they, please contact the staff). And press Open.

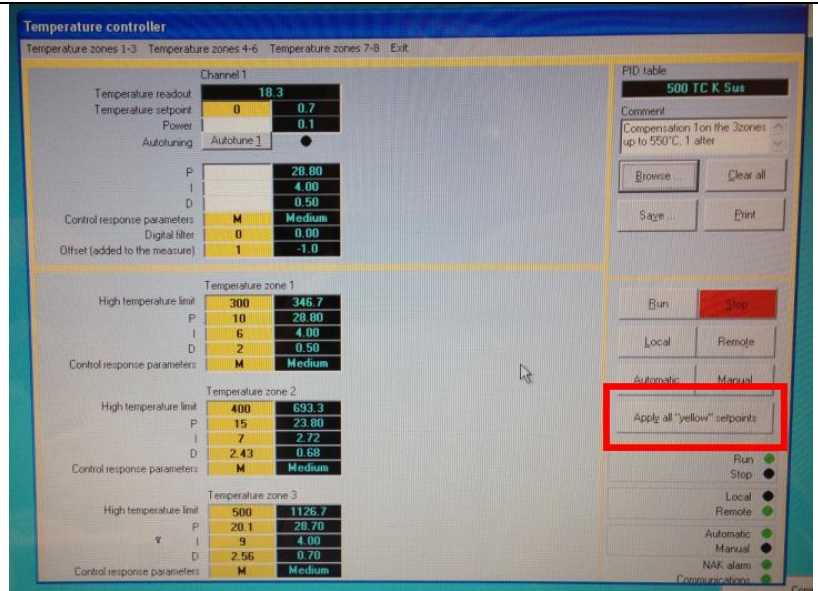
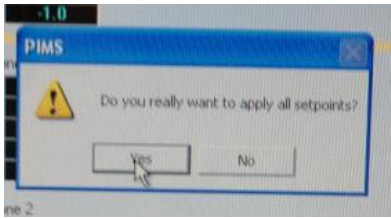


17

The new parameters will appear in yellow, press “Apply all yellow set points” to use them in the PID controller.



And approve the message:



18

Compare the values in both columns of the table. They should be identical!!!

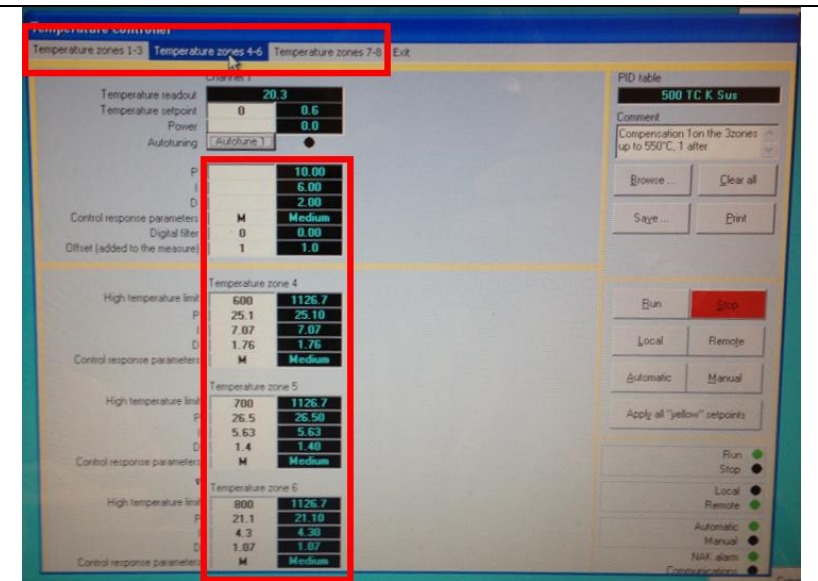
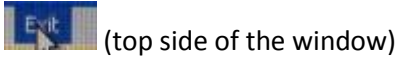
Do this for all **8 temperature zones!**



If the values are not identical press “apply all yellow set points” again.

