Ultra Prime Pilot Freeze Dryer

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Key Features

- Compact design for easy installation
- Improved refrigeration for faster condenser pull-down and overall performance
- Single product chamber design allows for larger batches and product uniformity
- Available with a Merlin or LyoLogic control system
- Optional hydraulic stoppering system available
- Narrow footprint (cleanroom configuration available)
- Refrigerant with lower GWP

Specifications

Lowest shelf temperature (50 Hz / 60 Hz)	≤ -67°C / -70°C
Shelf temperature control range*	-55 to 65°C
Shelf Temperature Control Range Tolerance	+/- 0.5 °C
Shelf pull-down from 20°C to -40°C†	≤ 40 minutes
Lowest condenser temperature (50 Hz / 60 Hz)	≤ -82°C / -85°C
Maximum condenser capacity	≥ 50 L
Condenser surface area	.93 m^2 (10 ft^2)
Condenser pull-down from 20°C to -45°C	≤ 20 minutes
Ice condensing capacity in 24 hours‡	≥ 20 L
Vacuum time to 100 mTorr§	≤ 45 minutes
Vacuum Level Control	+/- 0.007 mbar (+/- 5 mTorr)
Vacuum Level Control Range	0.067 – 0.67 mbar (50 – 500 mTorr)
Volume-based leak rate§	≤ 0.0042 mbar·L/sec (≤ 3.2 mTorr·L/sec)
Lowest system vacuum§	≤ 0.2 mbar (≤ 15 mTorr)
Temperature uniform	± 1.0°C
Noise Level	75 dBA

Specifications note:

Note: Performance specifications are based on SP test data from units operating at an ambient room temperature of approximately 20°C. SP recommends an optimum operating range of 15-25°C (59-77°F).

Utility Requirements

	Air-Cooled	Water-Cooled
Compressed air (for units with isolation valve)	80 psig (5.5 bar)	80 psig (5.5 bar)
Inert Gas for Backfilling	1 PSIG (70 mbar)	1 PSIG (70 mbar)
Ambient Room Temperature	15 -25°C (59 -77°F)	15 -25°C (59 -77°F)
Cooling Water	N/A	15-22 Lpm (4-6 gpm) 5-25°C, 2-4 bar (30-60 psi)
Heat Output Room, Peak	22,900 BTU/h (6.7 kW)	5,400 BTU/h (1.6 kW)

Electrical Requirements

Voltage	Phase	Frequency	Breaker Amperage	Peak Current	Peak Power
208 VAC	1 Φ	60 Hz	50 A	35 A	7,500 VA
230 VAC	1 Φ	50 Hz	50 A	35 A	8,050 VA
400 VAC	3 Φ	50 Hz	30 A	30 A	11,500 VA

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Refrigerant Information

	Gas 1	Gas 2
F Gas	R1270	R170
Charge (Kg)	0.450 (WC) 0.380 (AC)	0.3
GWP	2	6
EPA SNAP	IPR	VLTR
Safety Class	A3	A3
Total CO_2E	0.00256 (AC); 0.0027 (WC)	

Dimensional Data

	Standard Configuration	Cleanroom Configuration
Width	74cm (29.25 in)	89cm (35 in)
Depth	197 cm (77.5 in)	197 cm (77.5 in)
Height	195 cm (77 in)	199 cm (78.25 in)
Max. weight (estimated)	909 kg (2,000 lb)	909 kg (2,000 lb)
Min. clearance	61 cm (24 in)	

Note: If machines are placed side by side, increase the minimum clearance to 1.2m (48 inches) with Stoppering or Emergency Stop button

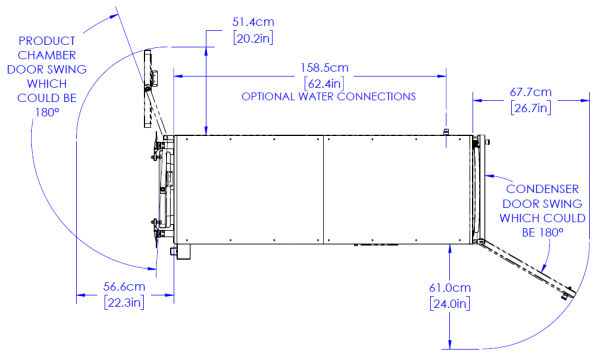
Shelf Configuration

Number of Shelves	Shelf Area	Shelf Clearance
	Bulk and Stoppering	Moveable Bulk/ Stoppering
8 Shelves	11,371 cm^2 (12.24 ft^2)	102 mm (4.04 in)
9 Shelves	12,793 cm^2 (13.77 ft^2)	89 mm (3.55 in)
10 Shelves	14,214 cm^2 (15.3 ft^2)	79 mm (3.15 in)
11 Shelves	15,636 cm^2 (16.83 ft^2)	71 mm (2.83 in)
12 Shelves	17,057 cm^2 (18.36 ft^2)	65 mm (2.56 in)
13 Shelves	18,478 cm^2 (19.89 ft^2)	59 mm (2.34 in)
14 Shelves	19,909 cm^2 (21.43 ft^2)	54 mm (2.14 in)
15 Shelves	21,331 cm^2 (22.96 ft^2)	50 mm (1.97 in)

Shelf size (W × D): 274.3 mm × 520.7 mm (10.8 in × 20.5 in)

Vial Capacity (estimated)

Vial Size	Diameter (mm)	Height (mm)	Height Approximately 15mm with Stopper and clearence (mm)	Tray 10x20in
2R	16	35	50	519
6R	22	40	55	264
10R	24	45	60	220
20R	30	55	70	144
30R	30	75	90	144



Additional Information

Construction	316L stainless steel shelves, product chamber and condenser chamber
Stoppering	Bottom-up hydraulic
Defrost type	Hot gas
Refrigerant type	CFC-free
Vapor port	20.3 cm (8 in)

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

† Shelf Pull-Down times are based on units with eight (8) shelves. The increased mass of stainless steel and additional heat transfer fluid required for nine (9) or more shelves increases pull-down time.

‡ The specified Ice Condensing Capacity in 24 Hours and Maximum Deposition Rate is based on the process of freeze-drying water under controlled conditions on a system with fifteen (15) shelves. 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 Scientific Products test data from similar units equipped with a two-stage rotary vane vacuum pump.

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