

# SEED GERMINATION

## GR-36L Seed Germination Chamber



**Applications** These chambers have been designed exclusively for seed germination and development.

Many other applications exist for this product. Please compare your requirements to the specifications.

**Controller** Percival's Intellus Ultra controller is capable of controlling temperature, humidity, CO<sub>2</sub> and lighting. The Intellus Ultra Control System is a single-board electronic solid-state design which includes a 10 key membrane keypad with LED indicators and a vacuum fluorescent display. Programs may be configured to run in real time or countdown (circadian) mode. Ramping and non-ramping program methods are available for each programming mode. Multiple programs can be linked to create complex environmental profiles. The Intellus Web Server (optional) allows for monitoring and controlling of the chamber via a web browser (requires Internet Explorer 6.0 +). This option allows for remote monitoring and programming of your chamber including alerts and current condition updates for up to five e-mail addresses. Please refer to [www.percival-scientific.com](http://www.percival-scientific.com) for additional information regarding the control system.

**Lighting System** Six 32W fluorescent lamps mounted vertically on each side of shelf. Intensity is adjustable up to 50  $\mu\text{moles}/\text{m}^2/\text{s}$  of light irradiance measured @ 6" from the lamps. Programming and control of the lighting is done via Intellus real time controller.

**Air Flow** 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.

Temp Range (with all lights on)	Interior Space (volume)		Work Area		Maximum Growing Height		Exterior Dimensions in. (cm)			Light Intensity (6" from lamps unless otherwise noted) $\mu\text{moles}/\text{m}^2/\text{s}$	# of Tiers
	$^{\circ}\text{C}$	ft <sup>3</sup>	m <sup>3</sup>	ft <sup>2</sup>	m <sup>2</sup>	in.	cm	(W)	(D)		
10-44 $\pm$ 0.5	29.7	.84	71	6.6	2 5/8	6.6	33.5(85.1)	33.63(85.4)	77(195.6)	50	15

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**Cabinet Construction** 22-gauge interior and 18-gauge exterior electro-zinc plated steel construction. All seams and joints on the outer and inner shells are welded. Inner shell is supported by a non-compressing and non-thermal conducting material to lock the inner liner in place without a metal-to-metal bond to the outer case. The chamber is completely self-contained. Overall wall thickness is 2" (5.1cm). Two 1 1/4" diameter access ports are provided on the R.H. wall. Chamber floor is equipped with a floor drain and hose assembly. The chamber also contains caster assembly and adjustable leveling legs to compensate for floor unevenness in the lab.

**Insulation** Woodless construction using CFC free insulation. Overall wall thickness is 2" (5.1cm), ample insulation for maintenance of stated temperature range.

**Door** One door opening 29 3/16" x 57 1/2" (74 cm x 146 cm) provides full access to the chamber interior. A magnetic gasket provides a tight seal to door frame.

**Interior Space** 29.7 ft<sup>3</sup> (0.84 m<sup>3</sup>) with a work area 71 ft<sup>2</sup> (6.6 m<sup>2</sup>) provided on fifteen tiers.

**Shelving** Fifteen tiers of white epoxy coated steel wire shelving. Each shelf is 27" D x 25 1/8" W (68.6 cm x 63.8 cm). Shelves are slideable on stainless steel rail assemblies. The clearance between shelves is 2 5/8" (6.67).

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

**Refrigeration** 1/4 h.p. 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 the coil; this also prolongs the life of the compressor, and eliminates the risk of ice build up in the coil. Top mounted refrigeration system allows easy access for maintenance (e.g. cleaning). Also, as heat is rejected, it rises and is dissipated into the room without having any effect on the inside temperature cabinet. Solenoid valves have an extended stem for quiet and long life operation. Evaporator coil is ceiling mounted and incorporates twin air circulation fans in an aluminum housing. Heat rejection to ambient (standard

chamber) = 3500 BTU/hr.

**Temperature Range** 10° - 44° C lights on ( $\pm 0.5^\circ$  C) and 2° - 44° C lights off ( $\pm 0.5^\circ$  C).

### Temperature Safety Limit Controls

(Experiment Protection) Adjustable high and low temperature controls, audible alarms and visual indicators are provided. The controls shutdown all the power to the chamber, and activates 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 temperatures between 15° to 30° C. Extended humidity ranges available. See other catalog sheets or consult factory for additional information.

**Options (most popular)** Phenolic Coated Coils (required for drosophila research) (Q9), Glass Door (Q12), Advanced Intellus Control System (C9), Communications Software (C9+), Advanced Intellus with Touchscreen and Internet capabilities (C10), 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), Dehumidification via independent dehumidifying coil with reheat heaters and Ultrasonic Humidifier (H12), Ultrasonic Humidifier with Electronic RH sensor (H14), 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 (S2), dimmable lighting (closed loop with PAR light sensor)(Q22), dimmable lighting (open loop control)(Q23), extended temperature ranges available. See other catalog sheets or consult factory for additional accessories.

**Convenience Receptacles** Two 115/1/60 convenience receptacles provided inside chamber.

**Electrical Service Requirements** 115/1/60 - 12.3 amps (total) for standard chamber. Power cord and grounded plug provided. If humidity system is selected as an option, a de-mineralized water supply line is required which termi-



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