



CLIMATIC CHAMBERS  
WITH PHOTOPERIOD

GROWTH TEST  
CHAMBERS

LIGHT TEST  
CHAMBERS

REFRIGERATED INCUBATORS  
WITH PHOTOPERIOD



04-05

**VERTICAL FLOW CHAMBERS  
FOR GROWTH TESTS  
WITH/WITHOUT HUMIDITY CONTROL**

*TEMPERATURE RANGE FROM +4°C TO +60°C  
FROM -10°C TO +60°C OPTIONALLY  
OPTIONAL HUMIDITY RANGE FROM 20% TO 90% HR*

06-07

**HORIZONTAL FLOW CHAMBERS  
FOR GROWTH TESTS  
WITH/WITHOUT HUMIDITY CONTROL**

*TEMPERATURE RANGE FROM +4°C TO +60°C  
FROM -10°C TO +60°C OPTIONALLY  
OPTIONAL HUMIDITY RANGE FROM 20% TO 90% HR*

08-09

**VERTICAL FLOW INCUBATORS  
FOR GROWTH TESTS  
WITH/WITHOUT HUMIDITY CONTROL**

*TEMPERATURE RANGE FROM +4°C TO 50°C  
FROM -10°C TO +60°C OPTIONALLY  
OPTIONAL HUMIDITY RANGE FROM 20% TO 90% HR*

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**ACCESSORIES AND APPLICATIONS  
FOR GROWTH TEST CHAMBERS  
WITH/WITHOUT HUMIDITY CONTROL**

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**VERTICAL FLOW INCUBATORS  
FOR GROWTH TESTS  
WITH/WITHOUT HUMIDITY CONTROL**

*TEMPERATURE RANGE FROM +4°C TO +50°C  
OPTIONAL HUMIDITY RANGE FROM 20% TO 90% HR*

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**LED DIODE LIGHT APPLICATIONS  
FOR GROWTH TEST CHAMBERS**

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**WALK-IN CHAMBERS FOR GROWTH TESTS  
WITH/WITHOUT HUMIDITY CONTROL**

*TEMPERATURE RANGE FROM +4°C TO +60°C  
FROM -10°C TO +60°C OPTIONALLY  
OPTIONAL HUMIDITY RANGE FROM 20% TO 90% HR*



SERIES 4000 CONTROLLER  
WITH GRAPHIC DATA REPRESENTATION

## COLD - HEAT - HUMIDITY

### • Our products and applications:

- Plant growth
- Algae
- Arabidopsis
- Frost formation
- Drosophila and insects
- Incubators
- Growth with LED lights
- Low temperature chambers
- Tissue growth
- Walk in culture chambers
- Seed germination
- Controlled test chambers
- Horizontal flow chambers
- Seed drying

### • Typical applications:

Plant growth controlled conditions:  
temperature and humidity with photo-periods

### • Light intensity in typical applications:

20-600  $\mu\text{mol m}^{-2}\text{s}^{-1}$

### • Airflow:

Available spectra: 350 to 820 nm, depending  
on the wavelength required

### • Airflow:

Airflow speed between 0.2 and 0.5 m/s, assuring  
an optimal temperature uniformity, also through  
multi-stepped growth surfaces, reducing tension  
between plants

## FORCED AIR GROWTH TEST CHAMBERS

- Temperature range from  $-10^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$ .
- Humidity range: working range from 20% to 95% RH.
- Graphic 4.3" control panel with optional 7.0" TFT touchscreen.
- Electronic data recorder with graphic data representation and USB output for data download.
- Temperature and/or humidity control.
- Optional: light intensity control, day/night photoperiod.
- Probe with a precision of  $0.1^{\circ}\text{C}$ .
- Homogeneity of  $\pm 0.1^{\circ}\text{C}$  at  $27^{\circ}\text{C}$  and of  $\pm 1.5^{\circ}\text{C}$  at  $40^{\circ}\text{C}$ .
- Stability of  $\pm 0.1$  at  $+27^{\circ}\text{C}$  and of  $\pm 0.5$  at  $+40^{\circ}\text{C}$  inside of the chamber.
- Microprocessor for parameter control and programming of PID parameters.
- Humidifying system by ultrasound, electrodes or sprayers
- Thermostat controlled heater, to protect the samples and the chamber.
- Product protection with  $t_{\text{min}}/t_{\text{max}}$ .
- Height-adjustable lights on the shelves and/or the top, and/or the sides.
- Light control with 6 levels of intensity, with a possibility to simulate sunrise/sunset.
- Horizontal or semi-horizontal airflow, to reduce stress on plants.
- Maximum intensity on trays of  $600 \mu\text{mol m}^{-2}\text{s}^{-1}$ .
- Optional airflow speed regulation, to reduce stress on plants.

## OPTIONAL ACCESSORIES

- Light tubes for algae growth.
- Tubes for plant growth on the trays or on the top.
- Tubes with different LED diode configuration.
- Digital printer for temperature values and/or humidity control.
- Remote alarm control output (4-20 mA).
- RS 485 interface connection + communication protocols.
- Additional access ports for cables and tubes.
- GSM phone alarm module.
- UV light tubes for sterilization.
- Data recorder.
- Wi-Fi module with Ethernet connection + web visualization.
- 72h battery backup for power failures.
- USB port, to download stored data.
- PC communication software, under demand.
- $\text{CO}_2$  measurement system by infrared or thermal sensor.
- Irrigation systems.
- Internal plugs.





