TECHNICAL DATA SHEET
MODEL VAULT100PRO

Stirling VAULT100™PRO Upright Ultra-Low Temperature Freezer

Stirling ULTRACOLD

SPECIFICATIONS

Application, rating and electric data

Application	Storage of general (non-flammable) laboratory materials
Storage Volume	795 liters (28 cu. ft.)
Storage Capacity	600 standard 2" boxes in optional racks; optional 700-box system available separately
Temperature Range	-100°C to -20°C (-148°F to -4°F), adjustable to 1°C increments
Electric Power	120 to 240 VAC at 50/60 Hz
Power Plugs Available	NEMA 5-15P plug requires standard NEMA 5-15R receptacle (120V); Length: 3048 mm (120 in.), or NEMA 6-15P plug requires standard NEMA 6-15R receptacle (240V); Length: 2997 mm (118 in.) *Specify when ordering*
Maximum Power (Current)	1200 watts (10 amps @120 V, 5 amps @240 V), nominal
Auto-Voltage Capability	120 to 240 VAC at 50/60 Hz (accepting universal inputs)
Electric Supply Rating	15 amp or greater grounded circuit
Certification/Agency Listing	cULus, CE, ENERGY STAR®
Noise	< 42 dB(A) at 1 meter from front of freezer in steady state operation
Indoor/Outdoor Use	Indoor use only
Application Environment	Non-corrosive, non-flammable, non-explosive
Ambient Operating Temp	5°C to 35°C (41°F to 95°F)
Useful Life	15 years, nominal

Controller

Interface	Graphical user interface with touchscreen inputs
Controller Type	Microprocessor with touchscreen input and display
Security	Optional PIN requirement built in
Warm and Cold Alarms	Fully adjustable
Control Sensor	One RTD (PT100 Class A)
Event Log	All alarms, door openings, setpoint changes, power outage (Recording in a system memory for 12 months)
Dry Contacts	Normally Closed, Normally Open and Common; activated by power outage or any alarm condition
Temperature Log	12 months available graphically and electronically from a system memory (downloadable)
Battery Back-up	24-hour battery back-up for touchscreen and temperature display
Internet Connectivity	Optional Ethernet connection transmitting in BACnet™
Defrost Method	Adjustable gasket heater as needed

Refrigeration system

Cooling Engine	Helium-charged (10-gr) free-piston Stirling engine with continuous modulation
Heat Transport System	Gravity-driven thermosiphon
Refrigerant	R-170 (ethane) HFC/HCFC-free, 105 g (3.7 oz)
Evaporator	Cold wall (inner liner)
Heat Rejection	Finned heat exchanger with forced air cooling. Air inlet: Right side of top cover, through air filter Air outlet: Left side of top cover, upward

SPECIFICATIONS (CONTINUED)

Performance data

Steady State Energy Use (ENERGY STAR® Final Test Method)	6.6 kWh/day at -75°C
20-Position Temperature Uniformity†	±3.0°C* (at -80°C)
Single-Position Temperature Stability (Steady State)	±0.2°C* from -80°C setpoint
Recovery From Door Opening (ENERGY STAR® Final Test Method)	26 minutes at -80°C
Pull-Down From 25°C Ambient	6.0 hours @ ambient to -80°C (-112°F)
Warm-up Profile	2.7 hours to -60°C at -80°C (empty cabinet). 7.8 hours to -40°C at -80°C (empty cabinet)
Heat Dissipation	825 Btu/h @ steady state at -75°C. 978 Btu/h with 6 door openings at -75°C.

Dimensions and construction

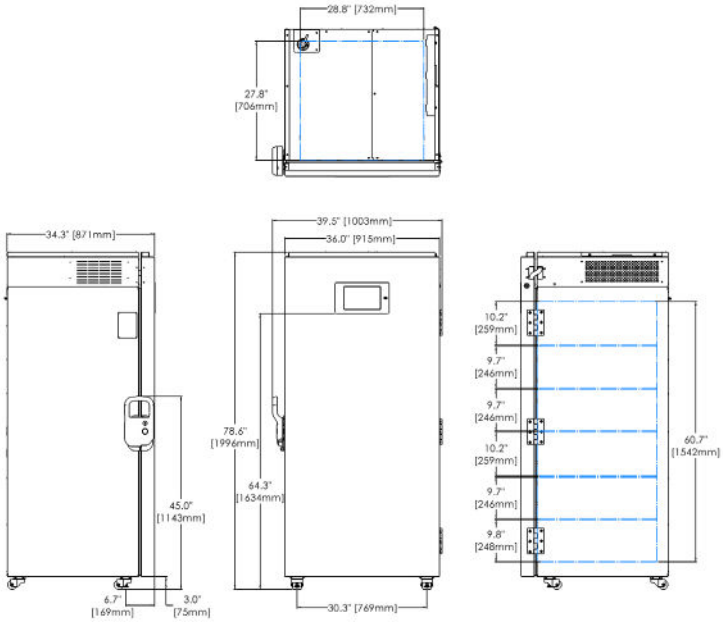
Interior (H x D x W)	1542 H x 706 D x 732 mm W | (60.7 x 27.8 x 28.8 in.)
Exterior (H x D x W)	1996 H x 871 D x 915 mm W | (78.6 x 34.3 x 36 in.)
Net Weight, Five Shelves No Load	300 kg (660 lbs.)
Shipping (H x D x W)	2134 x 1092 x 1168 mm | (84 x 43 x 46 in.)
Shipping Weight	345 kg (760 lbs.)
Insulation	High-performance, vacuum-insulated panels and polyurethane foam using the Ecomate® environmentally friendly, SNAP-compliant blowing agent
Shelves	5 stainless steel, adjustable in 12.7 mm (0.5 in.) increments
Inner Doors	3 insulated with magnetic latches
Options	CO_2 and LN_2 back-up systems, additional shelves, international plug(s), 4-20 mA – Temperature transmitter: 0°C to -100°C (4-20mA), loop power (8 to 35 VDC) is required

† There is no need for special wiring or a 20-amp breaker on a 120V line

‡ ENERGY STAR® Final Test Method | ENERGY STAR V1.1 Lab Grade Refrigerator and Freezer Program Requirements

* Within testing protocol margin of error

DIMENSIONS



ASHRAE BACnet®

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