



MD-86L458



## Reliable Sample Storage

High temperature uniformity;  
Imported world-famous components.



## Double Door Design

Four independent inner door design reduce heat loss.



## Multi-level Alarms

High, low temperature, sensor error, power failure,  
high ambient alarm, door open alarm.



## Fast Cooling

High efficiency cooling fans and compressors.

## Structure Features

### 1 Multi-layer Sealing Structure

Multi-layers gaskets provide a tight seal between the inner doors and outer door, reducing heat exchange and retaining the inner temperature better when there is power failure.

### 2 VIP PLUS Design

Provides up to 30% more storage capacity than a conventionally insulated freezer, without increasing the footprint. A glass fibre core provides advanced thermal properties.

### 3 USB Port

Enables users to download historical temperature data for compliance/auditing purposes.

### 4 LED Display

Alarm functions include high, low temperature, sensor error, power failure, high ambient alarm, door open alarm etc.



### 5 Lever Handle Design

Ingenious handle design helps you to open and close door easier. Lockable handle safeguards your precious samples. Padlock can also be added for extra sample safety.

### 6 Relief Ports

It allows users to re-open the main door quickly when entering, rust-proof, freeze-free.

### 7 Narrow Door Design

The freezer can pass through an 750mm wide door when the door is open.

### Application, Rating, & Electrical Data

Application	ULT freezer
Storage Volume (L/Cu.Ft)	458/16.17
Temperature Range	-40°C to -86°C
Default Set Point	-81°C
Power	115-V/60Hz   220-240~V/50Hz   220-240~V/60Hz
Current	10A   5.9A   5.9A
Power Cord Length	1.7m
Certification	CE/UL
Door type	Solid door
Application Environment	Non-corrosive, non-flammable, non-explosive
Ambient Operating Temperature	10°C-32°C

### Refrigeration

Refrigeration System	Self-cascade
Compressor	Hermetic
Condenser Type	Air cooling
Expansion Device	Capillary tube
Evaporator Type	Built-in
Defrost Method	Manual defrosting
Refrigerant	Mix refrigerant

### Controller / Configuration Settings

Display screen	LED
Controller Type	Microprocessor
Security	Lockable door, password protected settings
Control Sensor	PT1000, stainless steel
Communication Ports	USB, Remote alarm contacts
Power Failure Alarm	Yes
High/Low Alarms	Yes, fully adjustable
Door Ajar Alarm	Yes
Download	Yes, via USB, PDF
Temperature Log	Yes, download via USB
Battery Back-up	Yes, 44 hr display and alarm back-up   Rechargeable 12V, lead acid

### Performance Characteristics (normal operating conditions)

Uniformity   (°C)	±5.0
Recovery to -75°C after 1 min door opening   (min)	26
Temperature fluctuation   (°C)	≤1.1(Copper Mass Simulators)
Energy consumption   (kWh/day)	9.5   9.5   10
Noise emission   (dB)	46
Heat rejection   (BTU/hr)	3521
Pull-down time to -81°C   (min)	210   267   300

### Typical Temperature Map

	test 1	test 2	test 3	test 4	test 5	test 6	test 7	test 8	test 9
Avg	-81.40	-81.75	-81.66	-82.61	-82.93	-82.46	-81.75	-82.13	-81.26
Max	-78.80	-79.00	-78.60	-81.20	-81.30	-80.80	-80.60	-81.10	-80.20
Min	-83.20	-83.70	-83.70	-84.10	-84.40	-84.00	-83.00	-83.40	-82.60

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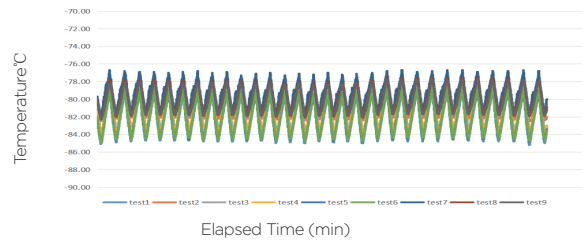


### Dimensions and Construction

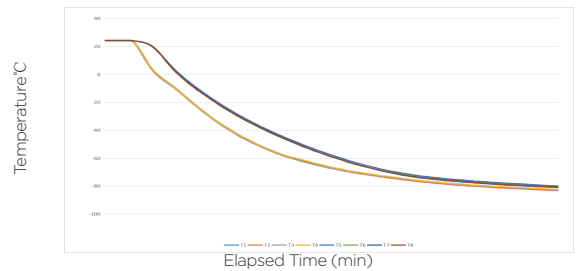
Interior (w*d*h)	595*580*1310 mm
Exterior (w*d*h)	885*855*1980 mm
Access Port	2 Access Port- for external monitoring probe(s) (25 mm diameter)
shelf	3  49 kg max capacity
Wheels	4 Swivel Casters + 2 Leveling Feet
Net Weight	234   237   234 kg
Gross Weight	289   292   289 kg

All performance data from 458L ULT freezer, 25 ambient, -81°C

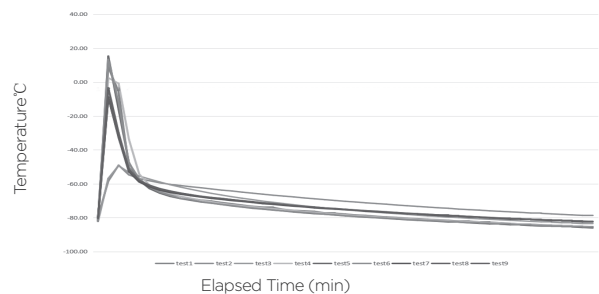
#### Uniformity



#### Cooling Speed



#### DOR 1 minute



#### Temperature recover curve