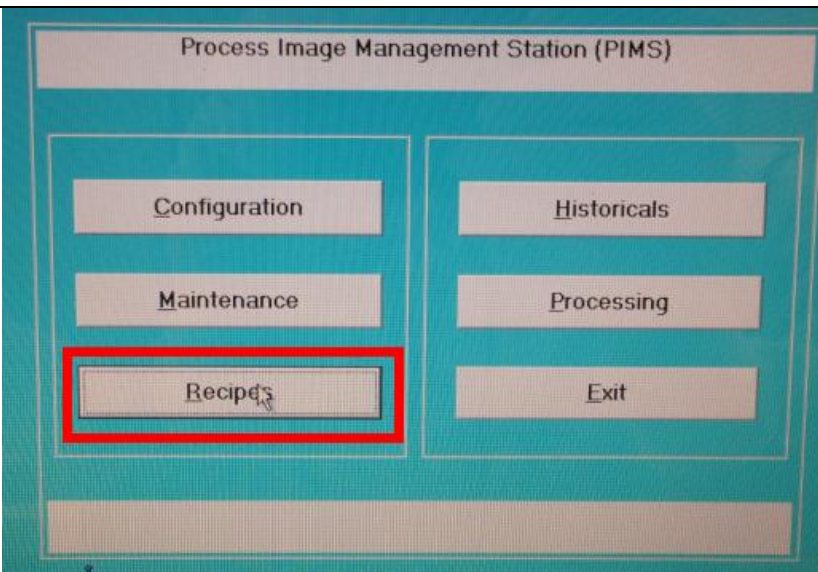
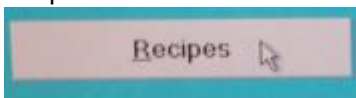
In case it still does not change the parameters please contact the Staff.

Press “Exit” when you finish.



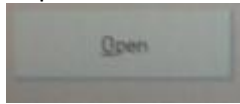
19

In the main menu choose “Recipes” to edit/review your recipe

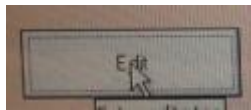


20

Choose your recipe and press "Open"



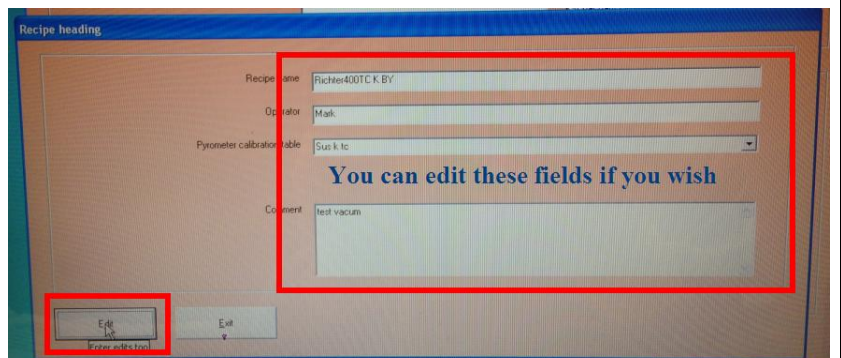
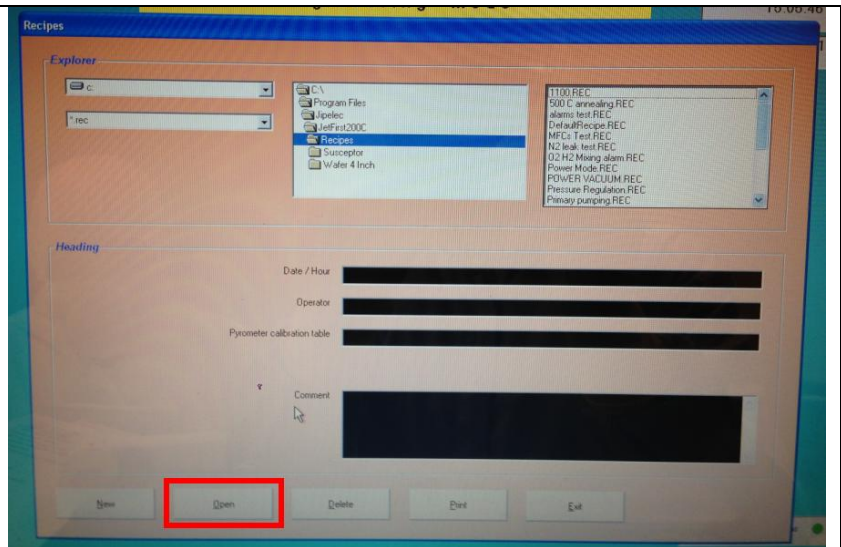
And then press "Edit"



To edit/review the recipe.

