

REF: PG-020  
 Last edit: 20-Jan-02



### Specifications

Growth area ft <sup>2</sup> (m <sup>2</sup> ):	two tiers of 8.2 (0.76) ea.
Growth height in (cm):	two tiers of 23 (60) ea.
Growth capacity ft <sup>3</sup> (litres):	two tiers of 17 (480) ea.
Interior dimensions in. (cm):	two tiers of 45W x 26D x 29H (114 x 67 x 75) ea.
Exterior dimensions in. (cm):	72W x 29D x 78H (183 x 75 x 200)
Temperature range (°C)	maximum design ambient temp. of +35°C
lights off:	+4 to +45
lights on:	+10 to +45
control:	±0.5 and control point
Light intensities µmoles/m <sup>2</sup> /s	
maximum approx.:	up to 400@6" @20°C
control:	2 level programming/light type
Humidity control, <i>Optional</i>	see chart
Electrical service:	60Hz: 120V, 1Ø 50Hz: 220V, 1Ø
Weight lb. (kg):	1000 (455)

### Applications

The E Series is designed to provide precise control of the chamber environment and the advanced CMP4030 controller permits maximum flexibility in developing research protocols. This particular chamber features dual independent grow areas allowing researchers to conduct 2 separate experiments under two different environments in one chamber.

This product can be used for agricultural and life science applications including but not limited to: plant production, bio-engineering, soil/food sciences, and pharmaceutical research. Please contact Convion with your specific needs and our experienced and trained staff will ensure you receive the right product and options for your application.

### Construction

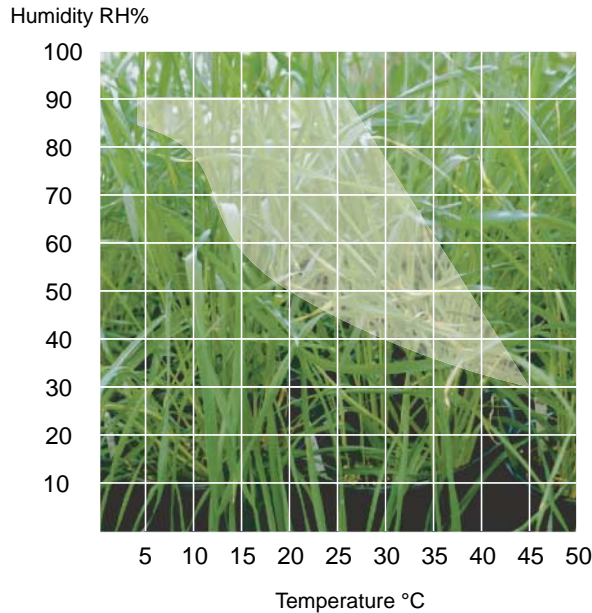
The exterior cabinet is free standing and insulated with CFC free polystyrene. The exterior skin is a blue-green baked enamel on patterned aluminum. The interior is a white reflective skin offering uniform light reflectance.

The floor pan is constructed of 22 gauge stainless steel sloped toward the adjacent machine compartment. A drain fitting is installed and connected to an external drain tube. The chamber floor supports the plant growth area above and directs uniform conditioned air up to the plant canopy by using a unique Convion innovation called, *Unifloor*®.

The machine compartment contains all the controls, blower, and internal refrigeration system. Easy access to the compressor and refrigeration components is by an external maintenance panel on the end of the chamber. This means servicing is accomplished without disturbing the plant growth areas.

*Continued on page 2...*





**Chart Shows**

*Temperature and humidity operating envelope. Based on an empty chamber with the following ambient condition of 21°C with 50% RH. The additive humidity envelope shown is an optional feature,*

*...continued from page 1*

All handles and door hinges are heavy duty chrome finish. The observation window is dual pane with a hinged light tight cover measuring approximately 11" x 15" (280mm x 380mm).

Doors have keyed magnetic locks preventing unauthorized access to growth area. Each opening clears 37"W x 23"H (96cm x 60cm).

**Lighting**

The standard light intensity is approx. 400 micromoles/m<sup>2</sup>/s and is a combination of incandescent with fluorescent lamps to achieve a balanced light spectrum.

The lamp heat is removed by the correctly sized refrigeration system.

Ballasts are accessed through a exterior maintenance panel with a dedicated circulating fan to remove ballast heat from the enclosure. The lamp canopy is energized and de-energized using reliable solid state devices.

**Refrigeration**

The cabinet is supplied with a self-contained air cooled hermetically sealed condensing unit with hot gas bypass for continuous compressor operation, extended compressor life, and close temperature control. Condensing unit is located in machine compartment.



**The E7/2 Advantage**

This dependable unit from Convion's line of compact reach-in growth chambers has been a favourite of researchers throughout the world for many years.

