



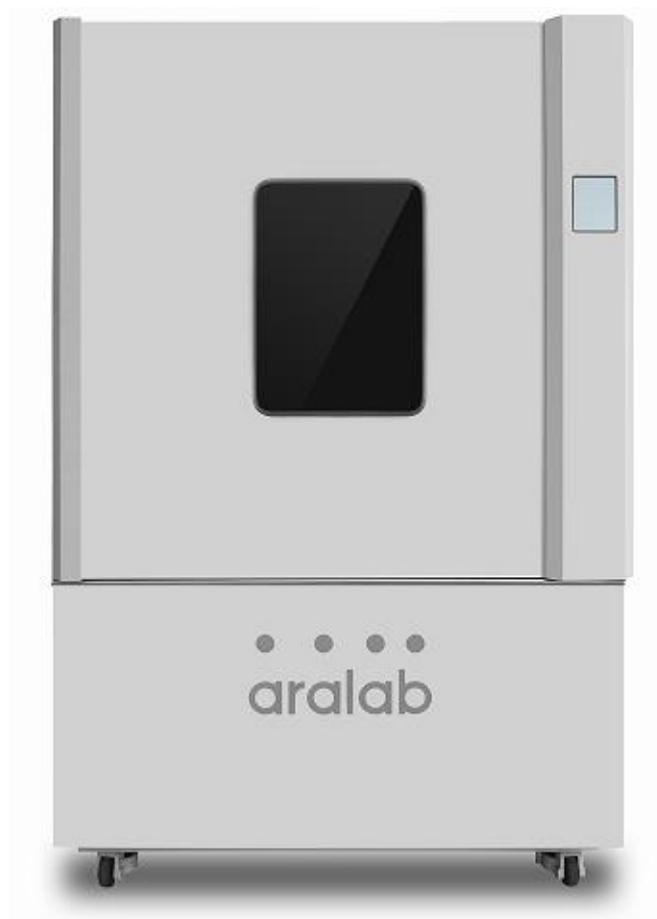
TESTING

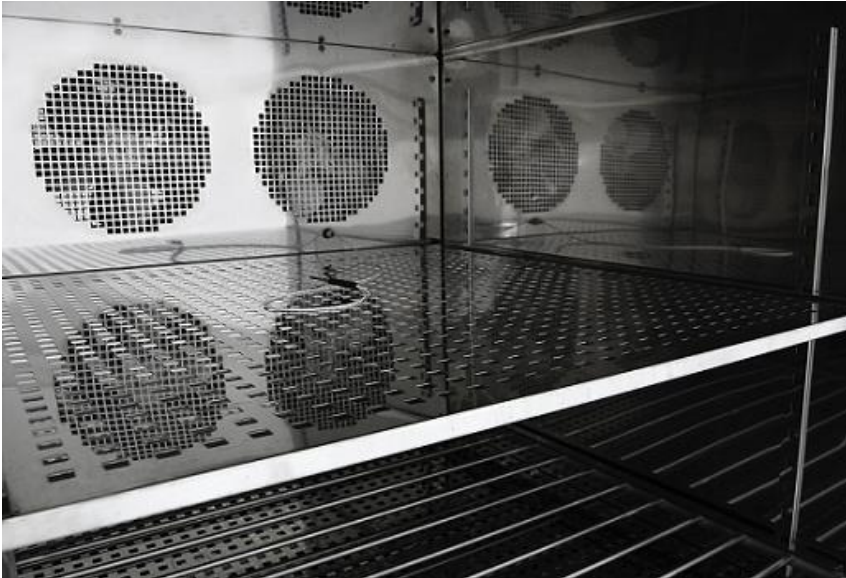
FITOCAL



TEMPERATURE AND HUMIDITY TESTING CHAMBER

SPECIALLY DESIGNED FOR CALIBRATION, METROLOGY AND QUALITY CONTROL





Common applications include:

Metrology
Calibration
Quality Control
Environmental Testing

*Aralab **Testing** chambers have been the preferred solution of several ISO 17025 calibration laboratories and quality control institutions in Europe.*



ARALAB

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

Since 1985 we have been perfecting ways to create and control temperature, humidity and many other environmental conditions that respond to the needs of customers all around the world.