**From +4° to +60°C**  
**From 20% to 90% HR**  
**Standard**

**Optionally**  
**From -10° to +60°C**  
**Without humidity control**  
**in negative temperatures**

FORCED AIR GROWTH CHAMBERS  
 WITH VERTICAL AIRFLOW  
 LIGHT CONTROL  
 WITH/WITHOUT HUMIDITY CONTROL

EGCS MODELS  
 OPTIONALLY  
 FROM +4°C TO +60°C  
 FROM -10°C TO +60°C

EGCS/HR MODELS  
 FROM +4°C TO +60°C  
 HUMIDITY RANGE  
 FROM 20% TO 90% HR



EGCS 351 3S HR

Model with lights on both sides and doors

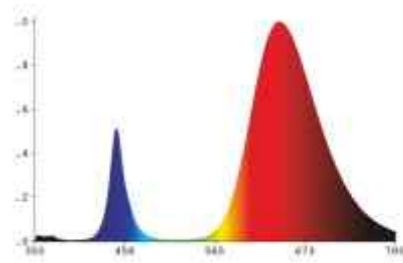


EGCS 351/1L

Model with lights on 1 tray

## GROWTH CHAMBERS (EGCS AND EGCHS): TECHNICAL SPECIFICATIONS

- Series 4000 controller with graphic data representation.
- 4.3" TFT retro-illuminated touchscreen, for temperature control (EGCS/HR models incorporate humidity control), with graphic temperature and humidity curve representation.
- Differentiated day/night temperature control from +4°C TO +60°C (from +4°C TO +60°C optionally) with lights off, from +10°C TO +60°C with lights on.
- Security thermostat, protects samples against high temperatures,
- Light intensity control, in different levels, with day/night and sunrise/sunset profiles.
- Programmable day and night temperatures and/or humidity.
- Fluorescent or LED lighting, optionally in door or shelves.

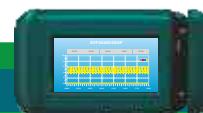


LED Spectrum of high efficiency in plants

### EGCS/HR and EGCHS/HR Models

- Humidity range: working range from 20% to 90% HR (+/-3% HR), in a temperature range from +19°C to +40°C.
- Homogeneity of +/-1.5°C inside of the chamber at 37°C, with humidity control.
- Electronic humidity probe (4-20mA), with a precision of +/-2% (+/-1% HR).
- Humidity generator by ultrasounds, introducing microscopic water droplets inside of the chamber at room temperature. Optionally by centrifugation or vapor generation.
- Drying system by condensation by refrigeration.

### EGCS and EGCHS Models



- Temperature range for standard chamber from +2°C to +60°C or from -10°C to +60°C optionally.
- EGCS and EGCHS with humidity control from 20% to 90% HR (+/-2%), in a temperature range from +19°C to +60°C.
- +/- 0.1°C precision on the display.
- Homogeneity of +/- 1.5°C at 27°C and of +/-1.0°C at 45°C inside of the chamber (with the lights off).
- Stability of +/- 0.75°C at 27°C and of +/-1.0°C at 40°C inside of the chamber (with the lights off).

