

# Advantage Pro™

## Laboratory Benchtop Freeze Dryer



### Key Features

- Experience the advantages of a tray dryer in a benchtop unit
- Operate the unit using Intellitronics' vivid, full-color touchscreen
- Receive alarm alerts via email
- Stopper vials automatically with the pneumatic stoppering option
- Condense up to 4 liters of ice over 24 hours
- Order with up to three (3) 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	

### Agency Approvals

CCE (2006/42/EC)	(2004/108/EC)	(2006/95/EC)
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### Specifications

	EL
Shelf temperature control Range*	-55°C to 60°C
Lowest shelf temperature† (50 Hz / 60 Hz)	-62°C / -65°C
Shelf pull-down from 20°C to -40°C‡	≤ 30 minutes
Temperature uniformity¶	± 1.0 °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	0.333, 0.75

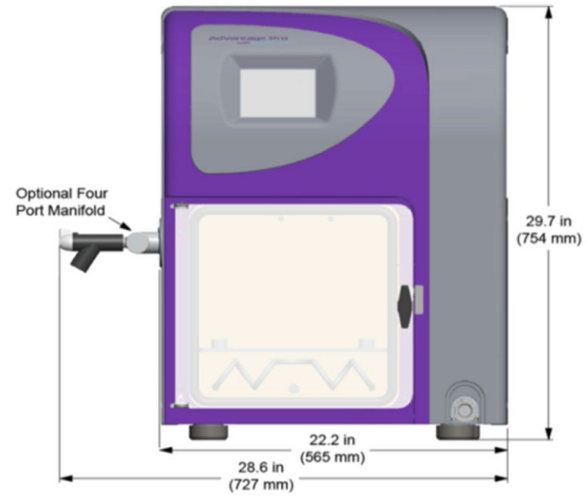
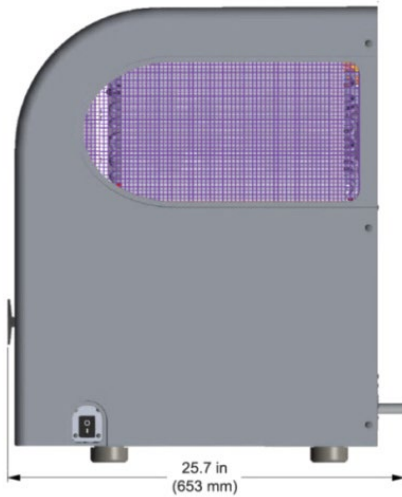
*Note: Performance specifications are based on SP test data from units operating at an ambient room temperature of approximately 20°C. SP recommends an operating range of 15-25°C (59-77°F).*

### Utility Requirements

	EL
Compressed air (stoppering option only)	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)

### Electrical Requirements

	EL
Voltage	208-230 VAC
Hertz	50 / 60 Hz
Breaker amperage*	15 A
Phase	Single
Receptacle <sup>§</sup>	6-15R (Domestic Only)



## Dimensional Data

	EL
Width	22.2 in (565 mm)
Depth	25.7 in (653 mm)
Height	29.7 in (754 mm)
Weight	310 lb (140 kg)

## Shelf Configuration

	Shelf Area	Shelf Clearance
1 Shelf	143 in <sup>2</sup> (922 cm <sup>2</sup> )	6.2 in (158 mm)
2 Shelves	286 in <sup>2</sup> (1,844 cm <sup>2</sup> )	2.9 in (73 mm)
3 Shelves	429 in <sup>2</sup> (2,766 cm <sup>2</sup> )	1.75 in (44.5 mm)

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

## Material of 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

## Additional Information

Vacuum pump (required, not included)	Two-stage rotary vane or suitable dry pump
Defrost type	Hot gas
Refrigerant	CFC-free
Condenser type	Internal
Stoppering (optional)	Top-down pneumatic
Compressed air inlet (stoppering option) <sup>††</sup>	¼-inch BSPT fitting
Inert gas port	⅜-inch Hose Barb fitting

\* 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 Scientific 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). 3 to 1 shelf latching is unavailable.

†† 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.



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