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.
Your own climate.



Aralab is certified according to ISO:9001

KEY FEATURES

The most advanced technology in climatic control

Internal aerodynamic optimization that ensures highly uniform and stable climatic conditions

Time saving features with easily configurable testing programs that can run, start and stop automatically

Highly resistant stainless steel interior for maximum durability and easy cleaning

Flexible interior with height adjustable and removable stainless steel shelves

Non-polluting construction and cooling system

Compliant with international standards and requirements EN, IEC, DIN, ISO, NP and UNE

TECHNICAL INFORMATION

| AVAILABLE MODELS | TEMPERATURE RANGE | HUMIDITY RANGE |
|--------------------|-------------------|----------------|
| FitoCal 300 ECP 20 | -20°C to +180°C | 10% to 98% RH |
| FitoCal 300 ECP 45 | -45°C to +180°C | 10% to 98% RH |



FITOCAL / FITOCLIMA 300 TESTING CHAMBER

| Performance in CLIMATIC testing range | |
|---------------------------------------------------|------------------------------------|
| TEMPERATURE RANGE | 10°C to 95°C |
| TEMPERATURE UNIFORMITY ^(1a) | ± 0,1°C to ± 1,0°C |
| TEMPERATURE STABILITY ^(1a) | ± 0,1°C to ± 0,3°C |
| HUMIDITY RANGE | 10% RH to 98% RH |
| HUMIDITY UNIFORMITY | ± 0,3% RH to ± 2% RH |
| HUMIDITY STABILITY ^(1a) | ± 0,15% RH to ± 1,5% RH |
| Performance in TEMPERATURE testing range | |
| TEMPERATURE RANGE ^(1a) | -45°C or -20°C up to 180°C |
| TEMPERATURE UNIFORMITY ^(1a) | ± 0,5°C to ± 1,5°C ^(1b) |
| TEMPERATURE STABILITY ^(1a) | ± 0,1°C to ± 0,5°C ^(1b) |
| TEMPERATURE RATE OF CHANGE HEATING ⁽²⁾ | From 2,5°C to 4,5°C / minute |
| TEMPERATURE RATE OF CHANGE COOLING ⁽²⁾ | From 2°C to 4°C / minute |
| Other technical data | |
| NOISE LEVEL | 55 to 64 dBA |
| ELECTRICAL CONNECTION | 3/N/PE AC 400V ± 10% 50Hz |