### REST OF TECHNICAL SPECIFICATIONS: THE SAME AS IN EGCHS MODELS

See page 7

### EGCD MODELS WITH VERTICAL AIRFLOW

| MODELS WITH LIGHTS ON THE FRONT DOOR | MODELS WITH LIGHTS ON THE FRONT DOOR AND HUMIDITY CONTROL | MODELS WITH LIGHTS ON THE FRONT DOOR AND SIDES | MODELS WITH LIGHTS ON THE FRONT DOOR, SIDES AND HUMIDITY CONTROL | CAPACITY (LITRES) NET/GROSS | No. OF SHELVES | GRAPHIC CONTROLLER | INTERNAL GLASS DOOR | COMPRESSOR HP | INTERNAL DIMENSIONS (mm) (width x depth x height) | EXTERNAL DIMENSIONS (mm) (width x depth x height) |
|--------------------------------------|---|--|--|-----------------------------|----------------|--------------------|---------------------|---------------|---|---|
| EGCS 351                             |   |  |  | 300/350                     | 1              | ✓                  | ✓                   | 1/2           | 820 x 540 x 660                                   | 925 x 800 x 1140                                  |
|                                      | EGCS 351 HR   |  |  | 300/350                     | 1              | ✓                  | ✓                   | 1/2           | 820 x 540 x 660                                   | 925 x 800 x 1140                                  |
|                                      |   | EGCS 351 3S                                    |  | 270/330                     | 1              | ✓                  | ✓                   | 1/2           | 720 x 540 x 660                                   | 925 x 800 x 1140                                  |
|                                      |   |  | EGCS 351 3S HR   | 270/330                     | 1              | ✓                  | ✓                   | 1/2           | 720 x 540 x 660                                   | 925 x 800 x 1140                                  |
| EGCS 501                             |   |  |  | 490/550                     | 3              | ✓                  | ✓                   | 1/2           | 740 x 540 x 1200                                  | 850 x 800 x 1730                                  |
|                                      | EGCS 501 HR   |  |  | 490/550                     | 3              | ✓                  | ✓                   | 1/2           | 740 x 540 x 1200                                  | 850 x 800 x 1730                                  |
|                                      |   | EGCS 501 3S                                    |  | 420/535                     | 3              | ✓                  | ✓                   | 1/2           | 640 x 540 x 1200                                  | 850 x 800 x 1730                                  |
|                                      |   |  | EGCS 501 3S HR   | 420/535                     | 3              | ✓                  | ✓                   | 1/2           | 640 x 540 x 1300                                  | 850 x 800 x 1730                                  |
| EGCS 701                             |   |  |  | 570/710                     | 4              | ✓                  | ✓                   | 3/8           | 740 x 540 x 1350                                  | 850 x 800 x 1980                                  |
|                                      | EGCS 701 HR   |  |  | 570/710                     | 4              | ✓                  | ✓                   | 3/8           | 740 x 540 x 1350                                  | 850 x 800 x 1980                                  |
|                                      |   | EGCS 701 3S                                    |  | 500/690                     | 4              | ✓                  | ✓                   | 3/8           | 640 x 540 x 1350                                  | 850 x 800 x 1980                                  |
|                                      |   |  | EGCS 701 3S HR   | 500/690                     | 4              | ✓                  | ✓                   | 3/8           | 640 x 540 x 1350                                  | 850 x 800 x 1980                                  |
| EGCS 941                             |   |  |  | 810/940                     | 4              | ✓                  | ✓                   | 3/8           | 990 x 590 x 1350                                  | 850 x 1100 x 1980                                 |
|                                      | EGCS 941 HR   |  |  | 810/940                     | 4              | ✓                  | ✓                   | 3/8           | 990 x 590 x 1350                                  | 850 x 1100 x 1980                                 |
|                                      |   | EGCS 941 3S                                    |  | 740/900                     | 4              | ✓                  | ✓                   | 3/8           | 840 x 590 x 1350                                  | 850 x 1100 x 1980                                 |
|                                      |   |  | EGCS 941 3S HR   | 740/900                     | 4              | ✓                  | ✓                   | 3/8           | 840 x 590 x 1350                                  | 850 x 1100 x 1980                                 |
| EGCS 1501                            |   |  |  | 1190/1500                   | 4+4            | ✓                  | ✓                   | 3/8           | 1590 x 540 x 1350                                 | 1700 x 800 x 1980                                 |
|                                      | EGCS 1501 HR  |  |  | 1190/1500                   | 4+4            | ✓                  | ✓                   | 3/8           | 1590 x 540 x 1350                                 | 1700 x 800 x 1980                                 |
|                                      |   | EGCS 1501 3S                                   |  | 1100/1460                   | 4+4            | ✓                  | ✓                   | 3/8           | 1490 x 540 x 1350                                 | 1700 x 800 x 1980                                 |
|                                      |   |  | EGCS 1501 3S HR  | 1100/1460                   | 4+4            | ✓                  | ✓                   | 3/8           | 1490 x 540 x 1350                                 | 1700 x 800 x 1980                                 |
| EGCS 2201                            |   |  |  | 1880/2200                   | 4+4            | ✓                  | ✓                   | 3/8           | 1590 x 840 x 1350                                 | 1700 x 1100 x 1980                                |
|                                      | EGCS 2201 HR  |  |  | 1880/2200                   | 4+4            | ✓                  | ✓                   | 3/8           | 1590 x 840 x 1350                                 | 1700 x 1100 x 1980                                |
|                                      |   | EGCS 2201 3S                                   |  | 1700/2100                   | 4+4            | ✓                  | ✓                   | 3/8           | 1490 x 840 x 1350                                 | 1700 x 1100 x 1980                                |
|                                      |   |  | EGCS 2201 3S HR  | 1700/2100                   | 4+4            | ✓                  | ✓                   | 3/8           | 1490 x 840 x 1350                                 | 1700 x 1100 x 1980                                |



**UNIFLOW**

**From +4° to +60°C  
From 20% to 90% HR  
Standard**

**Optionally  
From -10° to +60°C**



FORCED AIR REFRIGERATED GROWTH CHAMBERS, WITH HORIZONTAL AIRFLOW, LIGHTING CONTROL, AND WITH/WITHOUT HUMIDITY CONTROL

EGCHS MODELS  
OPTIONALLY  
From +4°C to +60°C  
From -10°C to +60°C

EGCHS/HR MODELS  
From +4°C to +60°C  
HUMIDITY RANGE  
From 20% to 90% HR

**EGCHS 941 2L 2S LED**

Optional: LED lights on both shelves, door and on the back

## GROWTH CHAMBERS (EGCS AND EGCHS MODELS) TECHNICAL SPECIFICATIONS

- Internal thermal glass door, with hermetic closing.
- External opaque door, with opening aids and big sized handle.
- Microprocessor for control parameters with PID system.
- Audible and visible independent alarms for maximum and minimum temperatures, with NiCd battery backup for more than 48h of battery life (72h optionally).
- System settings protected by numeric password.
- The controller memorizes temperature and/or humidity max. and minimum values, with their graphic representation.
- Optional: external double glass door, with big sized handle.
- Forced air refrigeration, distributed horizontally, with a high temperature homogeneity inside of the chamber.
- 60 mm high density polyurethane insulation (CFC and HCFC free).
- R404 cooling gas, CFC and HCFC free, biodegradable.
- Hermetic compressor, mounted over dampers to reduce noise levels, with silent control electrovalves.
- Independent heating and cooling systems.
- AISI 304 stainless steel internal finish.
- Rounded corners, for easy cleaning.
- Security lock on the door with keys.
- Height-adjustable perforated stainless steel shelves.
- Magnetic gasket on the main door, ensuring a perfect closing.
- Access ports to introduce cables and external instruments.



EGCHS 1501 2L 2S HR LED

Model with LED lights on 2 trays, doors and on the back

- Epoxy coated steel external finish.
- Height-adjustable stainless steel feet.
- Base with 4 wheels, for easy movement.
- Tropicalization, to allow work up to +32°C room temperature.

