VirTis Genesis 25L

Pilot Lyophilizer

(Standard configuration Genesis 35L shown)

Key Features

- Compact, freestanding, mobile design.
- Easy scale-up from research to full production.
- Available with a Wizard 2.0 or LyoS™ control system.
- Optional hydraulic stoppering system available.
- Narrow and cleanroom configurations available with 8-inch vapor port.

Performance Specifications

	XL	EL
Lowest Shelf Temperature (50 Hz / 60 Hz)	≤ -57 °C / -60 °C	≤ -67 °C / -70 °C
Shelf Temperature Control Range*	-40 to 65 °C	-55 to 65 °C
Shelf Pull-Down from 20 °C to -40 °C†	≤ 45 minutes	≤ 30 minutes
Lowest Condenser Temperature (50 Hz / 60 Hz)	≤ -67 °C / -70 °C	≤ -82 °C / -85 °C
Maximum Condenser Capacity	≥ 25 L	≥ 25 L
Condenser Surface Area	506 in^2 (3264 cm^2)	506 in^2 (3264 cm^2)
Condenser Pull-Down from 20 °C to -45 °C	≤ 25 minutes	≤ 25 minutes
Maximum Ice Condensing Capacity in 24 hours‡	≥ 12 L	≥ 12 L
Maximum Deposition Rate‡	≥ 0.5 L/hour	≥ 0.5 L/hour
Number of Compressors	1	2
Compressor Horsepower	1.5 hp	1 hp, 1 hp
System Refrigerant	R245fa, R508B	R508B, R407C
Vacuum Time to 100 Millitorr§	≤ 20 minutes	≤ 20 minutes
Vacuum Rate of Rise§	≤ 30 mT/hour	≤ 30 mT/hour
Volume-Based Leak Rate§	≤ .0016 mbar·L/sec	≤ .0016 mbar·L/sec
Lowest System Vacuum§	≤ 15 mT	≤ 15 mT
Temperature Uniformity¶	± 1.0 °C	± 1.0 °C

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.*

Standard Electrical Requirements

Voltage\\	208 / 230 VAC	200 / 240 VAC	230 VAC (4 wire)	400 VAC (5 wire)
Hertz\\	60 Hz	50 Hz	50 Hz	50 Hz
Phase\\	1 Φ	1 Φ	3 Φ	3 Φ
Breaker Amperage\\	30 A	30 A	30 A	20 A
Recommended Outlet	NEMA L6-30R	NEMA L6-30R	N/A	N/A

Note: *Other electrical configurations available.*

Utility Requirements

	XL	EL
Compressed Air (for units with isolation valve)	80 psig (6.5bar)	80 psig (6.5 bar)
Ambient Room Temperature	15-25 °C (59-77 °F)	15-25 °C (59-77 °F)
Approx. Peak Room Heat Generated (Air-Cooled Units)	8,900 BTU/h	10,200 BTU/h
Approx. Peak Room Heat Generated (Water-Cooled Units)	4,000 BTU/h	4,100 BTU/h
Cooling Water Usage**	1-3 gpm (4-12 Lpm)	1-3 gpm (4-12 Lpm)

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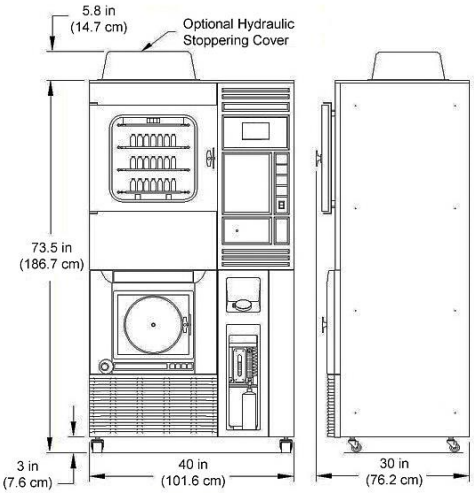

