



TESTINGLAB
E Q U I P M E N T S

TEQUITEC - Testing Lab Equipments S.L. is a young company founded from the roots of EQUITEC - EQUITEC EQUIPOS TECNICOS PARA CONTROLES SL, a company dedicated to the manufacture of laboratory equipment for environmental testing for more than 25 years of experience.

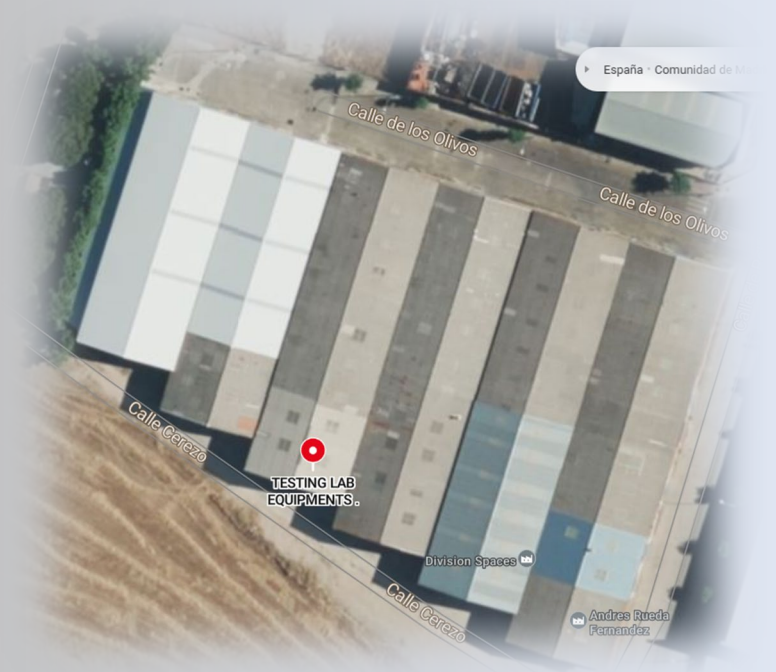
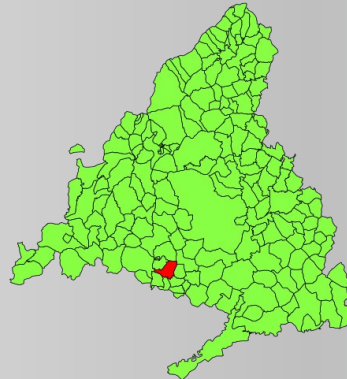
With this experience we have specialized in the manufacture of equipment for stability, biotechnology and incubation tests. Equipment with temperature, humidity and lighting control, designed for research and quality control.

We distribute our products worldwide, through specialized distributors in each region or country.



Our factory is located within the community of Madrid, specifically at Calle Cerezo, 5 in Moraleja de Enmedio (Spain).

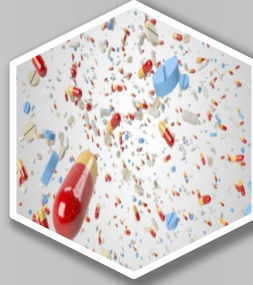
Madrid provides the disposition of the largest airport in Spain, as well as a logistic core that allows both the shipment of the equipment within the national territory or the transport to any part of the world easily.





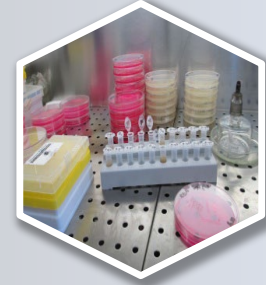
BIOTECHNOLOGY

- ✓ *Algae.*
- ✓ *Tall plants.*
- ✓ *Small plants.*
- ✓ *Genetics.*
- ✓ *Cell cultures.*
- ✓ *Seeds.*
- ✓ *Entomology.*
- ✓ *Small mammals.*
- ✓ *Aquaculture.*



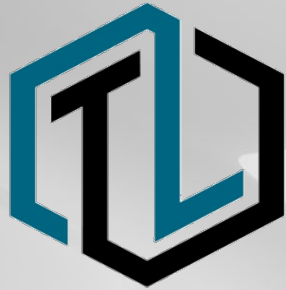
STABILITY

- ✓ *Pharmaceutical.*
- ✓ *Cosmetic & beauty.*
- ✓ *Food industry.*
- ✓ *Cardboard.*
- ✓ *Conservation.*
- ✓ *R&D.*
- ✓ *Others.*



INCUBATION

- ✓ *Food industry.*
- ✓ *Pharma.*
- ✓ *Biological crops.*
- ✓ *R & D.*
- ✓ *Others.*



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TECHNOLOGY



The standard temperature range is **+4 to +55°C**, with a **stability** of $\pm 0.3^{\circ}\text{C}$ and a **uniformity** of $\pm 0.5^{\circ}\text{C}$.

Optional **EXTENDED TEMPERATURE RANGES** are available up to: **-10/-20/-30°C**.

Our chambers have a technical area with finned electric heaters made of stainless steel with hot gas bypass, **DUAL HEATING TECHNOLOGY**, as well as the evaporator for heat exchange with the medium.

