

# 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 CO <sub>2</sub> e (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

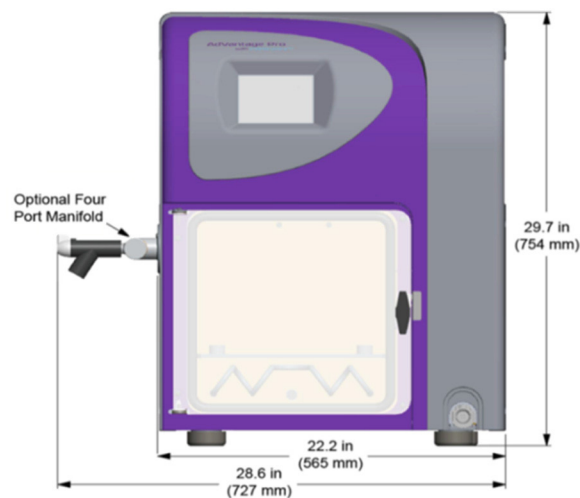
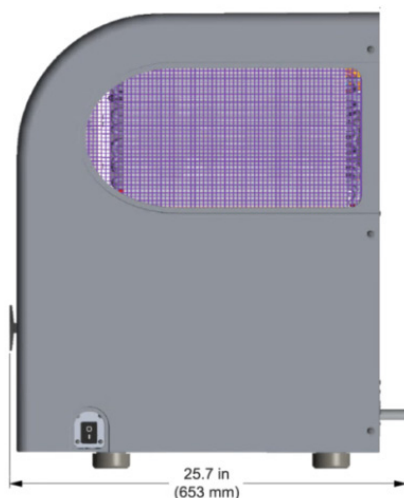
*Note: Performance specifications are based on SP test data from units operating at an ambient room temperature of approximately 20°C. SP recommends an operating range of 15-25°C (59-77°F).*

### 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)



## Shelf Configuration

	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  $\pm 1.0^{\circ}\text{C}$  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  $\times 1.5$  and 3-shelf units, standard pull-down time  $\times 2$ .

¶ 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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The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

