

# Fitoclima Walk-In Bio EHHF

*High Performance Plant Growth chambers*



## Aralab

ARALAB is a company specialized in designing, developing, manufacturing and servicing of high quality Climatic Chambers.

For more than 25 years we have been perfecting ways to create and control temperature, humidity, light and many other environmental conditions.

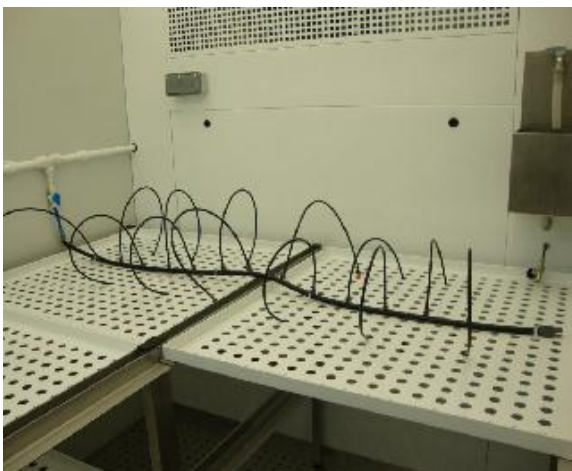
Only the highest quality components are used to manufacture our chambers so customers can have the best equipment for their research and testing purposes.

Aralab chambers. Your own climate.



### Key Features:

- Wide performance range, enabling greater control of climatic conditions
- Possibility to program 32 different night / day cycles with different dawn / dusk segments each
- Flexible lighting options for a uniform intensity and optimal plant growth
- Flexible shelving options
- Optimal internal thermodynamics to ensure uniformity of climatic conditions
- Nonpolluting construction and cooling
- Equipped with advanced ClimaPlus V controller



Automatic irrigation system



HF Fluorescent Tubes, Metal allied and Halogen bulbs

## Technical Specifications

<i>Technical Specs FITOCLIMA 5.000 EHHF</i>	
<b>Temperature Range</b> <sup>(1)</sup>	
<b>Lights ON</b>	+5°C to +45°C
<b>Lights OFF</b>	0°C to +45°C
<b>Precision</b>	± 0,5 °C
<b>Fluctuation</b>	± 0,5 °C
<b>Uniformity</b>	± 1,0 °C
<b>Humidity Range</b>	
<b>Lights ON</b>	40% to 80% RH
<b>Lights OFF</b>	40% to 90% RH
<b>Precision</b>	± 1 % RH
<b>Fluctuation</b>	± 2 % RH
<b>Uniformity</b>	± 2 % RH
<b>Shelves / Growth area</b>	2,5 m <sup>2</sup> – one single layer
<b>Lights</b> <sup>(2)</sup>	Top of the chamber with fluorescent and halogen* Up to 1.200 µE - m <sup>2</sup> s 20 cm from ceiling
<b>Test space volume</b>	5.000 liters
<b>Electrical Supply</b>	3/N/PE AC 400V ± 10%; 50Hz; 24 Amp

