



# Technical Data Sheet

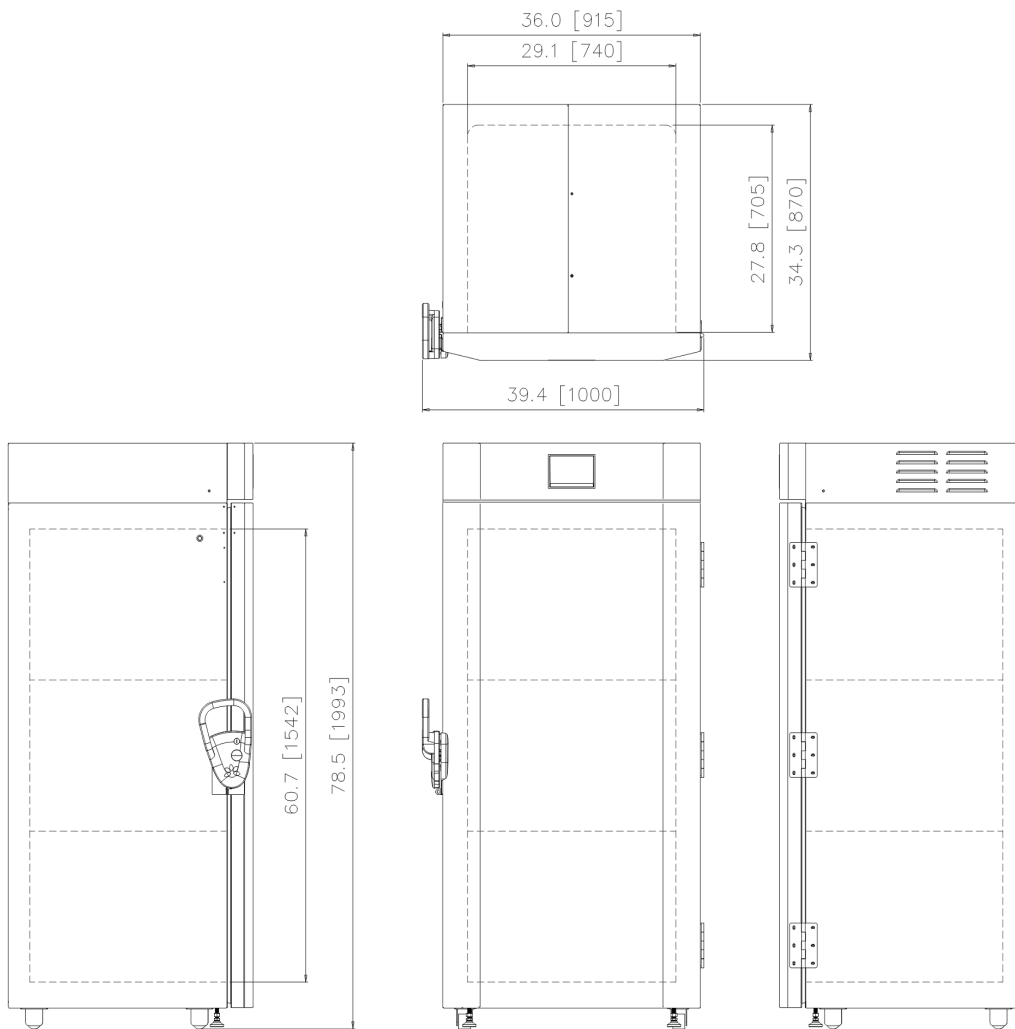
## Stirling Ultracold SU780XLE Ultra-Low Temperature Freezer

Stirling Ultracold, Athens, Ohio USA



Specifications	Model Number
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 Available	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
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
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
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
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	981 BTU/h (load to HVAC) at -80°C (Empty Cabinet)

Specifications	Model Number
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 Dimensions (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, SNAP-compliant blowing agent
Gasket Heater	User programmable duty cycle
Shelves	2 stainless steel, adjustable in 12.7 mm (0.5 in.) increments
Inner Doors	3 insulated with magnetic latches
Options	Chart recorder, CO <sub>2</sub> and LN <sub>2</sub> back-up systems, additional shelves, international plug(s), 4-20 mA - Temperature transmitter: 0°C to -100°C (4-20mA), loop power (8-35 Vdc) is required



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