

EPFL - CMi

SPIDER 600

WARNING

Only the **CMi Staff** is qualified to do a **service** or to do **maintenance**

If the target configuration doesn't fit with the one given on the user interface, please contact the staff.

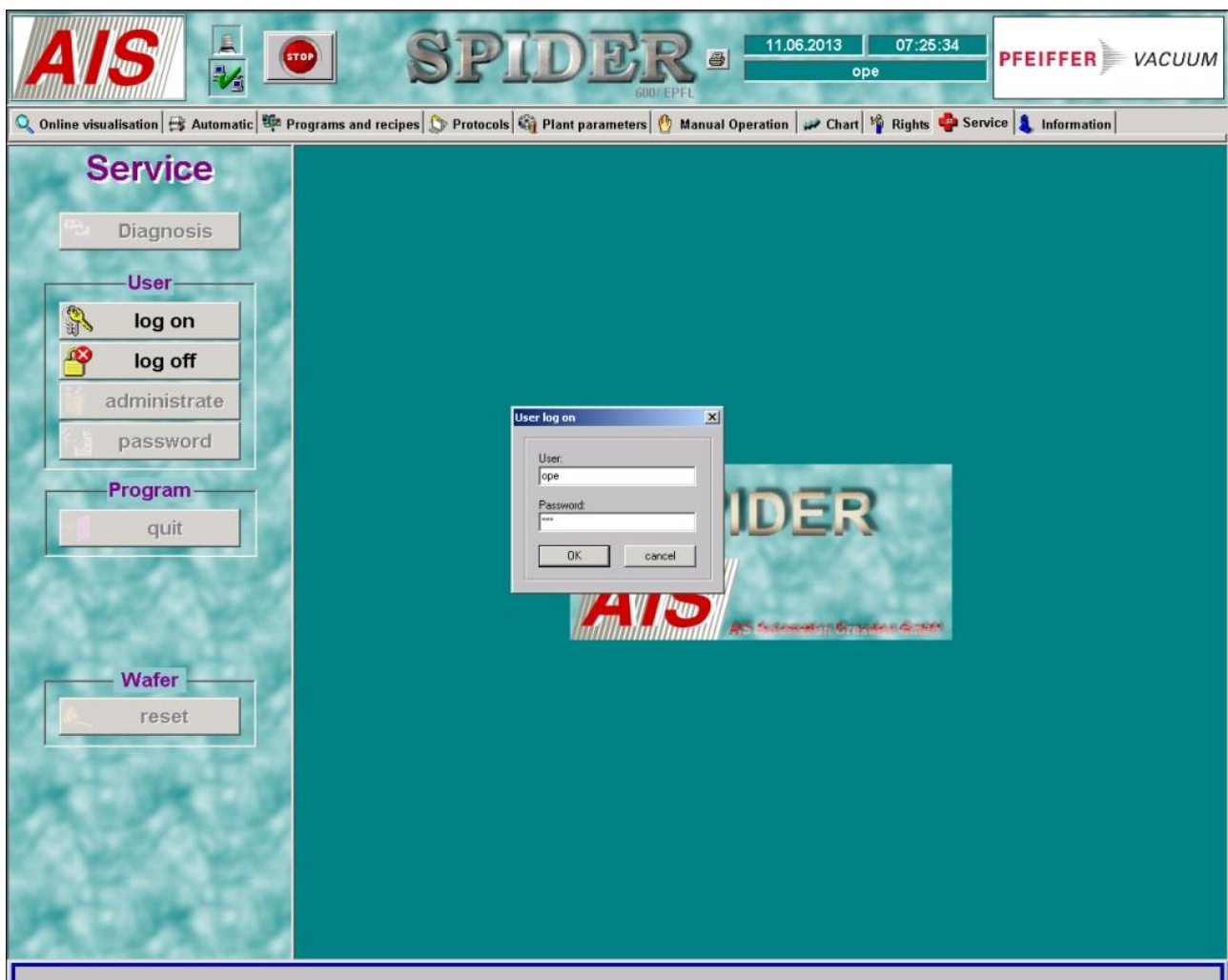
User manual

1. Login

1.1. Logon on the ACCESS CONTROL SYSTEM on the zone computer to unlock the Automatic function of the SPIDER 600

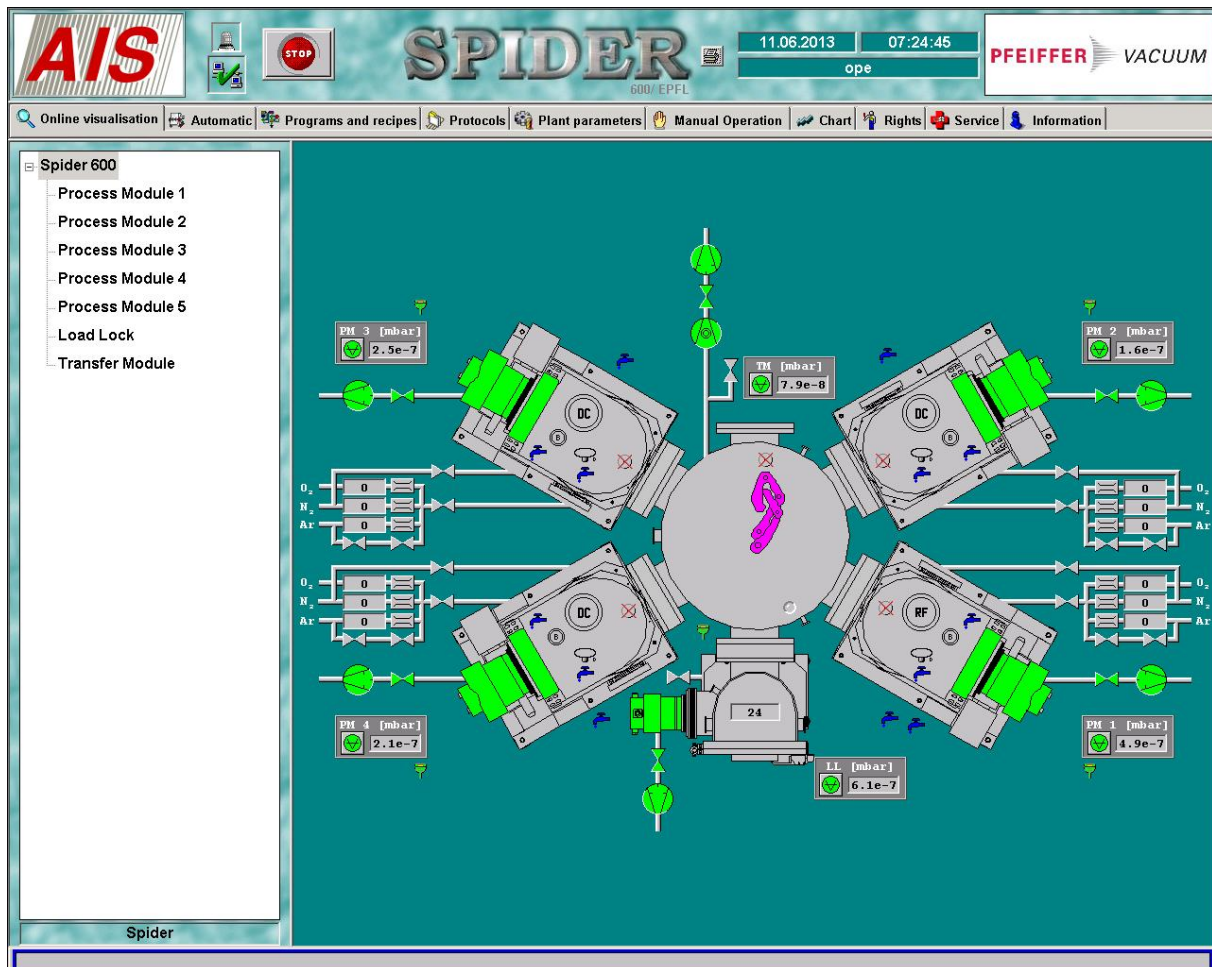
1.2. Tab "Service" : Logon on the SPIDER 600