Performances measured in factory with ambient temperatures between 20°C and 25°C

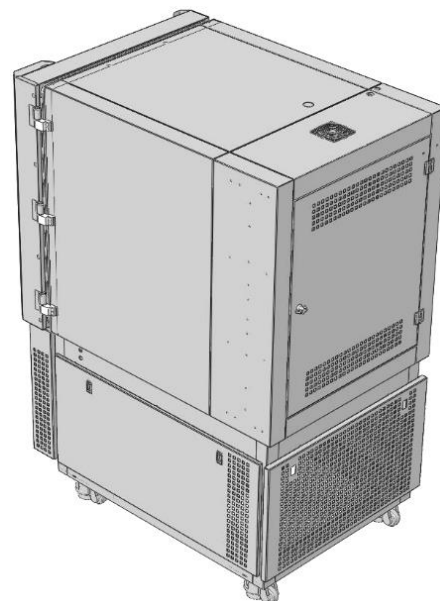
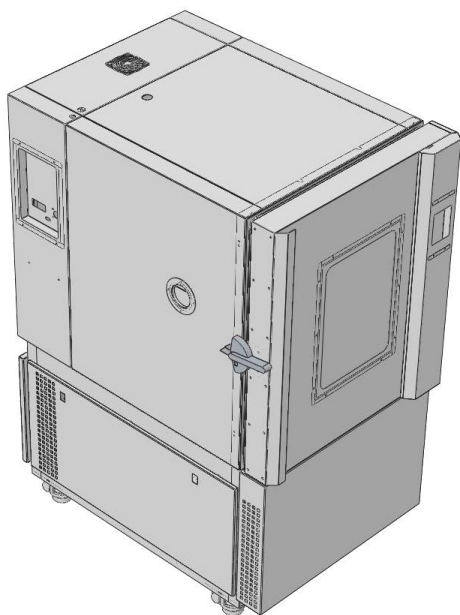
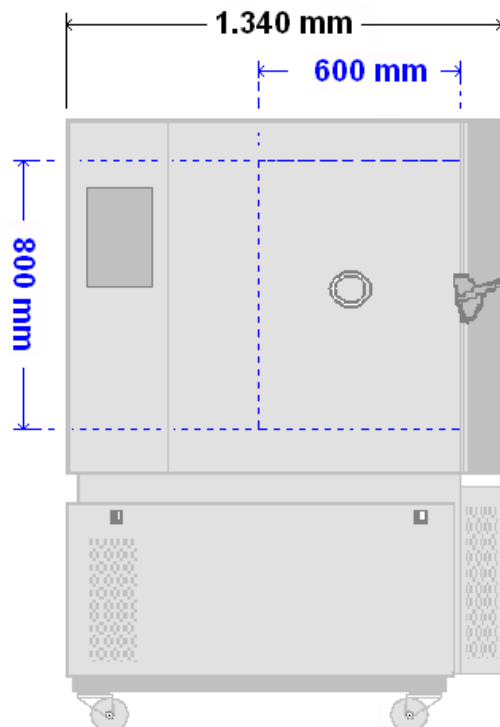
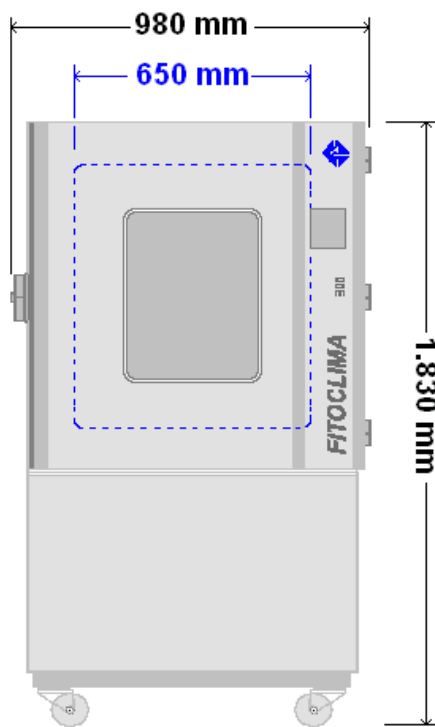
(1a) Measurements with empty chamber and no optional accessories; (1b) in temperature range up to 150°C;

(2) According to IEC/EN 60068-3-5. Values will vary with FitoClima/FitoTerm model, internal volume, compressor type and condenser cooling system. Temperature rate of change can be adjusted to comply with the needed heating / cooling speed requirements. Optional accessories are available for more demanding heating and cooling temperature change rates.

DIMENSIONS

FITOCLIMA / FITOCAL 300

| | |
|--------------------------------------------|---------------------|
| EXTERNAL DIMENSIONS (HxWxD) (mm) | 1.830 x 980 x 1.340 |
| INTERNAL DIMENSIONS (HxWxD) (mm) | 800 x 650 x 600 |
| INTERNAL VOLUME (LITERS) | 300 |



