

JETFIRST 200

Rapid Thermal Processing tool (RTP)

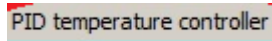


How to use the system

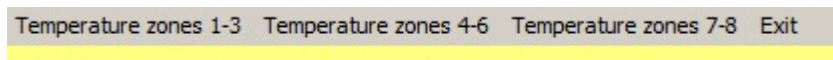
RTP conditioning (Before a batch of RTP runs)

The RTP chamber needs to be conditioned to have a good repeatability wafer to wafer with the following procedure

1. Login on the PC zone 3
2. Double click on the shortcut “JETFIRST200” to open the PIMS software (Process Image Management Station) and press “yes”.
3. Click on “PID temperature controller” in menu bar (top left) to have access to PID interface (see figure IX).



The PID tables are divided in 9 zones subdivided in 3 parts (1-3, 4-6 and 7-8).



The left columns of the tables are empty when you open the interface. The right columns of the tables contain the parameters of the previous run and are inside the memory of the tool (see figure X).

4. To transfer the PID parameters from the RTP PC to the RTP automate, select with the “browse” function, the PID table “Ref_SiPreheating_TC” linked to the recipe “Preheating” from the PID library in the JetFirst200/Tables directory and press “open”. The left column is filled with PID parameters on a yellow background (see figure XI) and press “yes”.



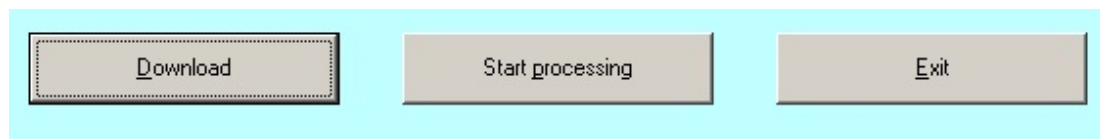
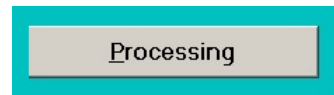
5. Press “Apply all “yellow” setpoints” to transfer these numbers in the right column (tool memory) with black background



4. Check that the 2 columns have the same values for each Temperature zone, if it’s not the case, select the number in the left column and press “return” (see figure XII).

7. Close the window with “Exit”

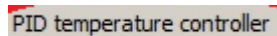
8. To download the recipe “Preheating”, press on “Processing” and enter the operator login (OPER) and password (OPER) in the login window. Then go to the directory “JetFirst200” from the menu “Recipe to download (see figure XIII) and once the recipe is selected, press on “download”. Wait for the message “Download was successful” and then press “Ok” (see figure XIV).



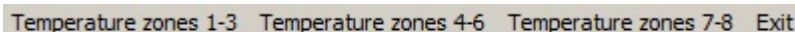
9. To start the recipe, press a first time “start processing”
10. Load the wafer on the quartz support, check that the TC is in contact with the wafer (you should see only one contact point between the TC filament and its reflection in the wafer backside). Then check that the black O-ring is present in the groove in the bottom part of the chamber and close the chamber
11. Press a second time “start processing”
12. Once the run is done, save the process data in the directory C:/.../JetFirst200/Historique/Preheating and wait for the cooling down procedure (Around 6 minutes)
13. Once the cooling down procedure is done, the chamber is unlocked and you can open the chamber, take your sample and load a new one.

Start a RTP run (After RTP chamber conditioning)

1. Click on “PID temperature controller” in menu bar (top left) to have access to PID interface (see figure IX).

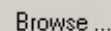


The PID tables are divided in 9 zones subdivided in 3 parts (1-3, 4-6 and 7-8).

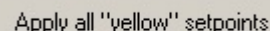


The left columns of the tables are empty when you open the interface. The right columns of the tables contain the parameters of the previous run and are inside the memory of the tool (see figure X).

2. To transfer the PID parameters from the RTP PC to the RTP automate, select with the “browse” function, the PID table “Your_PIDs” linked to the recipe “Your_Recipe” from the PID library in the QualiflowTherm/users_lab/Your_lab and press “open”. The left column is filled with PID parameters on a yellow background (see figure XI).



