

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, Encore or Maestro control system.
- Optional hydraulic stoppering system available.
- Narrow and cleanroom configurations available with 8-inch vapor port.

Performance Specifications

Item	Super ES	Super XL	EL
Shelf Temperature Control Range (°C) [§]	-40 to 65	-40 to 65	-55 to 65
Lowest Shelf Temperature (50 Hz / 60 Hz, °C)	-47 / -50	-57 / -60	-67 / -70
Lowest Condenser Temperature (50 Hz / 60 Hz, °C)	-52 / -55	-67 / -70	-82 / -85
Maximum Condenser Capacity (L)	25	25	25
Condenser Surface Area (in ² / cm ²)	506 / 3264	506 / 3264	506 / 3264
Maximum Ice Condensing Capacity in 24 hours (L) [†]	12	12	12
Maximum Deposition Rate (L/hour) [†]	0.5	0.5	0.5
Condenser Pull-Down from 20 °C to -45 °C (minutes)	≤ 25	≤ 25	≤ 25
Shelf Pull-Down from 20 °C to -40 °C (minutes) ^{††}	≤ 30	≤ 45	≤ 30
Number of Compressors	1	1	2
Compressor Horsepower	1.5	1.5	1.0, 1.0
System Refrigerant	MO 89	R245fa / R508B	R508B, R407C
Vacuum Time to 100 Millitorr (minutes) ^{§§}	≤ 20	≤ 20	≤ 20
Vacuum Rate of Rise (mT/hour) ^{§§}	≤ 30	≤ 30	≤ 30
Volume-Based Leak Rate (mbar-L/sec) ^{§§}	≤ .0016	≤ .0016	≤ .0016
Lowest System Vacuum (mT) ^{§§}	≤ 15	≤ 15	≤ 15
Temperature Uniformity (°C)	± 1.0	± 1.0	± 1.0

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).

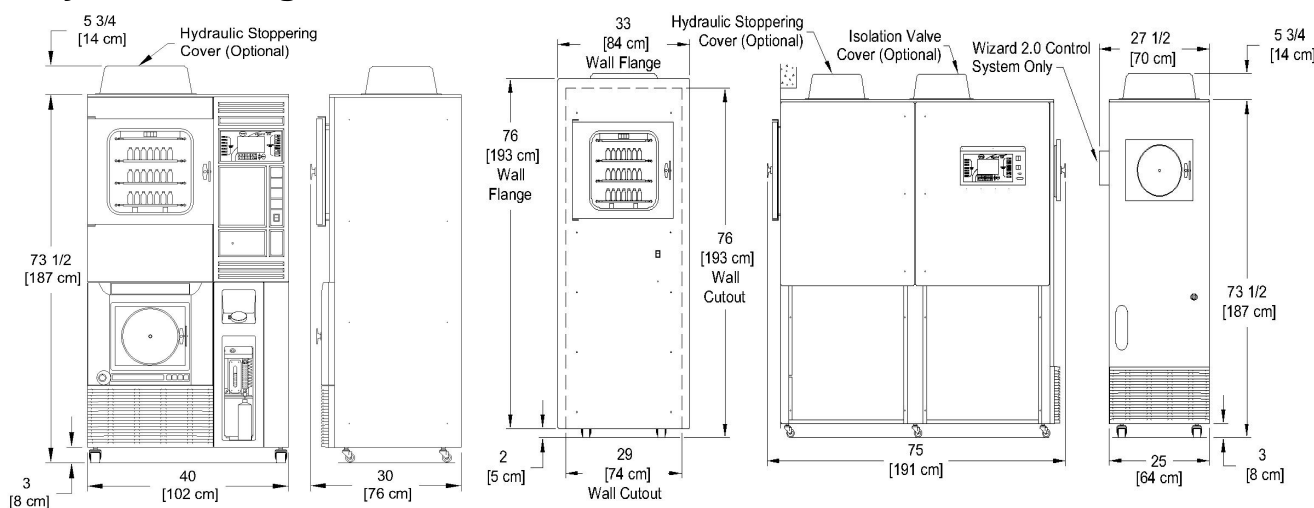
Electrical Requirements

Voltage (VAC) [*]	208/240	400
Hertz [*]	50,60	50
Phase [*]	1	3
Breaker Amperage [*]	30	20
Recommended Outlet	NEMA L6-30R	N/A

Utility Requirements

Item	Super ES	Super XL	EL
Compressed Air (psig)	80	80	80
Ambient Room Temperature (°C)	20	20	20
Air-Cooled Units			
Approx. Peak Heat Generated (BTU/h)	8,900	8,900	10,200
Water-Cooled Units			
Approx. Peak Heat Generated (BTU/h)	4,000	4,000	4,100
Cooling Water Usage (gpm / lpm) [‡]	1-3 / 4-12	1-3 / 4-12	1-3 / 4-12

Layout Drawings



Standard Configuration

Cleanroom Configuration

Dimensional Data

	Standard Configuration	Narrow Configuration	Cleanroom Configuration
Width (in / cm)	40 / 102	25 / 64	25 / 64
Depth (in / cm)	30 / 76	76 / 193	75 / 191
Height (in / cm)**	73.5 / 187	73.5 / 187	73.5 / 187
Approximate Weight (lb / kg)	800 / 363	850 / 383	850 / 383
Minimum Clearance on All Sides (in / cm)	10 / 25.4	10 / 25.4	10 / 25.4

Note: SP Scientific recommends a 24-inch clearance around all sides of the unit for serviceability.