- Click on "log on" and then enter "User" and "Password"



1.3. Tab "Online visualisation"

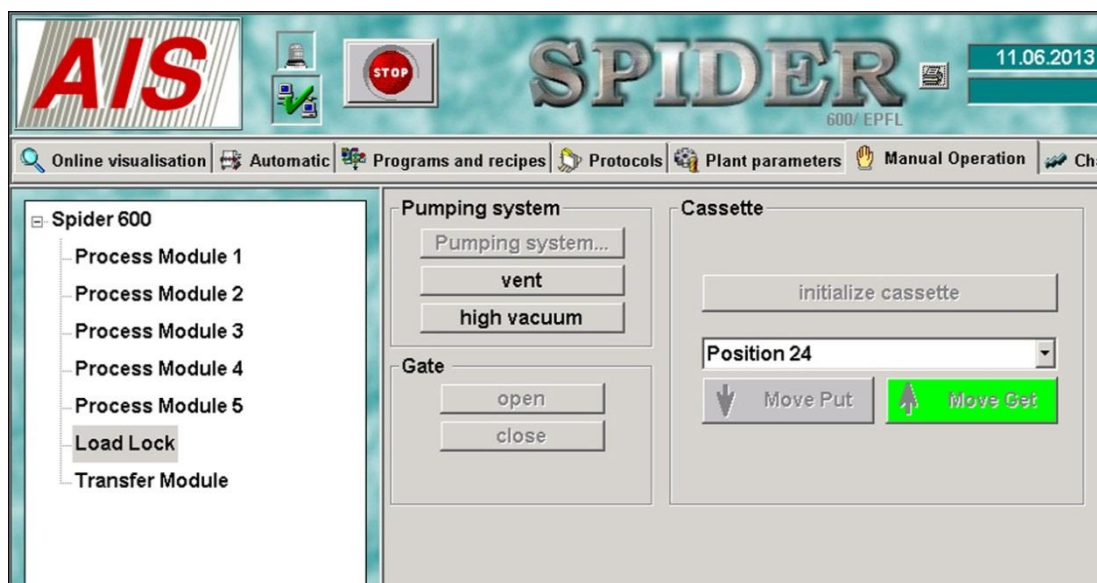
- Click on "Spider 600"
- Idle Status : Chambers = grey ; Pumps & valves = green ; Robot arm = magenta



2. Loading

2.1. Tab "Manual Operation"

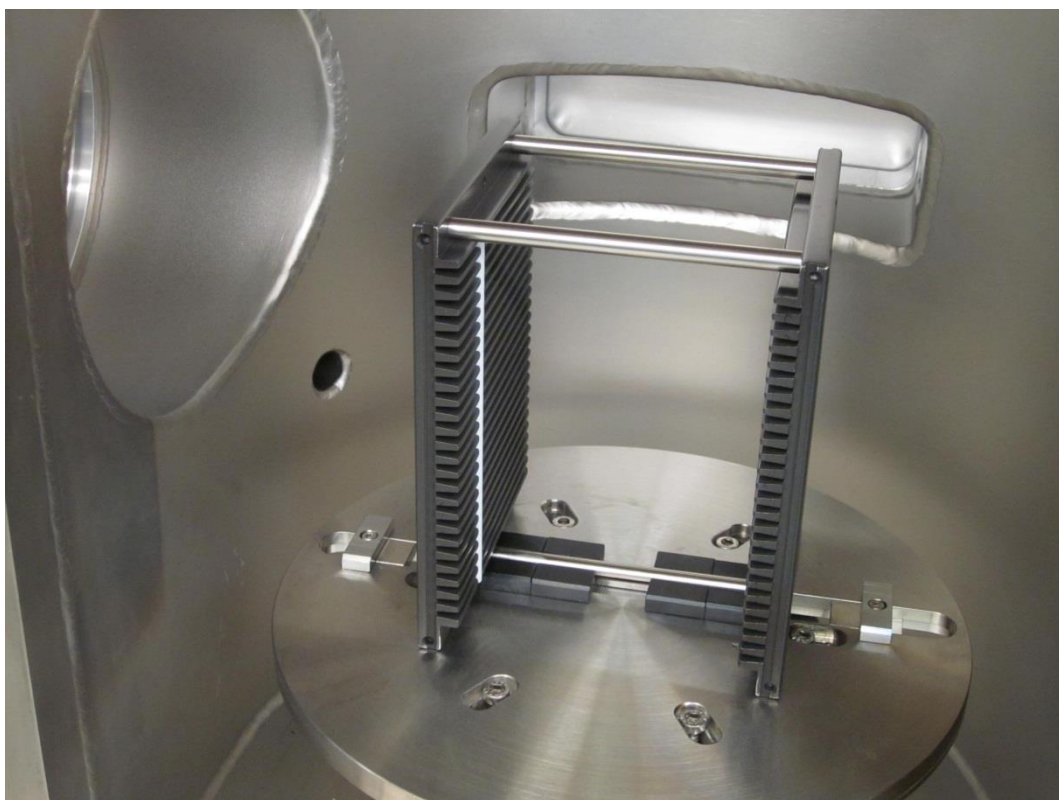
- Click on "Load Lock" and "vent"



