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# ISTITUTO NAZIONALE DI FISICA NUCLEARE

## Sezione di Perugia

### *Operative Instruction Climatic chamber CH500C 15 ESS*

<b>Introduction</b>	Operative instruction for the Climatic chamber CH500C 15ESS
<b>Description</b>	Aim of this document is to give all the needed instruction to switch on, utilize and switch off the ESS climate chamber.
<b>Rule</b>	<u>This document contains rules that have to be kept inside the SERMS laboratory.</u>

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## 1 AIM

Aim of this document is to give all the needed instruction to switch on, utilize and switch off the ESS climate chamber.

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## 2 ESS CHAMBER



**Figura 1 – View of the ESS chamber.**

### **Technical Data**

<b>Model</b>	HVT 2000 – MC
<b>Volume</b>	441 lt
<b>Temperature of the cooling water</b>	Max +15°C
<b>Temperature range</b>	-70°C / +180°C
<b>Umidity range (with temperature from +5 to 95°C)</b>	10% /98%
<b>Maximum temperature gradient</b>	15°C/min
<b>Voltage</b>	400 V 50 Hz 3+N+T
<b>Power</b>	36 kW

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### 3 SWITCH ON THE CHAMBER

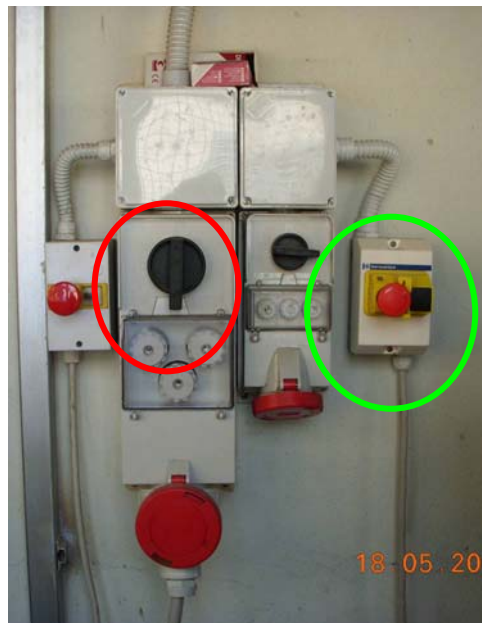
The thermal chamber is in stand-by conditions.



*Read carefully the following instruction before to start to use the chamber.*




*In case of problem please call one of the following people:*  
**Gianluca Scolieri 3288413010**  
**Serena Borsini 3286864231**  
**Elisa Laudi 3495833451**



**Figure 1 – Switch of the chiller and the pump for the cooling water.**

Before to set the temperature of the chamber, switch on the chiller and the pump for the cooling water (they are outside the lab ):

1. Power the chiller setting the switch in the red circle from 0 to 1.
2. Look at the display of the chiller: It shows the actual temperature of the water inside the tubes. As soon as it is switched on, the chiller starts to heat up the compressor of the cooling system: in these conditions the two fans of the chiller do not rotate and a flashing green led appears on the display.

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3. Once the chiller starts to work (the two fan start to rotate), switch on the pump for the cooling water:




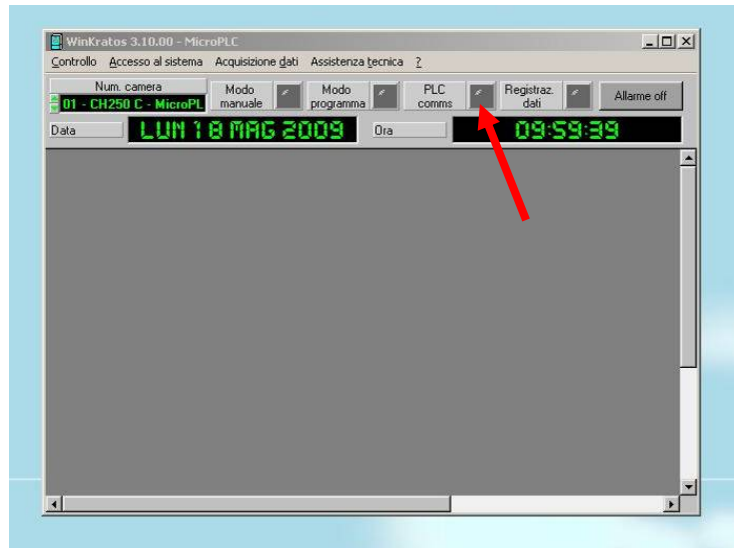
*Before to switch on the pump of the cooling water, check that the two taps on the second floor are open. Figure 2 shows the two taps: in this configuration the two taps are open.*



**Figure 2 – Taps of the cooling system of the chamber.**


- a. Rotate clockwise the red button (mushroom shaped)
  - b. Press the black button: now you should hear the pump that starts to work.
4. Go on the SERMS second floor.
  5. Open the **Winkratos** software in the pc located close to the chamber: if the software is not open you can simply find it on the Desktop.
  6. Once you open the Winkratos software the following window appears and a green light (see the red arrow in Figure 3) start to flash: now the PC is in communication with the chamber.