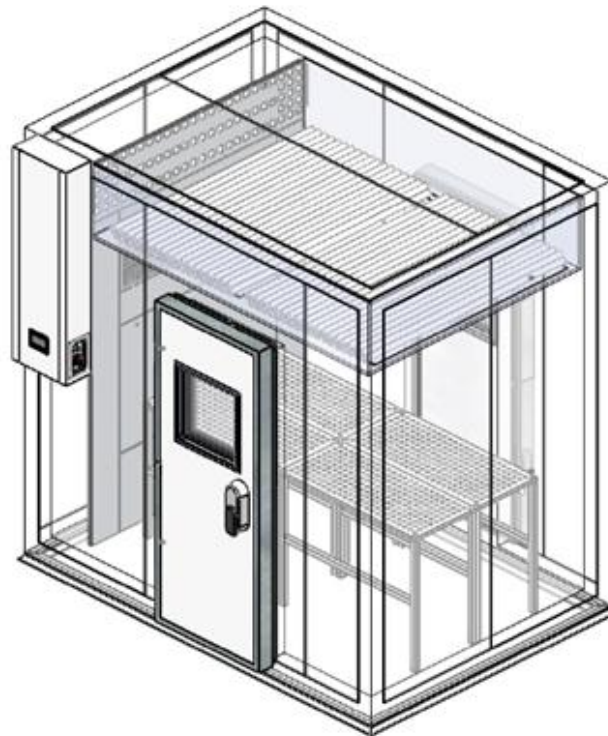
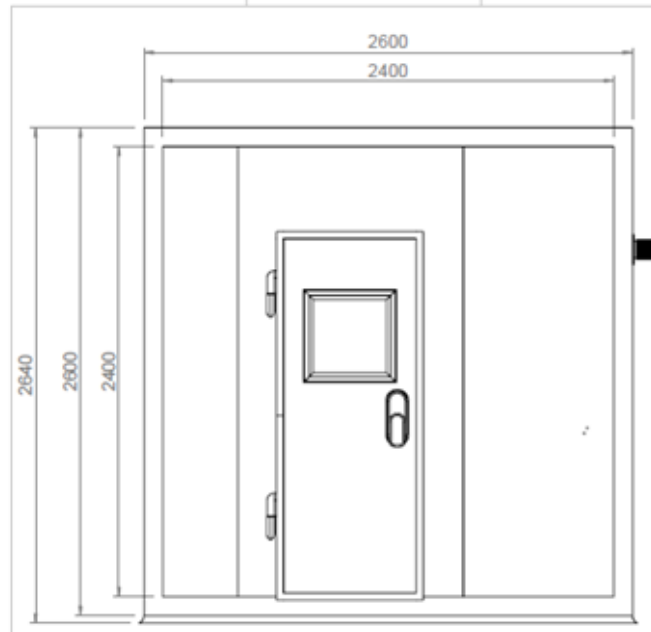
<i>Technical Specs FITOCLIMA 10.000 EHHF</i>	
<b>Temperature Range</b> <sup>(1)</sup>	
<b>Lights ON</b>	+5°C to +45°C
<b>Lights OFF</b>	0°C to +45°C
<b>Precision</b>	± 0,5 °C
<b>Fluctuation</b>	± 0,5 °C
<b>Uniformity</b>	± 1,0 °C
<b>Humidity Range</b>	
<b>Lights ON</b>	40% to 80% RH
<b>Lights OFF</b>	40% to 90% RH
<b>Precision</b>	± 1 % RH
<b>Fluctuation</b>	± 2 % RH
<b>Uniformity</b>	± 2 % RH
<b>Shelves / Growth area</b>	5 m <sup>2</sup> – one single layer
<b>Lights</b> <sup>(2)</sup>	Top of the chamber with fluorescent and halogen* Up to 1.200 µE - m <sup>2</sup> s 20 cm from ceiling
<b>Test space volume</b>	10.000 liters
<b>Electrical Supply</b>	3/N/PE AC 400V ± 10%; 50Hz; 32 Amp

(1) Temperature range upgrade (0° to 60°) available

(2) Lights with a different spectrum are available on request

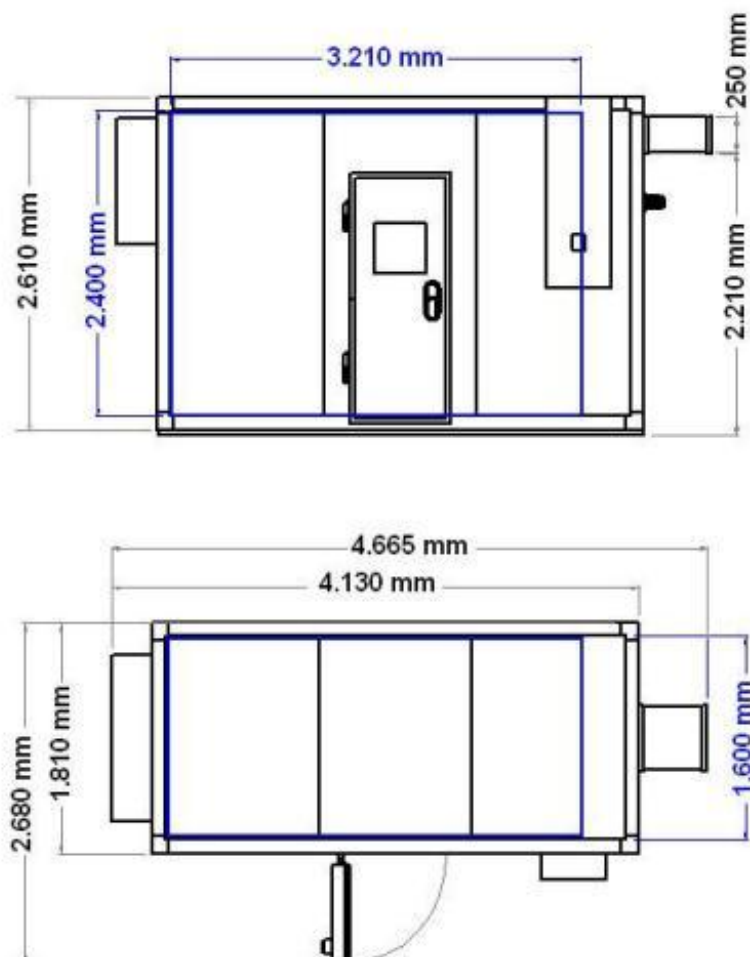
## *Dimensions and Technical drawings*

Dimensions <b>5.000 EHF</b>			
	<b>Width</b>	<b>Depth</b>	<b>Height</b>
<b>Exterior</b>	1.810 mm	2.810 mm	2.610 mm
<b>Interior</b>	1.600 mm	1.600 mm	2.000 mm



