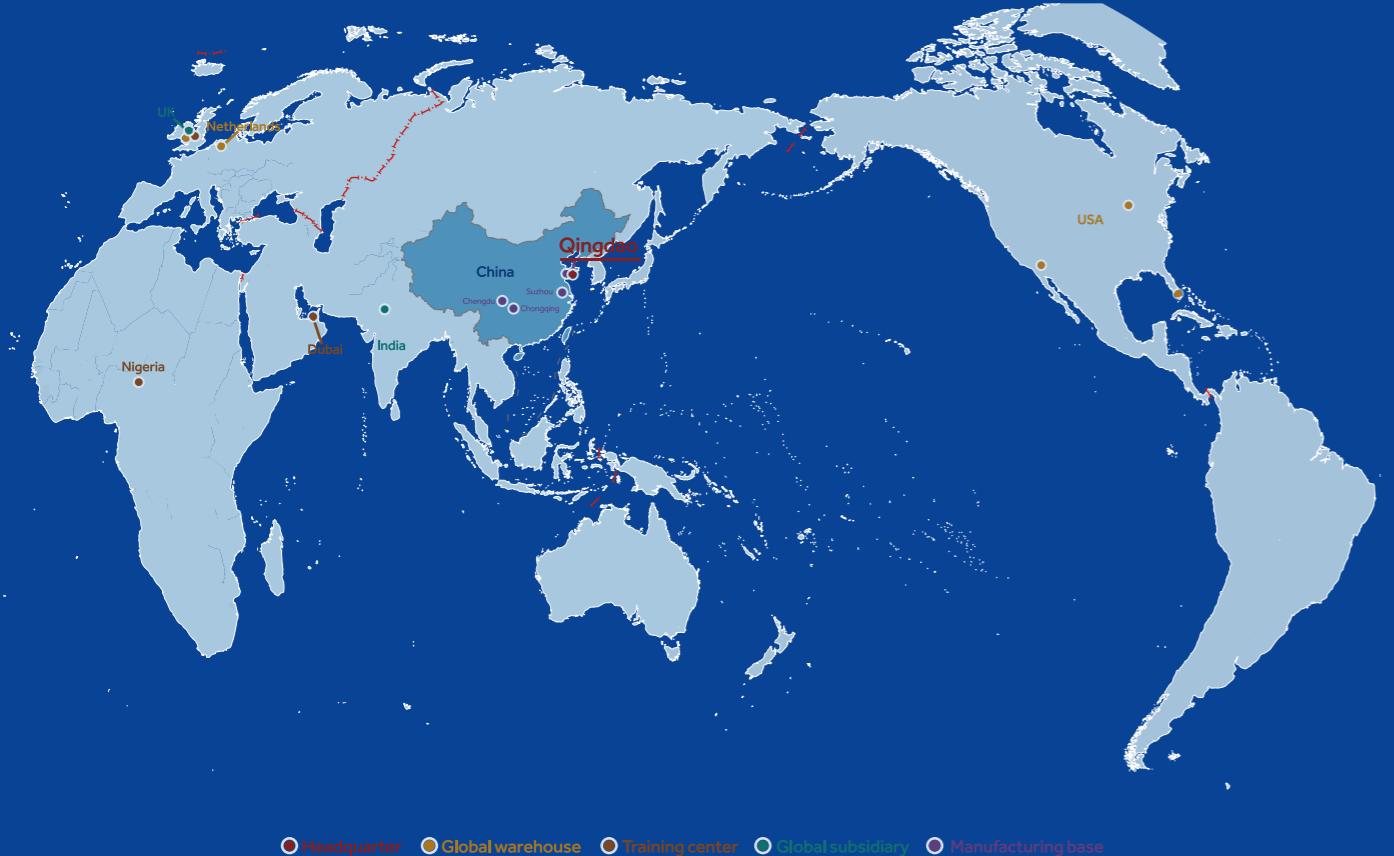


## ULT Freezer Solutions



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Note: If a slight difference occurs between pictures and actual products, please refer to actual products. Our company reserves the right of final interpretation of this brochure, please contact us for any further information if required.

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**-150°C  
Cryo Freezer**

## -150°C Cryo Freezer



A mechanical cryogenic freezer is used for the long-term cryopreservation of samples such as cell cultures, tissue samples, bacteria, viruses and non-biological products such as electronics. Applications include cord blood preservation, biobanks, reproductive procedures, blood banks, life science research, biomedical engineering and fisheries. Mechanical cryopreservation is a safe alternative to LN<sub>2</sub> and can reduce or eliminate the reliance on LN<sub>2</sub>, reducing safety concerns.