All elements are easily located

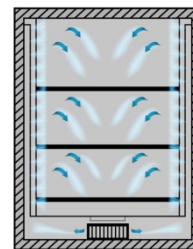




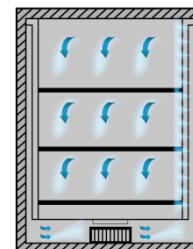
The equipment has one or more fans positioned in an accessible area for air movement to homogenize and stabilize the temperature according to the set point values. The **SPEED** of the fan can be adjustable, depending on the needs of the samples.

The treated air will be sent to the chamber in a controlled way through the existing perforations

in the technical area depending on the chamber model, generating a **VERTICAL** or **HORIZONTAL AIR FLOW** (depending on the model), which will guarantee the temperature conditions inside the chamber.

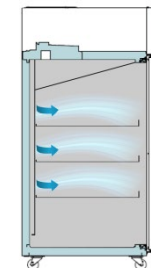


**HORIZONTAL
EICH SERIES**



**VERTICAL
EICV SERIES**

**HORIZONTAL
ERI SERIES**





Cooling is based on a mechanical cooling system by means of a silent **COMPRESSOR**, mounted on dampers to reduce noise and vibration levels.

Condensation of the standard equipment is by **air** or by **water** as an option.

NATURAL REFRIGERANT GAS R290A, CFC and HCFC free, biodegradable and with a **GWP value of 3**. This gas is a more sustainable and environmentally friendly alternative to other refrigerant gases such as R-513A or similar.

A very efficient gas in terms of energy consumption.



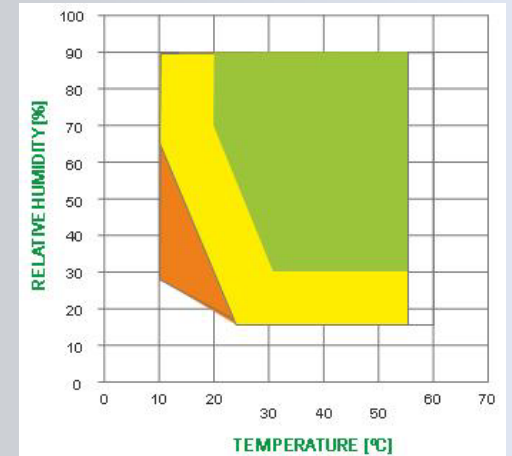


Humidification generated by **ULTRASOUNDS** without heat input to the medium. Alternatively, it can be replaced by an electrode heating system.

The standard humidity range is from **30% to 90% RH**, controlled in a temperature range of +20 to +45°C and with a **stability** of $\pm 3\%$ RH.

EXTENDED HUMIDITY RANGES from **10%RH** are optionally available.

Dehumidification or drying by condensation in the evaporator of the refrigeration system. The desired humidity set point can be set by PID microprocessor control.



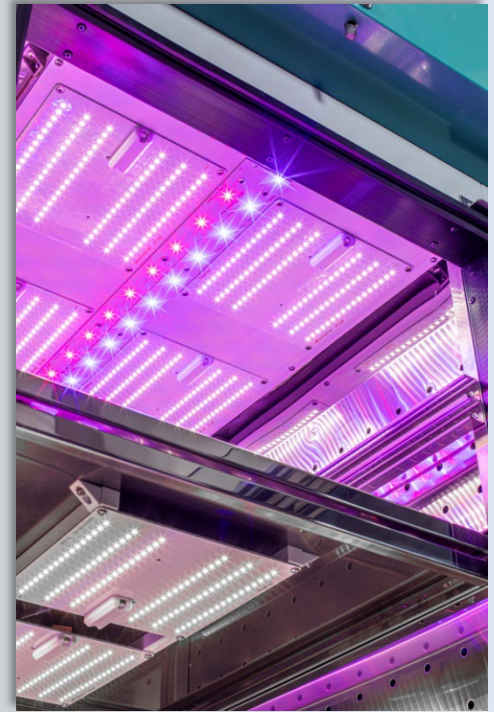


Our lighting solutions are completely **FLEXIBLE**, from the positioning of the lights, the type of lights, intensity and type of spectrum.

The lighting used in our chambers is LED type, which reduces the energy dissipated inside the chamber, reduces consumption and has different options to configure the necessary spectrum for each application.

This type of lighting is in accordance with the new European regulation on the RoHS directive, which establishes the elimination of T5 and T8 fluorescent tubes.

Other lighting alternatives are available on request depending on your needs.



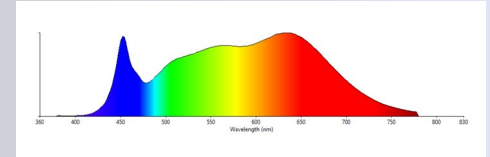


Standard lighting is based on neutral **white LED light (4000 K)**, with a luminous intensity of **450 $\mu\text{mol}/\text{m}^2/\text{s}$** , measured at a distance of 150mm, depending on the model and position of the lights. Other spectral or color alternatives are available depending on customer requirements: 2800K, 3200K, 3800K, 4500K, 5000K or 6000K , optionally.