If you want to create a new recipe, go to desktop (folder Recipes) create a copy of any other recipe and change its name to a new name.

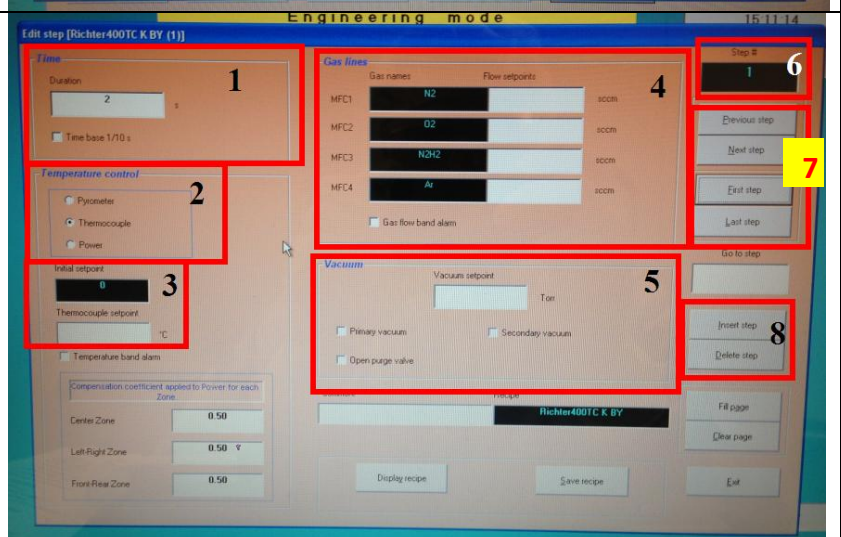
Keep in mind that the maximum length of the file can be 20 characters. All larger names will be cut to 20 characters by the recipe editor.



21

Recipe editor:

- 1- Time of the step in seconds.
- 2- Step temperature control – This should always be Thermocouple!!!!
- 3- Thermometer set point.
- 4- Gas MFC in sccm.
- 5- Vacuum – "Primary vacuum"/"Secondary vacuum"/"Purge"
- 6- Step number.
- 7- Step selector.
- 8- Delete/insert step.

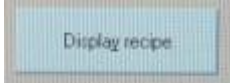


22

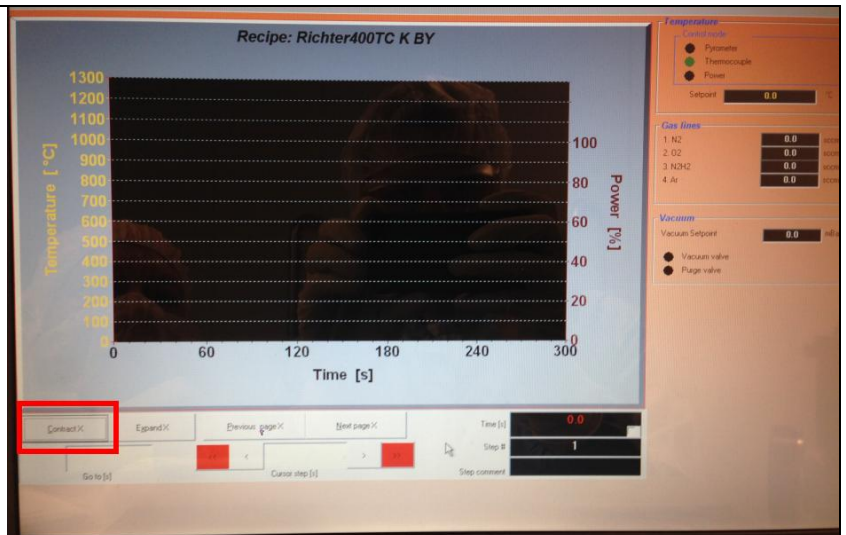
- Check your samples evaporation point!
- K-type – on subsector – up to 800°C.
- S-type – on Si wafer – up to 1200°C (not accurate for low temperatures).
- Pyrometer can be used for high temperatures and better repeatability.
- **Step 1** – Should always be empty/nothing. Just set time - 2sec
- Vacuum step - check Secondary vacuum box for high vacuum:
 - 300sec = 1.63×10^{-4} mbar
 - 600sec = 6.77×10^{-5} mbar
 - 900sec = 4.7×10^{-5} mbar
- Gas Insertion step:
 - to get to 1ATM – 1500 sccm for 70sec
 - to maintain low pressure, all gases must not be over 100sccm
- Maximum heating rate < 35°C/sec.
- High gas flow, during the process, will cool your sample and may also damage the chamber.

