

# SPECIAL APPLICATION

## AR-36L Arabidopsis Growth Chamber



**Applications** This chamber was specifically designed for growth of the Arabidopsis plant. It provides adequate space for growing the plant to maturity under controlled temperature, humidity and light conditions.

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

**Controller** Percival's Intellus controller is capable of controlling temperature, humidity, CO<sub>2</sub> and lighting events. The Standard Intellus Control System is a single-board electronic solid-state design with vacuum fluorescent display and ten-key membrane touch pad control. Programs are created and run in real time with up to 96 steps, non-ramping, or diurnal programming. The Advanced Intellus controller (optional) provides Ethernet connectivity, ramping, multiple programs, program linking and additional outputs.

**Lighting System** Each tier of shelves is lit by (8) 17W cool white fluorescent lamps and (2) 25W incandescent lamps properly spaced for uniform light intensity over entire shelf. Intensity is adjustable up to 250  $\mu\text{moles}/\text{m}^2/\text{s}$  of light irradiance measured @ 6" from the lamps. Programming and control of the lighting is done via Intellus real time controller. There are two levels of programming of fluorescent lighting and one level of programming of incandescent lighting.

**Air Flow** The conditioned air circulates through a rear wall duct and is picked up by a specifically designed fixed air diffuser located at the bottom of each tier. The air is then delivered vertically upward at a slow speed through each shelf. The air diffuser insulates shelf level experiments from heat generated by the underlying light fixture.

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 $\pm$ 0.7	29.7	.84	10.9	1.02	20 3/4	52.7	33.5(85.1)	33.63(85.4)	77(195.6)	250	2

# SPECIAL APPLICATION

## AR-36L Arabidopsis Growth Chamber

**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 stainless steel 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 10.9 ft<sup>2</sup> (1.02 m<sup>2</sup>) provided on two shelves.

**Shelving** Two tiers of white epoxy coated steel wire shelving. Each shelf is 27" D x 28 3/4" W (69.2 cm x 73.0 cm). Shelves slide in and out easily on stainless steel rail assemblies (at lower elevation only). When shelves are not mounted on rail assemblies they are vertically adjustable in 1/2" increments. The maximum growing height is 20 3/4" (52.7 cm) per tier.

**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 the coil; this also prolongs the life of the compressor, and eliminates the risk of ice build up in the coil. 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) =4500 BTU/hr.

**Temperature Range** 10° - 44° C lights on ( $\pm 0.7^\circ$  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 65% ( $\pm 10\%$ ) lights on for set temperatures between 20° 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)** Advanced Intellus Control System (C9), Communications Software (C9+), Advanced Intellus with Touchscreen and Internet capabilities (C10), 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 - 14 amps (total) for standard chamber. Two power cords and grounded plugs provided. Consult factory for electrical services when adding accessories to the chamber.



505 Research Drive  
Perry, Iowa 50220 USA  
800.695.2743 515.465.9363 Fax:515-465-9464  
www.percival-scientific.com 3/2006