



# EQUiTEC

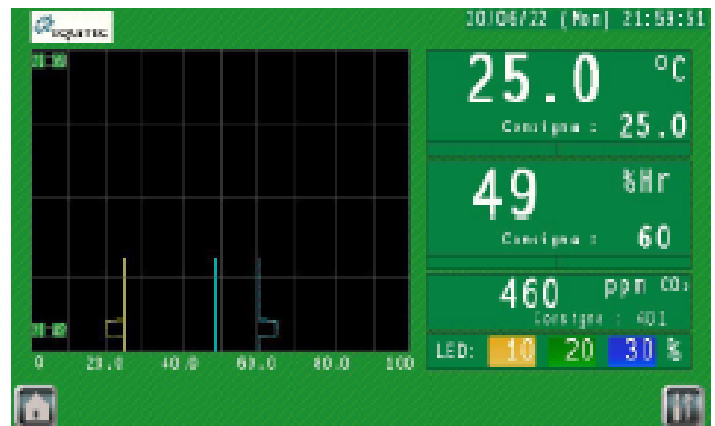
## Walk-In Chambers



- // **PLANT GROWTH CHAMBERS AND CABINETS**
- // **CLIMATIC TESTS WITH PHOTOSTABILITY**
- // **PHYTOLOGY TESTS CHAMBERS**
- // **HORIZONTAL FLOW CHAMBERS FOR ARABIDOPSIS TESTS**
- // **TISSUES CULTURE CHAMBERS**
- // **DROSOPHILA AND ENTOMOLOGY CHAMBERS**
- // **SMALL ANIMALS REARING**
- // **ALGAE GROWTH CHAMBERS**
- // **SEEDS GROWTH CHAMBERS**
- // **TESTS CHAMBERS WITH PHYTOSANITARIES**
- // **REFRIGERATED INCUBATORS FOR CELL GROWTH WITH CONTROLLED LIGHT**
- // **FORENRICS / FINGER PRINTS CHAMBERS**



## CONTROLLERS



4500 SERIES CONTROLLER



ICH NANODAC 4300 CONTROLLER

### PRODUCTS AND APPLICATIONS

- Climatic tests chambers and cabinets with photoperiod.
- Arabidopsis tests chambers.
- Photostability tests.
- Stability control in food and drinks.
- Algae growth chambers.
- Seeds growth chambers.
- Frost formation test.
- Controlled seeds storage.
- Drosophila and insects research incubators.
- Small animals rearing.
- Growth with LED lights.
- Low temperature chambers with photoperiod.
- Tissues cultures incubators and chambers.
- Visitable plant growth chambers.
- Refrigerated incubators.
- Seed drying chambers.
- Forensics, finger prints chambers.

### TYPICAL APPLICATIONS

Controlled plant growth conditions: temperature and humidity with photoperiods.

#### Light intensity:

PPFD 20-2000  $\mu\text{mol m}^{-2} \text{s}^{-1}$  500 to 108.000 Lux

#### Selection of wavelengths :

Available spectrums: 240 to 730 nm, depending on the required wavelength.

#### Air flow:

Air flow speed between 0.2 and 0.5 m/s, also ensures optimal temperature uniformity through growing area freely adjustable; Reducing the surface stress of the plants.

### CULTURE TESTS CHAMBERS AND REFRIGERATED INCUBATORS

- Temperature range from +10° to +60° (optional from +4°C or -10°C).
- Humidity control: optional work range from 20% to 95% R.H.
- Graphical control panel with 4,3" touchscreen, optional TFT 7,0".
- Electronic data recorder with graphical data representation and USB output for data download.
- Temperature and/or humidity control.
- 0.1°C precision probe.
- Microprocessor for control and parameters programming with PID system.
- Height-adjustable lights on the shelves and/or the top and/or the sides.
- Lighting control with 6 levels of intensity, with the possibility to simulate the sunrise/sunset.
- Horizontal or semi-horizontal air flow, to reduce stress on plants.
- Maximum light intensity in PPFD 2000  $\mu\text{mol m}^{-2} \text{s}^{-1}$ .
- Optional regulation of the air flow speed, to reduce stress on plants.
- Optionally LED or fluorescent lights.
- Ultrasounds humidification system, optionally electrodes or vaporizers.
- Product protection through safety thermostat for maximum/minimum temperature.