### REST OF TECHNICAL SPECIFICATIONS: THE SAME AS IN EGCS AND EGCHS MODELS

See page 5

#### EGCD MODELS WITH HORIZONTAL AIRFLOW

| MODELS WITH LIGHTS ON THE FRONT DOOR | MODELS WITH LIGHTS ON THE FRONT DOOR AND HUMIDITY CONTROL | MODELS WITH LIGHTS ON THE FRONT DOOR AND SIDES | MODELS WITH LIGHTS ON THE FRONT DOOR, SIDES AND HUMIDITY CONTROL | CAPACITY (LITRES) NET/GROSS | No. OF SHELVES | GRAPHIC CONTROLLER | INTERNAL GLASS DOOR | COMPRESSOR HP | INTERNAL DIMENSIONS (mm) (width x depth x height) | EXTERNAL DIMENSIONS (mm) (width x depth x height) |
|--------------------------------------|---|--|--|-----------------------------|----------------|--------------------|---------------------|---------------|---|---|
| EGCHS 301                            |   |  |  | 260/350                     | 1              | ✓                  | ✓                   | 1/2           | 705 x 580 x 660                                   | 925 x 800 x 1140                                  |
|                                      | EGCHS 301 HR  |  |  | 260/350                     | 1              | ✓                  | ✓                   | 1/2           | 705 x 580 x 660                                   | 925 x 800 x 1140                                  |
|                                      |   | EGCHS 301 2S                                   |  | 240/330                     | 1              | ✓                  | ✓                   | 1/2           | 705 x 500 x 660                                   | 925 x 800 x 1140                                  |
|                                      |   |  | EGCHS 301 2S HR  | 240/330                     | 1              | ✓                  | ✓                   | 1/2           | 705 x 500 x 660                                   | 925 x 800 x 1140                                  |
| EGCHS 501                            |   |  |  | 450/500                     | 3              | ✓                  | ✓                   | 1/2           | 630 x 580 x 1200                                  | 850 x 800 x 1830                                  |
|                                      | EGCHS 501 HR  |  |  | 450/500                     | 3              | ✓                  | ✓                   | 1/2           | 630 x 580 x 1200                                  | 850 x 800 x 1830                                  |
|                                      |   | EGCHS 501 2S                                   |  | 350/480                     | 3              | ✓                  | ✓                   | 1/2           | 630 x 500 x 1200                                  | 850 x 800 x 1830                                  |
|                                      |   |  | EGCHS 501 2S HR  | 350/480                     | 3              | ✓                  | ✓                   | 1/2           | 630 x 500 x 1200                                  | 850 x 800 x 1830                                  |
| EGCHS 701                            |   |  |  | 510/701                     | 4              | ✓                  | ✓                   | 3/8           | 630 x 580 x 1350                                  | 850 x 800 x 1980                                  |
|                                      | EGCHS 701 HR  |  |  | 510/701                     | 4              | ✓                  | ✓                   | 3/8           | 630 x 580 x 1350                                  | 850 x 800 x 1980                                  |
|                                      |   | EGCHS 701 2S                                   |  | 430/680                     | 4              | ✓                  | ✓                   | 3/8           | 630 x 500 x 1200                                  | 850 x 800 x 1980                                  |
|                                      |   |  | EGCHS 701 2S HR  | 430/680                     | 4              | ✓                  | ✓                   | 3/8           | 630 x 500 x 1200                                  | 850 x 800 x 1980                                  |
| EGCHS 941                            |   |  |  | 770/940                     | 4              | ✓                  | ✓                   | 3/8           | 880 x 630 x 1350                                  | 850 x 1100 x 1980                                 |
|                                      | EGCHS 941 HR  |  |  | 770/940                     | 4              | ✓                  | ✓                   | 3/8           | 880 x 630 x 1350                                  | 850 x 1100 x 1980                                 |
|                                      |   | EGCHS 941 2S                                   |  | 660/900                     | 4              | ✓                  | ✓                   | 3/8           | 880 x 550 x 1350                                  | 850 x 1100 x 1980                                 |
|                                      |   |  | EGCHS 941 2S HR  | 660/900                     | 4              | ✓                  | ✓                   | 3/8           | 880 x 550 x 1350                                  | 850 x 1100 x 1980                                 |
| EGCHS 1501                           |   |  |  | 1140/1500                   | 4+4            | ✓                  | ✓                   | 3/8           | 1390 x 580 x 1350                                 | 1100 x 850 x 1980                                 |
|                                      | EGCHS 1501 HR   |  |  | 1140/1500                   | 4+4            | ✓                  | ✓                   | 3/8           | 1390 x 580 x 1350                                 | 1100 x 850 x 1980                                 |
|                                      |   | EGCHS 1501 2S                                  |  | 880/1400                    | 4+4            | ✓                  | ✓                   | 3/8           | 1390 x 500 x 1350                                 | 1100 x 850 x 1980                                 |
|                                      |   |  | EGCHS 1501 2S HR   | 880/1400                    | 4+4            | ✓                  | ✓                   | 3/8           | 1390 x 500 x 1350                                 | 1100 x 850 x 1980                                 |
| EGCHS 2201                           |   |  |  | 1680/2200                   | 4+4            | ✓                  | ✓                   | 3/8           | 1390 x 880 x 1350                                 | 1700 x 1100 x 1980                                |
|                                      | EGCHS 2201 HR   |  |  | 1680/2200                   | 4+4            | ✓                  | ✓                   | 3/8           | 1390 x 880 x 1350                                 | 1700 x 1100 x 1980                                |
|                                      |   | EGCHS 2201 2S                                  |  | 1510/1980                   | 4+4            | ✓                  | ✓                   | 3/8           | 1390 x 800 x 1350                                 | 1700 x 1100 x 1980                                |
|                                      |   |  | EGCHS 2201 2S HR   | 1510/1980                   | 4+4            | ✓                  | ✓                   | 3/8           | 1390 x 800 x 1350                                 | 1700 x 1100 x 1980                                |