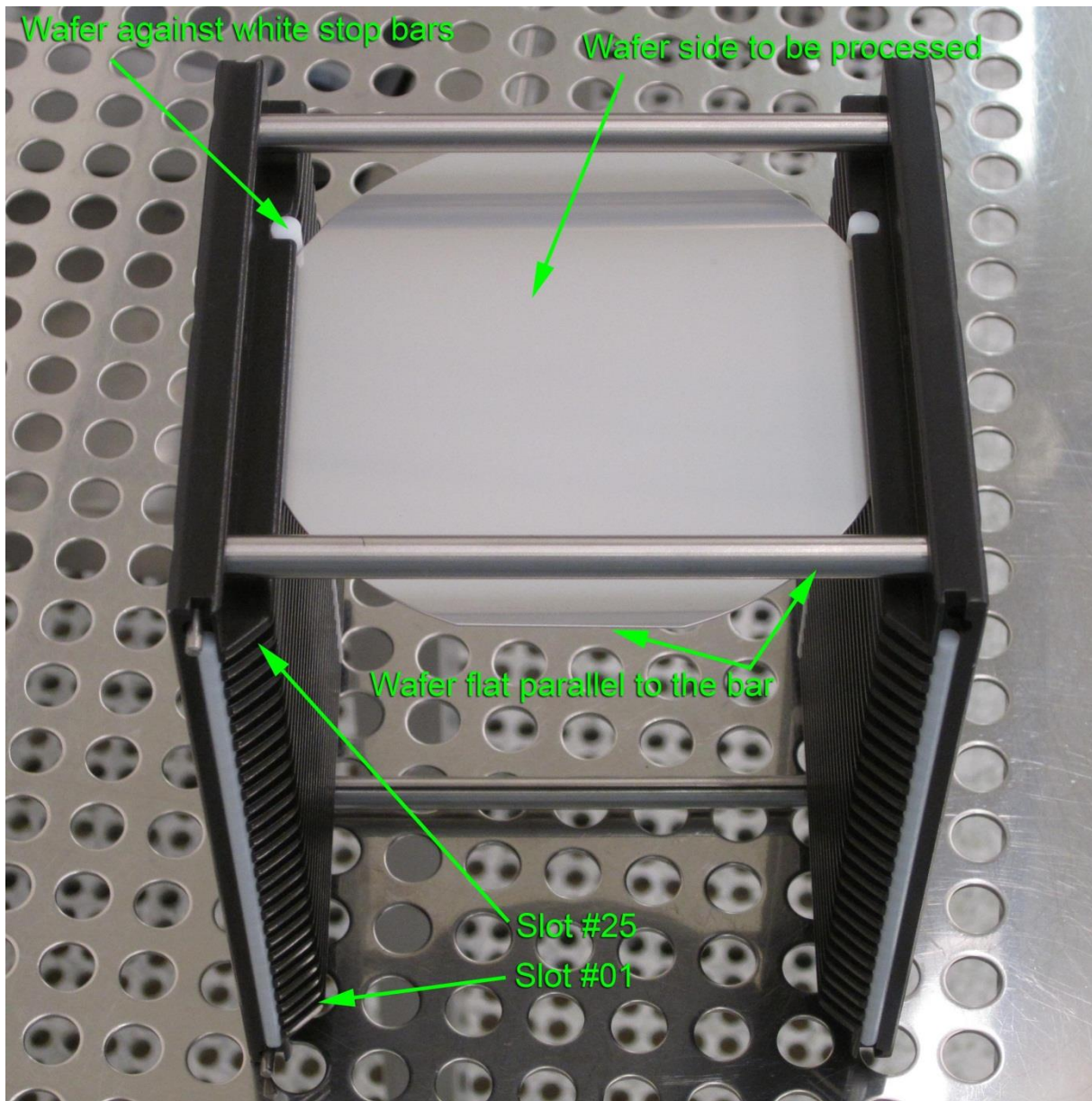
2.2. Open the load lock



2.3. Remove the cassette from the load lock



2.4. Put the cassette on the table and load wafers



2.4.1. Cassette :

- 2 bars on top , 1 bar on bottom
- Slot #25 : Upper slot (first wafer which will be processed)
- Slot #01 : Lower slot (last wafer which will be processed)
- **DO NOT USE SLOTS #5 to #1**

2.4.2. Wafer :

- Against white stop bars
- Flat parallel to the bar
- Side to be processed : UP

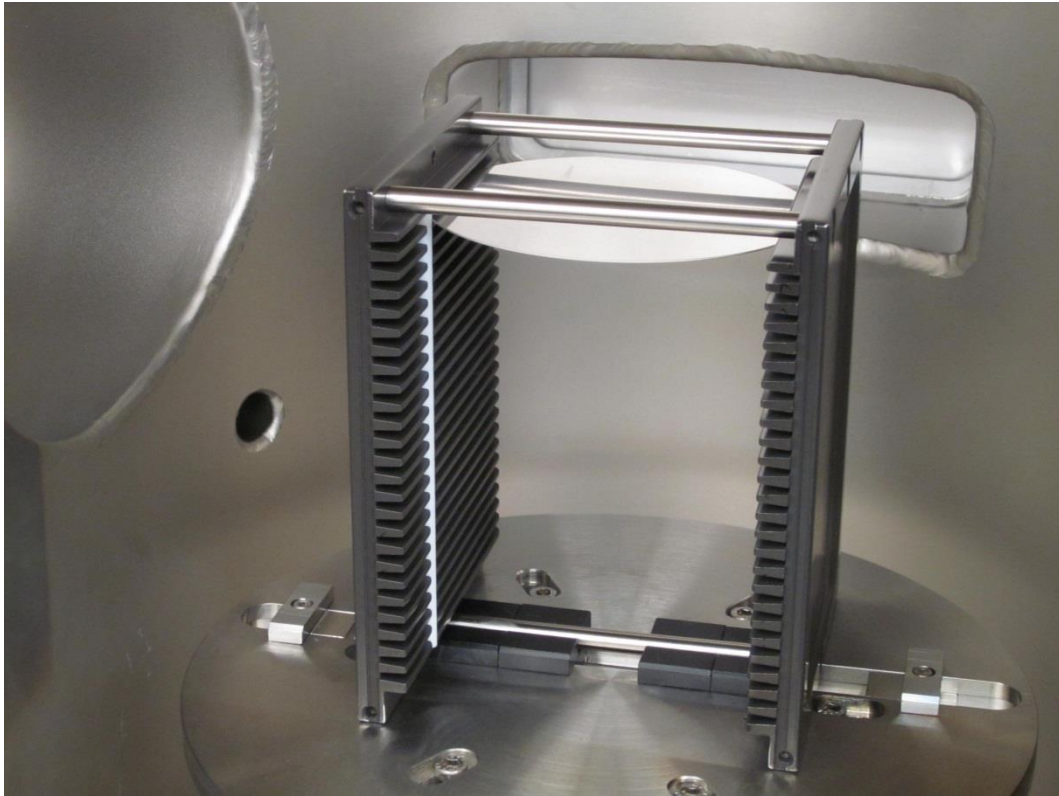
2.4.3. Stack of 2 wafers

- **ATTENTION:** Load one slot over two: Slots #25, #23, #21, etc...