## LABORATORY CHAMBERS FOR CLIMATIC TEST AT CONSTANT TEMPERATURE AND HUMIDITY (EGCHS, EGCHS/HR, EGCVS AND EGCVS/HR MODELS)

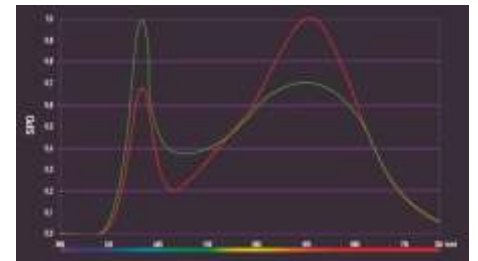
- Incorporate 4100, 4500 and NANODAC controllers with graphical data representation.
- Backlighted TFT touchscreen of 4,3" or 7,0" depending on the model for temperature and/or humidity control with graphical representation of the temperature and/or humidity curve.
- +/-0.1°C precision on-screen.
- +/-1,0°C to 1,5°C homogeneity on the chamber's inside at 37°C (depending on the model).
- +/-0,50°C to 1,0°C stability on the chamber's inside at 37°C (depending on the model).
- Cooling system controlled by electrovalves.
- Safety thermostat, protects samples from high/low temperatures.
- Microprocessor control parameters control temperature through a Pt100 or capacitive probe (depending on the model), with a +/- 0.1°C resolution.
- Humidity control: between 20% and 90% RH (+/- 3% RH), in a temperature range between +20°C and +40°C, in EGCHS/HR and EGCVS/HR models (depending on the model). Other ranges alternatively.
- Capacitive electronic probe (4-20mA) with a +/-0,75% RH precision (optional 0,5% RH).
- Humidity generator by ultrasound introducing microscopic water drops at ambient temperature in the chamber (optionally electrodes, resistors or spray nozzles).
- Drying system by condensation through refrigerating evaporator.
- Venting port, for the passage of fresh air (optional).
- Measuring CO<sub>2</sub> system (optional).
- Light intensity from 200  $\mu\text{mol m}^{-2} \text{s}^{-1}$  10.000 lux PPF to 450  $\mu\text{mol m}^{-2} \text{s}^{-1}$  25.000 lux PPF, \*\* (according to the configuration).
- Measuring system of the accumulated radiation intensity with radiation sensor (optional).
- Air flow speed freely adjustable, ensures optimal temperature uniformity through growing area. Reducing the surface stress of the plants.

## TECHNICAL SPECIFICATIONS

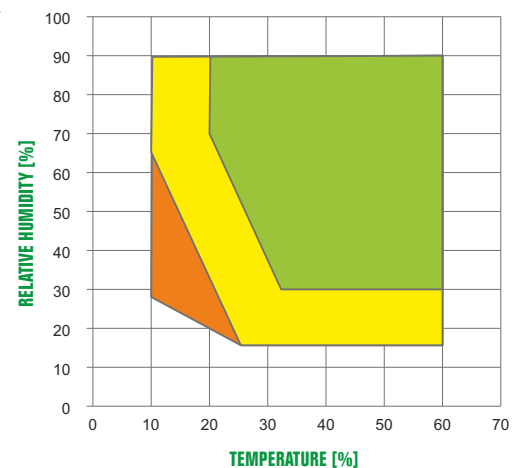
- Internal door with thermal safety glass, with hermetic seal.
- Solid opaque external door, heated to avoid condensations in the internal glass door, self-closing and large handle.
- Microprocessor to control parameters with PID system.
- Independent alarms, visual and sonorous, for maximum and minimum temperatures, with backup battery, with more than 48h duration (72h optional).
- System settings protected by numerical passwords.
- Controller remembers maximum and minimum temperature values, with graphical representation of them.
- Optional: external door with heated double glass with large handle.
- Forced air cooling, horizontally or vertically, and evenly distributed, with high homogeneity of the temperature inside the chamber.
- High density of 50 mm polyurethane insulator (CFC and HCFC free).
- Cooling gas, CFC and HCFC free, biodegradable.
- Hermetic compressor, set on dampers to reduce noise levels.
- Independent cooling and heating systems.
- AISI 304 stainless steel internal finish (optional AISI 316).
- Rounded corners to facilitate cleaning.
- Perforated stainless steel shelves, with adjustable height.
- Heated door frame to ensure an ice-free closure, in models up to -10°C.
- Magnetic seal in external door to ensure hermetic closure of both the external and internal door.
- Door lock.
- Wall port hole to introduce wires and external instruments.
- External steel finish, epoxy covered.
- Stainless steel legs with adjustable height.
- 4 wheeled base to facilitate movement, with legs with adjustable height.
- Functions in workplaces with temperatures up to +32°C.



