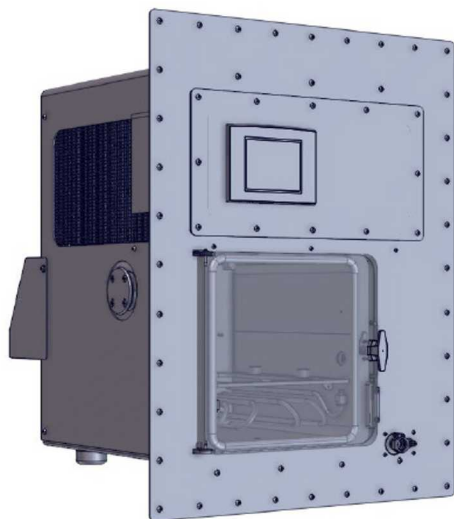


AdVantage Pro™ for Clean Rooms

Laboratory BenchTop Freeze Dryer



Clean room configuration C1 shown.

Key Features

- Experience the advantages of a tray dryer in a benchtop unit
- Operate unit using Intellitronics' vivid, full-color touchscreen
- Receive alarm alerts via email
- Stopper vials automatically with pneumatic stoppering
- Condense up to 4 liters of ice over 24 hours
- Select from one of two layout options—clean room configuration C1 or C2
- Order (2) two or (3) three usable shelves

Refrigerant Information

	Gas 1	Gas 2
F gas	R407C	R508B
Charge (Kg)	0.420	0.220
GWP	1774	13396
EPA SNAP	IPR/VLTR	IPR/VLTR
Safety Class	A1	A1
Total CO2e (t)	3.691	

Electrical Requirements

Voltage	208-230 VAC
Frequency	50 Hz / 60 Hz
Breaker amperage	15 A
Phase	Single
Receptacle [§]	6-15R (domestic only)

Specifications

	EL
Lowest shelf temperature [†] (50 Hz / 60 Hz)	≤ -62°C / -65°C
Shelf temperature control range*	-55 to 60°C
Shelf pull-down from 20°C to -40°C [†]	≤ 30 minutes
Temperature uniformity [‡]	± 1°C
Lowest condenser temperature [†] (50 Hz / 60 Hz)	≤ -82°C / -85°C
Maximum condenser capacity	6 L
Maximum ice condensing capacity in 24 hours ^{\\}	4 L
Maximum deposition rate ^{\\}	0.17 L/hour
Vacuum rate of rise	≤ 60 mT/hour (≤ 0.08 mbar/hour)
Number of compressors	2
Compressor horsepower	1/3, 3/4
System refrigerant	R508B, R407C

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).

Additional Information

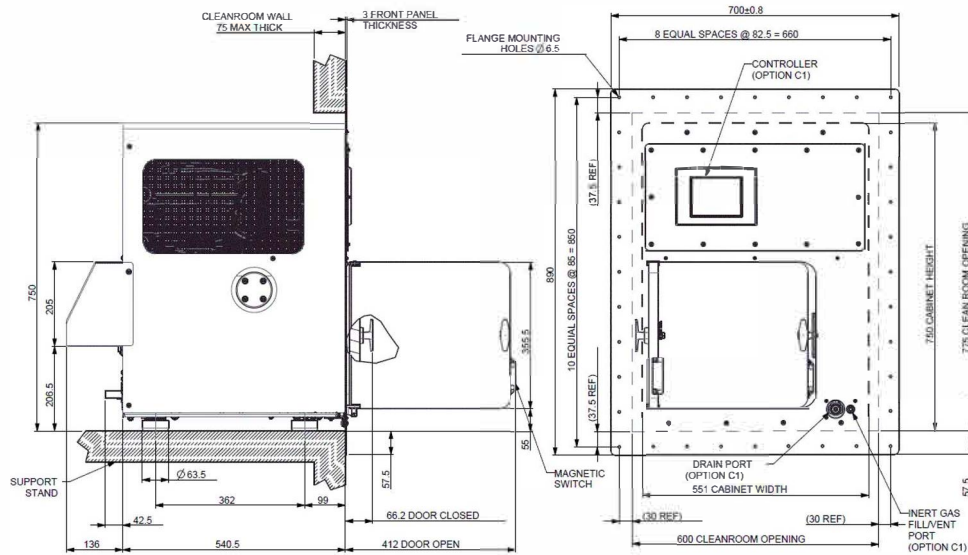
Controller location	Located on front flange (C1 option) or located on the back panel (C2 option)
Inert gas port	3/8" hose barb fitting located on front flange (C1 option) or located on the back panel (C2 option)
Drain port	Located on front flange (C1 option) or located on the side panel (C2 option)
Compressed air inlet ^{††}	1/4" BSPT fitting
Condenser type	Internal
Stoppering	Top-down pneumatic
Defrost type	Hot gas
Refrigerant	CFC-free
Vacuum brake solenoid (VBS) valve ^{§§}	Located between the vacuum system and the condenser port
Vacuum pump (required, not included)	Two-stage rotary vane or suitable dry pump