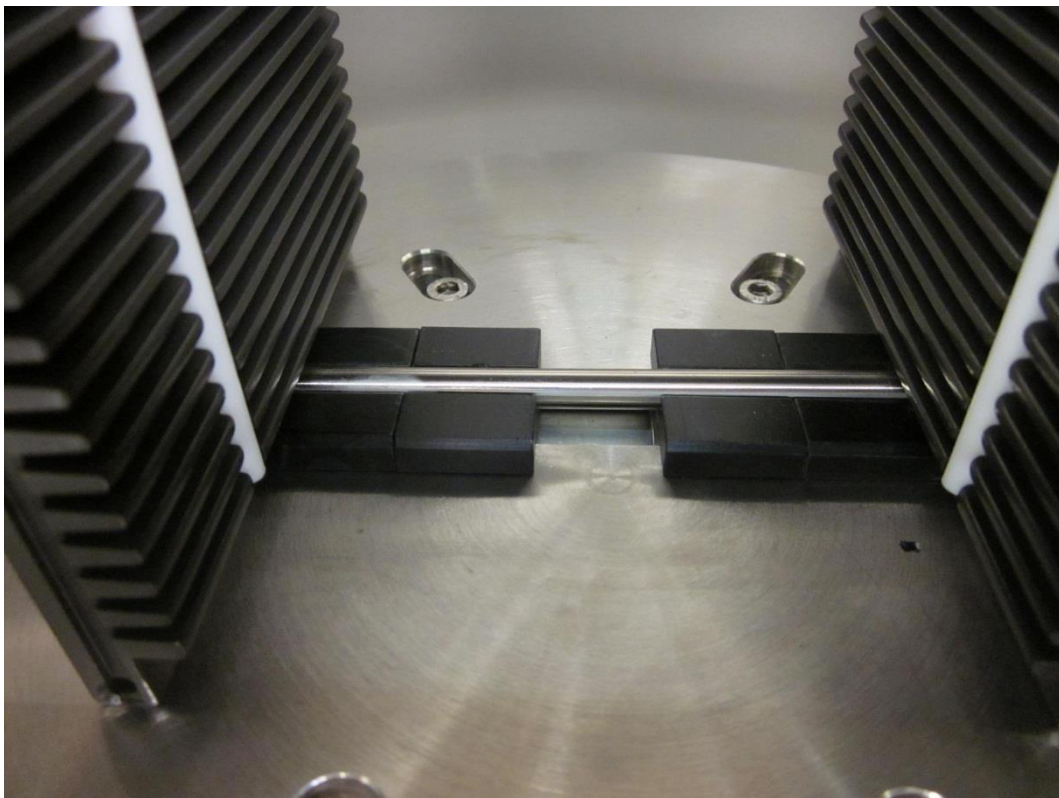
2.4.4. Cleaning of the targets

- Load dummy wafers in the first slot positions for the target cleaning.

2.5. Put the cassette in the load lock and close the door



- Make sure that the white stop bars are on the load lock door side.



- Make sure that the lower bar is properly placed between black stoppers.

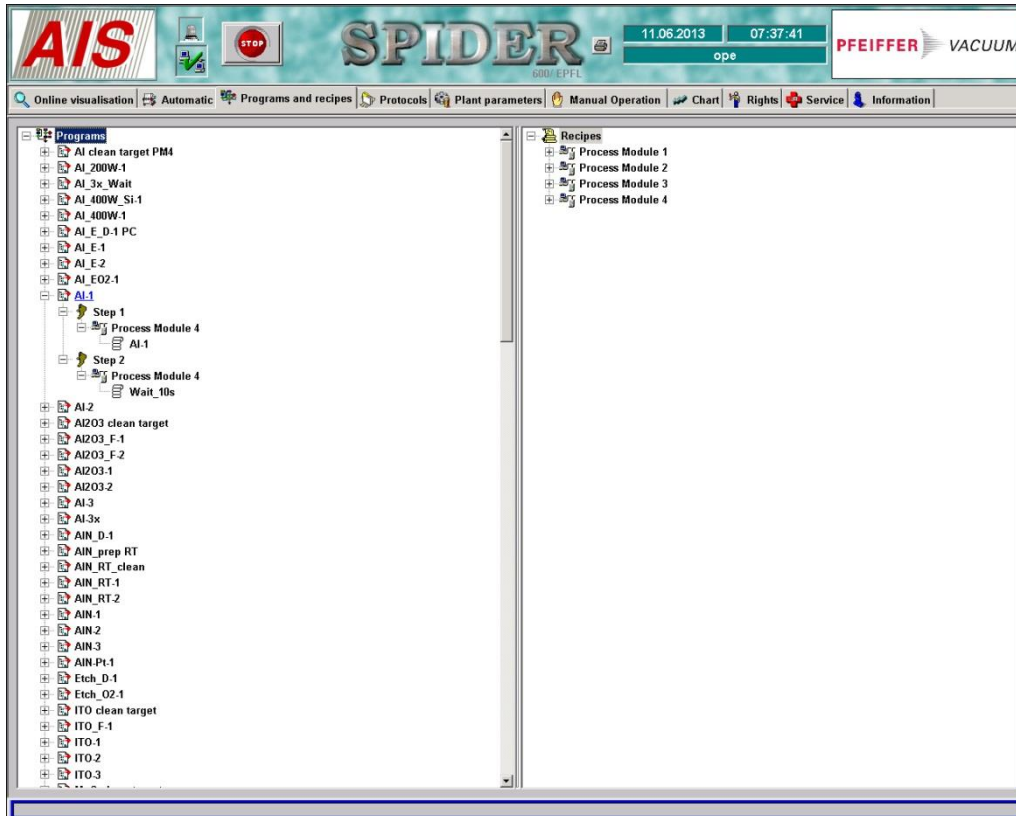
2.6. Tab "Manual Operation"

- Click on "Load Lock" and "high vacuum"