Horizontal air flow



High efficiency LED spectrum in plants  
\* For LED details: see page 51



- OPERATING RANGE WITH HUMIDITY
- RANGE DEPENDING ON CONFIGURATION
- PUNCTUAL RANGE FOR SHORT PERIODS

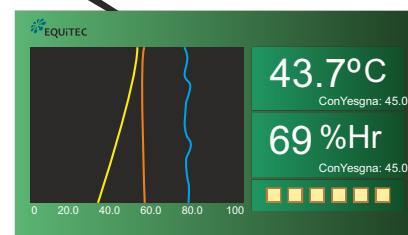




## WALK-IN MODELS EGCHS 21000 AND EGCHS 21000 HR MODULAR GROWTH CHAMBERS



- Optional temperature from +10°C optional +4°C to +50°C with lights off or on. Other temperatures on demand.
- Programmable temperature day/night.
- Humidity control: work optional range from 20% to 95% RH (+/-3%), in a temperature range from +20°C to +40°C.
- Graphic control panel with 4.3" or 7.0" TFT touchscreen.
- Electronic data recorder with graphical data representation and USB output for data download.
- Temperature and/or humidity control.
- Light intensity control, day/night photoperiod.
- 0.1°C precision probe.
- From +/-0.1°C to +27°C and from +/-0.5°C to +40°C homogeneity in the chamber (depending on the model).
- From +/-0.1°C to +27°C and from +/-0.5°C to +40°C stability in the chamber (depending on the model).
- Microprocessor for parameter control and programming with PID system.
- Humidification system by ultrasound, optionally electrodes or spray nozzles.
- Lights on shelves, on the ceiling or sides are height-adjustable.
- Light control with 6 intensity levels, allows sunrise/sunset simulation or free intensity control from 10 to 100% with LED lights.
- Horizontal or semi-horizontal flow, reduces stress on plants.
- Maximum intensity on trays from 200  $\mu\text{mol m}^{-2} \text{s}^{-1}$  10.000 lux PPFD to 2000  $\mu\text{mol m}^{-2} \text{s}^{-1}$  108.000 lux PPFD\*\*.



4500 SERIES CONTROLLER



## OPTIONAL

- Day lights tubes for algae growth.
- Growth tubes for plant growth on trays or ceiling.
- Tubes with different LED diodes configurations; for different types of plants growth and vegetative cycles, depending on the application.
- Lights on the ceiling, sides and rear side of the chamber, with thermal protection glass windows.
- Digital printer for temperature and/or humidity control.
- Remote control alarm exit (4-20 mA).
- RS 485 control connexion interface + communication protocols.
- Additional access ports for wires and tubes.
- Internal sockets.
- Accumulated radiation intensity measurement system.
- GSM phone alarm module.
- UV light tubes for sterilization.
- Data recorder.
- Wi-Fi module with Ethernet connexion + web visualization.
- 72 hours battery, safety backup for power failure situations.
- USB output for stored data download.
- Communication software with PC, on demand.
- CO<sub>2</sub> measurement system through infrared cells or thermal sensor.
- Irrigation systems.
- Cooling output, to allow the passing of fresh air; manual or regulated depending on the CO<sub>2</sub> concentration.
- CO<sub>2</sub> introduction system in the chamber with control valves.