DESCRIPTION, SOFTWARE AND ACCESSORIES

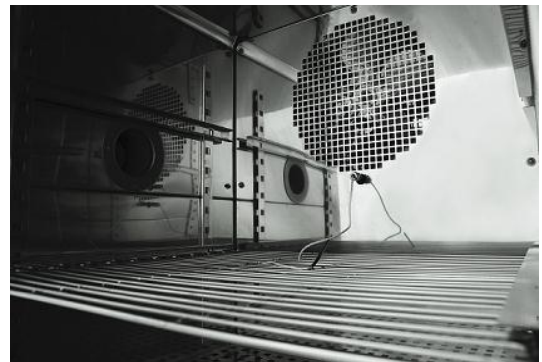
CONSTRUCTION

- Interior: AISI 304 hermetical welded, vapour tight, stainless steel
- Exterior: Zinc mild steel with epoxy coating finish (RAL 7035)
- Rock wool insulation
- Interior illumination by 12V halogen lamp (only available with optional window)
- Door: Double silicone joints and anti-condensation heating frames. Automatic electric locks with emergency opening from the inside
- 80 mm Ø side port for passing cables or other devices



AIR FLOW

- Forced through 1 ventilator/fan mounted at the top back end of the chamber.
- Air Renovation: By lateral port, also for compensating pressure



TEMPERATURE

Control of temperature is done by the PLC Touch Screen “ClimaPlus”, high tech PID / FUZZY temperature and humidity control, developed by Aralab.

Temperature Sensors

One (1) PT 100 Class A, located in air treatment tunnel

Two (2) PT 100 Class A, movable sensors for flexible placing inside chamber



Heating

By tubular stainless steel electric heaters located in the air treatment tunnel

Cooling

By airtight mechanical Scroll compressor group with enforced ventilation and without CFC's. As an option the system can be cooled by an air / water condenser. Air is used by default and only in need of greater power is water used, thus increasing efficiency.

Security

Safety thermostat with High / Low temperature configuration, with automatic stop of all heating systems. Alarms programmed in the controller, with mute function. This function won't stop the chamber and it's only used to record the occurrence and to call the attention of the users with an audible alarm.



HUMIDITY

Control of humidity levels is done by the PLC Touch Screen ClimaPlus V, high tech PID / FUZZY temperature and humidity control, and developed by Aralab.

Humidity Sensors

To measure and control humidity, Aralab has integrated 2 humidity measurement sensors: Psychrometric and Capacitive, simultaneously.

Humidity / Drying

Humidity: Through thermostatic bath with dew point control.

Drying: Through thermostatic bath with dew point control and additional dry coil

Security

Automatic stop function in case of water failure, with indication on the controller;
Configurable High / Low Temperature alarms; High / Low humidity alarms;



COMMON ACCESSORIES

- FitoLog and FitoLogView Software pack
- Anti-condensation observation window in multi layered glass
- Water demineralizer
- Water conductivity monitor
- Additional entry side-ports
- Calibration certificates from accredited external laboratory
- Height leveling casters
- Heating / Cooling temperature change rate speeds
- Attachable computer for logging and chamber programs management

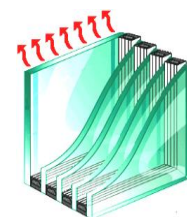


Interior of FitoCal with external humidity calibration equipment

Other accessories are available on request. Please consult Aralab

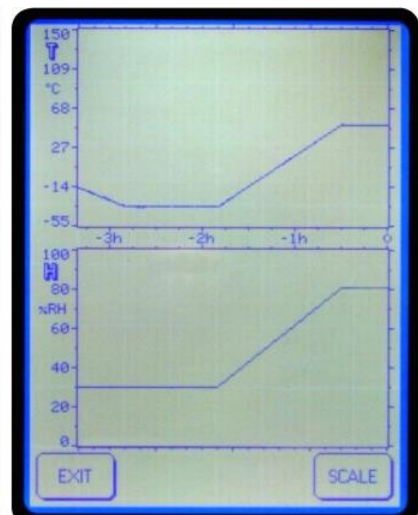
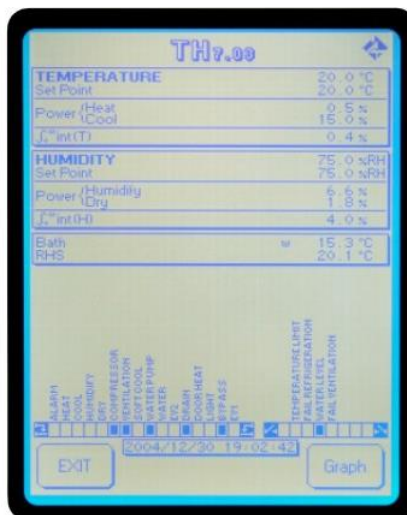
Window option

The observation window is composed of a multilayered glass with optimum levels of thermal insulation. The interior and exterior glasses have a heating system that is activated in cold cycles and damp heat to prevent condensation at the surface.