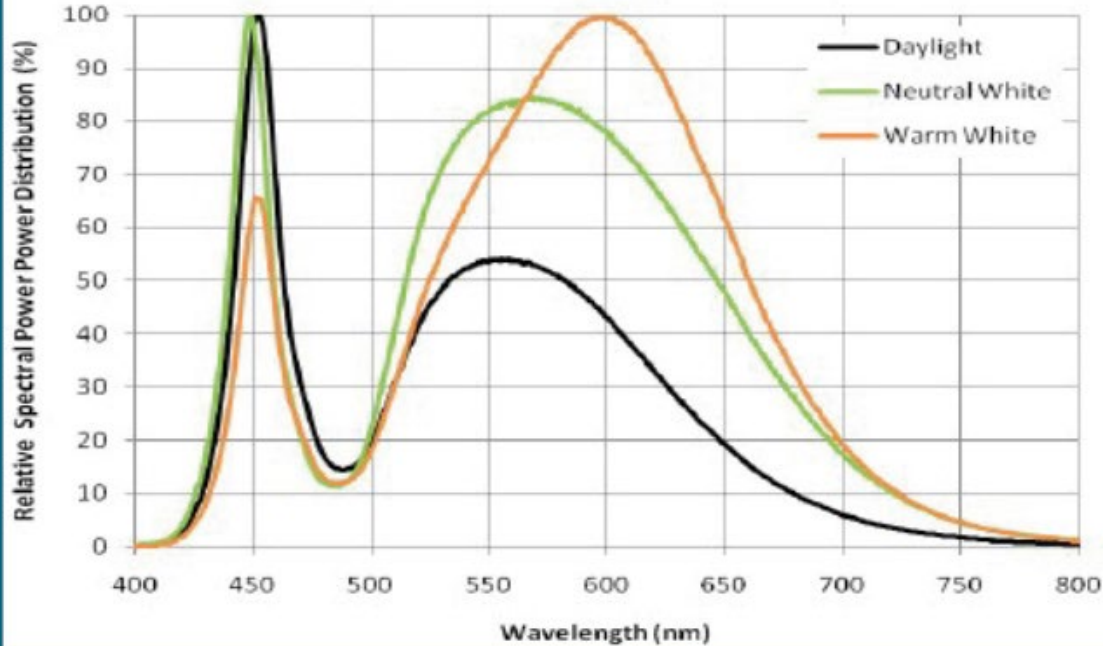
All illumination is built in the photosynthetically active range of **400 to 700 nm**.

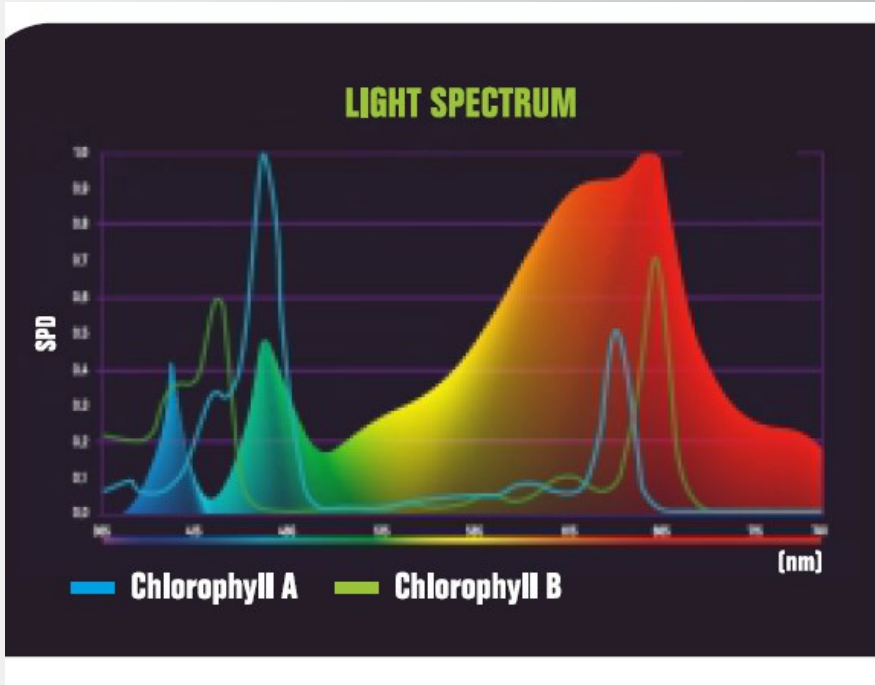
The units allow to regulate the light intensity inside the chamber from **10% to 100%** by means of the PID microprocessor.

Control of light intensity, day/night photoperiod..



DIFERENTES TIPOS DE LUZ BLANCA / DIFFERENT TYPES OF WHITE LIGHT





RED

Controls photoperiod on plants, an intense use allows to increase the internodal distance.

ORANGE

Increases photosynthetic performance, increment flower production.

GREEN

Helps secondary metabolic processes like anthocyanins.

BLUE

Helps secondary metabolic processes like anthocyanins.

ULTRAVIOLET

Increases resin production and, as result, the generation of cannabinoids and terpenoids.