**From +4° to +50°C  
From 20% to 90% HR  
Standard**

**Optionally  
From -10° to +50°C**

*Without humidity control  
in negative temperatures*

REFRIGERATED INCUBATORS  
WITH PHOTOPERIOD  
VERTICAL AIRFLOW

ERIS/GCS MODELS  
OPTIONALLY  
From +4°C to +50°C  
From -10°C to +50°C

ERIS/GCS/HR MODELS  
From +4°C to +50°C  
HUMIDITY RANGE  
From 20% to 90% HR

ERIS/GCS 855 HR

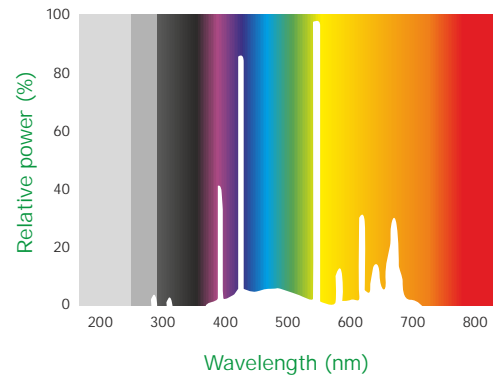
Model with lights on the door



## GROWTH CHAMBERS (ERIS/GCS): TECHNICAL SPECIFICATIONS

- Series 4000 controller with graphic data representation.  
4.3" TFT retro-illuminated touchscreen, for temperature control
- (ERIS/GCS/HR models incorporate humidity control), with graphic temperature and humidity curve representation.
- Differentiated day/night temperature control.
- Temperature control range from +4°C TO +50°C (from -10°C to +50°C optionally) with lights off, from +15°C TO +50°C with lights on.
- Security thermostat, to protect samples against high temperatures.
- Light intensity control, in different levels, with day/night and sunrise/sunset profiles.
- Programmable day and night temperatures and/or humidity.
- Fluorescent or LED lighting, optionally in door or shelves.
- Audible and visible independent alarms for maximum and minimum temperatures (and/or humidity), probe failures and power supply.
- NiCd battery backup (for up to 48h) with incorporated charger.
- Control panel protection by password.
- Solid door with opening aids and big sized handle.
- Right or left door opening (please specify in the order).
- Security closing with key lock on the door.
- R404a cooling gas, CFC and HCFC free, biodegradable.
- Hermetic compressor, mounted over dampers to reduce noise levels.

FLUORESCENT LIGHT SPECTRUM REPRESENTATION  
GROW TYPE FROM OSRAM



### EGCS and EGCHS Models

- Temperature range for standard chamber from +2°C to +50°C or from -10°C to +50°C optionally.
- EGCS and EGCHS with humidity control from 20% to 90% HR (+/-2%), in a temperature range from +19°C to +60°C.
- +/- 0.1°C precision on the display .
- Homogeneity of +/- 1.5°C at 27°C and of +/-1.0°C at 45°C inside of the chamber (with the lights off).
- Stability of +/- 1.0°C at 27°C and of +/-0.5°C at 40°C inside of the chamber (with the lights off).
- Magnetic perimeter gasket on the door, to ensure a perfect door closing.
- 60 mm high density polyurethane insulation, CFC and HCFC free.
- Height-adjustable stainless steel feet.
- Tropicalization, to allow work up to +32°C working area temperature.

### ERIS/GCS/HR Models

- Humidity range: working range from 20% to 90% HR (+/-3% HR), in a temperature range from +19°C to +40°C.
- Homogeneity of +/-1.5°C inside of the chamber at 37°C, with humidity control.
- Electronic humidity probe (4-20mA), with a precision of +/-2% (+/-1% HR).
- Humidity generator by ultrasound, introducing microscopic water droplets inside of the chamber at room temperature. Optionally by centrifugation or vapor generation.
- Drying system by condensation by refrigeration.
- AISI 304 stainless steel internal and external finish.
- Rounded corners for easy cleaning.
- Plastic coated steel rod (stainless steel optionally) shelves, adjustable in height.

### ERIS/GCS MODELS WITH VERTICAL AIRFLOW

| MODELS WITH LIGHTS ON THE FRONT DOOR | MODELS WITH LIGHTS ON THE FRONT DOOR AND HUMIDITY CONTROL | CAPACITY (LITRES) NET/GROSS | GRAPHIC CONTROLLER | SAFETY THERMOSTAT | No. OF SHELVES | ACCESS PORTS | COMPRESSOR HP | INTERNAL/EXTERNAL FINISH | INTERNAL DIMENSIONS (mm) (width x depth x height) | EXTERNAL DIMENSIONS (mm) (width x depth x height) |
|--------------------------------------|---|-----------------------------|--------------------|-------------------|----------------|--------------|---------------|--------------------------|---|---|
| ERIS/GCS 325                         |   | 325                         | ✓                  | ✓                 | 3              | ✓            | 1/4           | Inox*                    | 362 x 588 x 1412                                  | 482 x 695 x 2100                                  |
|                                      | ERIS/GCS 325 HR   | 325                         | ✓                  | ✓                 | 3              | ✓            | 1/4           | Inox*                    | 362 x 588 x 1412                                  | 482 x 695 x 2100                                  |
| ERIS/GCS 525                         |   | 525                         | ✓                  | ✓                 | 4              | ✓            | 5/8           | Inox*                    | 567 x 689 x 1339                                  | 687 x 794 x 1989                                  |
|                                      | ERIS/GCS 525 HR   | 525                         | ✓                  | ✓                 | 4              | ✓            | 5/8           | Inox*                    | 567 x 689 x 1339                                  | 687 x 794 x 1989                                  |
| ERIS/GCS 855                         |   | 855                         | ✓                  | ✓                 | 4              | ✓            | 1             | Inox*                    | 637 x 851 x 1529                                  | 757 x 960 x 2130                                  |
|                                      | ERIS/GCS 855 HR   | 855                         | ✓                  | ✓                 | 4              | ✓            | 1             | Inox*                    | 637 x 851 x 1529                                  | 757 x 960 x 2130                                  |
| ERIS/GCS 1345                        |   | 1345                        | ✓                  | ✓                 | 4+4            | ✓            | 1             | Inox*                    | 1264 x 689 x 1529                                 | 1385 x 794 x 2133                                 |
|                                      | ERIS/GCS 1345 HR  | 1345                        | ✓                  | ✓                 | 4+4            | ✓            | 1             | Inox*                    | 1264 x 689 x 1529                                 | 1385 x 794 x 2133                                 |