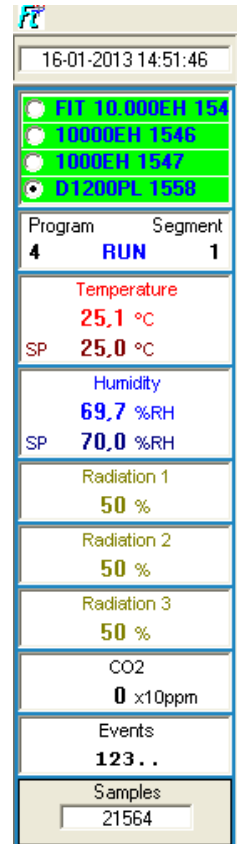
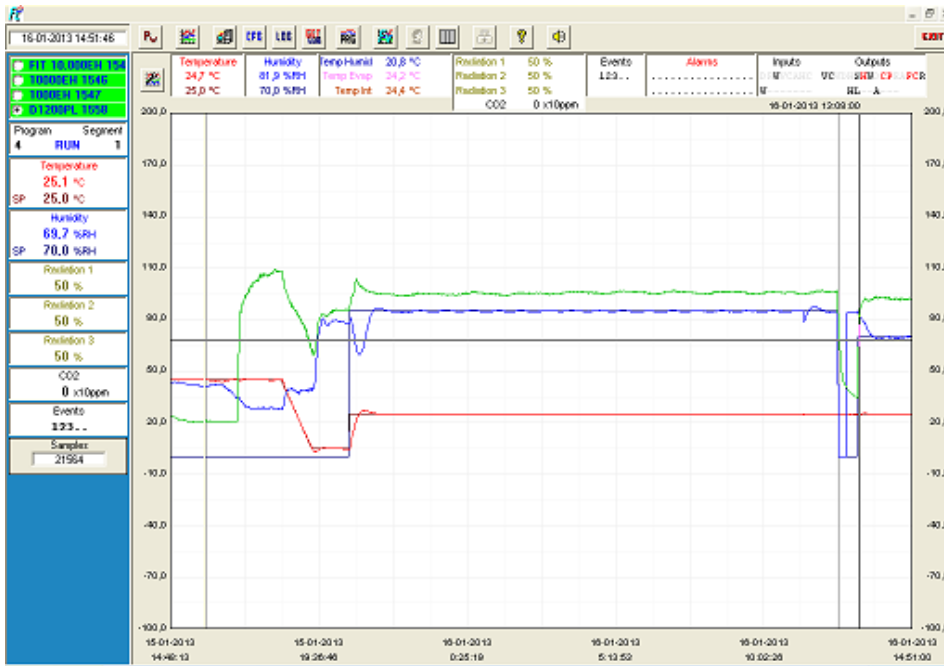
CLIMAPLUS TOUCH-SCREEN CONTROLLER

- 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 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

