



October 16, 2026

Subject: Stirling Ultracold VAULT100PRO Test Results in Accordance with the EPA ENERGY STAR® Final Test Method

From home appliances to televisions, the EPA ENERGY STAR® program has become synonymous with value, and energy efficiency. We are very proud to announce the independently-verified energy consumption test results for our next generation Ultra-Low Temperature (ULT) Freezer, the VAULT100PRO. Using the ENERGY STAR Final Test Method, the VAULT100PRO's Weighted Average Energy Consumption results were as follows:

- **5.71 kWh/day, without door openings (steady-state)**
- **6.63 kWh/day, including 6 door oprnings**

The attached VAULT100PRO test results were obtained by an independent, EPA-recognized testing lab, and presented in the required EPA report format. Also attached is the *ENERGY STAR Product Specification for Laboratory Grade Refrigerators and Freezers, and Ultra-Low Temperature Freezers Final Test Method*, which outlines the applicability, definitions, test conditions, setup, methodology and reporting requirements of the ENERGY STAR protocol.

With an agreed-upon testing standard in our industry, ULT freezer buyers can compare energy consumptions by model and manufacturer with certainty.

The detailed results in this report support the summary details found on the EPA ENERGY STAR website's entry for Stirling Ultracold's VAULT100PRO and can be viewed on the website [here](#).

I encourage you to review this document and share it with your colleagues. If you have any questions regarding the attached test method and the VAULT100PRO results, please do not hesitate to contact us.

Kind Regards,

Clayton Newman
President and CEO

FSTC Equipment Test Report

Purpost of Testing

The Stirling Ultracold VAULT100PRO freezer was tested to characterize it's energy usage and temperature stability during periods of both idle and door openings (for a 6-hour period). This testing was conducted as per the ENERGY STAR® Program Requirement Product Specification for Laboratory Grade Refrigerators and Freezers, and Ultra-Low Temperature Freezers Final Test Method.

Appliance Details

Measured Interior Volume	27.9
Number of Compartments	3
Voltage (V)	120
Measured Input Rate (W)	991.7 (MAX), 281.3 (AVG)
Power Factor	0.91
Refrigerant	R170

Test Results

Test Condition	-80°C	-70°C
Door Test Cabinet Temperature (°C)	-79.53	-71.49
Energy Test Cabinet Temperature (°C)	-79.53	-71.49
Ambient Temperature (°C) - dry bulb (T _a , T _b)	(24.0, 24.0)	(24.0, 24.0)
Ambient Temperature (°C) - wet bulb (T _a , T _b)	(18.0, 18.0)	(18.0, 18.0)
Energy Consumption including 6 door openings (kWh/day)	7.36	6.07
Energy Consumption without door openings (kWh/day)	6.31	5.11
Weighted Average Energy Consumption	at -75°C	
Including 6 door openings (kWh/day)	6.63	
Without door openings (kWh/day)	5.71	

^aT_a is at a height of 85.0 inches above the ground and T_b is at a height of 37.5 inches above the ground.

Temperature Uniformity - Starting with first door opening

Test Condition	-80°C	-70°C
Test Uniformity (°C)	6.019	5.8211
Test Stability (°C)	3.6358	3.0272
Maximum temperature (°C)	-73.7556	-64.9056
Minimum temperature (°C)	-84.85	-75.1889
Peak Variance (°C)	11.0944	10.2833

^b The average difference between the maximum and minimum temperature in the cabinet.

^c The average stability (T_{max} - T_{min}) for each location.

Temperature Uniformity - 3h after last door opening

Test Condition	-80°C	-70°C
Test Uniformity (°C)	4.0277	2.8421
Test Stability (°C)	0.2722	0.1321
Maximum temperature (°C)	-76.9333	-69.9611
Minimum temperature (°C)	-81.2833	-72.9667
Peak Variance (°C)	4.5	3.0056

Nameplate Information:

STIRLING VAULT100 Pro	
Upright, Ultra Low Temperature Freezer	
Internal Volume: 28 cu. ft. (795 liters)	Input Voltage: 120-240 VAC (50/60Hz)
Weight (with 5 shelves): 661 lbs. (300kg)	Maximum Current: 10 Amps (at 120 VAC), 5 Amps (at 240 VAC)
Exterior Dimensions: 78.5" H x 34.2" D x 38" W (1994 x 869 x 914 mm)	Maximum Input Power: 1200 Watts
Thermosiphon Refrigerant: R170 (Ethane) 3.7oz (105gr) 580 PSiG at 40° C	Stirling Engine Refrigerant: R704 (Helium) 0.35 oz (10 gr) 575 PSiG at 40° C
Global Cooling, Inc. 6000 Poston Rd. Athens OH 45701 USA 855-274-7900	Made in the USA with US and Imported parts
USA and International Patents Apply Visit www.stirlingultracold.com/patents for details	
CE UK CA  LISTED	
SN  26040-00005 	
SD LABEL 00 Rev. 0	



Stirling VAULT100PRO
Ultra-Low Temperature Freezer