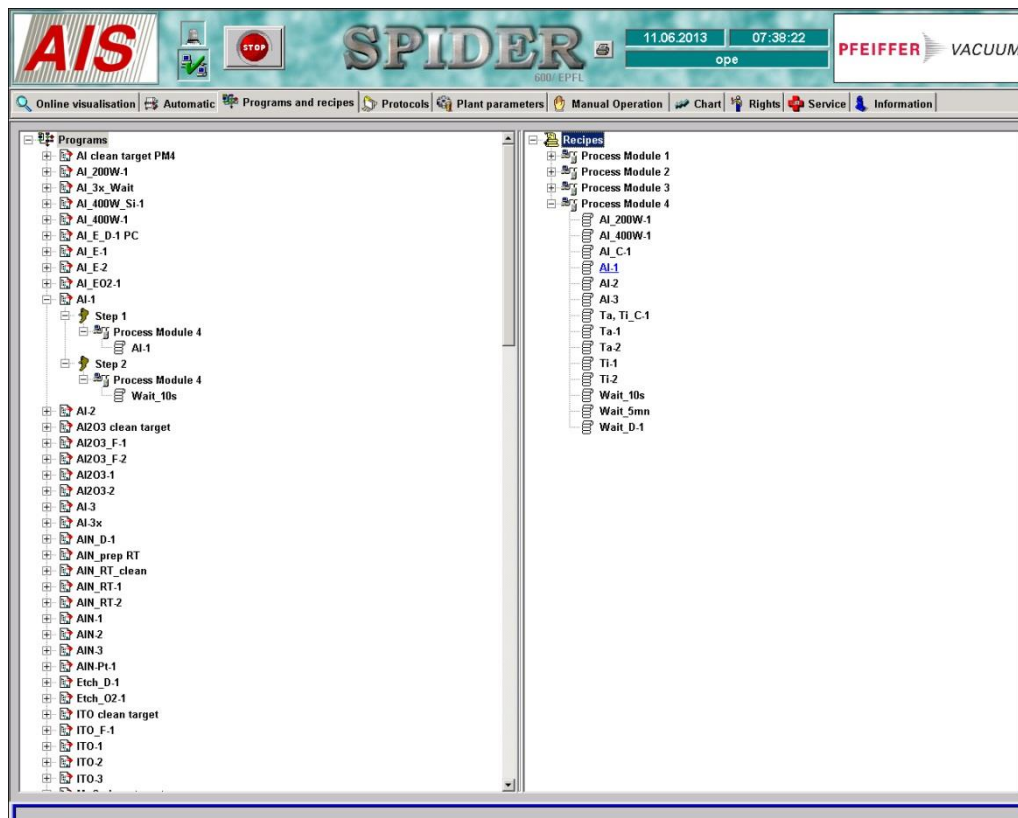
3. Recipe Selection and Start Production

3.1. Tab "Programs and recipes"

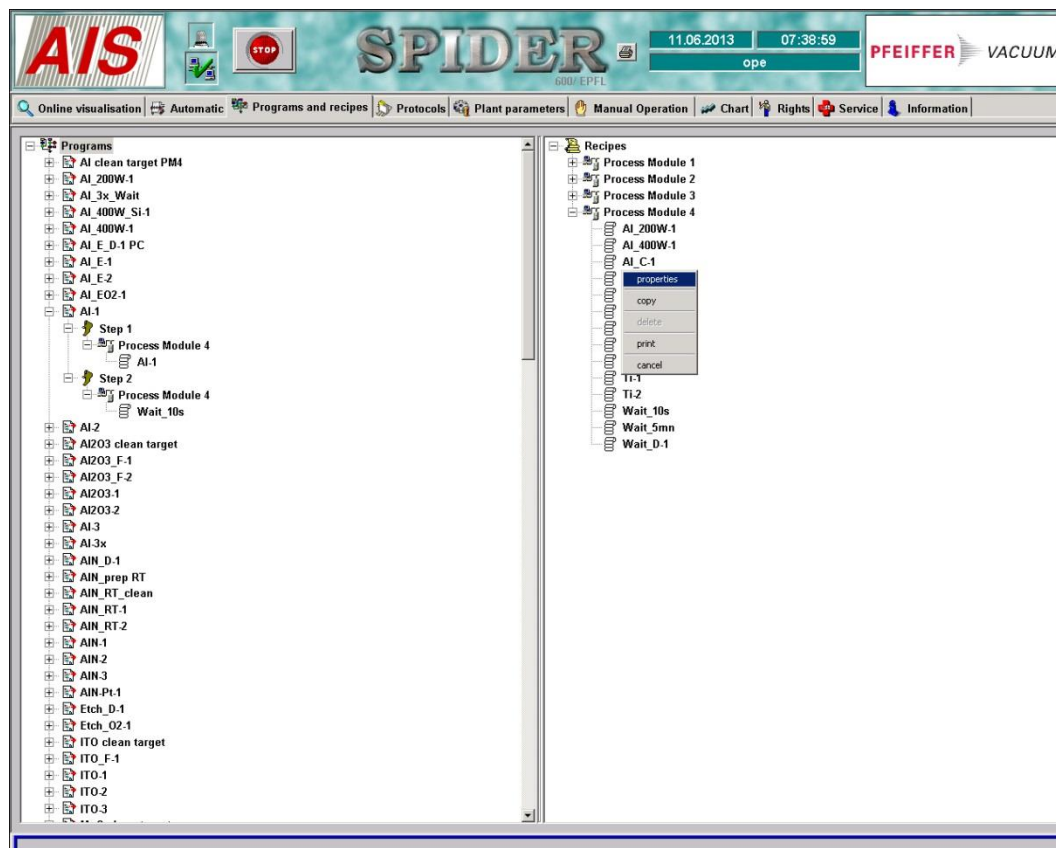
- Open the selected program with ☐ and check the steps (Process Module number, recipe)



- Open a Process Module folder with ☐ and



- Open a recipe (right click) and select properties



- Modify parameters (for example : Process time)

The screenshot displays the SPIDER 600 EPFL control interface. At the top, there is a header bar with the AIS logo, a STOP button, the SPIDER 600 EPFL title, a date/time display (11.06.2013 07:39:48), and the PFEIFFER VACUUM logo. Below the header is a navigation menu with options: Online visualisation, Automatic, Programs and recipes, Protocols, Plant parameters, Manual Operation, Chart, Rights, Service, and Information.

