

Low Temperature

Percival® model LT-41VL

Constant Defrost Temperature,
Standard SciWhite® lighting



Applications

- This chamber is frequently used to measure cold hardness, freeze tolerance, heat stress and exposure to a series of temperatures
- Many other applications exist for this product
Please compare your own requirements to the specifications listed below.

Percival's IntellusUltra Controller

The IntellusUltra control system (C8) was purpose-built for controlled environments and is standard on all Percival 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

IntellusUltra Control Graphical User Interface

A touchscreen user interface is provided as standard on all Percival Scientific plant growth 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

Please refer to www.percival-scientific.com for additional information regarding the control systems.



SciWhite LED Lighting System

- Externally mounted SciWhite LEDs with enhanced red separated from chamber growth space by glass side wall
- Glass is evenly heated over its entire surface eliminating condensation
- Intensity programmable up to 515 $\mu\text{moles/m}^2/\text{s}$ of light irradiance measured @ 6" from LEDs
- Programming and control of the lighting is done via IntellusUltra real time controller
- Dimmable between 10-100% output

LT-41VL 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	
(-)10-44±0.5	37.2	1.1	13.6	1.3	21.5	54.6	46.3	117.5	33.6	85.4	79.9	202.9	515	2

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Cabinet Construction

- Interior constructed of 18-gauge smooth, galvanized steel
- Interior floor constructed of 22-gauge polished stainless steel
- Exterior constructed of 18-gauge smooth, galvanized 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

Insulation

- Woodless construction using CFC free insulation (overall wall thickness is 2" [5.1 cm], ample insulation for maintenance of stated temperature range)

Door

- One door opening 36.8" x 57.5" (93.5 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 ft³ (1.1 m³) with shelf area of 13.6 ft² (1.3 m²) provided on two tiers

Shelving

- Two tiers of white epoxy coated steel wire shelving (each shelf is 36.3"W x 27"D [92.1 cm x 68.6 cm])
- Each shelf vertically adjustable in ½" increments
- Maximum growing height is 43.8" for one shelf and 21.5" for two shelves

Refrigeration

- Refrigerant: R-513A
- Constant temperature defrost allows chamber to operate at low temperature under full lighting without temperature defrost spikes (typically, low temperature systems are defrosted by the diversion of hot gas through the coil or via electric heaters, causing a significant temperature spike during the defrost period)
- Dual coil system has been utilized in order to maintain a constant low temperature within chamber
- Coils work in tandem (as one coil is cooling, the other coil is defrosted via hot gas)
- 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 and provides defrost of cooling coils via hot gas without the need of electric heaters)
- Heat rejection to ambient (standard chamber) = 3,780 BTU/hr.

Temperature Range

- -10°-44°C (±0.5°C) lights on and -15°-44°C (±0.5°C) lights off (chamber gives greater temperature uniformity, and allows for lower temperature limit under full lighting)

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

Options (most popular)

- IntellusUltra Connect (C9)
- Additive CO₂ control
- CO₂ removal system
- Self-contained water-cooled condensing unit
- Remote outdoor air-cooled condensing unit with all-weather housing unit
- Dry alarm contacts
- Closed loop dimmable lighting with PAR light sensor (Q22)
- Extended temperature ranges available
- Convenience receptacles

Contact info@percival-scientific.com with questions or for additional information.

Electrical Service Requirements

- 120-208/1/60 (4-wire) grounded cord with NEMA L14-20P plug provided for standard chamber
- RLA=12.4A (MCA=15.5A)

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.



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