Shelf Configuration

Number of Shelves	Shelf Area	Shelf Clearance	Clearance with Optional Shelf Latching	
	Bulk and Stoppering ^{††} (ft ² / cm ²)	Bulk and Stoppering ^{††} (in / mm)	1 Shelf Latched (in / mm)	2 Shelves Latched (in / mm)
1 Shelf	1.53 / 1422	12.87 / 327	-	-
2 Shelves	3.06 / 2844	6.24 / 158	12.48 / 317	-
3 Shelves	4.59 / 4266	4.03 / 102	6.05 / 153	12.1 / 307
4 Shelves	6.12 / 5688	2.93 / 74.5	3.91 / 99.3	5.87 / 149
5 Shelves	7.65 / 7110	2.27 / 57.7	2.84 / 72.2	3.79 / 96.3
6 Shelves	9.18 / 8532	1.82 / 46.3	N/A	N/A

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 Condenser Chamber
Vacuum Pump	Alcatel 2010SD Two-Stage Rotary Vane
Stoppering	Top-Down Hydraulic
Defrost Type	Hot Gas
Refrigerant Type	CFC Free
Vapor Port ^{††}	Four (4) Inches

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

^{||} 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

^{||} Shelf temperature deviations shall not exceed the specification relative to the mean of the highest and lowest temperature readings.

^{††} Stoppering adds 5.75 inches to overall height.

^{††} Available with up to five shelves.

^{††} Standard configuration units have a 4-inch vapor port. Narrow and cleanroom configuration units have an 8-inch vapor port.

^{§§} Vacuum specifications are based on SP Scientific test data from similar units equipped with Alcatel 2010SD two-stage rotary vane vacuum pump. Units equipped with other vacuum pumps may yield different results.

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Lowest Condenser Temperature (50 Hz / 60 Hz, °C)	-50 / -53	-67 / -70	-82 / -85
Maximum Condenser Capacity (L)	35	35	35
Condenser Surface Area (in ² / cm ²)	750 / 4838	750 / 4838	750 / 4838
Maximum Ice Condensing Capacity in 24 hours (L) [†]	20	20	20
Maximum Deposition Rate (L/hour) [†]	0.83	0.83	0.83
Condenser Pull-Down from 20 °C to -45 °C (minutes)	≤ 25	≤ 25	≤ 25
Shelf Pull-Down from 20 °C to -40 °C (minutes) ^{††}	≤ 30	≤ 45	≤ 30
Number of Compressors	1	1	2
Compressor Horsepower	1.5	1.5	1.5, 1.0
System Refrigerant	MO 89	R245fa / R508B	R508B, R407C
Vacuum Time to 100 Millitorr (minutes) ^{§§}	≤ 20	≤ 20	≤ 20
Vacuum Rate of Rise (mT/hour) ^{§§}	≤ 30	≤ 30	≤ 30
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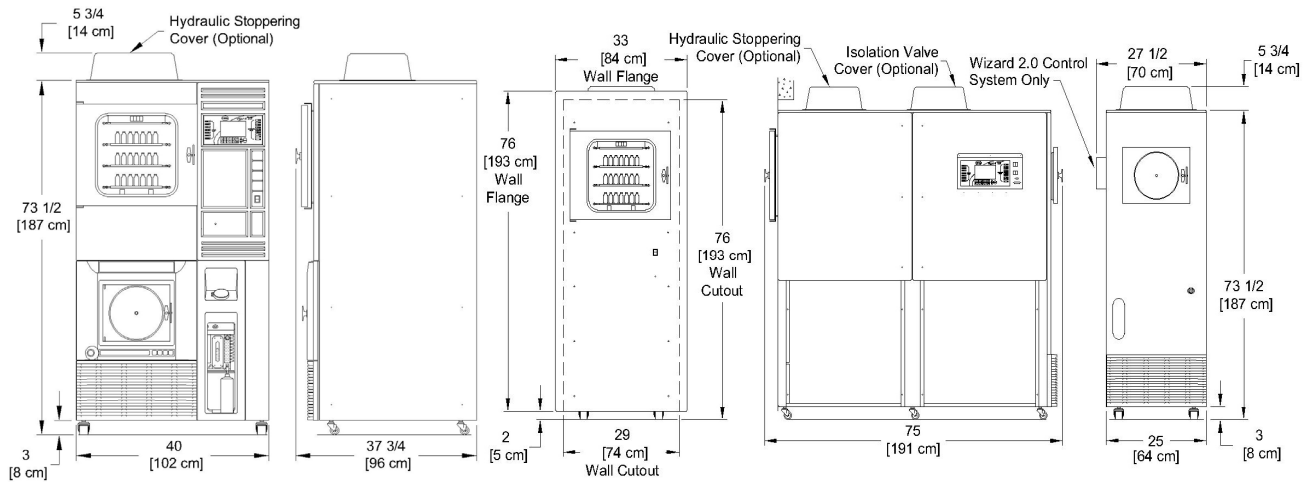
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Cooling Water Usage (gpm / lpm)‡	1-3 / 4-12	1-3 / 4-12	1-3 / 4-12

Layout Drawings



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Cleanroom Configuration

Dimensional Data

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Width (in / cm)	40 / 102	25 / 64	25 / 64
Depth (in / cm)	37.75 / 96	76 / 193	75 / 191
Height (in / cm)**	73.5 / 187	73.5 / 187	73.5 / 187
Approximate Weight (lb / kg)	850 / 383	850 / 383	850 / 383
Minimum Clearance on All Sides (in / cm)	10 / 25.4	10 / 25.4	10 / 25.4

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Number of Shelves	Shelf Area Bulk and Stopping†† (ft² / cm²)	Shelf Clearance Bulk and Stopping†† (in / mm)	Clearance with Optional Shelf Latching	
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