

Arabidopsis FIDELS/66 F2

Applications

- This chamber is frequently used for *Arabidopsis thaliana*, *Brassica* sp., lettuce, spinach and other plants with lower light intensity requirements
- Many other applications exist for this product
- Please compare your own requirements to the specifications listed below.

Controller

- The control system was purpose-built for controlled environments and is standard on all chambers.
- Robust and reliable, industrial-grade integrated hardware design
- Highly flexible architecture facilitates configuration, expansion and customization
- Precise, simultaneous control of up to 7 environmental parameters
- Industry-leading experiment protection and system diagnostics

Control Graphical User Interface

- A touchscreen user interface is provided as standard on all chambers and allows users to interact with their controlled environment in new and intuitive ways.
- 10.1" IPS, high resolution display with 10-point multi-touch sensitivity
- Tabular and graphical presentation of chamber programs and parameters
- Highly visible process values and alarm notifications
- Enhanced user feedback menus

LED Lighting System

- Two lighted tiers with LEDs with enhanced red
- Each lighted tier consists of two lamp banks
- Intensity programmable up to 360 $\mu\text{moles/m}^2/\text{s}$ of light irradiance measured @ 6" from LEDs
- Programming and control of the lighting is done real time controller
- Dimmable between 10-100% output
- Open loop dimmable lighting

Airflow/Circulation

Air circulation inside 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 fixtures and the doors)

Double-Wall/Double-Door Airflow

- The chamber construction should include a double-wall insulated structure along with a double-door airflow design to maintain internal stability. This structural design must ensure efficient thermal retention, minimize external heat influence, and promote uniform air circulation throughout the chamber for consistent environmental performance.

Schematic Drawing

A complete machine drawing or schematic layout should be provided, showing airflow direction, lighting arrangement, wiring, internal circuits, and structural details. This helps in installation, inspection, maintenance, troubleshooting, and compliance verification.

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	in	cm	in	cm	
°C	ft ³	m ³	ft ²	m ²	in	cm	in	cm	in	cm	in	cm	μmoles/m ² /s	
7-44±0.5	62.4	1.8	20.3	1.9	23.1	58.7	77.8	197.6	33.6	85.4	77.2	196.1	360	2

Cabinet Construction

- Interior constructed of 22-gauge galvanized steel
- Interior floor constructed of 22-gauge polished stainless steel
- Exterior constructed of 18-gauge Galvannealed extra-smooth steel
- Overall wall thickness is 2" (5.1 cm)
- Integrated floor drain
- Contains casters assembly and adjustable leveling legs
- One 1.25" access port with air-tight plug
- Highly durable and reflective coating

Capacity

The chamber should have a minimum internal capacity of 1600 liters, ensuring sufficient space for plant growth experiments, culture trays, shelves, and lighting fixtures. The large volume allows uniform environmental distribution and supports high-density sample loading without compromising temperature, light, or airflow uniformity.

Condenser Defrost System

A condenser defrost arrangement must be provided to prevent ice accumulation on refrigeration components. A floor drain should be included to safely discharge defrost water and condensation, ensuring a clean interior and preventing water pooling inside the chamber.

External Heater

The system include an integrated humidifier equipped with a stainless steel water tank, ensuring durability, corrosion resistance, and hygienic operation. Additionally, the design must not rely on any external heating devices. All temperature and humidity regulation must be achieved through the built-in control system, ensuring safe, stable, and accurate environmental conditioning.

Humidity Control

- Ultrasonic Humidifier with Advanced RH Sensor
- Lights ON: Ambient → ~65% RH (±5%)
- Lights OFF: Ambient → ~90% RH (±5%)
- Ultrasonic Humidifier with dehumidifier, dehumidification (40%-95% RH)

Humidifier

A fully integrated humidification system should prevent corrosion, microbial growth, and provided, equipped with a stainless steel water tank to contamination. The humidifier must deliver stable and consistent humidity levels throughout the chamber while ensuring long service life and easy cleaning or maintenance.

Options

- Additive CO₂ control
- CO₂ removal system
- Self-contained water-cooled condensing unit
- Dry alarm contacts
- Closed loop dimmable lighting with PAR light sensor
- Open loop dimmable lighting per tier
- Extended temperature ranges available
- Convenience receptacles
- Lighting Up To 2100 µmoles/m²/s

Electrical Service Requirements

- 115/1/60 - two grounded cords (NEMA 5-15P) provided for standard chamber

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Insulation

- Woodless construction using foam-in-place 2" [5.1 cm] thick CFC free urethane insulation foam this is an environmentally friendly foam with global warming potential [GWP] of 0.0 and ozone depletion potential [ODP] of 0.0)

Doors

- Two reach-in doors each with an opening of 29.1" x 57.5" (73.9 cm x 146.1 cm) providing full access to chamber interior
- Magnetic gasket provides a tight seal to door frame

Interior Space

- 62.4 ft³ (1.8 m³) with work area of 20.3 ft² (1.9 m²) provided on two tiers

Shelving

- Two tiers of solid stainless steel shelving (each shelf is 24"W x 30.4"D [61 cm x 77.2 cm])
- Each shelf is supported by shelf clips allowing ½" vertical adjustments
- Maximum growing height is 23.1" (58.7 cm) per tier

Refrigeration

- Self-contained air-cooled condensing unit with hot gas bypass system for continuous compressor operation, extended life and tight temperature control. Continuous running condensing unit ensures precise temperature control by alternately cycling refrigerant and hot gas to coil; also prolongs compressor life, and eliminates risk of ice build up in coil.
- Extended stem solenoid valves for quiet and long life operation
- Heat rejection to the ambient (standard refrigeration system)
= 3,875 BTU/hr.

Temperature Range

- 7°-44°C (±0.5°C) lights on and 2°-44°C (±0.5°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
- System automatically resets when temperature returns to normal range

