

# VirTis VirTual™ 50L

## Pilot Lyophilizer



(Standard Configuration VirTual 50L shown).

### Key Features

- Ideal for product development and small production requirements.
- Order with optional hydraulic stoppering system.
- Available with a Wizard 2.0, Encore™ or LyoS™ control system.
- Condense up to 20 liters of ice over 24 hours.
- Equipped with a high capacity, 50-liter internal coil condenser.
- Customize to accommodate up to 10 shelves.
- Available in Cleanroom configuration.

### Electrical Requirements

Voltage*	208/240 VAC	208/230 VAC
Hertz*	50 Hz, 60 Hz	60 Hz
Breaker Amperage*	50 A	40 A
Phase*	1 $\phi$	3 $\phi$
Receptacle	6-50R (Domestic only)	N/A

### Performance Specifications

	EL
Shelf Temperature Control Range <sup>§</sup>	-55 to 65 °C
Lowest Shelf Temperature (50 Hz / 60 Hz)	-67 °C / -70 °C
Shelf Pull-Down from 20 °C to -40 °C <sup>¶</sup>	≤ 50 minutes
Temperature Uniformity <sup>  </sup>	± 1.0 °C
Lowest Condenser Temperature (50 Hz / 60 Hz)	-82 °C / -85 °C
Condenser Pull-Down from 20° C - -45° C (minutes)	≤ 25 minutes
Maximum Condenser Capacity	50 L
Maximum Ice Condensing Capacity in 24 hours <sup>†</sup>	20 L
Maximum Deposition Rate <sup>†</sup>	0.83 L/hour
Vacuum Rate of Rise**	≤ 30 mT/hour (≤ 0.08 mbar/hour)
Vacuum Time to 100 Millitorr (minutes)**	≤ 20 minutes
Volume-Based Leak Rate (mbar L/sec)**	≤ .0027 mbar L/sec
Number of Compressors	2
Compressor Horsepower	3.5 hp, 1.5 hp
System Refrigerant	R508B, R407C
Lowest System Vacuum (mT)**	≤ 15 mT
Condenser Surface Area (ft <sup>2</sup> /m <sup>2</sup> )	10 ft <sup>2</sup> / 0.93m <sup>2</sup>

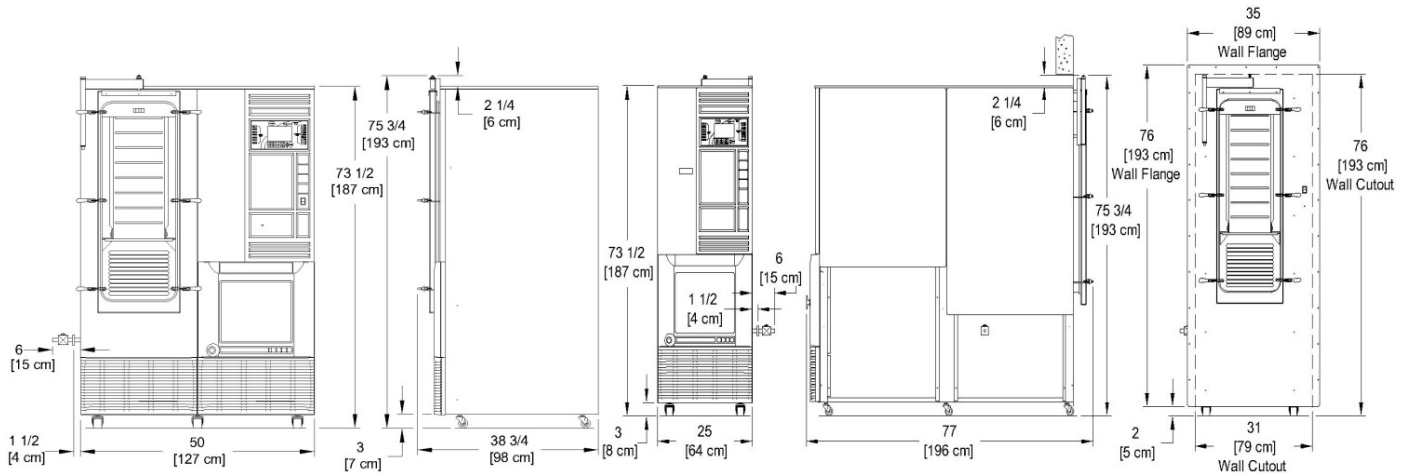
**Note:** Performance specifications are based on SP Scientific test data from units operating at an ambient room temperature of approximately 20 °C. SP Scientific recommends an operating range of 15-25 °C (59-77 °F) and a Relative Humidity of ≤ 80 % at sea level.

