

# VirTis AdVantage Pro

## Laboratory Benchtop Freeze Dryer



### Performance Specifications

	XL	EL
Shelf Temperature Control Range*	-40 to 60 °C	-55 to 60 °C
Lowest Shelf Temperature†	-57 °C @ 50 Hz -60 °C @ 60 Hz	-62 °C @ 50 Hz -65 °C @ 60 Hz
Shelf Pull-Down from 20 °C to -40 °C‡	≤ 40 minutes	≤ 30 minutes
Temperature Uniformity¶	± 1.0 °C	± 1.0 °C
Lowest Condenser Temperature†	-67 °C @ 50 Hz -70 °C @ 60 Hz	-82 °C @ 50 Hz -85 °C @ 60 Hz
Maximum Condenser Capacity	6 L	6 L
Maximum Ice Condensing Capacity in 24 hours¶	4 L	4 L
Maximum Deposition Rate¶	0.17 L/hour	0.17 L/hour
Vacuum Rate of Rise	≤ 60 mT/hour (≤ .08 mbar/hour)	≤ 60 mT/hour (≤ .08 mbar/hour)
Number of Compressors	1	2
Compressor Horsepower	3/4	1/3, 3/4
System Refrigerant	R245fa, R508B	R508B, R407C

### Key Features

- Convenience of a tray dryer in a benchtop unit.
- Intellitronics™ controller with a full-color, touch-screen display.
- Available with up to three (3) usable product drying shelves.
- Optional pneumatic stoppering system available to stopper vials.
- Six-liter ice condensing capacity.

### Agency Approvals

- CE (2006/42/EC), (2004/108/EC), (2006/95/EC)

**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\*\*

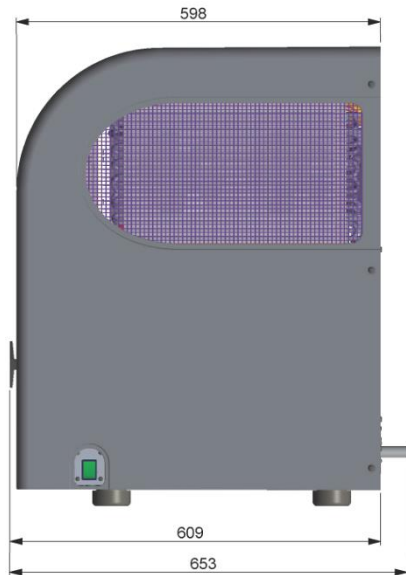
	XL	EL
Voltage	208 / 230 VAC	208 / 230 VAC
Hertz	50 Hz, 60 Hz	50 Hz, 60 Hz
Breaker Amperage (Type C or D)	10 A	15 A
Phase	1 Φ	1 Φ

### Utility Requirements

	XL	EL
Compressed Air (Stoppering Option Only)	60 - 90 psig (4.1 - 6.2 bar)	60 - 90 psig (4.1 - 6.2 bar)
Approx. Peak Heat Generated (With Vacuum Pump)	5,000 BTU/h (1.5 kW)	7,000 BTU/h (2 kW)
Approx. Peak Heat Generated (Without Vacuum Pump)	4,000 BTU/h (1.2 kW)	6,000 BTU/h (1.8 kW)

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### Dimensional Data

	XL	EL
Width	26.9 in (684 mm)	26.9 in (684 mm)
Depth	28 in (711 mm)	28 in (711 mm)
Height	29.5 in (750 mm)	29.5 in (750 mm)
Weight	308.6 lb (140 kg)	308.6 lb (140 kg)

### Shelf Configuration

	Shelf Clearance	Shelf Area
1 Shelf	6.2 in (158 mm)	143 in <sup>2</sup> (922 cm <sup>2</sup> )
2 Shelves	2.9 in (73 mm)	286 in <sup>2</sup> (1,844 cm <sup>2</sup> )
3 Shelves	1.8 in (44.5 mm)	429 in <sup>2</sup> (2,766 cm <sup>2</sup> )
Nominal Shelf Size (W x D x TH)	10.2 X 14 X 0.4 in (260 X 355 X 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 316 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 Type	CFC Free
Condenser Type	Internal
Stoppering (Optional)	Top-Down Pneumatic
Compressed Air Inlet (Stoppering Option) <sup>††</sup>	1/4-inch BSPT fitting
Inert Gas Port	3/8-inch Hose Barb fitting

\* Shelf temperature is controlled to within  $\pm 0.5$  °C of the setpoint within the Shelf Temperature Control Range.

<sup>†</sup> The Lowest Shelf Temperature and Lowest Condenser Temperature values may be lower than or equal to the Performance Specifications.

<sup>‡</sup> 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 x 1.5
- 3-shelf units, standard pull-down time x 2.0

<sup>§</sup> Shelf temperature deviations shall not exceed the specification relative to the mean of the highest and lowest temperature readings.

<sup>||</sup> 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.

<sup>\*\*</sup> The AdVantage Pro is configured with an IEC60320 C20 inlet on the back of the unit. This inlet allows country specific power leads to be supplied.

<sup>††</sup> 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.