The main interface is divided into several sections:

- Process:** Includes fields for Recipe name (AI-1), Process finishing mode (Time), Process time [min:s] (00:30), and Table position (up).
- Pumping times in TM:** Includes a field for before process [min:s] (00:00).
- Vacuum:** Includes fields for Vacuum mode (high vacuum), Throttle mode (center), and Start pressure [mbar] (1.0e3).
- Heating:** Includes a Setpoint curve (Edit 300), Tolerance [%] (10), Tolerance time [s] (10), Amplification (8000), Integration time [s] (50.000), Derivative time [s] (200.000), Additional time constant [s] (0.000), Dead band [s] (0.000), Clock [s] (0.10), and Tol. delay [min:s] (01:00).
- Bias:** Includes a Control mode (Bias), Setpoint [V] (50), Limit forward power [W] (100), Ramp time [s] (10), Tolerance [%] (20), and Tolerance time [s] (10).
- DC source:** Includes a Source (DC - Maris), Control mode (Power), Setpoint [W] (2000), Setpoint source rotation [%] (100), Ramp time [s] (5), Tolerance [%] (10), and Tolerance time [s] (10).
- Gas:** Includes a table for gas parameters:

	Setpoint [sccm]	Tolerance [%]	Tolerance time [s]
O2	0	10	10
N2	0	10	10
Ar	15	10	10

 Below the table is a field for Stabilization time [min:s] (00:20).

At the bottom right, there are buttons for print, save, and cancel.

3.2. High temperature deposition

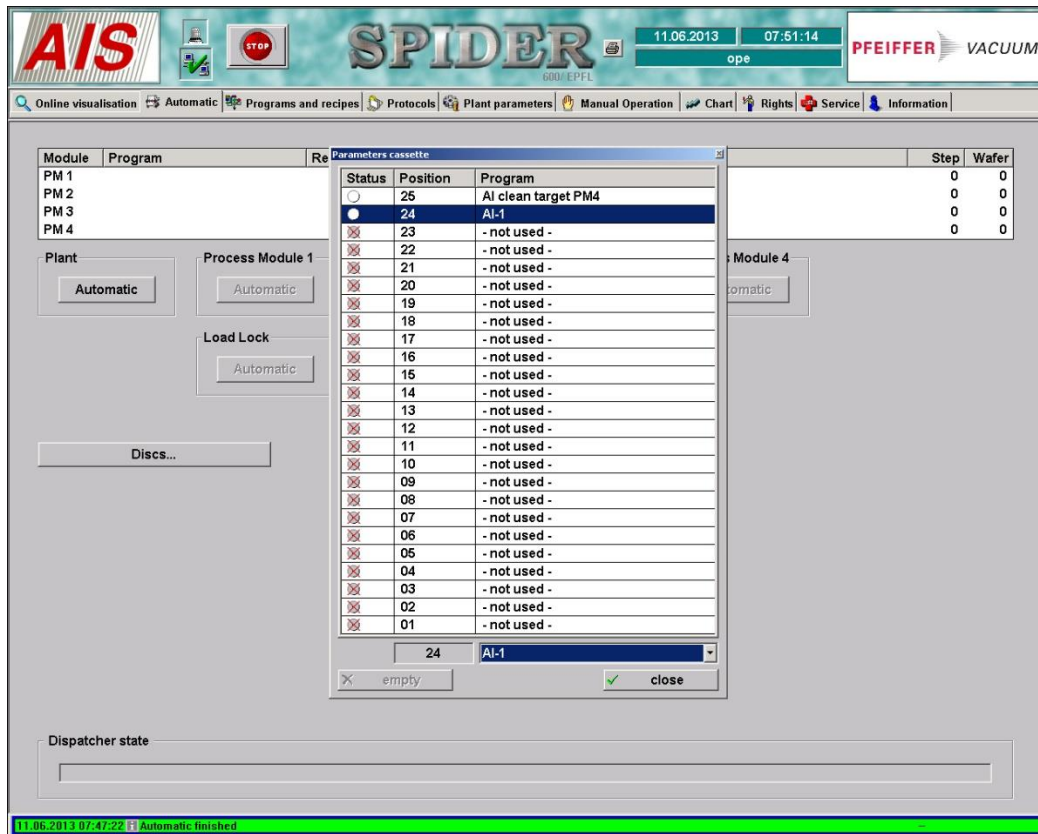
3.2.1. Check each recipe of each step to make sure that it's the same temperature

3.2.2. The ramp up procedure is included in the first recipe (for example : Therm-90mn-4) of the target cleaning program (for example: AI_T clean target PM4).

- Select "Heating" / "Setpoint curve" = "Ramp ..." (for example: "Ramp 300" for a ramp up from room T° to 300°C).
- **Before processing any live wafer at high temperature, a target cleaning on a dummy wafer is mandatory because temperature ramp up and stabilization are done in this program!**