Two fully independent chambers are vertically stacked to maximize the footprint covered, making the E7/2 extremely space-efficient and ideally suitable where laboratory space is limited.

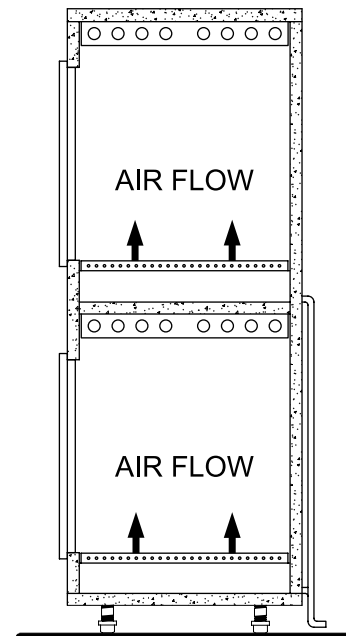
The identical configuration of each growth area allows comparative concurrent research to be completed in applications such as studying the effects of a prolonged photoperiod in one chamber, with all other environmental factors being constant.

Next generation lamp configurations coupled with the use of energy-efficient components result in a reduction of overall operating costs by as much as 35% over more traditionally configured equipment.

Consistent and uniform airflow is achieved in the growth areas by use of Convion's patented *Unifloor*®.

All controlled parameters are managed through Convion's reliable CMP4030 controller (one provided for each growth area) giving the researcher maximum flexibility and features.

Sound manufacturing principals, quality components and our ISO9001 quality control program ensures this equipment performs as required and expected by Convion's many satisfied customers.



Information subject to change without written notice.

REF: PG-034  
 Last edit: 25-Sept-03



### Applications

With 66 inches of growth height this chamber is designed for growing most plants from seedling to full maturity. The growing level within the chamber provide the smallest foot print possible because all the mechanical components are on the top of the unit.

Please contact Conviron with your specific needs and our experienced and trained staff will ensure you receive the right product and options for your application.

### Construction

The exterior cabinet is free standing and insulated with CFC free polystyrene. The exterior skin is a blue-green baked enamel on patterned aluminum. The interior surface is reflective white aluminum enhancing light distribution.

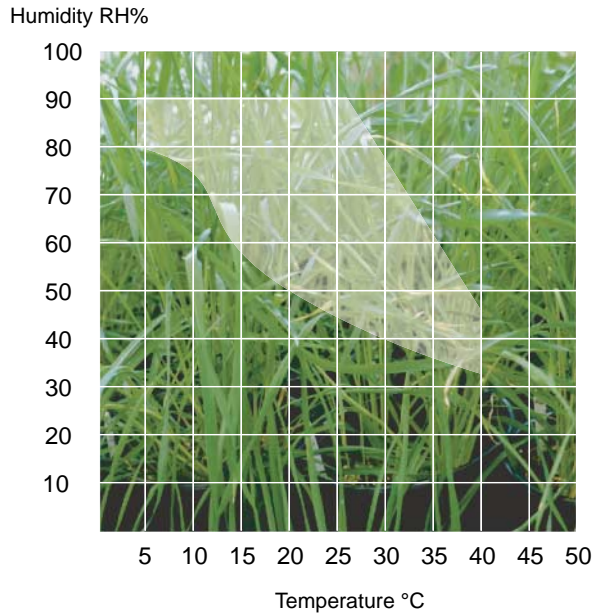
The drain pan is stainless steel and sloped toward a drain fitting connected to an external drain tube.

### Specifications

<b>Growth area</b> ft <sup>2</sup> (m <sup>2</sup> ):	20 (1.9)
<b>Growth height</b> in (cm):	66 (168)
<b>Interior dimensions</b> in. (cm):	96W x 30D (243 x 76)
<b>Exterior dimensions</b> in. (cm):	100W x 35.5D x 116H (254 x 90 x 295) 128 (325) is required for installation
<b>Temperature range</b> (°C)	maximum design ambient temp. of +35°C
lights off:	+4 to +40
lights on:	+10 to +40
control:	±0.5 at control point
<b>Light intensities</b> μmoles/m <sup>2</sup> /s	
maximum approx:	700
control:	three level programming of lamps
<b>Humidity control RH</b> <b>Optional</b>	see chart
<b>Electrical service:</b>	60Hz: 120/208/3Ø 50Hz: 220/380/3Ø
<b>Shipping weight</b> lb. (kg):	1800 (816)



*The PGC20 can be equipped with an automatic irrigation system (optional). This feature provides consistent water to all plants and reduces the amount of time spent manually watering plants.*



**Chart Shows**  
 Temperature and humidity operating envelope. Based on an empty chamber with the following ambient condition of 21°C with 50% RH. The additive humidity envelope shown is an optional feature.