CONFIGURATION OF THE DIFFERENT LIGHTING POSITIONS



**LIGHTS ON
DOOR**



**LIGHTS ON
SIDES**



**LIGHTS ON DOOR AND
ON SIDESS**



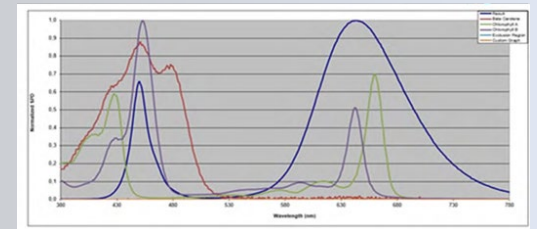
**LIGHTS ON
SHELVES**

LIGHT RADIATION SYSTEM AND AUTOMATED CONTROL (OPTIONAL)

At the customer's disposal, we can supply the optional spectrum required by the customer.

We offer different color spectra, which can be selected, either by chamber or in each of the different shelves, according to the customer's choice.

This choice can also be selected as an accessory in the future, since the chamber is prepared to accept variations in the light configuration in the future.

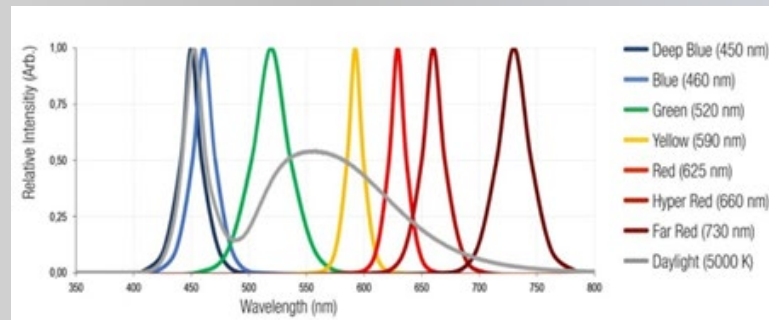


CURVES AND WAVELENGTHS, UPON CUSTOMER REQUEST. (OPTIONAL)

Optionally, the lighting system can be equipped in one of the shelves indicated by the user, with a variable spectrum configuration from 2 to 8 channels, independently controlled.

Light dimmable from 0 to 100% for each channel.

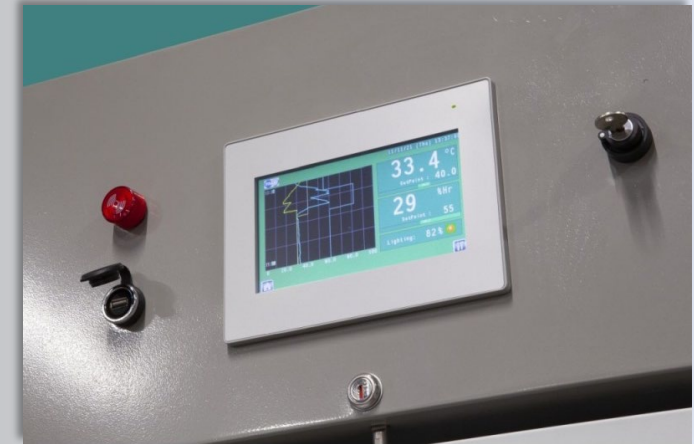
The user can modify not only the intensity but also the wavelengths.





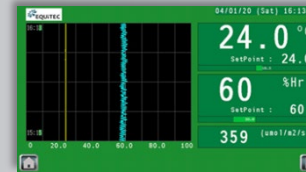
We have a **WIDE VARIETY** of controllers depending on the application and the real need of each customer, from simple controllers for simple regulation, to more advanced microprocessor-based controllers with the possibility of complex cycles.

The 4500 series controllers provide ease of control through a touch screen, the nanodac ICH series (3000 series) provide continuous data logging and auditing functions, while the 2000 series controllers are simple controllers for regulating temperature and/or humidity individually..



4500 SERIES CONTROLLER. Controller based on a 7" backlit color touch screen.

- Microprocessor controller.
- 7.0" TFT touchscreen backlit display.
- Battery back-up, with automatic recharge, guarantees 48 h duration in case of power failure. Charging status is continuously displayed on the screen for immediate checking.
- Temperature graph on the display
- Integrated data logger
- Resolution / Accuracy of $\pm 0.1^{\circ}\text{C}$.
- Self-diagnostics.
- MODBUS TCP/IP for Ethernet connection.



4300 SERIES CONTROLLER. Graphic controller and data logger intended mainly for pharmaceutical stability chambers

- Backlit 3.4" TFT graphic touch screen.
- PID Controller with Microprocessor
- Data register
- USB port for downloading recorded data.
- User password.
- Temperature and humidity graph on the screen
- Control module according to standard **FDA 21 CFR part 11**, optional
- Backup battery for alarm values.
- Potential free output for remote alarm (optional)
- Module for testing with light.
- Auto diagnosis
- PC software, intuitive; for data sample.



SERIES 2000 CONTROLLER. Simple and independent controller (1 for T^a and 1 for %RH), for applications where an advanced controller is not required, such as refrigerated incubators (DBO, EASYline).