3.3. Tab "Automatic"

- Click on "Discs"
- Select a program for **each** wafer in the cassette

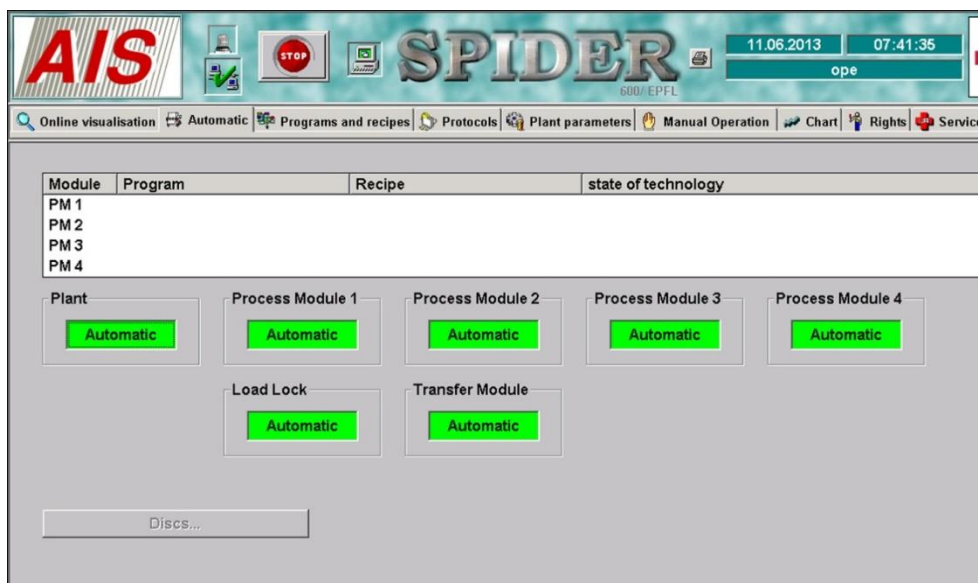


3.3.2. Status color:

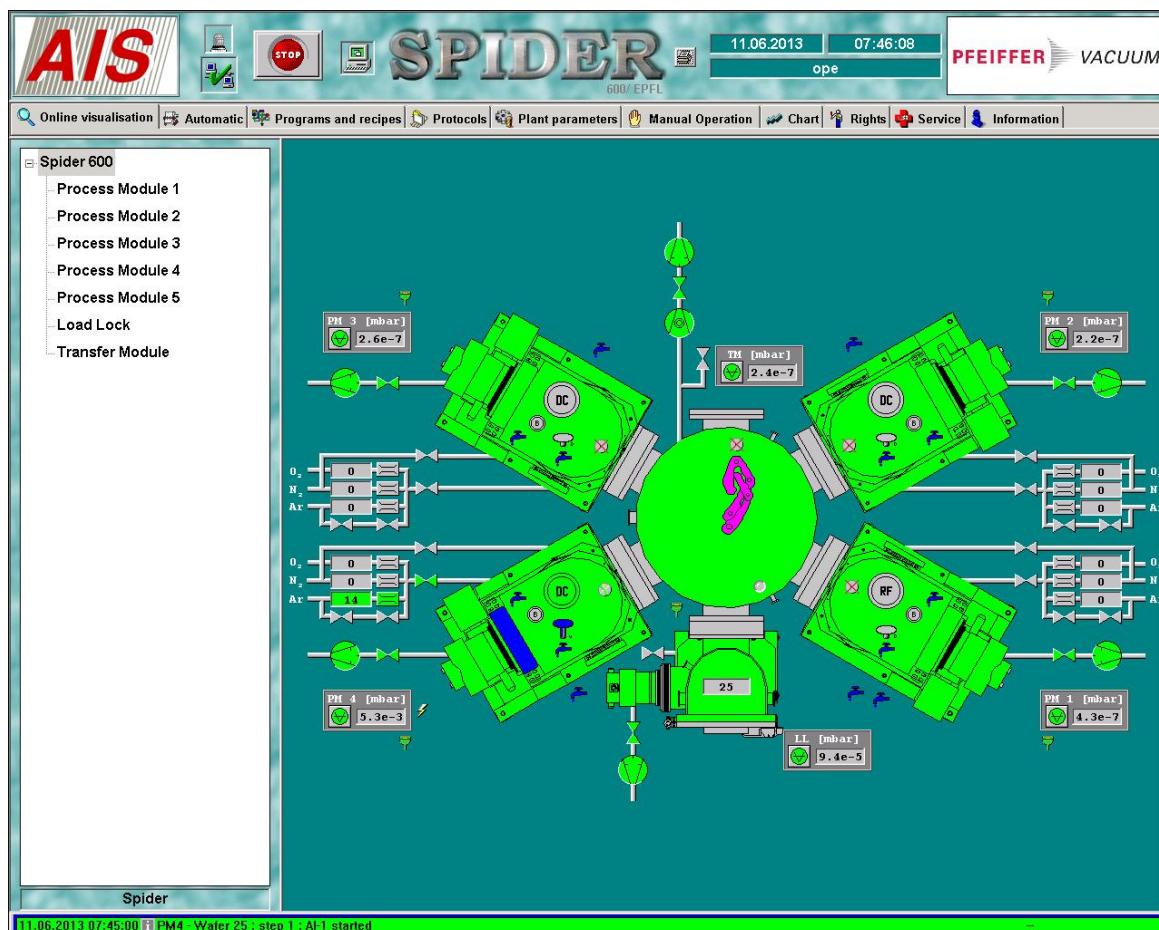
- White = Not processed
- Iridescent = Not processed, selected for the next production
- Yellow = In production
- Green = Processed

3.4. Start production for all wafers

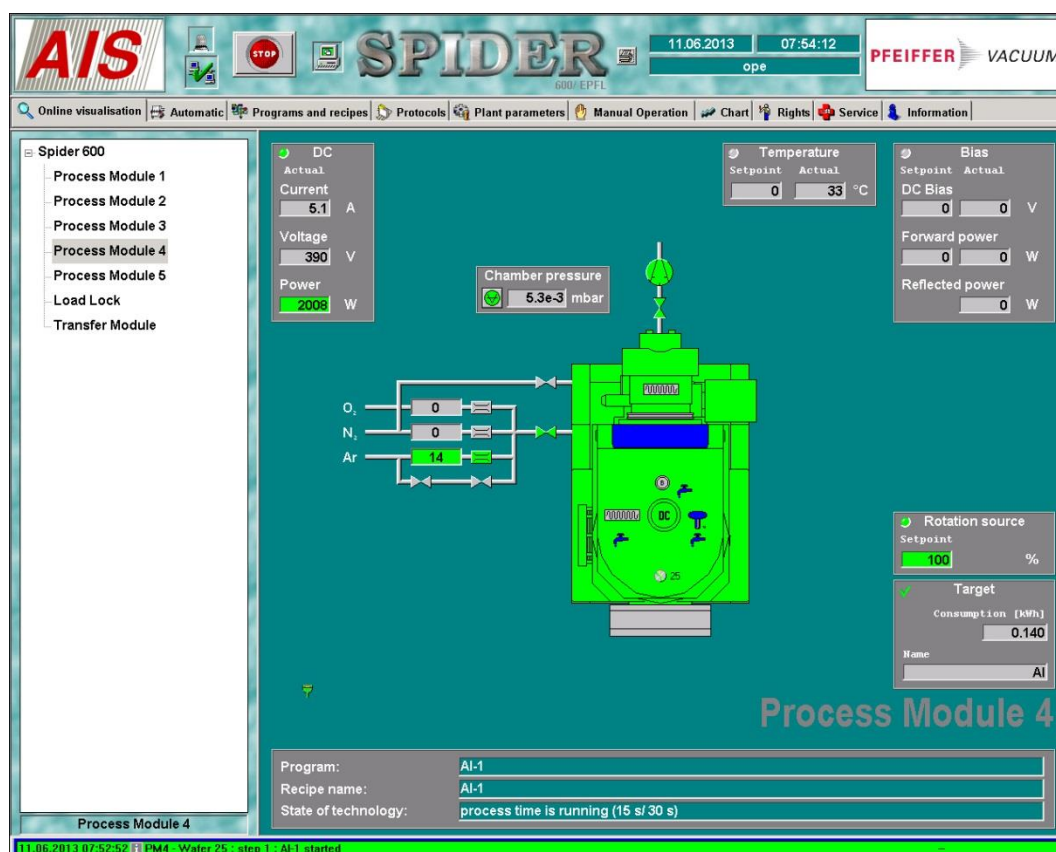
- For "Plant", click on: "Automatic"



- If the button "Automatic" is dimmed, it means that you aren't logged on the ACCESS CONTROL SYSTEM on the zone computer