# FORCED AIR REFRIGERATED INCUBATORS WITH PHOTOPERIOD FOR GROWTH TESTS

VERTICAL AND HORIZONTAL AIRFLOW



EGCS 1501 3S

Model with lights on both sides and doors

**From +4° to +60°C**  
**From 20% to 90% HR**

GROWTH LABORATORY CHAMBERS WITH OR WITHOUT HUMIDITY CONTROL

EGCS AND EGCHS MODELS WITH FORCED AIR REFRIGERATION  
From +4°C to +60°C  
OPTIONALLY  
From -10°C to +60°C

EGCS/HR MODELS AND EGCHS/HR WITH FORCED AIR REFRIGERATION  
From +2°C to +60°C  
IN A HUMIDITY RANGE  
From 20% to 90% HR

OPTIONALLY  
From -10°C to +60°C



EGCS 1501 HR

Model with lights on the door



Internal chamber view of the mode with light on 2 trays

EGCHS 351 HR

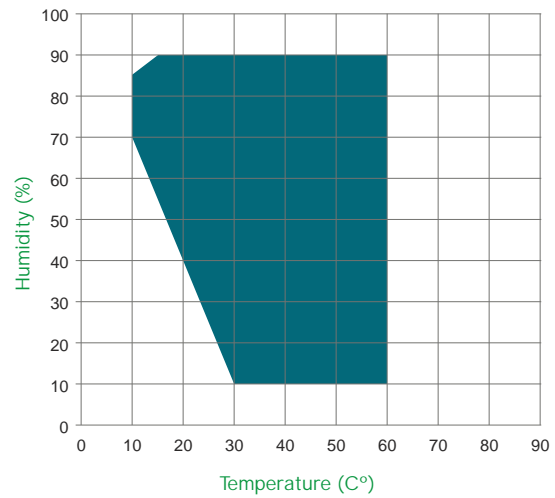


**OPTIONAL ACCESSORIES  
FOR EGCS, EGCS/HR, EGCHS, EGCHS/HR,  
ERIS/EGC AND ERIS/EGC/HR**

- Additional lights inside of the chamber with different positioning (under order: on the top, shelves, sides, on the back...).
- Air speed regulation between 0.2 m/s and 0.5 m/s, assuring an optimum temperature homogeneity, reducing stress on plants.
- Air drying system up to 15% HR at +4°C.
- Humidity generator up to +98% HR.
- LED lights on the shelves, door and sides; corresponding to the wavelength of sunlight: 380-720nm.
- Circular temperature and/or humidity recorder, for 7 days, with battery backup, for power failure situations
- Printer for temperature and humidity data.
- RS 485/272 remote control connection.
- Potential free output for remote alarm control.
- External USB data storage.
- Access ports to introduce cables, probes, and internal/external instruments.
- Optional PC software, on demand.
- UV light tubes for sterilization.
- Internal plugs inside of the chamber, for any type of test.
- Controller with 7.0" optional screen, with graphic data representation.
- GSM phone alarm module (optional).
- Ethernet output, to monitor data by cable (MODBUS TCP/ICP) or by wireless module, including specific software for data viewing and control (optional).
- Battery backup with up to 48h of battery life, 72h optionally.
- Internal and external stainless steel finish.



Shelves with LED view



| Applications                   | Temperature range (with the lights off) | Temperature range (with the lights on) | Temperature range (with the lights on) | No. of shelves | Light types   |
|--------------------------------|---|--|--|----------------|---|
| Constant temperature           | de +0° C a +60° C                       | from +10° C or +60° C                  | 15% or 90% HR                          | 2 to 4         | On the door and/or sides  |
| Low temperatures               | de -10° C a +60° C                      | from -10° C or +60° C                  | Without humidity control               | 2 to 4         | On the door and/or sides and/or shelves, with LED lights in shelves below 15° C |
| Dew formation                  | de +0° C a +50° C                       | from +0° C or +50° C                   | Without humidity control               | 2 to 4         | On the door and/or sides and/or shelves, with LED lights in shelves below 15° C |
| Arabidopsis                    | de +2° C a +50° C                       | from +10° C or +40° C                  | 20% or 90% HR                          | 2-6            | On the door and/or sides and/or shelves   |
| Plant growth                   | from +2° C a +60° C                     | from +10° C or +50° C                  | 10% or 90% HR                          | 2-6            | On the door and/or sides  |
| Algae growth                   | de +4° C to +55° C                      | from +10° C or +55° C                  | 20% or 90% HR                          | 2-3            | On the door   |
| Insect incubation (drosophila) | de +2° C a +45° C                       | from +10° C or +50° C                  | 20% or 70% HR                          | 4-6            | On the door and/or sides  |
| Tissue growth                  | de +2° C a +50° C                       | from +10° C or +50° C                  | Without humidity control               | 2-4            | On the door and/or sides  |
| Seed storage                   | de +2° C a +50° C                       | from +10° C or +50° C                  | 20% or 90% HR                          | 10-15          | On the door and/or sides  |
| Seed storage                   | de +2° C a +50° C                       | from +10° C or +50° C                  | Without humidity control               | 10-15          | On the door and/or sides  |