# WALK-IN CHAMBERS VISITABLE MODULAR

## OTHER APPLICATIONS

- Food and drinks
- ICH tests
- Forensic doctor and pathological anatomy research
- Hospital and clinical applications
- Research
- Pharmaceutical products
- Laboratories
- Industry
- Growth

## COLD - HEAT - HUMIDITY

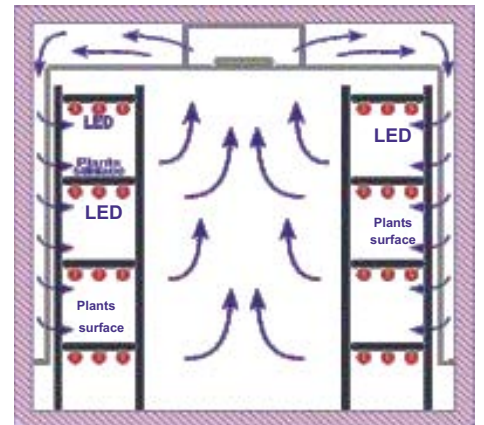
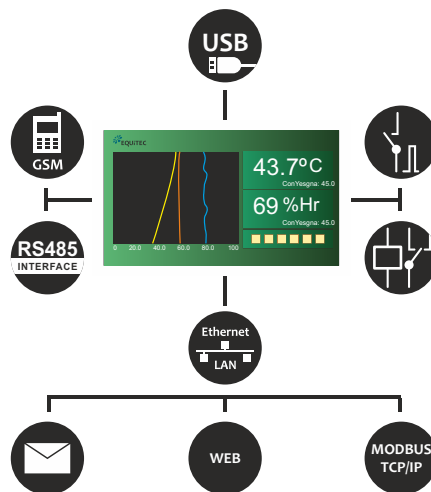
The prefabricated panels with a progression of 30 cm, allow to assemble chambers in any size, according to the needs of each application.

All panels are made of injected polyurethane or rock wool; The rigid foam is a high thermal insulation very effective, with a high energy saving.

Three thicknesses of insulation: 60, 80 or 100 mm; without thermal bridge Interior / Exterior: AISI 304 stainless steel inside or epoxy coated aluminum; exterior covered with epoxy.

## AIR FLOW

Optional: horizontal flow, provides an air speed between 0.2 m<sup>1</sup>s and 0,8 m<sup>1</sup>s ensuring an optimum temperature uniformity; even through multi-staggered growth surfaces, reducing stress on plants.

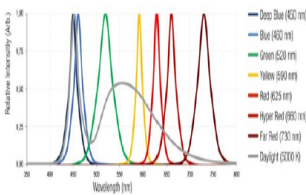


Horizontal air flow,  
homogeneity increase





Optional: control of the intensity up to 6 independent LED light channels with intensity and wavelengths spectrum dimming one-to-one



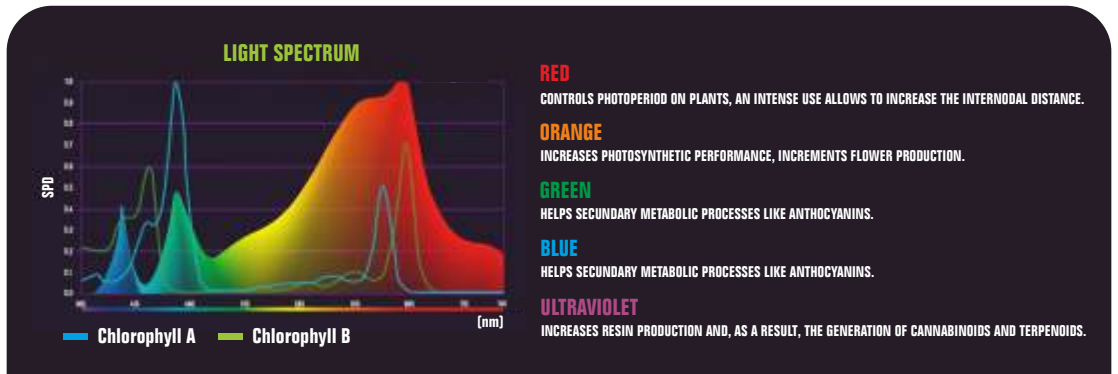
## LED LIGHTS APPLICATIONS AND PERFORMANCE FOR GROWTH CHAMBERS

### CUSTOM SPECTRA

We have a wide selection of wavelengths for photo-biological research, for example UV-A 390 nm, 455 nm blues, 530 nm greens, 660 nm reds and 730 nm far-red.