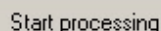
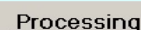
3. Press “Apply all “yellow” setpoints” to transfer these numbers in the right column (tool memory) with black background.



4. Check that the 2 columns have the same values for each Temperature zone, if it’s not the case, select the number in the left column and press “return” (see figure XII).

5. Close the window with “Exit”

6. To download the recipe “Your_Recipe”, press on “Processing” and go to your directory from the menu “Recipe to download and press “yes”. Once the recipe is selected, press on “download”. Wait for the message “Download was successful” and then press “Ok”.



7. To start the recipe, press a first time “start processing”

8. Load the wafer on the quartz,
 - a. If the temperature control is done by the thermocouple, check that the TC is in contact with the wafer and close the chamber.
 - b. If the temperature control is done by the pyrometer, remove the TC from the chamber and close the chamber (see paragraph “TC removal”)

NB: A temperature higher than 800°C under vacuum and higher than 1000°C at atmospheric pressure destroy the TC if the TC is in contact with the sample!!!!

9. Press a second time “start processing”

10. Once the run is done, save the process data in the directory C:/.../Users_lab/Your_lab/Historique and wait for the cooling down procedure (around 6 min)

11. Once the cooling down procedure is done, the chamber is unlocked and you can open the chamber, take your sample and load a new one.

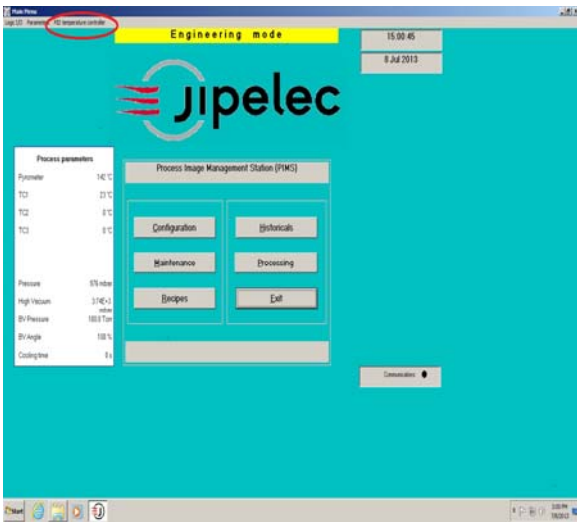


Figure IX
Process Image Management Software (PIMS) view

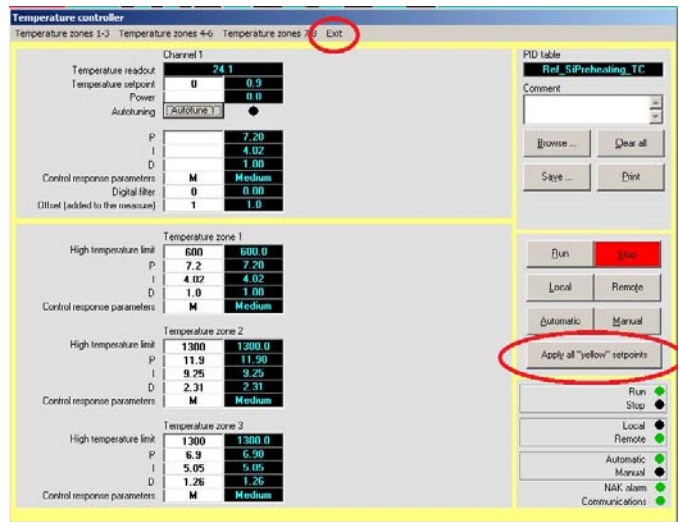


Figure XII
PID interface after downloading and of the PID parameters in the left column