23

When you finished programming the process press "Display recipe".



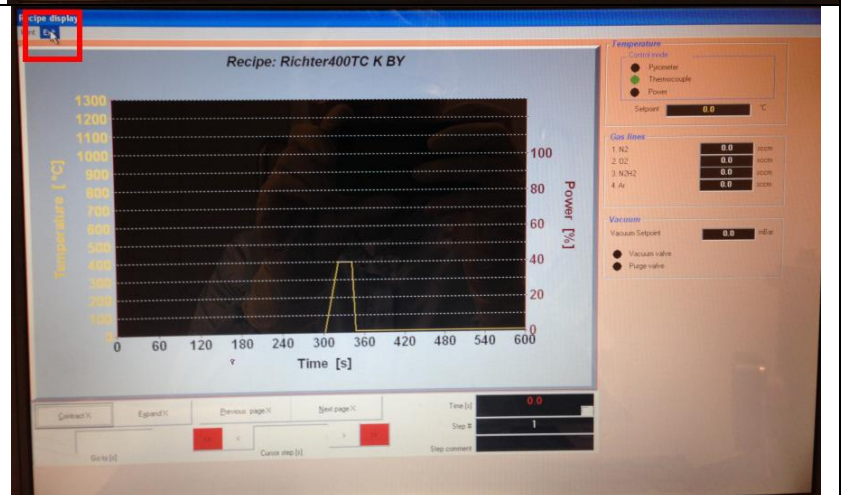
Next, press "Contract X"



24

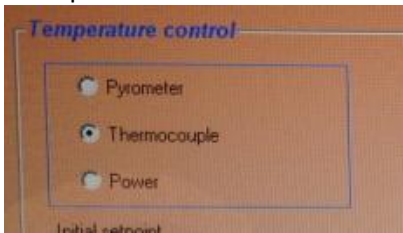
Make sure that this is the process you would like to get.

Press "Exit" to go back.