- Easy and intuitive.
- PID with double action.
- 2 displays 4 digits MULTI Color
- Numeric password protection.
- Visual alarm
- Sound alarm
- Alarm test function.





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PRODUCTS

TEQUITEC – Testing Lab Equipments has 3 differentiated lines depending on the needs of the clients, as well as their application..



EIC/EGC SERIES

*PRO*line



ERI INOX SERIES

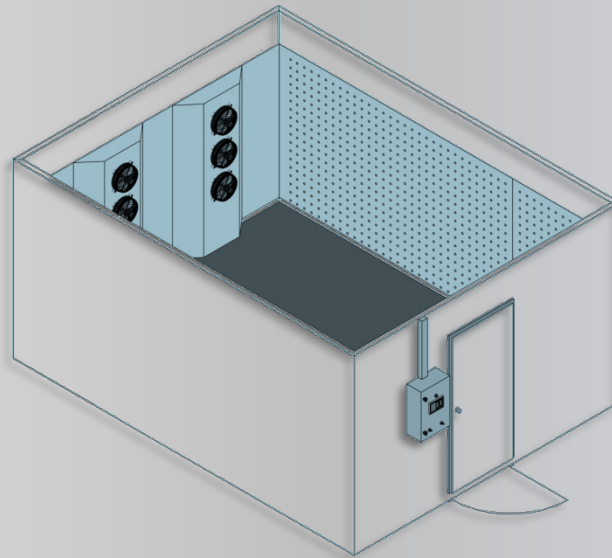
*ECO*line



ERI DBO SERIES

*EASY*line

From **TEQUITEC - Testing Lab Equipments** we can also offer our range of large volume products based on an isothermal panel construction or **WALK-IN CHAMBERS**, for different applications such as preservation, stability, biotechnology, etc..





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EIC SERIES (PROline)

The most advanced of our chambers and prepared for any type of application.

It can be manufactured with temperature control or with temperature and relative humidity control or temperature, relative humidity and illumination.

Its configuration allows the highest precision and uniformity in temperature and relative humidity.

A completely flexible model in all its variables, with different volumes: 190, 350, 490, 590, 665, 735, 860, 1180, 1490, 1855, 2195, 2798, 2955 or 3498 liters.

Two options of airflow configurations: horizontal or vertical.



SMALL-MEDIUM VOLUMES, from 190 to 912 liters,



BIG VOLUMES, from 1178 to 2880 liters,



- Temperature range: from +10°C to +55°C.
- Humidity range: 30% to 90% RH.
- Interior made of stainless steel.
- Exterior, epoxy coated steel, optional AISI 304
- CFC-free, high-pressure injected polyurethane insulation with a density of 40 kg/m³.
- Insulation thickness of 60 mm.
- Rounded corners for easy cleaning,
- Drainage inside the chamber.
- One 40 mm ø port with plug.
- Easily removable guides and shelves.



- Pivoting door with lock and built-in handle.
- Main blind door.
- Interior glass door and large handle.
- Height adjustable shelves.
- Wheels.
- Data logger.
- USB output.
- Graphic representation
- Ethernet connection port (Modbus TCP).
- Potential free output (alarm).
- Battery holder.
- Power supply: 230V.



The EIC (*PROline*) series, is a **COMPLETELY FLEXIBLE** model in its configuration, allowing to make fully customized equipment according to customer specifications, being able to be built in 2 or more independent compartments to reduce space in the laboratory while maintaining the advantages of a Reach-in chamber.





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EIC SERIES (ECOLine)

Our most universal system with vertical and horizontal air flow in the shelves.

Like the EIC, they can be manufactured with temperature control; with temperature and relative humidity control; or temperature, relative humidity and illumination.

Models with **5 different volumes**: 150, 250, 450, 850 or 1350.

Depending on the application, different controller options can be installed.

Lighting system in shelves, door, sides and doors + sides, for biotechnology applications.

Possibility to install lights for photostability tests.



- Temperature range: from +10°C to +55°C.
- Humidity range: 30% to 90% RH.
- Interior made of stainless steel.
- Exterior, epoxy coated steel, optional AISI 304
- CFC-free, high-pressure injected polyurethane insulation with a density of 40 kg/m³.
- Insulation thickness from 45 to 75 mm.
- Rounded corners for easy cleaning,
- Drainage inside the chamber.
- One 40 mm ø port with plug.
- Easily removable guides and shelves..



- Pivoting door with lock and built-in handle.
- Main blind door.
- Door with glass, optional.
- Height adjustable shelves.
- Wheels.
- Data logger.
- USB output.
- Graphic representation.
- Ethernet connection port with Modbus TCP/IP.
- Potential free output (alarm).
- Battery holder.
- Power supply: 230V.

The most standardized series of multipurpose cameras. Intended for all types of applications.







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ERI DBO SERIES (*EASYline*)

Models with interior finishes in white plasticized galvanized steel or ABS (plastic), depending on the model selected. Externally it has a plasticized galvanized steel finish.

With temperature ranges from +10°C to +55°C, they are often used in various applications such as microbiology, food and cosmetics, cultures, etc.