**Lighting**

The standard light intensity is approx. 700 micromoles/m<sup>2</sup>/s using energy efficient T8 fluorescent and incandescent lamps for a balanced light spectrum.

The lamp canopy is energized and de-energized using reliable solid state devices. An adjustable shelf is provided to locate plants at the optimum height in relation to the lamps.

**Refrigeration**

The cabinet is supplied with a water cooled hermetically sealed condensing unit with hot gas bypass for continuous scroll compressor operation, extended compressor life and close temperature control. The condensing unit is charged with CFC-free refrigerant. A 3-way proportioning valve smoothly modulates the heating and cooling functions of the chamber. A bar graph indicator on the control system displays the operation and position of the valve. Air-cooled units are available as an option.



*Convion's CMP4030 controller provides the power of a full featured microprocessor and can be programmed at the chamber or remotely using Convion's optional Central Control system (CCS).*

**The PGC20 advantage**

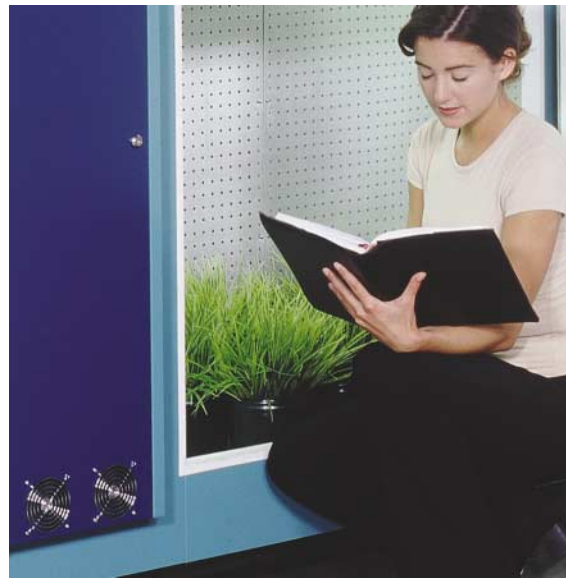
The PGC20 combines state-of-the-art technology and proven engineering principals to give the researcher an ideal environment for growing plants. The growing space is maximized providing the researcher with 20ft<sup>2</sup> (1.9m<sup>2</sup>) of overall growth area. Top mounting of mechanical components allow units to be installed back-to-back, and side-to-side making it the most space efficient design we have ever produced.

Major components are designed for reliability and performance, for example; refrigerant dye, scroll compressor, 3-way proportional valve, high and low pressure transducers, long-life fan, T8 lighting and thermistor temperature sensor. Variable fan speed control provides adjustment to the speed of the recirculated air, reducing the drying effect on plants.

Engineered and tapered air-handling plenums ensure consistent upward airflow into the chamber. A quantum light sensor is included to measure light intensity and provide alarm capability if operating outside set parameters.

All controlled parameters are managed and logged through Convion's reliable CMP4030 controller giving the researcher maximum flexibility and documented results.

Sound manufacturing principals, quality components and our ISO9001 quality control program ensures that this equipment performs as specified.



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REF: PG-005  
 Last edit: 23-April-03



#### Conviron's Closed-Loop Light Control

Electronic dimming ballasts with high efficiency T8 lighting results in longer rated lamp life, less heat generation and a 33% energy reduction to operate chamber. The dimming ballasts permit precise light intensity control with pre-programmed set levels.

### Specifications

<b>Growth area</b> ft <sup>2</sup> (m <sup>2</sup> ):	14 (1.3)
<b>Growth height</b> in (cm):	57 (145)
<b>Growth capacity</b> ft <sup>3</sup> (litres):	68 (1934)
<b>Interior grow dimensions</b> in. (cm):	65W x 32D (166 x 81)
<b>Exterior dimensions</b> in. (cm):	95W x 35D x 84H (242 x 89 x 213)
<b>Temperature range</b> (°C)	maximum design ambient temp. of +35°C
lights off:	+4 to +45
lights on:	+10 to +45
control:	±0.5 at control point
<b>Light intensities</b> µmoles/m <sup>2</sup> /s	
maximum, approx:	up to 865
control:	user programmed in micromoles
<b>Humidity control</b> Rh <i>Optional</i>	see chart
<b>Electrical service:</b>	60Hz: 120/208V, 3Ø 50Hz: 220/380V, 3Ø
<b>Weight</b> lb. (kg):	1445 (655)

### Applications

The PGR Series is designed to provide precise control of the chamber environment and the advanced CMP4030 controller permits maximum flexibility in developing research protocols. This product can be used for agricultural and life science applications including but not limited to: plant production, bio-engineering, soil and food sciences, and pharmaceutical research. Please consult Conviron with your particular application and area of research and we will provide the appropriate options to suit your needs.

