

SPECIAL APPLICATION

AR-95L Arabidopsis Growth Chamber



Applications This chamber product is frequently used for research applications such as lighting for vascular plants to facilitate standard plant production, plant pathology research and seedling germination and development.

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

Controller Percival's Intellus controller is capable of controlling temperature, humidity, CO₂ and lighting events. The Standard Intellus Control System is a single-board electronic solid-state design with vacuum fluorescent display and ten-key membrane touchpad 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 Two light fixtures per tier. Each fixture is removable and individually adjustable. The light fixtures yield up to 300 $\mu\text{moles}/\text{m}^2/\text{s}$ @ 6" from the lamps. The lamps are a balanced spectrum for plant growth using fluorescent lamps and incandescent lamps. Programming and control of the lighting is done via Intellus real time controller. There are two levels of programming of fluorescent lighting and two levels of programming of incandescent lighting. Therefore with 50% of each lamp energized the chamber yields 300 $\mu\text{moles}/\text{m}^2/\text{s}$ @ 6" from the lamps.

Air Flow Air circulation inside the chamber is from a specifically designed air diffuser. Air travels along the entire back wall, over the shelves and returns to the ceiling fans through an opening between the light fixture and the doors.

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
	°C	ft ³	m ³	ft ²	m ²	in.	cm	(W)	(D)		
10-44±1.0	80.1	2.83	31	2.88	26	66	95(241.3)	35.5(90.17)	77 3/4(195.6)	300	2

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Cabinet Construction Standard chamber controls are on the right hand side. All chambers are built in panel sections. Each section consists of 2" thick urethane insulation, metal interior and exterior surfaces, cam-type fasteners and vinyl gaskets. Interior and exterior are constructed of 22 gauge electro-zinc plated steel with the exception of the interior floor, which is stainless steel. Chamber floor is equipped with a floor drain with attached 3/4" plastic tubing. The chamber cabinet is attached to an angle frame base which contains heavy duty swivel casters.

Insulation Woodless construction using CFC free polystyrene foam. Overall wall thickness is 1 5/8" (4.13 cm), ample insulation for maintenance of stated temperature range.

Doors Two door opening each 29 1/4" x 57 1/4" (74 cm x 146 cm) provides full access to the chamber interior. A magnetic gasket provides tight seal to door frame.

Interior Space 80.1 ft³ (2.83 m³) with a work area 31 ft² (2.88 m²) provided on two tiers.

Shelving Four shelves (two tiers) of white epoxy coated steel wire shelving. Each shelf is 29 1/4" D x 36 1/4" W (74.9 cm x 93.0 cm). Shelves is adjustable in 1/2" increments.

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

Refrigeration Self-contained water-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. Heat rejection to the ambient by standard refrigeration system with a water-cooled self-contained condensing unit is 2000 BTU/hr. Heat rejection to the ambient from an optional air-cooled self-contained condensing unit is 14000 BTU/hr. Condensing Unit Water Requirement: **65 GPH(average)**, 7.0 PSIG pressure drop, 1/2" water-regulating valve. Water coolant supply is 60° F on inlet and 70° F at outlet with the evaporator coil at 25° F, and the condenser at 100° F.

Consult factory for water services and heat rejection to the ambient when adding accessories to the chamber.

Temperature Range 4° - 44° C with all lights off and 10° - 44° C with all lights on (full fresh air) ± 1.0° C within the work area on a horizontal plane with all lights on.

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 control of humidity in %RH through use of ultrasonic humidifier will maintain humidity levels of higher than ambient to 95% RH lights OFF and higher than ambient to 75% lights ON, between 15° to 30° C. Humidifier requires distilled or demineralized water. Optional dehumidification via independent dehumidifying coil and reheat heaters will maintain humidity levels down to 40% between 15° to 30° C.

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 dehumidifying coil with reheat heaters and Ultrasonic Humidifier (H12), Ultrasonic Humidifier with Electronic RH sensor (H14), CO₂ enrichment package, door with observation window and cover (Q2), door with fresh air ports (Q1), self-contained air-cooled condensing unit, remote air-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 120 - 208 VAC/3 phase/60 Hz, 4 wires plus ground - total amp draw for standard chambers without any options is 13 amps/leg. Consult factory for electrical services when adding accessories to the chamber.



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