

# Seed Germination

## Percival® model GR-41L

Standard IncuWhite® lighting



### Applications

- This chamber is designed for seed germination and development
- Many other applications exist for this product

*Please compare your own requirements to the specifications listed below.*

### Percival's IntellusUltra Controller

Percival Scientific has built a reputation of providing flexible, customized options for research scientists around the world. We've taken that philosophy to the next level with our improved IntellusUltra Controller. Now choose from the levels of functionality that meet your research needs.

*Please refer to [www.percival-scientific.com](http://www.percival-scientific.com) for additional information regarding the control system.*

### IncuWhite LED Lighting System

- Linear LEDs vertically mounted
- Intensity programmable up to 120  $\mu\text{moles/m}^2/\text{s}$  of light irradiance measured @ 6" from LEDs
- Programming and control of the lighting is done via IntellusUltra real time controller
- Dimmable between 5-100% output

### Airflow/Circulation

- Operating conditions within the growth to be maintained by conditioned air horizontal through the chamber and back to air conditioning unit on ceiling which contains a refrigeration coil, expansion device, condensate pan and recirculation fans

### Cabinet Construction

- 26-gauge smooth galvanized white side walls and top reinforced with 24-gauge backer plates
- Interior floor constructed of 24-gauge #304-4 stainless steel
- 24-gauge smooth white galvanized exterior
- NSF compliant seam design



### Cabinet Construction, continued

- Overall wall thickness 2"
- Foamed-in-place non-CFC insulation (refer to insulation section)
- Chamber floor equipped with floor drain and hose assembly
- Contains casters assembly and adjustable leveling legs to compensate for floor unevenness in the lab

### Insulation

- Woodless construction using 2" thick foamed-in-place non-CFC Urethane insulation with 93% closed cell, R-value of 12.5, K-value of 0.16 and density of 2.2 lbs/ft<sup>3</sup>

### Door

- One door opening 36.8" x 57.5" (93.3 cm x 146.1 cm) provides full access to the chamber interior (magnetic gasket provides a tight seal to door frame)

### Interior Space

- 37.2 ft<sup>3</sup> (1.1 m<sup>3</sup>) with work area of 96.4 ft<sup>2</sup> (9 m<sup>2</sup>) provided on fifteen tiers

### GR-41L specifications (subject to change without notice)

Temp Range with all lights on	Interior Space volume		Total Shelving Floor Area		Maximum Growing Height		Exterior Dimensions						Light Intensity 6" from lamps unless otherwise noted	Tiers
							width		depth		height			
°C	ft³	m³	ft²	m²	in	cm	in	cm	in	cm	in	cm	µmoles/m²/s	
5-44±0.5	37.2	1.1	96.4	9	2.6	6.7	41	104.1	33.6	85.4	77.2	196.1	120	15

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## Shelving

- Fifteen tiers of white epoxy coated steel wire shelving (each shelf is 25.5"D x 36.3"W [64.8 cm x 92.2 cm])
- Shelves slide in and out easily on stainless steel rail assemblies
- Clearance between shelves is 2.6" (6.7 cm)

## Finish

- Interior and exterior painted with highly reflective, environmentally friendly, high temperature baked white powder coating

## Refrigeration

- Self-contained air-cooled condensing unit with hot gas bypass system for continuous compressor operation, extended life and close temperature control (this continuous running condensing unit ensures precise temperature control by alternately cycling refrigerant and hot gas to coil; this also prolongs life of compressor, and eliminates risk of ice build up in coil)
- Top mounted refrigeration system allows easy access for maintenance (e.g. cleaning)
- As heat is rejected, it rises and is dissipated into room without having any effect on inside temperature of cabinet
- Solenoid valves have extended stem for quiet and long life operation
- Ceiling mounted evaporator coil incorporates twin air circulation fans in aluminum housing (heat rejection to ambient [standard chamber] = 2856 BTU/hr.)

## Temperature Range

- 5°-44°C ( $\pm 0.5^\circ\text{C}$ ) lights on and 2°-44°C ( $\pm 0.5^\circ\text{C}$ ) lights off

## Temperature Safety Limit Controls

- (Experiment Protection) Adjustable high and low temperature controls, audible alarms, and visual indicators provided
- Controls shut down all power to the chamber, activating alarms (when the temperature returns to the normal range the system will automatically reset)

## Humidity Control (optional)

- Additive humidity control of higher than ambient to 85% ( $\pm 10\%$ ) lights on for set temperatures between 15° to 30°C
- Humidity control of higher than ambient to 90% ( $\pm 10\%$ ) lights off for set temperatures between 15° to 30°C
- Extended humidity ranges available

*See other specification sheets or consult factory for additional information. If humidity system is selected as an option, a de-mineralized water supply is required which terminates to a ½" MPT connector.*

## Options (most popular)

- Phenolic Coated Coils (required for drosophila research) (Q9)
- IntellusUltra Connect (C9)
- IntellusUltra Connect and Android-based Touchscreen (C9T)
- IntellusUltra (standard) and Android-based Touchscreen (C8T)
- Pan-type humidifier with Electronic RH sensor (H1)
- Pan-type humidifier and dehumidifier with Electronic RH Sensor (H3)
- Ultrasonic Humidifier with advanced RH Sensor (H11)
- Ultrasonic Humidifier with Electronic RH sensor (H14)
- Ultrasonic Humidifier and dehumidifier with Electronic RH Sensor (H15)
- CO<sub>2</sub> enrichment package
- Door with observation window and cover (Q2)
- Door with fresh air ports (Q1)
- Self-contained water-cooled condensing unit
- Dry alarm contacts
- Dimmable lighting (closed loop with PAR light sensor) (Q22)
- Extended temperature ranges available
- Convenience receptacles

*See other catalog sheets or consult factory for additional accessories.*

## Electrical Service Requirements

- 120/1/60 - two grounded cords each with NEMA 5-15P plug provided for standard chamber
- Cord #1 RLA=5.1 & cord #2 RLA=6.4 (combined MCA=14.4)

## Helping You Create Better Science

Percival Scientific controlled environment systems are the culmination of over 60 years of design and manufacturing experience. Our high quality products have been developed through direct partnerships with the scientific community and offer platforms that are highly customizable and provide superior performance. We understand that scientific innovation is bred through creativity, passion, technical expertise and attention to detail, and we are proud to help you create better science.



Percival Scientific, Inc.

505 Research Drive • Perry, IA 50220 USA

800.695.2743 • 515.465.9363 • Fax: 515.465.9464

[www.percival-scientific.com](http://www.percival-scientific.com)