### Construction

The exterior cabinet is free standing and insulated with CFC free polystyrene. The exterior skin is a blue-green baked enamel on patterned aluminum. The interior is a white reflective skin offering uniform light reflectance.

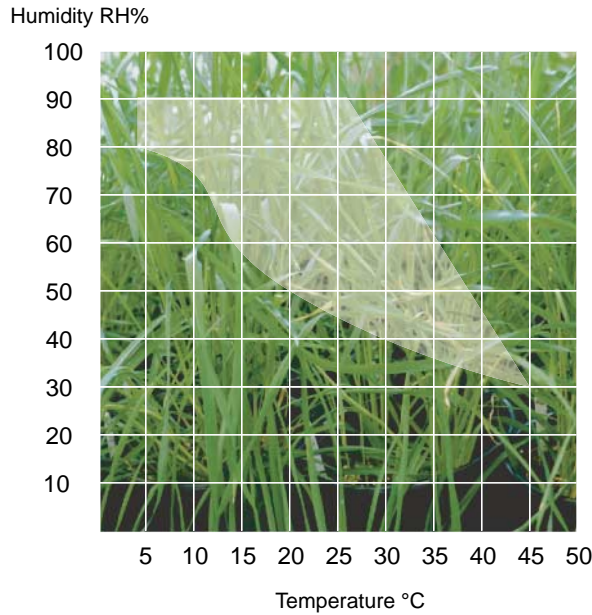
The floor pan is constructed of 22 gauge stainless steel sloped toward the adjacent machine compartment. A drain fitting is installed and connected to an external drain tube. The chamber floor supports the plant growth area above and directs uniform conditioned air to the plant canopy by using a Conviron innovation called, **Unifloor®**.

The machine compartment consists of three modular compartments containing all the controls, blower, and internal refrigeration system. Easy access to the compressor and refrigeration components is by an external maintenance panel on the end of the chamber. This means servicing is accomplished without disturbing the plant growth area.

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Conviron's CMP4030 controller provides the power of a full featured microprocessor and can be programmed at the chamber or remotely using Conviron's optional Central Control system (CCS).



**Chart Shows**

*Temperature and humidity operating envelope. Based on an empty chamber with the following ambient condition of 20°C with 50% RH. The additive humidity envelope shown is an optional feature.*

...continued from page 1

All handles and door hinges are heavy duty chrome finish. The observation window is dual pane with a hinged light tight cover measuring approximately 11" x 15" (280mm x 380mm).

Doors have keyed magnetic locks preventing unauthorized access to growth area. Each opening clears 25"W x 54"H (64cm x 137cm).

**Lighting**

The standard light intensity is 865 micromoles/m<sup>2</sup>/s and is a combination of incandescent with fluorescent lamps to achieve a balanced light spectrum.

Dimming ballasts provide precise control over light intensity. Convion's own Closed-Loop Light Control maintains precise intensity of programmed levels from 150 to 865 micromoles/m<sup>2</sup>/s.

The lamp heat is removed by the correctly sized refrigeration system. The high efficiency of the T-8 lamp results in longer lamp life, less heat generation, and an energy reduction.

Ballasts are accessed through a exterior maintenance panel with a dedicated circulating fan to remove ballast heat from the enclosure. The lamp canopy is energized and de-energized using reliable solid state devices.

**Refrigeration**

The cabinet is supplied with a self-contained water cooled hermetically sealed condensing unit with hot gas bypass for continuous compressor operation, extended compressor life, and close temperature control. Extended stem solenoids are used to promote quiet operation and a longer life.



**The PGR Advantage**

The PRG 14 features what will soon be the standard for lighting in all plant growth chambers. This chamber is the first to include Convion's own Closed-Loop Light Control (CLLC), incorporating electronic dimming ballasts and high efficiency lamps to deliver unprecedented light intensity control and uniformity as standard. Added benefits include extended lamp life, and a 33% reduction in operating energy requirements.

**Operation is simple**

Just enter the required light intensity in micromoles and the chamber will automatically deliver it. This includes the ability to "ramp" between setpoints for accurate simulation of dawn to dusk conditions.

Convion's CLLC combines the power of the CMP4030 controller with a light sensor and dimming ballast to allow precise light control and enhanced flexibility.

Complete experimental documentation is now available, allowing researchers to record light measurements with other environmental conditions.

**More advantages**

The newer lamps offer a rated lamp life of almost twice that of traditional lamps, far better output maintenance over their lifetime, reduced energy consumption and produce less hazardous waste.



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