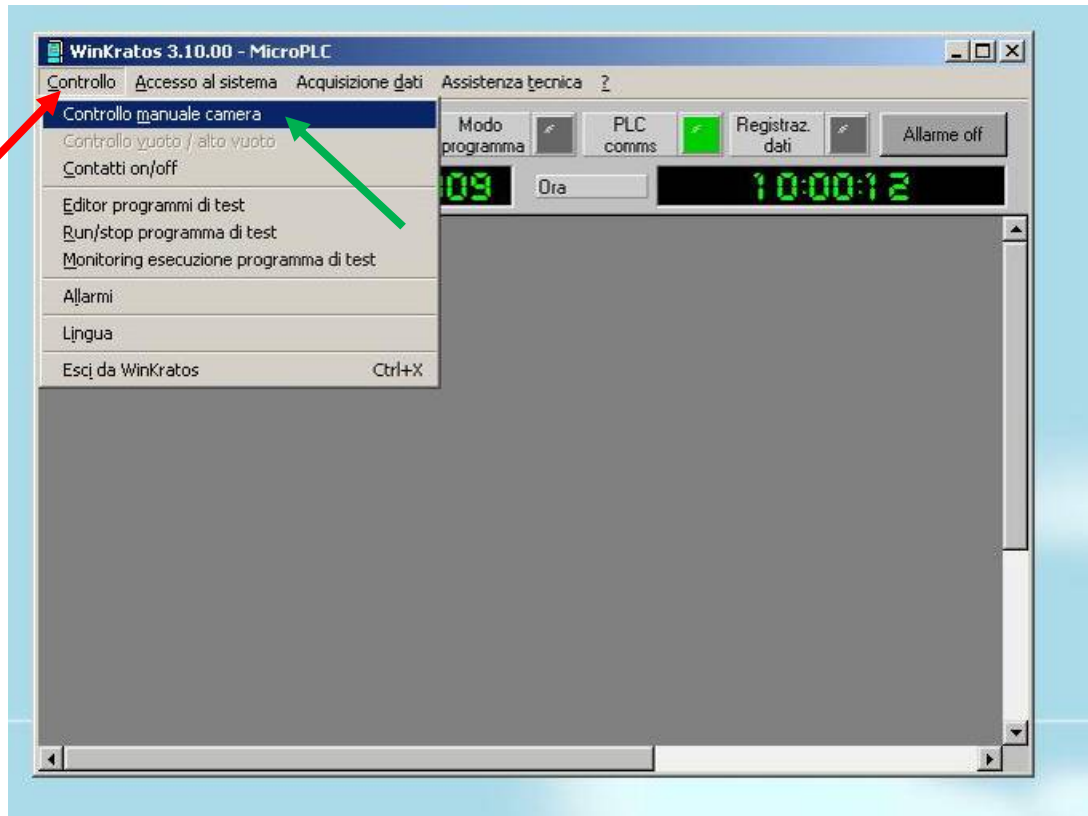
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**Figure 3 – Winkratos starting window.**

7. Open the chamber manual control panel:
  - a. Click on the “**Controllo**” button on the tool bar (see the red arrow in Figure 4);
  - b. Click on “**Controllo Manuale camera**” on the drop-down menu (see the green arrow in Figure 4);
  - c. The window in Figure 5 will open.

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**Figure 4 – Drop-down menu to open the manual control window.**

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**Figure 5 – Manual control window.**

8. Set the temperature set point and temperature gradient:
  - a. Set the temperature value that it is needed to reach writing the value in the **“Nuovo set point finale °C”** row (see the red arrow in Figure 5);



*Only the value written in yellow can be changed and set.*

- b. Set the temperature gradient (see the green arrow in Figure 5); If you set 0.0 the chamber will go to the set temperature with the maximum gradient.




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Figure 6 – Run the chamber instructions.


9. Run the chamber:

- a. Press the **“Run Camera”** button (see the red arrow in Figure 6);
- b. Press the Temperature control button (see the green arrow in Figure 6);
- c. Press the **“Esegui”** button (the two button, “Run camera” and temperature control become yellow);
- d. The chamber now starts to work;

10. To change the temperature or gradient set point, write the requested value and the click the **“Esegui”** button.



*The “Esegui” button must be clicked every time the set point values (both temperature and gradient) need to be changed. The “OK” button must never be clicked while the chamber is working: the manual control window disappears and the chamber keeps the set value.*

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## 4 SWITCH OFF THE CHAMBER

1. Before to switch off the chamber, set the temperature to ambient value (20/25°C):
  - a. Set the temperature of the chamber in the manual control window (see the red arrow in Figure 7);



**Figure 7 – set ambient temperature value.**

- b. Click the “**Esegui**” button.
2. Wait until the chamber reaches the ambient temperature value and keeps it for at least 1 hours.
3. Leave the chamber in stand-by condition:
  - a. Click on “**Run camera**” button;
  - b. Click on temperature control button (see the green arrow in Figure 7);
  - c. Click on “**Esegui**” button;
4. Switch off the pump for the cooling water and the chiller:
  - a. Push the red button (mushroom shaped) shown in Figure 1 in the green circle;
  - b. Rotate from 0 to 1 position the switch on the chiller shown in Figure 1 in the red circle.

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