FORCED AIR REFRIGERATED  
INCUBATORS WITH PHOTOPERIOD,  
WITH LIGHTING CONTROL,  
WITH OR WITHOUT HUMIDITY  
CONTROL

ERIS/GCBO OPTIONAL  
MODELS  
FROM +4°C TO +50°C

ERIS/GCBO/HR  
MODELS  
FROM +4°C TO +50°C  
HUMIDITY RANGE  
FROM 20% TO 90% HR



with 6 fluorescent tubes in 1 shelf and 6 optional LED tubes on the door



ERIS/EGBO 344 HR

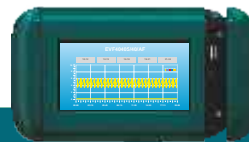


## TECHNICAL SPECIFICATIONS

- Forced air refrigeration system.
- PID independent microprocessor, to control all system parameters.
- Standard temperature range from +4°C to +50°C with the lights off; from +10°C to +50°C.
- Digital regulators with LED screen, to indicate temperature (and/or humidity) and control parameters. Digital temporizer.
- Optionally in ERIS/EGBO and ERIS/EGBO/HR models: TFT 4.3" touchscreen with graphic temperature and/or humidity curve representation.
- +/-0.1°C precision on display.
- Homogeneity of +/-1.5°C inside of the chamber at 37°C.
- Stability of +/-0.85°C inside of the chamber at 37°C.
- NTC probe for temperature control.
- Security lock with keys on the door.
- Main switch (on/off) protected with key.
- Hermetic compressor mounted over dampers, to reduce noise levels.
- R134a cooling gas, biodegradable, CFC and HCFC free.
- Refrigeration system by silent electrovalve.
- Internal one piece ABS (thermoformed polypropylene) internal finish, very resistant.
- Epoxy coated steel external finish.
- Models with solid door.
- Right or left door opening (please specify on the order).
- Height-adjustable feet.
- 50 mm high density injected polyurethane insulation, CFC and HCFC free.
- Tropicalization, to allow work up to +32°C room temperature.

## ERIS/GCS/HR Models

- Humidity control: working temperature range from 20% to 90% HR (+/- 3% HR), in a temperature range from +19°C to +40°C.
- Homogeneity of +/- 1.5°C inside of the chamber at 37°C, with humidity control.
- Electronic humidity probe (4-20 mA), with a precision of +/- 2%.
- Humidity generator by centrifugation or ultrasound, introducing inside of the chamber microscopic water droplets at room temperature.
- Drying system by condensation (refrigeration).



Series 4000 controller in optional models ERIS/EGBO and ERIS/EGBO/HR

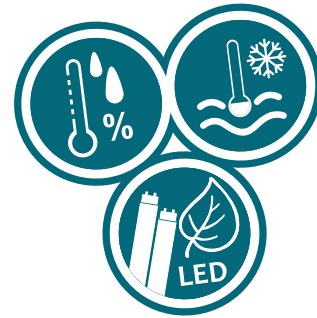
- 4.3" TFT touchscreen (7.0" optionally) with graphic data representation.
- GSM phone alarm module (optional).
- RS 485 remote control connection.
- Ethernet output, to monitor data by cable (MODBUS TCP/ICP) or by wireless module, including specific data visualization and control software (optional).
- Battery backup for more than 48h (72h optionally).

### ERIS/EGBO MODELS WITH VERTICAL AIRFLOW

| MODELS WITH LIGHTS ON THE FRONT DOOR | MODELS WITH GRAPHIC SCREEN AND LIGHTS ON THE DOORS | MODELS WITH GRAPHIC SCREEN, LIGHTS ON THE DOORS AND HUMIDITY CONTROL | CAPACITY (LITRES) NET/GROSS | DIGITAL CONTROLLER | No. OF SHELVES | ACCESS PORTS | COMPRESSOR HP | INTERNAL/EXTERNAL FINISH | INTERNAL DIMENSIONS (mm) (width x depth x height) | EXTERNAL DIMENSIONS (mm) (width x depth x height) |
|--------------------------------------|--|--|-----------------------------|--------------------|----------------|--------------|---------------|--------------------------|---|---|
| ERIS/EGBO 54                         | ERIS/EGBO 54                                       | ERIS/EGBO 54 HR  | 54                          | ✓                  | 1              | ✓            | 1/6           | ABS/Epoxy                | 455 x 310/200 x 410                               | 540 x 505 x 629                                   |
| ERIS/EGBO 140 UC                     | <i>Not available</i>                               | <i>Not available</i>   | 140                         | ✓                  | 2              | ✓            | 1/5           | ABS/Epoxy                | 530 x 410/330 x 650                               | 593 x 620 x 832                                   |
| ERIS/EGBO 182                        | ERIS/EGBO 182                                      | ERIS/EGBO 182 HR   | 180                         | ✓                  | 2              | ✓            | 1/5           | ABS/Epoxy                | 530 x 410/330 x 650                               | 593 x 620 x 832                                   |
| ERIS/EGBO 344                        | ERIS/EGBO 344                                      | ERIS/EGBO 344 HR   | 344                         | ✓                  | 4              | ✓            | 1/4           | ABS/Epoxy                | 475 x 470 x 1415                                  | 590 x 645 x 1820                                  |
| ERIS/EGBO 554                        | ERIS/EGBO 554                                      | ERIS/EGBO 554 HR   | 554                         | ✓                  | 4              | ✓            | 1/4           | ABS/Epoxy                | 625 x 545 x 1600                                  | 750 x 755 x 2000                                  |

# PLANT GROWTH CHAMBERS

## WALK IN VISITABLES



### COLD - HEAT - HUMIDITY

The prefabricated elements with a progression of 30 cm, allow the assembly of the chamber in any size, according to their needs.

All panels are made of injected polyurethane rigid foam with a high thermal insulation, with high energy saving.

Three insulation thicknesses: 60, 80 or 100 mm; without thermal bridges.