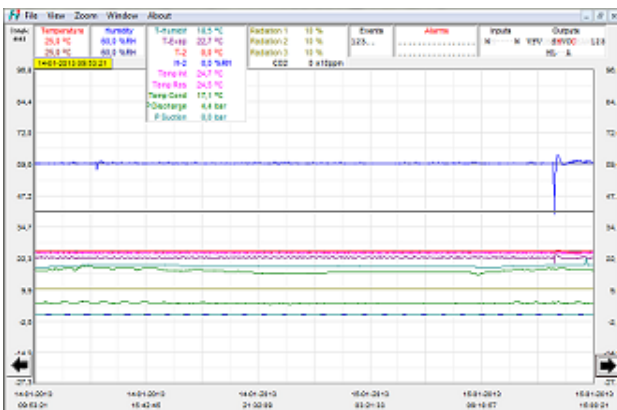


FITOLOG SOFTWARE

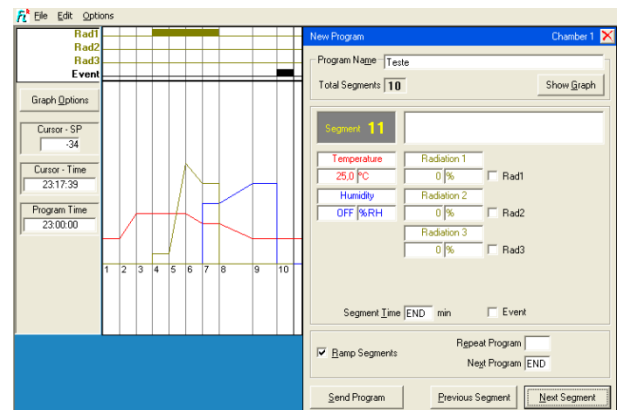
The FitoLog software pack is a set of applications designed to facilitate the managing, monitoring and recording of programs and data from the FitoClima chambers. It consists of 3 applications: **FitoLog**, **FitoLogView** and **FitoProgram**.



FitoLog: Records and displays in real time all data and details related to the set-points, running variables and equipment behaviour. It also retrieves information about the active components of the chamber, running processes, errors, alarms and allows the configuration of periodic or alarm triggered remote notifications (by email or SMS, depending on existing connections and accessories).



FitoLogView: It is a working tool to process the data recorded by the FitoLog program. One can view, print and export the log contents to other file types, and analyse the data in other data management software (Excel, Star Office, Access or others).



FitoProgram: This application simplifies the creation of programs and its integration on the chamber ClimaPlus controller. Up to 50 programs, each with 50 segments, can be designed and linked to create detailed environmental profiles and simulations.

Tests secured with alarms, notifications, fast diagnostics and prompt troubleshooting: With **FitoLog** it is possible to gather data from each of the chambers systems, which makes it a very useful tool to diagnose any necessary maintenance. This tool works as the “black box” of the equipment, giving Aralab technicians the necessary data to remotely carry out a fast and efficient diagnostic. All that is needed is a FitoLog file.

INSTALLATION REQUIREMENTS

To ensure a correct functioning of the chamber, the following installation conditions are required:

Installation place

The place should be easily accessible, according to equipment dimensions and weight. It should have good air circulation and a room temperature between 10° and 26°C. The floor should be levelled and a minimum distance of 50cm from the walls and other equipment must be kept.

Electrical supply

Near the equipment with connection for 3/N/PE AC 400V ± 10% 50Hz 16Amp.

The equipment is supplied with an ECE type power connector. The electrical panel must have a differential protection of 300 mA.

Weight

Approximately 450Kg.

Humidification circuit and demineralized water

The humidification circuit works exclusively with distilled or demineralized water. For this circuit, a water admission pressure of 1 to 6 bares and conductivity of ≤ 5µ Siemens is required.

Water circuit for cooling condenser (optional for -45°C)

A cold water circuit is required for the cold system condenser. Technical characteristics:

- o Water flow: 0 to 2000 liters/hour maximum
- o Intake pressure: 3 to 6 bares
- o Water entry and exit pipe: 1"
- o Differential pressure between entry and exit: > 2,5 bares
- o Maximum temperature of water entry: 26°C
- o Adequate temperature of water entry: 18°C

Drain

At floor level and near the equipment. The draining of the humidification and cooling systems water is done by gravity. For a correct draining there should be a minimum inclination of 10° in a descending trajectory from the chambers draining pipe until the sewage system.

Features and specifications are subject to change. Aralab continuously studies ways to further develop its products to achieve better performances and overall product quality. As a result, characteristics and specifications provided in this document may be subject to changes.