Models with **4 different volumes**: 180, 300, 450, 250 or 850.

Possibility of placing LED lighting.

Possibility to control relative humidity.

Shock-resistant plastic interior finish..



- Temperature range: from +10°C to +55°C.
- Humidity range: 30% to 90% RH, optionally.
- Interior made of plastic, optional in AISI 304.
- Exterior, epoxy coated steel, optional AISI 304
- CFC-free, high-pressure injected polyurethane insulation.
- Rounded corners for easy cleaning,
- Drainage inside the chamber.
- One 40 mm ø port with plug.
- Easily removable guides and shelves.



- Pivoting door with lock and built-in handle.
- Main blind door
- Door with glass, optional.
- Height adjustable shelves
- Height-adjustable legs or wheels depending on the model.
- 2000 series control
- Optional free output potential.
- Battery holder.
- Power supply: 230V.
- Indoor sockets optionally.





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WALK-IN

Larger designs with large capacities for large sample batches.

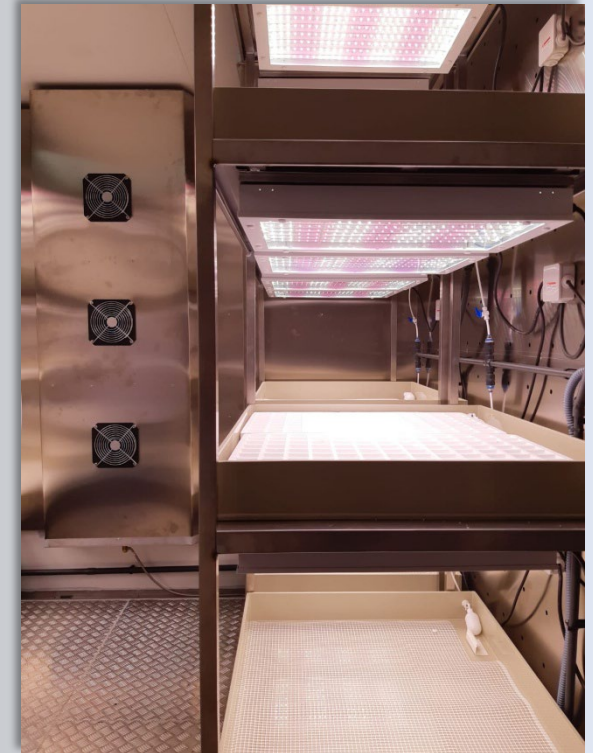
It presents a completely customized design according to the customer's existing space.

Control of different variables, temperature, humidity, light intensity, CO₂, irrigation, etc, according to customer specifications.

Horizontal air flow in shelves with air flow control.

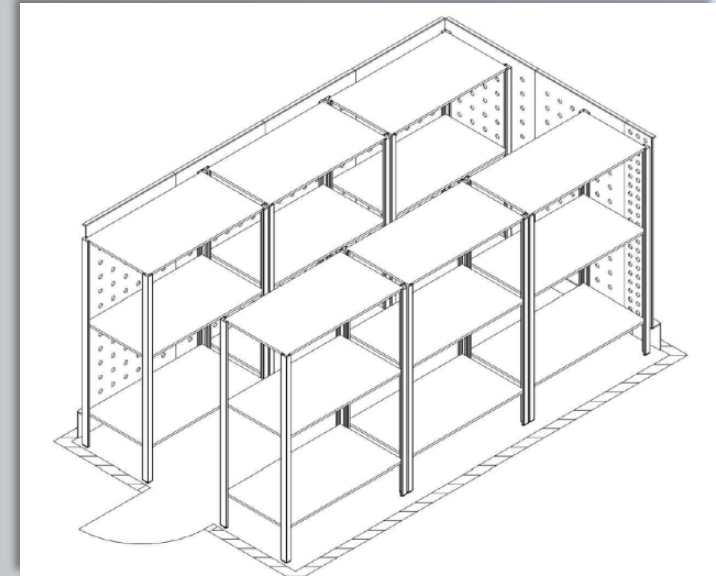
Temperature range from +10° to +60° (optional from +4°C or -10°C).

Humidity control range in climatic cases from 30% to 90% RH.



The applications for which this equipment is intended can be:

- Storage
- Pharmaceutical stability
- Plant growth
- Arabidopsis.
- Stability control in food and beverages.
- Algae growth.
- Drosophila or Entomology.
- Breeding of small animals.
- Low temperature chambers with photoperiod.
- Tissue culture.
- Refrigerated incubators.
- Seed drying chambers.
- Forensic.