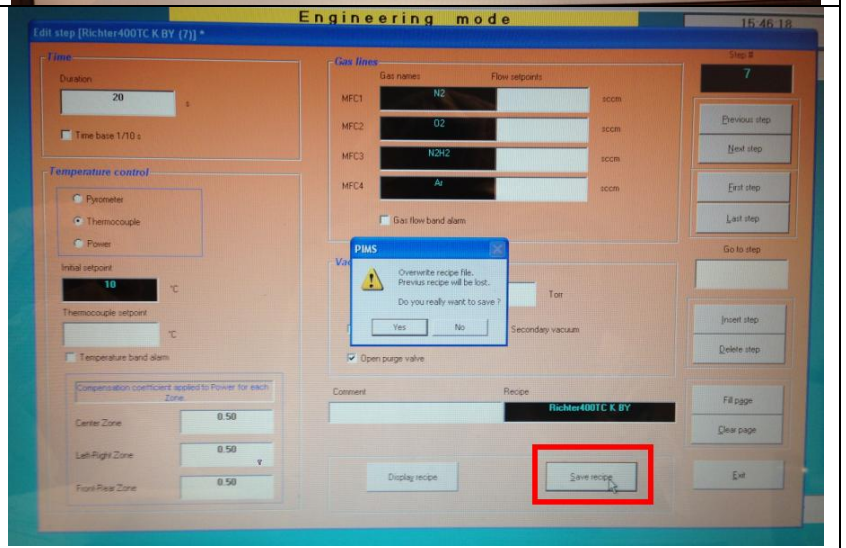


25

Press "Save recipe" and approve the message. Check all the steps one more time and pay attention to the "Temperature control" box:

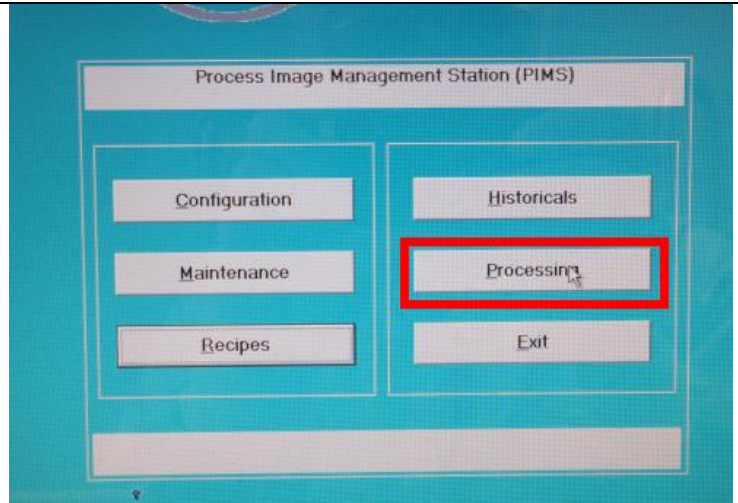
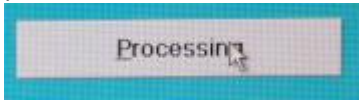


Make sure that you use Thermocouple to control the process.



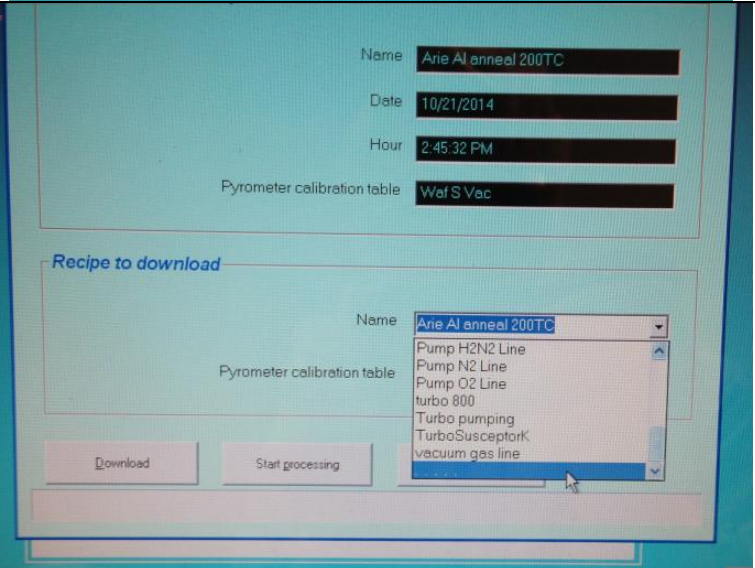
26

Press Exit to get back to main menu.
Choose "Processing" to start your process.