Dimensions may vary and be adjusted to fit customer needs

Dimensions <b>10.000 EHHF</b>			
	Width	Depth	Height
<b>Exterior</b>	4.665 mm	1.810 mm	2.610 mm
<b>Interior</b>	3.210 mm	1.600 mm	2.000 mm



Dimensions may vary and be adjusted to fit customer needs

Dimensions <b>20.000 EHHF</b>			
	Width	Depth	Height
<b>Exterior</b>	3.530 mm	4.000 mm	2.810 mm
<b>Interior</b>	3.210 mm	3.300 mm	2.000 mm
<b>Approximate shelves / growth area: 10,5m<sup>2</sup></b>			

Dimensions <b>27.000 EHHF</b>			
	Width	Depth	Height
<b>Exterior</b>	4.200 mm	3.400 mm	2.810 mm
<b>Interior</b>	3.700 mm	3.200 mm	2.000 mm
<b>Approximate shelves / growth area: 12m<sup>2</sup></b>			

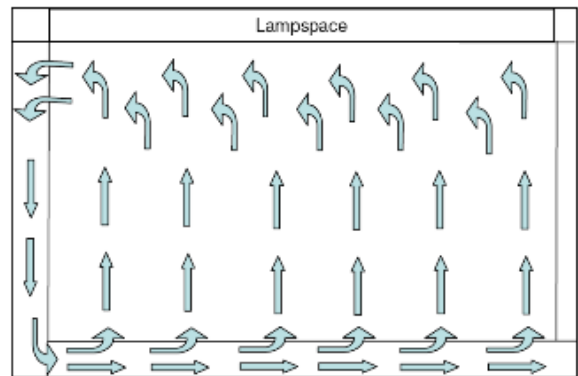
## ***Technical description, Software and Accessories***

### **Construction**

- Exterior: Polyurethane Insulated Panels Class M1 according to EN 14509, "sandwich type" with 80 mm thick, galvanized steel finish with light gray plastic. CFC-free
- Floor: Anti-slide Stainless steel AISI 304 or grey textured vinyl
- Walls: Galvanized steel with white epoxy paint
- Structures and Shelves: Easy cleaning stainless steel AISI 304
- Door with double gasket, observation window with key, safety opening mechanism from the inside and opened door sensor
- 75 mm Ø port for cables and other connections

### **Air Flow**

- Forced in upward direction, with electronic adjustable air speed
- Vertical laminar airflow across all growth area to assure uniformity and stability
- Variable air renewal through adjustable port or positive pressure generation



### **Control Panel**

On the right or left side of the chamber and equipped with:

- CLIMAPLUS 500 Programmable Controller
- Safety thermostat with audible alarm
- ON/OFF Mains switch



### **Heating**

Tubular stainless steel electric resistors

### **Cooling**

Low noise and high efficiency, air based, CFC free mechanical refrigeration by hermetic compressor

### **Thermal Security**

- Individual thermostat for maximum and minimum temperature with visual and audible alarms.
- Automatic cut off if in excessive heating or cooling

## Humidity

Ultrasonic humidification system

## Humidity Security

Automatic cut off in case of water failure. Audible alarms and warning on the controller.

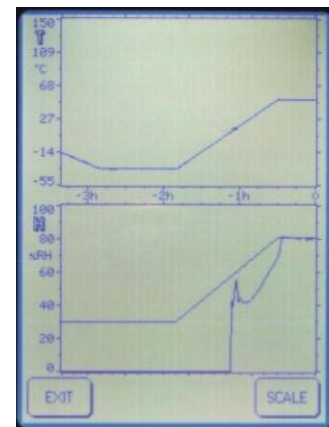
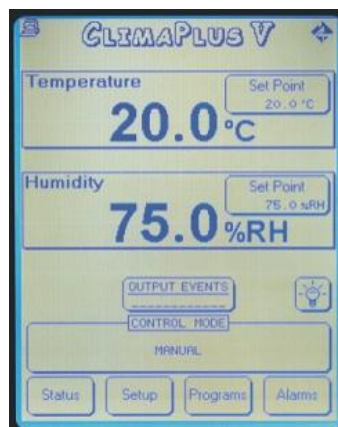
## Lighting and Shelves

- One single layer on the chamber ceiling with double glass separation and heat exhausting system
- 2,5 m<sup>2</sup> stainless steel shelving on the 5.000 EHHF
- 5 m<sup>2</sup> stainless steel shelving on the 10.000 EHHF
- Independent lighting banks with separated ON/OFF controlling for each bank
- Dimming function with light intensity adjustment on the controller.