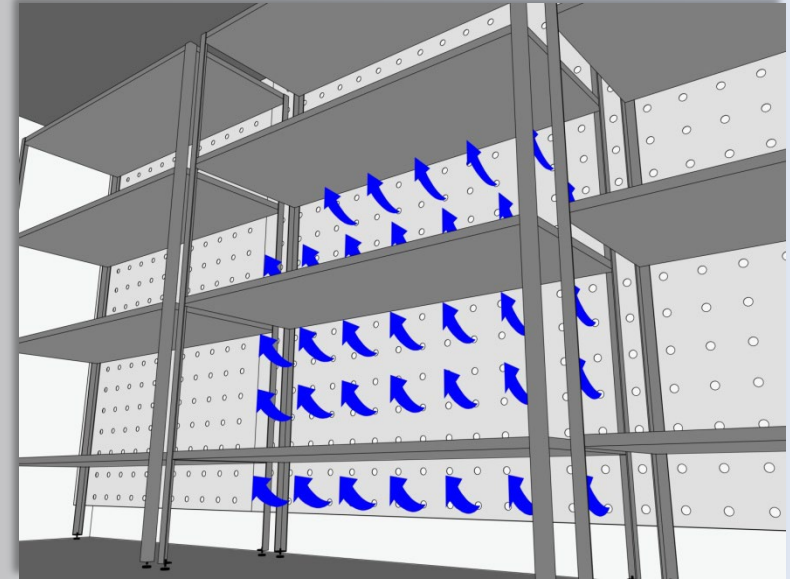
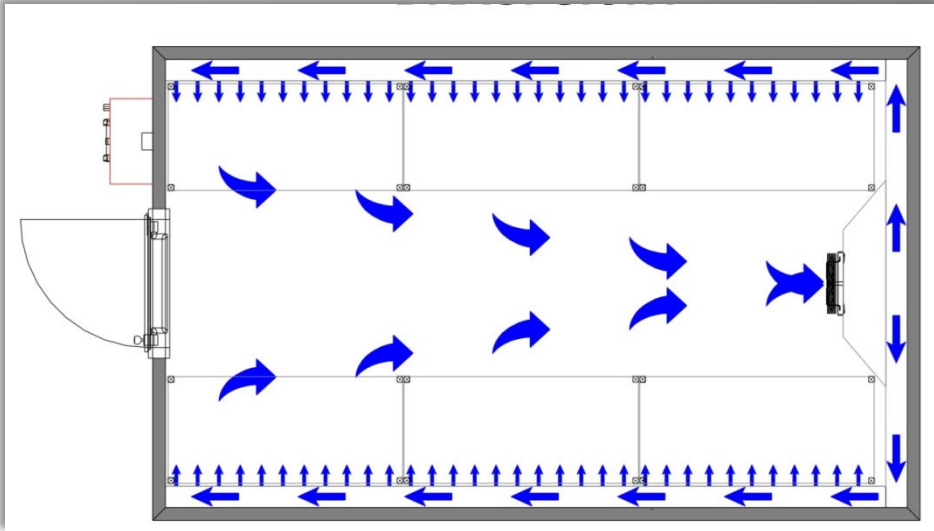


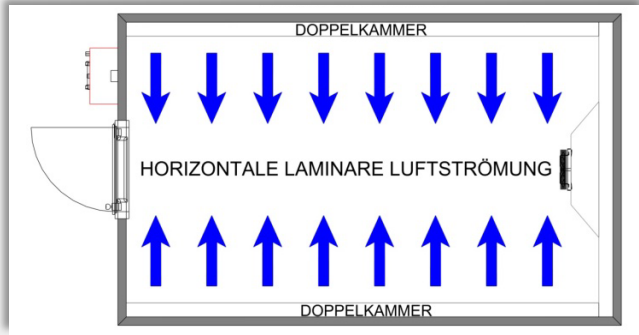
- Interspersed sandwich panels.
- Insulation with CFC-free polyurethane, injected high pressure with a density of 45 kg/m³.
- Panel thickness, 80 mm.
- Interior finish: lacquered steel or stainless steel (AISI 304).
- Galvanized sheet exterior.
- Pivoting door with dimensions 800 x 1830 mm (width x height).
- Automatic closing with key lock and interior security opening.
- Port: 40 mm ø
- 100 mm non-slip floor in AISI 304 stainless steel.
- Health profile included.

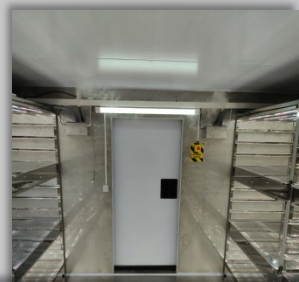


- Control 4500 with 7" touch screen.
- Controlled temperature, humidity and light intensity.
- Controlled air flow.
- Ultrasonic humidity generation system.
- Cooling system housed in a separate unit or prepared for outdoor conditions.
- Sensors, PT100 for temperature sensor and capacitive humidity probe.
- Thermostat for maximum and minimum temperature values.

HORIZONTAL AIR FLOW system, thanks to the chamber with lateral perforations on both walls of the chamber, thus achieving high stability and uniformity in all the shelves, keeping them under the same climatic conditions.