Utility Requirements

Compressed air	60-90 psig (4.1-6.2 bar)
Approx. peak heat generated (with vacuum pump)	7,000 BTU/h (2 kW)
Approx. peak heat generated (without vacuum pump)	6,000 BTU/h (1.8 kW)

Agency Approvals

CCE (2006/42/EC)	(2006/95/EC)
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Clean room configuration C1 shown.

Dimensional Data

Width	27.6 in (700 mm)
Depth	26.6 in (676.5 mm)
Height	29.5 in (750 mm)
Weight	419 lbs (190 kg)
Clean room opening dimensions**	23.6 in (600 mm) × 30.5 in (775mm)

Note: SP 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).

Materials Construction

Chamber construction	AISI type 316L SS
Shelf construction	AISI type 316L SS
Chamber door	Full-view acrylic
Condenser coil	AISI type 316L SS
Four port manifold (optional)	AISI type 316L SS
Quickseal body (optional)	Neoprene
Quickseal knob (optional)	Polypropylene
Main front panel (clean room flange)	AISI type 316L SS, 3 mm thickness

Note: Dimensional data specifications are for standard AdVantage Pro lyophilizers. Specifications may vary based on optional components (i.e; optional four port manifold).

Shelf Configuration

	Shelf Area	Shelf Clearance
2 Shelves	286 in ² (1,844 cm ²)	2.9 in (73 mm)
3 Shelves	429 in ² (2,766 cm ²)	1.75 in (44.5 mm)

Nominal shelf size (W × D × TH): 10.2 × 14 × 0.4 in (260 × 355 × 9.5 mm)

- * Shelf temperature is controlled to within ± 1.0 °C of the setpoint within the Shelf Temperature Control Range.
- † The Lowest Shelf Temperature and Lowest Condenser Temperature values may be lower than or equal to the Performance Specifications.
- ‡ Shelf pull-down times are based on tests performed with no load at “pre-seal” pressure (approximately 400-500 mbar). The increased mass of stainless steel and additional heat transfer fluid for units with more than one shelf will increase the pull-down time. Use the following multipliers when determining the pull-down time specification for the following shelf configurations: 2-shelf units, standard pull-down time × 1.5 and 3-shelf units, standard pull-down time × 2.
- ¶ Shelf temperature deviations shall not exceed the specification relative to the mean of the highest and lowest temperature readings.
- § SP can configure any unit to conform to the electrical requirements of a wide range of international voltage and phase configurations. The AdVantage Pro includes an IEC60320 C20 receptacle on the back of the unit. This receptacle allows for country-specific power leads to be supplied. Contact SP for more information.
- || The specified Maximum Ice Condensing Capacity in 24 Hours and the 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.
- ** The optional shelf latching kit allows for two to one shelf latching on two-shelf units, which increases shelf clearance to 5.6 in (142.2 mm) and 3 to 2 shelf latching on 3-shelf units, which increases shelf clearance to 2.6 in (66 mm).
- †† The Advantage Pro is configured with a 1/4-inch BSPT bulkhead fitting. A BSPT to 1/4-inch NPT adapter shall be provided with the unit, which will allow users to choose between a 1/4-inch BSPT fitting and a 1/4-inch NPT fitting.
- §§ Vacuum Brake Solenoid (VBS) is a vacuum valve system designed to prevent vacuum pump oil and/or oil mist from entering the product chamber and/or condenser when the pump is stopped unintentionally or when restarting the pump.
- ¶¶ The seal between the clean room flange and the clean room wall shall be the responsibility of the customer.