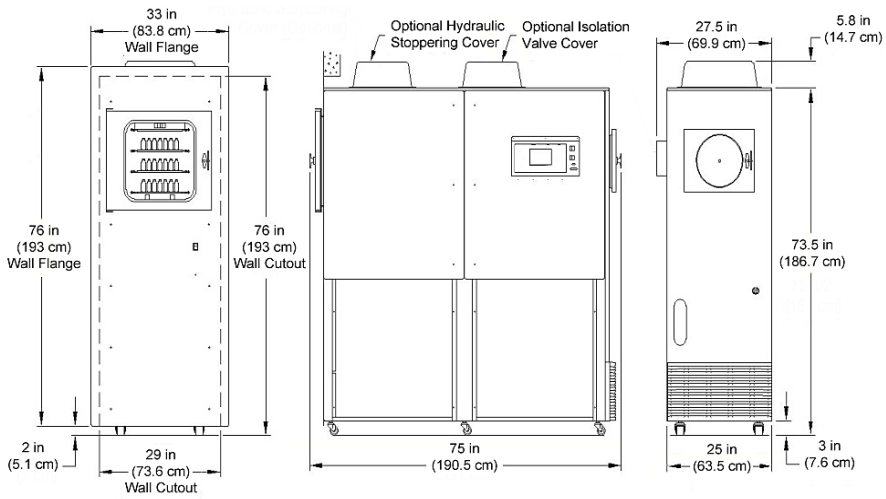

Standard Configuration

Dimensional Data

	Standard Configuration	Narrow Configuration	Cleanroom Configuration
Width	40 in (102 cm)	25 in (64 cm)	25 in (64 cm)
Depth	30 in (76 cm)	76 in (193 cm)	75 in (191 cm)
Height††	73.5 in (187 cm)	73.5 in (187 cm)	73.5 in (187 cm)
Max. Weight	800 lb (363 kg)	850 lb (386 kg)	850 lb (386 kg)
Min. Clearance on All Sides	10 in (25 cm)	10 in (25 cm)	10 in (25 cm)

Note: *SP Scientific recommends a 24-inch (61 cm) clearance around all sides of the unit for serviceability. If machines are placed side by side, increase the minimum clearance to 48 inches (121.9 cm)*

Cleanroom Configuration

Shelf Configuration‡‡

	Shelf Area	Shelf Clearance	Shelf Clearance with Optional Shelf Latching	
			1 Shelf Latched	2 Shelves Latched
1 Shelf	1.5 ft^2 (1,394 cm^2)	12.9 in (328 mm)	N/A	N/A
2 Shelves	3.1 ft^2 (2,880 cm^2)	6.2 in (158 mm)	12.5 in (318 mm)	N/A
3 Shelves	4.6 ft^2 (4,274 cm^2)	4 in (102 mm)	6.1 in (155 mm)	12.1 in (307 mm)
4 Shelves	6.1 ft^2 (5,667 cm^2)	2.9 in (74 mm)	3.9 in (99 mm)	5.9 in (150 mm)
5 Shelves‡‡	7.7 ft^2 (7,154 cm^2)	2.3 in (58 mm)	2.8 in (72 mm)	3.8 in (97 mm)
6 Shelves	9.2 ft^2 (8,547 cm^2)	1.8 in (46 mm)	N/A	N/A

Shelf Size (W x D): 10.8 x 20.5 in (274.3 x 520.7 mm)

Additional Information

Construction	316L Stainless Steel Shelves, Product Chamber and Condenser Chamber	Refrigerant Type	CFC-Free
Stoppering	Top-Down Hydraulic	Vapor Port§§	4 inches (10.2 cm)
Defrost Type	Hot Gas		

* *Shelf fluid temperature controlled to within ± 0.5 °C of the setpoint within the Shelf Temperature Control Range. 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 at 100 mTorr.*

† *Shelf Pull-Down times are based on units with one (1) to three (3) shelves. The increased mass of stainless steel and additional heat transfer fluid required for four (4) or more shelves will increase the pull-down time. Use the following multipliers when determining the pull-down time specification for the following shelf configurations.*

- *4-shelf units, standard pull-down time x 1.33*
- *5-shelf units, standard pull-down time x 1.67*
- *6-shelf units, standard pull-down time x 2.0*

‡ *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.*

§ *Vacuum specifications are based on SP Scientific test data from similar units equipped with Leybold D8B two-stage rotary vane vacuum pump. Units equipped with other vacuum pumps may yield different results.*

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

\\ *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.*

** *Cooling water temperatures should not exceed 24 °C.*

†† *The stoppering option and/or isolation valve option adds 5.8 inches (14.7 cm) to overall height.*

‡‡ *Units with the stoppering option are only available with up to five shelves.*

§§ *Standard configuration units have a 4-inch (10.2 cm) vapor port. Narrow and cleanroom configuration units have an 8-inch (20.3 cm) vapor port.*

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