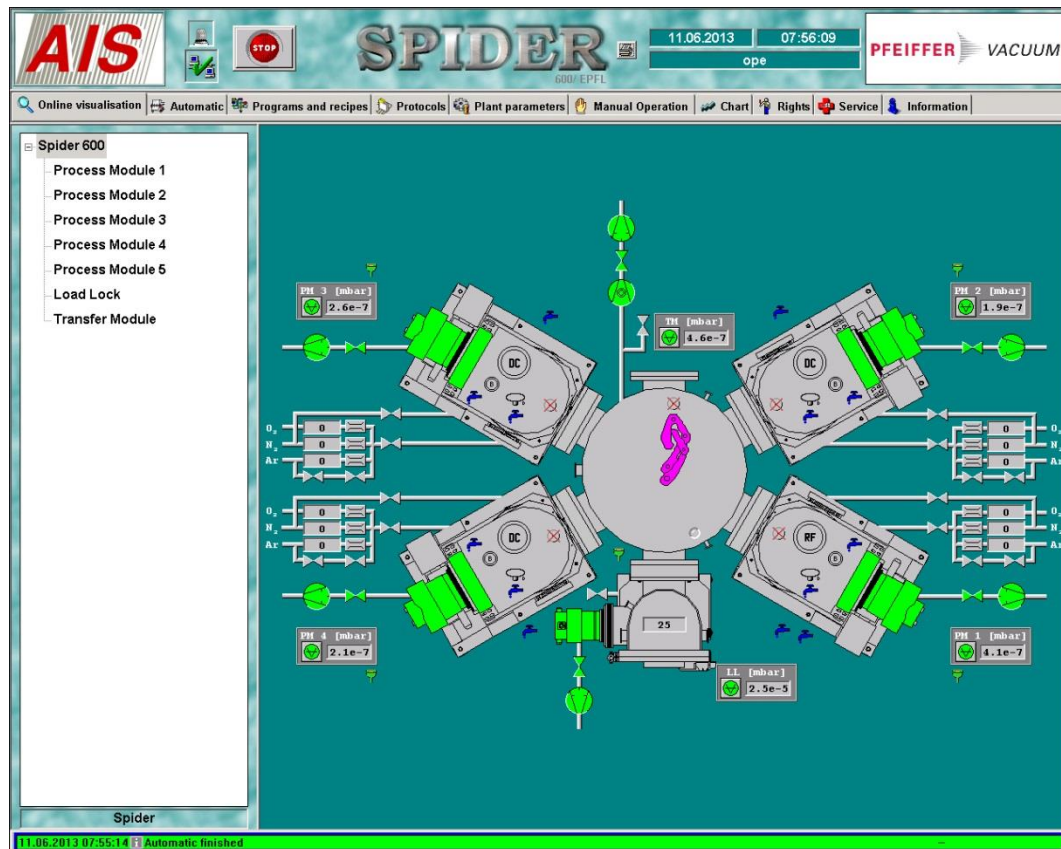


Online visualization / Spider 600 "In production"



Online visualization / Process Module 4 "In production"**3.5. End of process**

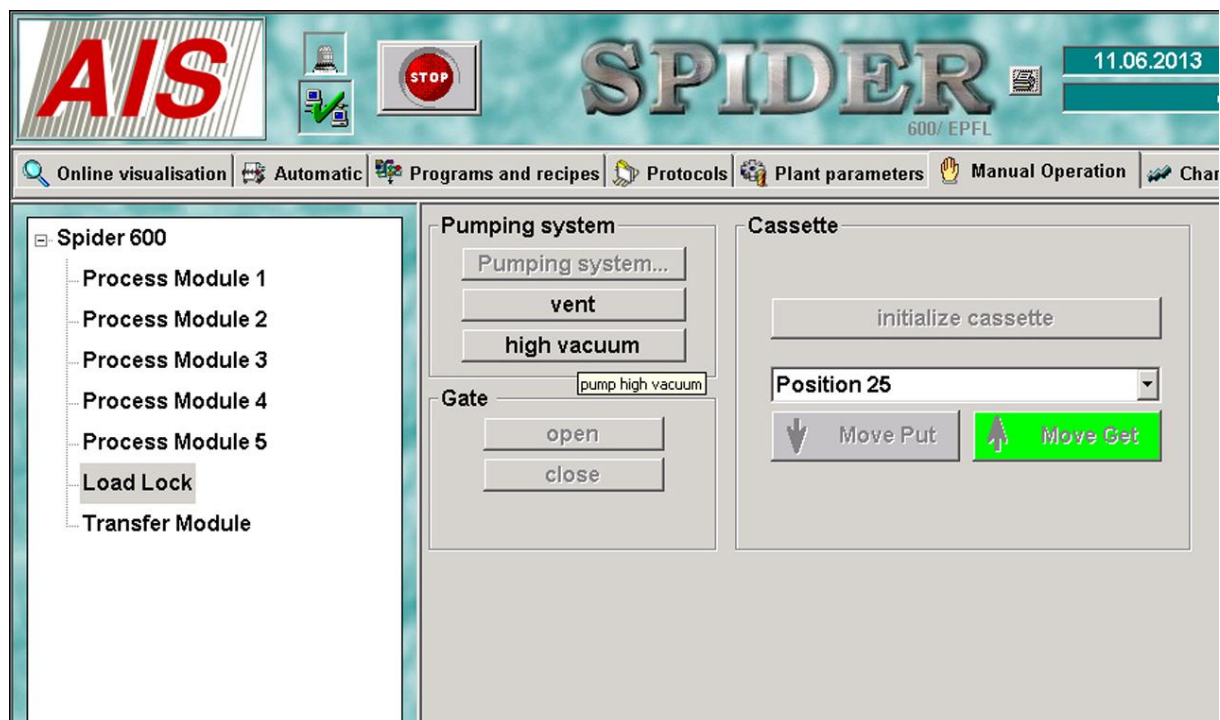
- Idle Status : Chambers = grey ; Pumps & valves = green ; Robot arm = magenta

**4. Unloading****4.1. Tab "Manual Operation"**

- Click on **"Load Lock"** and **"vent"**

4.2. Open the load lock**4.3. Remove the cassette from the load lock****4.4. Get back your substrate from the cassette****4.5. Replace the cassette in the load lock****4.6. Close the door of the load lock****4.7. Tab "Manual Operation"**

- Click on **"Load Lock"** and **"high vacuum"**



5. Logout

5.1. Tab "Service" : Logout from the SPIDER 600

- Click on "log off"

5.2. Logout from the ACCESS CONTROL SYSTEM.