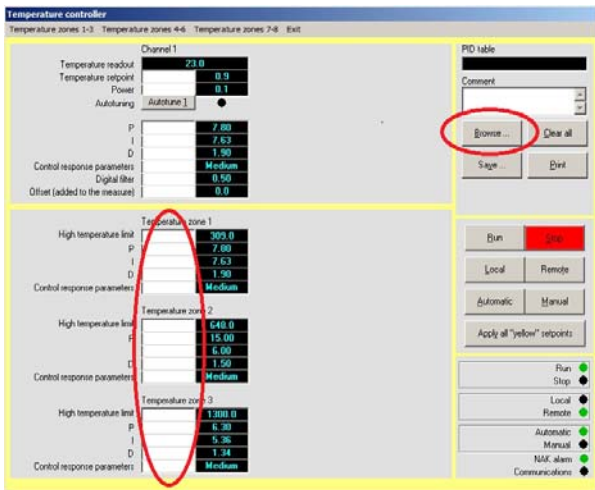


Figure X
PID interface used for the transfer of the PID parameters of the 9 temperature zones to the RTP automate

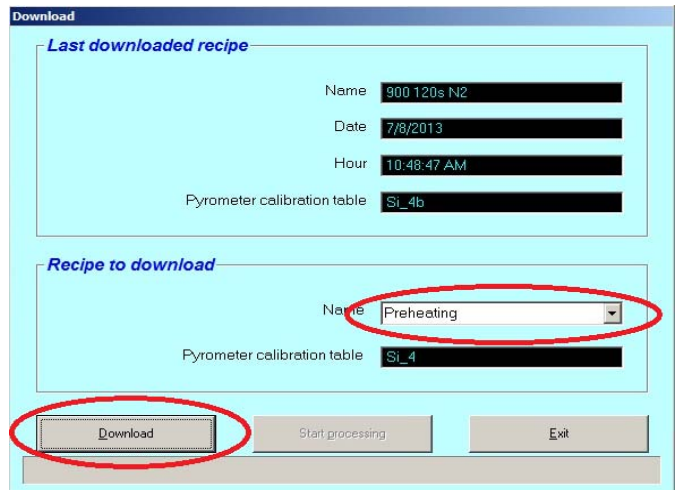


Figure XIII
Interface for the recipe selection and downloading

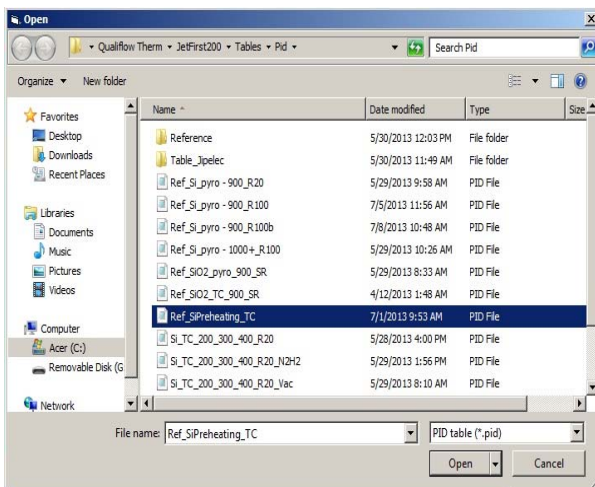


Figure XI
PID file linked to the Preheating recipe in the PID directory

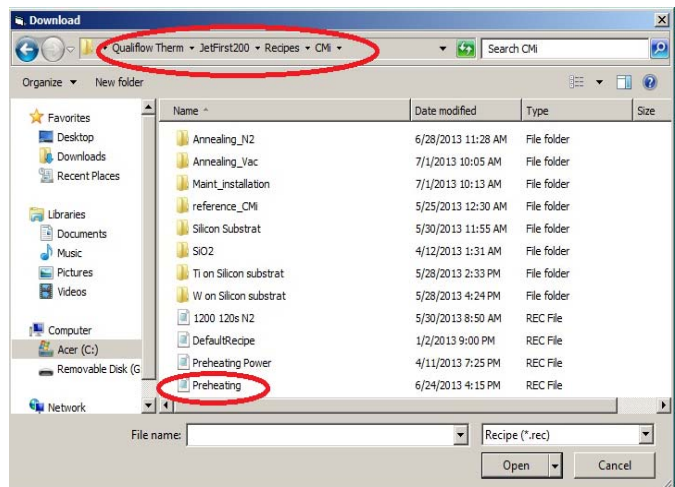


Figure XIV
CMi's RTP Recipe directory