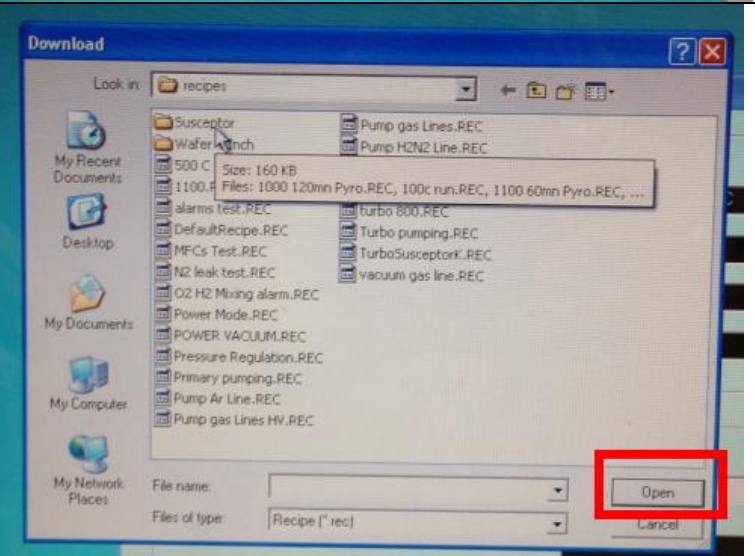
27

Choose "....." from the drop down menu to choose your recipe.



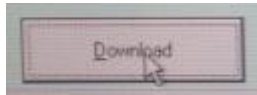
28

Choose your recipe and press "Open"

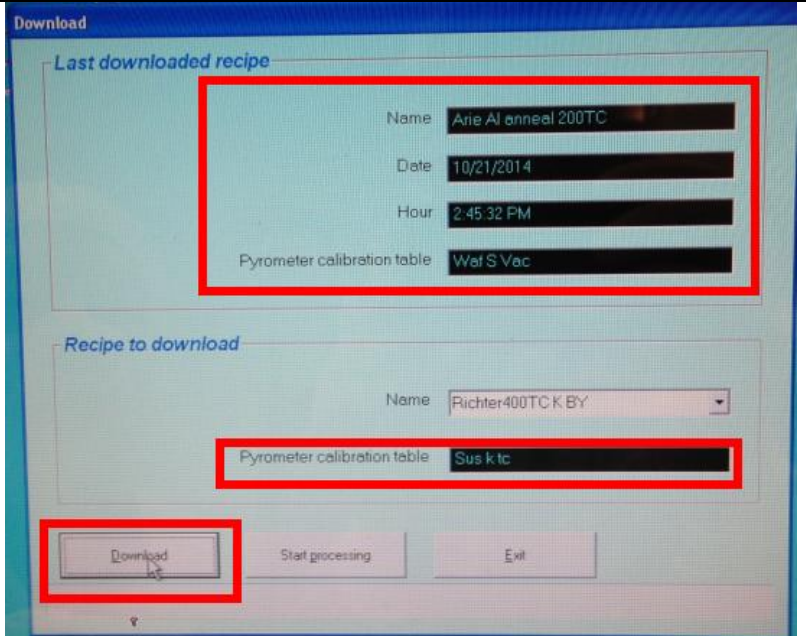
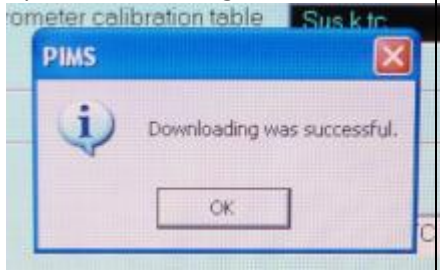


29

Review these values and press "Download"



Approve the message:

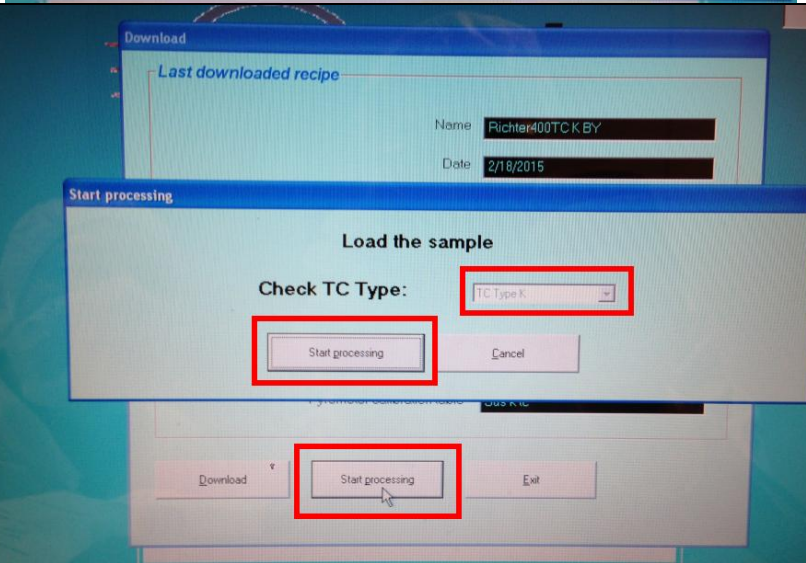


30

Press "Start Processing". A pop up window will remind you again what type of thermocouple you are using – check it again!

Press "Start Processing" again.

You should be near the machine during the whole process

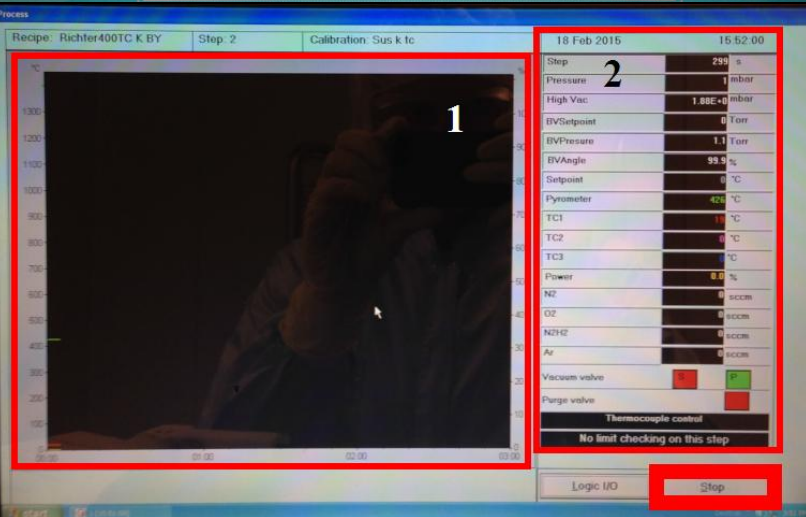


31

Processing window:

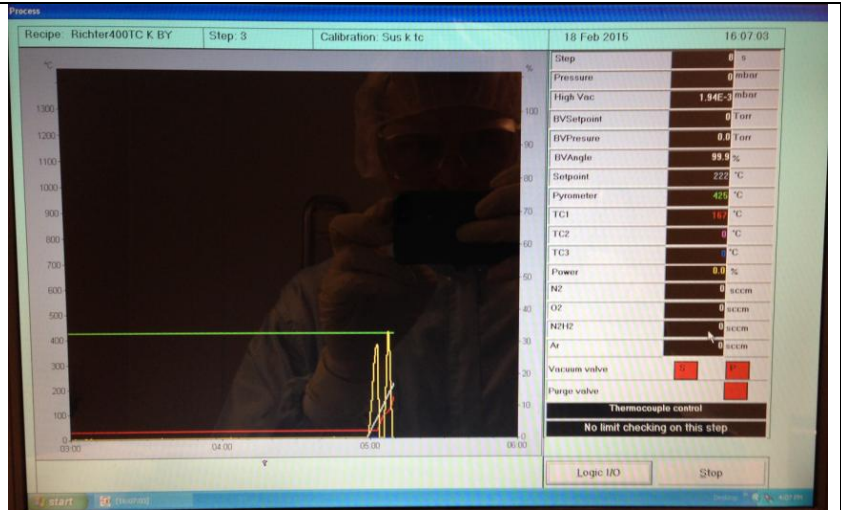
- 1- Temperature Vs. time by color – the color legend is on the right.
- 2- The process feedback information.

You should monitor the values during the process. If something goes wrong, press STOP (lower right corner) and contact the staff.