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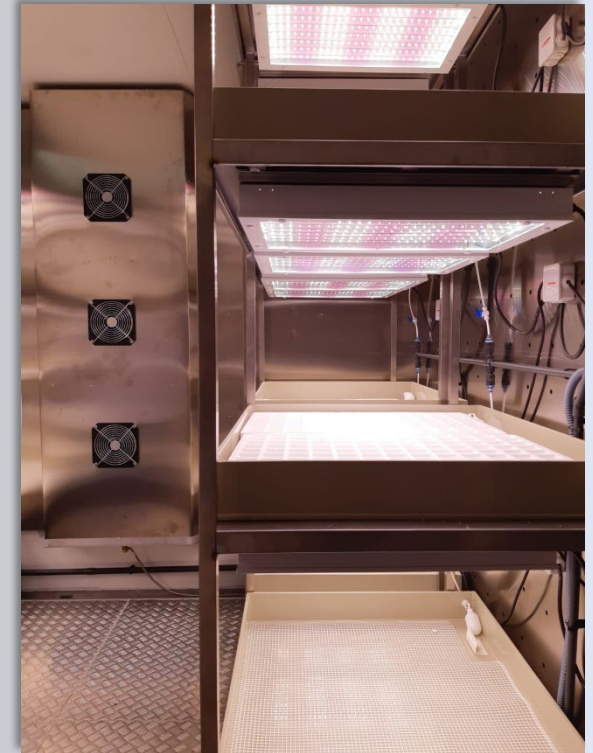
OPTIONAL ELEMENTS

All our equipment has different optional elements in order to meet the customer's maximum needs and to be able to deliver an equipment prepared for their real requirements.

Depending on the application for which the chamber will be used, the accessories may vary.

Please ask our technical department about your testing requirements so that they can advise you on the different optional items that may be of interest to you.

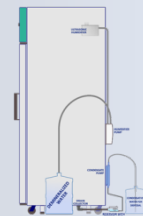
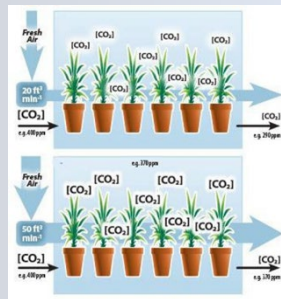
The following is a list of the most common items requested by our customers.



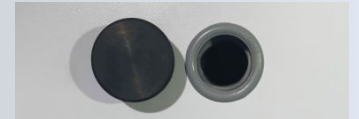
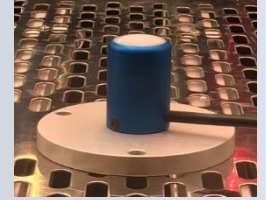


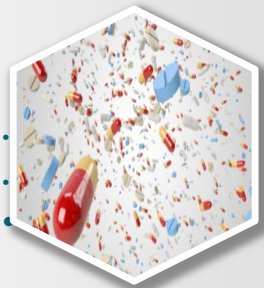
BIOTECHNOLOGY

- Daylight tubes for algae growth.
- LED tubes with different LED diode configurations for plant growth for plant growth according to different applications.
- UV light tube for sterilization.
- Thermal decontamination system at 60 °C
- Bio-decontamination with hydrogen peroxide: allows the connection of a H2O2 atomizing system.
- Optional negative temperatures: -5°C /-10°C /-20°C /-30°C
- Extended drying capacity up to +10% RH, with additional air dryer.
- Water-cooled condensing unit
- CO2 control and monitoring units
- CO2 scrubber to reduce carbon dioxide below ambient levels
- Mist or spray simulation
- Automatic watering valve



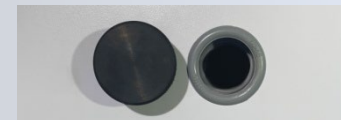
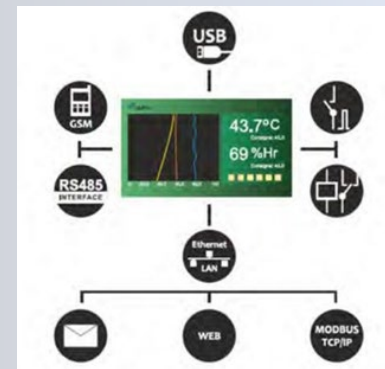
- Aeration kit for algae research and hydroponic cultures
- Phenolic resin coating for entomology/insect breeding applications.
- 20 liter external water reservoir with electric pump and safety valve for humidifier feed water.
- Continuous demineralization system for humidifier feed water.
- Digital printer for temperature and/or humidity.
- Potential-free output for remote alarm control.
- Additional wall bushing for cables and tubing.
- Internal sockets.
- Ethernet output for remote connection, enables reading and changing of parameters.
- GSM alarm module.
- PC communication software on request.
- Additional data loggers.
- Aeration kit for algae research and hydroponic cultures..





STABILITY

- Data logger according to FDA 21 CFR part regulations.
- Cold white and near-UV fluorescent tubes for photo-stability tests. (OPTION II, from the ICH Q1B standard)
- Light radiation sensor, for control and recording of light parameters..
- Additional trays.
- Telescopic trays, with extraction system
- Positioning of the glass in the door.
- Additional grommet for cables and tubes.
- RS485/232 remote communication system.
- Remote connection via WiFi network and dedicated website makes it possible to read and change parameters.
- GSM alarm module.
- Communication software for PC on request.





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THANK YOU



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TESTING LAB EQUIPMENTS S.L.

Calle Cerezo, 5,

28950, Moraleja de Enmedio – Madrid (España)

Tel + 34 918273484 | sales@tequitec.com

www.tequitec.com