## Controller CLIMAPLUS V

- Programmable PLC exclusively developed for ARALAB chambers
  - Programmable easy to use controller with Touch Screen Display (168 x 112mm)
  - Resolution of 0.1°C for Temperature and 0.1% for Relative Humidity
  - High performance temperature and humidity control with value correction possibility in all ranges
  - Capability for creating 50 programs of 50 segments each, allowing highly complex and complete climatic simulation programs
  - Non-volatile memory
  - Automatic restart of tests due to power failure, without losing data and restarting test where it was interrupted
  - Real-time monitoring of all functions and control of equipment.
  - Monitoring and recording of all alarms
  - Possibility of performing events by external commands
  - RS232 output for computer connecting
  - Alarms management
  - Graphic representation of the tests
  - Graphical visualization of the test in the controller.
- Possibility of running computer test programs and export them to the controller



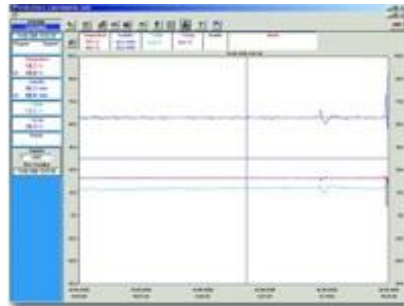


## Software

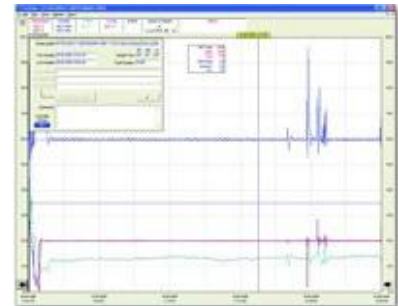
STATUS	
LOGGING	
04-02-2005 14:38:10	
Program	Segment
2	0
Temperature	
25,0 °C	
SP	25,0 °C
Humidity	
60,1 %RH	
SP	60,0 %RH
Bath	
23,3 °C	
T-RHS	
25,2 °C	
Events	
.....	
Outputs	
.....V.....	
Samples	
5324	
Next Sampling	
04-02-2005 14:38:13	

The **FitoLog** software is a set of applications designed to monitor and register data from the chambers processes variables. The software consists of 3 applications: **FitoLog**, **FitoLogView** and **FitoProgram**.

*FitoLog*



*FitoLogView*



**FitoLog:** Displays and records in real time all the data and details of the measurements and respective set-points in a file. It also retrieves the data of process variables, errors, alarms and allows external alerts configuration, which may include Email or SMS to report the condition of the equipment or warnings of alarms.

**FitoLogView:** It is a working tool to process the data acquired by FitoLog. You can view, print and export to other file types, and analyze the data in other programs (Excel, Access or others).

**FitoProgram:** This application allows the designing of test programs and its integration on the chamber controller.

With **FitoLog** it is possible to gather data from each of the chambers subsystems, which makes it a very useful tool to diagnose any necessary maintenance. This tool is the "Black Box" of the Chamber, giving our technicians the necessary data to remotely carry out a fast and efficient diagnostic. All that is needed is a log file with the occurrence, which can be analyzed by Aralab technicians in less than an hour.

## Installation Requirements

- Demineralized water with  $\leq 5\mu$  Siemens conductivity and 1 to 5 bar pressure
- Electrical supply near chamber (see electrical supply specification)
- Water draining system

## Optional Accessories

- Software FITOLOG
- H2O demineralizer
- Automatic irrigation system with ClimaPlus controller integration
- Conductivity device and connection accessories for water quality control
- Positive Pressure Unit with HEPA filter
- CO2 controlling unit
- Different lights and light spectrum
- Temperature range upgrade (0° to 60°C)
- RS232 Cable for PC connection
- Other accessories available on request. Please consult Aralab for any requirement you may have



Inside view of chamber with optional irrigation systems and standard shelving



Positive pressure unit with HEPA filter

***Walk-In customized solutions***



Set of 3 Fitoclíma 10.000 chambers



Set of 6 Fitoclíma 25.000 chambers



Equipamentos de Laboratório e Electromecânica Geral, Lda.  
Av. de Santa Isabel, nº 7, Albarraque  
2635-047 - Rio de Mouro  
Tel.: +351 219 154 960  
Fax: +351 219 154 969  
E-mail: [aralab@aralab.pt](mailto:aralab@aralab.pt)  
URL: [www.aralab.pt](http://www.aralab.pt)