Likewise, we have specific spectrum for use in specific applications, for example a better production of secondary metabolites, including rising and better carotenoids in tomato production or an improvement of the specific metabolites in micro-algae.

- **Common applications: growth conditions of controlled plants:** temperature and humidity with photoperiods.
- **Light intensity in common applications:** 20-2.000  $\mu\text{mol m}^{-2}\text{s}^{-1}$ .
- **Available spectra:** 360 to 800 nm, depending on the required luminaire.



	S 60	M 90	L 120	XL 150
<b>CONSUMPTION</b>	25 W	40 W	50 W	80 W
<b>DIMENSION (MM) (LENGTH/DIAMETER)</b>	595 / Ø 26	895 / Ø 26	1.198 / Ø 26	1.498 / Ø 26
<b>DIMENSION (INCHES) (LENGTH/DIAMETER)</b>	23.4" / Ø 1.02"	35.2" / Ø 1.02"	47.2" / Ø 1.02"	59.0" / Ø 1.02"
<b>CERTIFICATES</b>	Marked CE			
<b>SPECTRUM</b>	Depending on the necessity: adjustable spectrum and intensity			
<b>PPDF INTENSITY</b>	from 5 $\mu\text{mol m}^{-2}\text{s}^{-1}$ to 2.000 $\mu\text{mol m}^{-2}\text{s}^{-1}$			
<b>DISTANCE TO THE PLANT</b>	100 to 1.000 mm			
<b>DECAY OF LIGHT INTENSITY</b>	Max. 10% at 35.000h in standard applications 50.000 h			
<b>LIGHT EFFICIENCY (380-820 NM)</b>	Up to 2,2 $\mu\text{mol/W}$ (depending on the spectrum)			
<b>AMBIENT WORK TEMPERATURE</b>	0/+50°C (32-100° F)			

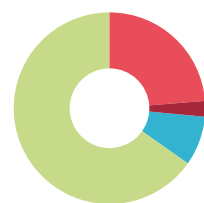
Available with transparent or diffusive cover, G13 connecting elad, IP20 and IP64 degree of protection with Valoya socket set, according to ROHS, limited 5 years warranty.

### LED LIGHT TUBES ON THE FLUORESCENT TUBE RACKS

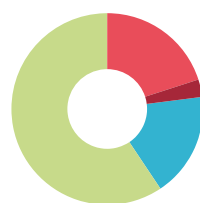
Type T6 or T8 tubes allows series of tubes to be installed in the fluorescent tube racks without any modification (magnetic ballast fixing).

Profitable, very easy to install in terminals with IP65 for particular tests, for example.

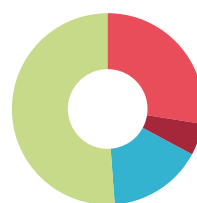
### GUIDE FOR LED TUBES APPLICATIONS



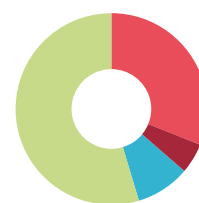
- Red 24,58%
- Far red 2,18%
- Blue 8,52%
- Green 64,72%



- Red 20,20%
- Far red 3,13%
- Blue 17,57%
- Green 59,10%



- Red 28,03%
- Far red 4,94%
- Blue 15,71%
- Green 51,27%



- Red 31,76%
- Far red 4,39%
- Blue 9,13%
- Green 54,72%



- UV 100%





Note: It is possible that some products have changed since the printing date of this catalog. The printing date was July 12 2022. The manufacturer is authorized to make changes in the design, color and shape between the date of the order and the date of printing.

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