### Utility Requirements

	Air-Cooled	Water-Cooled Units
Cooling Water Usage (gpm/ lpm) <sup>‡</sup>	N/A	2-5 gpm/ 8-19 lpm
Approx. Peak Heat Generated (BTU/h)	22,900 BTU / hr	5,400 BTU / hr
Ambient Room Temperature (°C)	15-25 °C (59-77 °F)	15-25 °C (59-77 °F)

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### Dimensional Data

	Standard Configuration (in / cm)	Cleanroom Configuration (in / cm)
Width	50 / 127	25 / 64
Depth	38.75 / 98	77 / 196
Height	75.75 / 193	75.75 / 193
Approx. Weight (lb/kg)	1700 / 773	1700 / 773
Minimum Clearance on All Sides (in / cm)	10 / 25.4	10 / 25.4

**Note:** SP Scientific recommends a 24-inch (61 cm) clearance around all sides of the unit for serviceability. When placed side by side, increase clearance to 48 inches (122 cm).

### Shelf Configuration

Number of Shelves	Shelf Area (ft <sup>2</sup> / m <sup>2</sup> )	Shelf Clearance (in / mm)
4 Shelves	6.12 / 0.57	5.25 / 113
5 Shelves	7.65 / 0.71	4.12 / 104
6 Shelves	9.18 / 0.85	3.37 / 85
7 Shelves	10.71 / 1.00	2.84 / 72
8 shelves	12.24 / 1.14	2.43 / 61
9 Shelves	13.77 / 1.28	2.12 / 53
10 Shelves	15.30 / 1.42	1.87 / 47

Shelf Size (W x D, in / mm): 10.75 x 20.5 / 273 x 521

### Additional Information

Construction	316L Stainless Steel Shelves, Product Chamber and Internal Condenser Coil
Vacuum Pump	Two-Stage Rotary Vane
Stoppering (optional)	Bottom-Up Hydraulic
Defrost Type	Hot Gas
Refrigerant Type	CFC-Free

\* VirTis units are highly customizable and SP Scientific can configure any unit to conform to the service requirements of a wide range of international voltage and phase configurations. Contact SP Scientific for more information.

† The specified Maximum Ice Condensing Capacity in 24 Hours and Maximum Deposition Rate are based on the process of freeze-drying water as aggressively as possible. The freeze dryer's ability to collect ice at an hourly rate or over a specified period will always be application dependent.

‡ Cooling water temperatures should not exceed 24 °C.

¶ Shelf Pull-Down times are based on a unit with ten (10) shelves. Units with fewer shelves may achieve -40 °C at a faster rate.

§ Shelf temperature controlled to within ± 0.5 °C of the setpoint within the Shelf Temperature Control Range (PLC-based controllers only). Lyophilizers equipped with Wizard 2.0 microprocessor-based controllers shall be capable of controlling at shelf temperatures within ± 1.0 °C of the setpoint within the Shelf Temperature Control Range.

∥ Shelf temperature deviations shall not exceed the specification relative to the mean of the highest and lowest temperature readings.

\*\* Vacuum specifications are based on SP Scientific test data from similar units equipped with an Alcatel 2015SD two-stage rotary vane vacuum pump. Units equipped with other vacuum pumps may yield different results (e.g., a Varian TriScroll 300 dry pump will yield a Lowest System Vacuum of ≤ 50 mT).