

# Model SU780XLE

## Upright Ultra-Low Temperature Freezer

Use 70-75% Less Energy, with the Industry's Best  
Ultra-Low Cooling Performance



### Making the Industry's Best Performing ULT Freezer Even Better

- ✓  $\pm 1^{\circ}\text{C}$  Steady-State Temperature Variation Over Time
- ✓ Faster Initial Pull-Down, Ambient to  $-80^{\circ}\text{C}$ , <6.5 hours
- ✓ Fastest Door Opening Temperature Recovery, 35 minutes to  $-80^{\circ}\text{C}$  (when tested using the ENERGY STAR® Final Test Method door opening procedure)
- ✓ Slowest Warm-Up Time, 2.5 hours from  $-80^{\circ}\text{C}$  to  $-60^{\circ}\text{C}$
- ✓ Real-Time Temperature Display
- ✓ Largest Storage Capacity Per Sq. Ft. of Floor Space
- ✓ Plugs into Any Outlet

*Shown with optional inventory racks and three additional shelving units (not included). Interior dimensions accommodate optional inventory racks up to five standard boxes deep. Removable shelves are adjustable on 1/2" (12.7 mm) centers.*

*The SU780XLE delivers strategic advantages across your entire research organization.*

#### Protecting your Sample Integrity

- Modulated cooling capacity eliminates on/off cycling, improves quality of cold
- 100% adaptive control - faster temperature pull-down and recovery
- Superior Stirling engine reliability with only two moving parts - no compressors to fail!
- Industry-best warranty – seven years engine and thermosiphon protection, two years parts and labor coverage\*

#### Protecting the Environment

- Uses 70-75% less energy than standard compressor-based systems
- Uses EPA SNAP-approved 100% natural refrigerants
- Zero Waste process and environmentally-friendly foam insulation blowing agent used in product manufacturing
- Significantly smaller operating carbon footprint than any competing product

#### Protecting your Operating Budget

- Reduces electric utility costs more than 70% savings in most cases
- Significantly reduces heat output and HVAC cost of operations
- Reduces floor space, facilities, infrastructure, and backup power cost
- Lowest ongoing maintenance requirements and service costs



# Model SU780XLE Specifications

## Application, Rating and Electric Data

<b>Application</b>	Storage of general (non-flammable) laboratory materials
<b>Storage Volume</b>	780 liters (27.5 cu.ft.)
<b>Storage Capacity</b>	600 standard 2" boxes in drawer racks, optional, available separately
<b>Temperature Range</b>	-86°C to -20°C @ 32°C (90°F) ambient, adjustable to 1°C increments
<b>Electric Power**</b>	100V to 240V (±10%) at either 50 or 60Hz
<b>Maximum Power (Current)</b>	1200 watts (10 amps @120V, 5 amps @240V), nominal
<b>Auto-Voltage Capability</b>	100V to 240V (±10%) at either 50 or 60Hz (automatically adjusts)
<b>Electric Supply Rating</b>	15 amp or greater grounded circuit
<b>Power Plugs Available</b>	NEMA 5-15P plug requires standard NEMA 5-15R receptacle (120V); Length: 2261 mm (89 in.), or 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
<b>Certification/Agency Listing</b>	cULus, CE, and ENERGY STAR®
<b>Noise</b>	Advanced noise abatement, <45 dB(A) at 1 meter
<b>Indoor/Outdoor Use</b>	Indoor use only
<b>Application Environment</b>	Non-corrosive, non-flammable, non-explosive
<b>Ambient Operating Temperature</b>	+5°C to +35°C (41°F to 95°F)
<b>Useful Life</b>	12 years, nominal

## Controller

<b>Interface</b>	Graphical user interface with touchscreen controls
<b>Controller Type</b>	Microprocessor with touchscreen input and display
<b>Security</b>	Lockable door Optional PIN requirement built in
<b>Warm and Cold Alarms</b>	Fully adjustable
<b>Control Sensor</b>	One RTD (PT100 Class B)
<b>Event Log</b>	All alarms, door openings
<b>Dry Contacts</b>	Normally closed, normally open, common; activated by power outage or any alarm condition
<b>Temperature Log</b>	30 days available graphically
<b>Battery Back-up</b>	12 hour control battery back-up for touchscreen

\* Labor warranty coverage available in the U.S. and Canada

\*\* The freezer operates on nominal 120V or 240V, 50 or 60Hz AC, over a wide voltage range from 90V to 264V. There is no need for special wiring or a 20 amp breaker on a 120V line. Heat rejection is minimal. The cooling air is drawn in over the top of the door and warm air exits at the right side of the cabinet.

## Refrigeration System

<b>Cooling Engine</b>	Helium charged free-piston Stirling engine with continuous modulation
<b>Heat Transport System</b>	Gravity driven thermosiphon
<b>Refrigerant</b>	R-170 (Ethane) 90 grams
<b>Evaporator</b>	Cold wall (inner liner)
<b>Heat Rejection</b>	Finned heat exchanger with forced air cooling Air inlet: Above freezer door, below mechanical compartment Air outlet: Right side of top cover, upward
<b>Defrost Method</b>	Manual

## Performance Data

<b>Steady State Energy Use (ENERGY STAR® Final Test Method)</b>	6.86 kWh/day at -75° C (Weighted Average)
<b>Pull-Down from 25°C Ambient</b>	6.5 hours at -80° C (empty cabinet)
<b>Recovery from Door Opening (ENERGY STAR® Final Test Method)</b>	35 minutes at -80° C
<b>Warm-Up Profile</b>	2.5 hours to -60°C at -80° C (empty cabinet) 6.5 hours to -40°C at -80° C (empty cabinet)
<b>Heat Dissipation</b>	981 BTU/h (load to HVAC) at -80° C (empty cabinet)

## Dimensions and Construction

<b>Interior (H x D x W)</b>	1542 x 705 x 740 mm   (60.7 x 27.8 x 29.1 in.)
<b>Exterior (H x D x W)</b>	1994 x 870 x 915 mm   (78.5 x 34.3 x 36 in.)
<b>Net Weight, Two Shelves, No Load</b>	284 kg (625 lbs.)
<b>Shipping (H x D x W)</b>	2184 x 1092 x 1118 mm   (86 x 43 x 44 in.)
<b>Shipping Weight</b>	352 kg (775 lbs.)
<b>Insulation</b>	High performance vacuum insulated panels and polyurethane foam using Ecomate® environmentally friendly, SNAP-compliant blowing agent
<b>Gasket Heater</b>	User programmable duty cycle
<b>Shelves</b>	2 stainless steel, adjustable in 12.7 mm (0.5 in.) increments
<b>Inner Doors</b>	3 insulated with magnetic latches
<b>Options</b>	Chart recorder, CO <sub>2</sub> and LN <sub>2</sub> back-up systems, additional shelves, international plug(s), 4-20mA temperature output



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