

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°C , <6.5 hours
- ✓ Fastest Door Opening Temperature Recovery, 35 minutes to -80°C
(when tested using the ENERGY STAR® Final Test Method door opening procedure)
- ✓ Optional Connectivity to BMS/BAS or 3rd-Party Monitoring System
- ✓ Real-Time Temperature Display
- ✓ Largest Storage Capacity Per Square Meter of Floor Space
- ✓ Plugs into Any Outlet

Shown with optional inventory racks. Interior dimensions accommodate optional inventory racks up to five standard boxes deep. Removable shelves are adjustable on 12.7 mm (0.5 in) centers.

Stirling Ultracold Model SU780XLE

Storage Volume	Voltage Range, Universal	VWR ECN
780 liters (27.5 cu.ft.)	Operates from 120-240VAC at 50/60Hz	471-1238

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

Protecting the Environment

- Uses up to 70-75% less energy than standard compressor-based systems
- Uses 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

Application	Storage of general (non-flammable) laboratory materials
Storage Volume	780 liters (27.5 cu.ft.)
Storage Capacity	600 standard 2" boxes in optional racks Optional 700-box system, available separately
Temperature Range	-86°C to -20°C @ 32°C (90°F) ambient, adjustable to 1°C increments
Electric Power†	120-240VAC at 50/60Hz
Maximum Power (Current)	1200 watts (10 amps @120V, 5 amps @240V), nominal
Auto-Voltage Capability	120-240VAC at 50/60Hz (automatically adjusts)
Electric Supply Rating	15 amp or greater grounded circuit
Power Plugs Included	Type-E (EU-plug) to IEC-C13 power cord requires standard Type-E receptacle (220–240V); Length: 1829 mm (72 in.), and Type-G (UK-plug) to IEC-C13 power cord requires standard Type-G receptacle (220–240V); Length: 1829 mm (72 in.), and Type-J (CH-plug) to IEC-C13 power cord requires standard Type-J receptacle (220–240V); Length: 1829 mm (72 in.)
Certification/ Agency Listing	cULus, CE, and ENERGY STAR®
Noise	Advanced noise abatement, <45 dB(A) at 1 meter
Indoor/Outdoor Use	Indoor use only
Application Environment	Non-corrosive, non-flammable, non-explosive
Ambient Operating Temperature	+5°C to +35°C (41°F to 95°F)
Useful Life	12 years, nominal
Controller	
Interface	Graphical user interface with touchscreen controls
Controller Type	Microprocessor with touchscreen input and display
Security	Lockable door Optional PIN requirement built in
Warm and Cold Alarms	Fully adjustable
Control Sensor	One RTD (PT100 Class B)
Event Log	All alarms, door openings
Dry Contacts	Normally closed, normally open, common; activated by power outage or any alarm condition
Temperature Log	30 days available graphically
Battery Back-Up	12 hour control battery back-up for touchscreen
Internet Connectivity	Optional Ethernet connection transmitting in BACnet™ or MQTT protocols Optional SenseAnywhere wireless temperature monitoring and logging

Refrigeration System

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

Performance Data

Steady State Energy Use (ENERGY STAR® Final Test Method)	6.67 kWh/day at -75°C (Weighted Average)
Pull-Down from 25°C Ambient	6.5 hours at -80° C (Empty Cabinet)
Recovery from Door Opening ENERGY STAR® Final Test Method	35 minutes at -80° C
Warm-Up Profile	2.5 hours to -60°C at -80° C (Empty Cabinet) 6.5 hours to -40°C at -80° C (Empty Cabinet)
Heat Dissipation	287.5 W (load to HVAC) at -80° C (Empty Cabinet)

Dimensions and Construction

Interior (H x D x W)	1542 x 705 x 740 mm (60.7 x 27.8 x 29.1 in.)
Exterior (H x D x W)	1994 x 870 x 915 mm (78.5 x 34.3 x 36 in.)
Net Weight, Two Shelves, No Load	284 kg (625 lbs.)
Shipping (H x D x W)	2184 x 1092 x 1118 mm (86 x 43 x 44 in.)
Shipping Weight	352 kg (775 lbs.)
Insulation	High performance vacuum insulated panels and polyurethane foam using Ecomate® environmentally friendly blowing agent
Gasket Heater	User programmable duty cycle
Shelves	5 stainless steel, adjustable in 12.7 mm (0.5 in.) increments
Inner Doors	3 insulated with magnetic latches
Options	Chart recorder, CO ₂ and LN ₂ back-up systems, additional shelves, international plug(s), 4-20mA temperature output



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

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