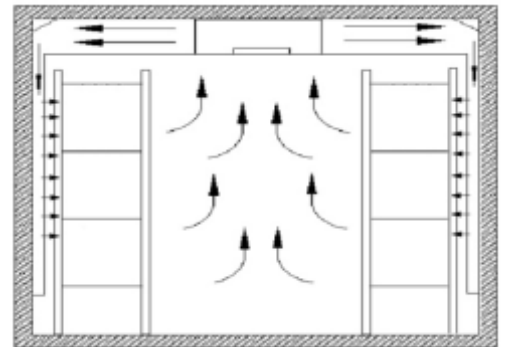
Internal/external: AISI 304 stainless steel internal or epoxy coated steel external chamber finish.

### AIRFLOW

Optional horizontal, delivered at a speed of  $0.2 \text{ m s}^{-1}$  to  $0.5 \text{ m s}^{-1}$ , to ensure excellent temperature uniformity; even across the multi-tiered growing surfaces, to reduce the stress on plants.

Our products and applications:

- Plant growth
- Algae
- Arabidopsis
- Frost formation
- Drosophila and insects
- Incubators
- Grow with LED lights
- Low temperature chambers
- Tissue culture
- Walk in culture chambers
- Seed germination
- Chambers for controlled tests
- Horizontal flow chambers



# LIGHT APPLICATIONS WITH LED DIODES



- **Typical applications**  
Controlled plant growth conditions: temperature and humidity, with photoperiods

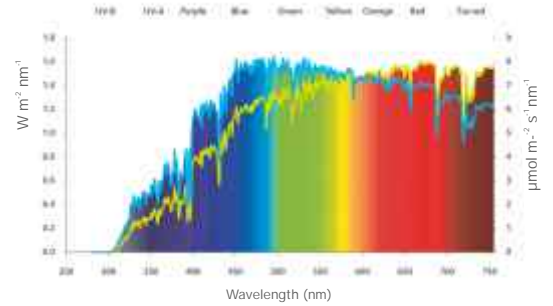
- **Light intensity in typical applications**  
20-600  $\mu\text{mol m}^{-2}\text{s}^{-1}$ .

- **Available spectra**  
350 to 820 nm, acc the requests tube

## CUSTOMIZED SPECTRA

We have a selection of narrow bandwidth spectra available for photobiological research, for example UV-A 390 nm, blue 455 nm, green 530 nm, red 660nm and far-red 730nm. We also have a selection of specific spectra that can be used for specialized purposes, for example, for enhanced production of secondary metabolites, including enhancing lettuce coloration or enhancing production of specific metabolites in microalgae.

- Spectral energy irradiance ( $\text{W m}^{-2}\text{nm}^{-1}$ )
- Spectral photon irradiance ( $\mu\text{mol m}^{-2}\text{s}^{-1}\text{nm}^{-1}$ )



Energy and quantum based properties of light's spectrum

|   | L10   | L14             | L18             | L30             |
|---|---|-----------------|-----------------|-----------------|
| Power consumption (incl.PSU)  | 10 W  | 14 W            | 18 W            | 30 W            |
| Dimensions, mm (length/diameter)  | 595 / Ø 26  | 895 / Ø 26      | 1.198 / Ø 26    | 1.498 / Ø 26    |
| Dimensions, inches (length/diameter)  | 23.4" / Ø 1.02"   | 35.2" / Ø 1.02" | 47.2" / Ø 1.02" | 59.0" / Ø 1.02" |
| Certifications  | CE marked   |                 |                 |                 |
| Spectrum  | Ap67, AP673L, G2, Ns12, Architectural                   |                 |                 |                 |
| Spectrum type   | Wide band to 820 nm; acc. the selected lamp             |                 |                 |                 |
| Distance from the plants (rec.)   | <0.5 m  |                 |                 |                 |
| Light intensity decay   | Max 10% at 35.000 h. typical usage 50.000 h.            |                 |                 |                 |
| Light efficacy (380 - 820 nm)   | Up to 1,7 $\mu\text{mol}/\text{W}$ (spectrum dependent) |                 |                 |                 |
| Operating room temperature  | 0-40°C (32-100° F)                                      |                 |                 |                 |
| Available with clear cover as a default, with G13 power connection. Input protection ratings IP20 and IP67 with End-Cap-Set, ROHS compliance, 3 years of limited warranty. (NS12 spectrum is available only with clear cover, diffused cover is available with factory order-minimum order quantities apply). |   |                 |                 |                 |

## LED TUBES PLACED ON THE FLUORESCENT TUBE SUPPORTS

T8 tubes, allow the series' products to be installed in fluorescent tube fixtures without modification (fixtures with magnetic ballast). Cost effective, easy to install end-caps with IP64 rating for e.g. testing purposes.



## APPLICATION GUIDE FOR LED TUBES

|             |            | AP67 | AP973L | G2             | NS12      | Architectural |
|-------------|------------|------|--------|----------------|-----------|---------------|
| Ultraviolet | <400 nm    | 0%   | 0%     | 0%             | 1%/0,5%   | 0%            |
| Blue        | 400-500 nm | 14%  | 12%    | 8%             | 20%/21%   | 14%           |
| Green       | 500-600 nm | 16%  | 19%    | 2%             | 39%/38%   | 31%           |
| Red         | 600-700 nm | 53%  | 61%    | 65%            | 35%/35%   | 43%           |
| Far-red     | 700-800 nm | 17%  | 8%     | 25%            | 5%/6%     | 12%           |
| PAR         | 400-700 nm | 83%  | 92%    | 75%            | 94%/94%   | 88%           |
| CCT         | Kelvin     | 2500 | 2000   | Not applicable | 4800/5000 | 3700          |
| CRI         |            | 70   | 60     | Not applicable | 80/91     | 85            |

- AP67: Strong vegetative and generative growth
- AP973L: Strong vegetative growth
- G2: Enhancing vernalization process
- NS12: Wide sun-like spectrum for research and biotech
- Architectural: Warm white spectrum for architectural applications



Revised edition:  
09/17

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