32

- Green line – Pyrometer temperature
- Yellow line – Lamp power consumption.
- Red line – Thermocouple temperature
- Grey line – Set point

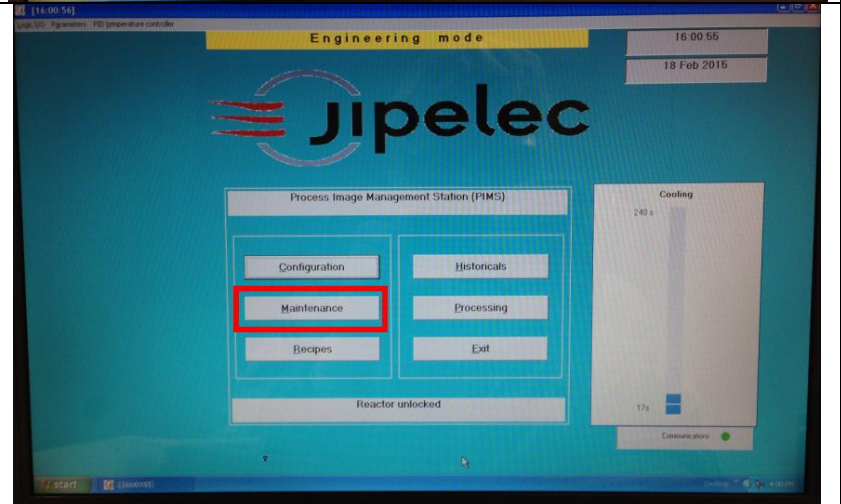


33

When the process is finished the machine will enter a cooling cycle (240 Sec)

When it's finished, you can save a log of your process.

To open the chamber you need to go to maintenance → Valves control → and Purge the chamber.

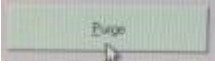


34

Wait till the pressure reads above or 1125 mbar and open the chamber.

Use both hands (see picture) and push the bar and then the chamber door up.

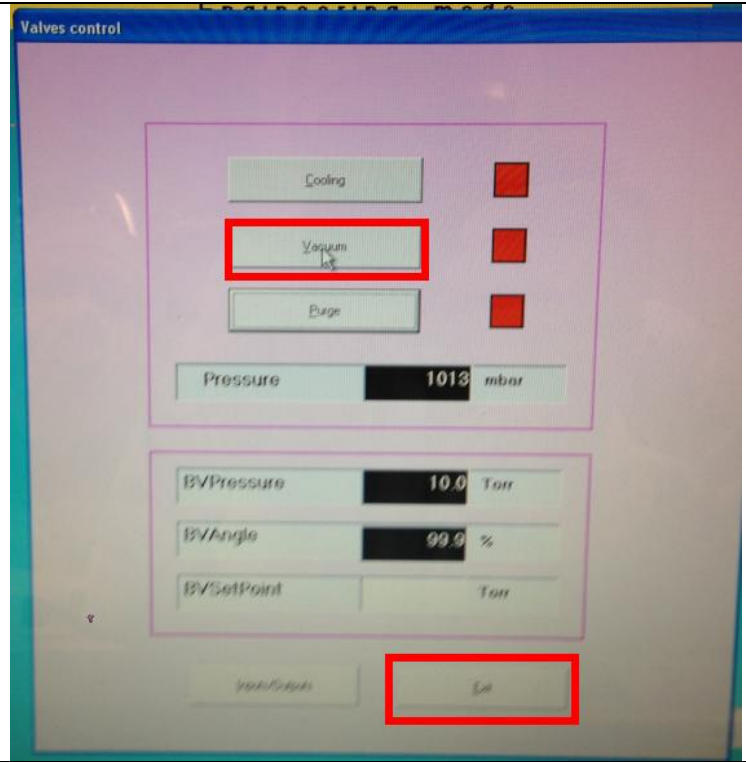
Once you opened the chamber, stop purge by pressing "Purge"

 , the square will turn red.



35

Remove your sample USING PLASTIC tweezers. Close the chamber, press Vacuum, wait till the "Pressure" and "BVPressure" both read ZERO, exit to the main menu.



36

Press OFF to turn off the machine



37

Log off