### Energy Efficient Hydrocarbon Refrigeration

- Includes specialist industrial compressor, hydrocarbon refrigerant, dual-compressors 4-stage cascade refrigeration system, which delivers excellent energy-efficiencies
- Energy-efficient fan design with intelligent start/stop



### Environmentally Friendly

- 100% HC refrigerant truly environmental-friendly refrigeration system with zero global warming potential (GWP)
- LBA polyurethane foam has low GWP and is significantly lower than most HFCs commonly used, offering better environmental protection



### Superior Uniformity

The temperature **uniformity** is  $\pm 5^\circ\text{C}$  with the setting temperature of  $-150^\circ\text{C}$



### Low Noise

Noise-reduction features and noise reduction design lowers noise to  $55 \text{ dB (A)}$



### Safe, Secure and Reliable

Multiple alarms, including high and low temperature, power failure, door ajar, hot condenser, low battery, sensor error, and high ambient temperature. The standard ambient temperature ranges from  $10^\circ\text{C}$  to  $32^\circ\text{C}$ . The pressure state of the system can be automatically adjusted by the pressure controller to prevent the pressure from being too high to effect the freezer operation.



## -150°C Cryo Freezer

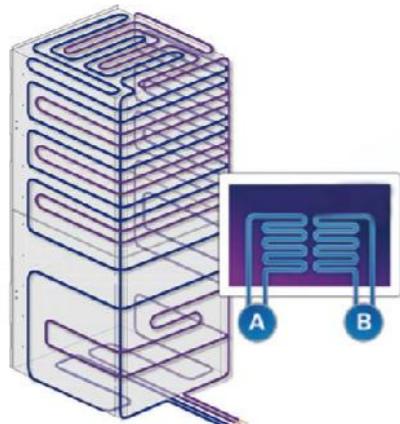
### Specifications

	Model	DW-150W209	DW-150W209A
Technical Data	Cabinet Type	Chest	Chest
	Climate Class	N	N
	Cooling Type	Direct cooling	Direct cooling
	Defrost Mode	Manual	Manual
	Refrigerant	HC	HC
	Sound Level (dB(A))	55	55
Performance	Cooling Performance (°C)	-150	-150
	Temperature Range (°C)	-140~-150	-140~-150
Control	Controller	Microprocessor	Microprocessor
	Display	LCD	LCD
Electrical Data	Power Supply (V/Hz)	220-240/50	208-230/60
	Electrical Current (A)	10	12
Dimensions	Capacity (L/Cu.Ft)	209/7.4	209/7.4
	Net/Gross Weight	kg lbs	260/295 573.2/650.4
	Interior Dimension (W*D*H)	mm in	667*462*677 26.3*18.2*26.7
	Exterior Dimension (W*D*H)	mm in	1650*860*1010 65.0*33.9*39.8
	Packing Dimension (W*D*H)	mm in	1810*960*1170 71.3*37.8*46.1
	Container Load (20'/40'/40'H)	12/24/24	12/24/24
	High/Low Temperature	Y	Y
	Hot Condenser	Y	Y
	Power Failure	Y	Y
	High/Low Voltage	Y	Y
Functions	Sensor Error	Y	Y
	Low Battery	Y	Y
	High Ambient Temperature	Y	Y
	Door Ajar	Y	Y
	Start-up Delay	Y	Y
	Caster	Y	Y
	Foot	Y	Y
	Porthole	Y/1	Y/1
	Shelves/Inner Doors	-/2	-/2
	USB Interface	Y	Y
Accessories	Remote Alarm	Y	Y
	5V Power Supply Port	Y	Y
	Temperature Chart Recorder	Optional	Optional
	RS232/485 Port	NA/Standard	NA/Standard
	CO <sub>2</sub> Backup System	N/A	N/A
	LN <sub>2</sub> Backup System (Built-in/External)	Optional/Optional	Optional/Optional
	Freezing Rack	433026, Quantity: 12 433028, Quantity: 12	433026, Quantity: 12 433028, Quantity: 12
	Certification	CE	UL
		Product appearance and specifications are subject to change without notice	

**TwinCool**  
**Frequency Conversion**  
**ULT Freezer**



## Product Advantages



### Dual refrigeration system for optimal reliability and security

Two independent hydrocarbon (HC) refrigeration systems, each can maintain -80°C ensuring the safety of stored samples



### World-leading Energy Saving Refrigeration Technology

Intelligent frequency conversion technology and HC refrigeration system delivers a 50% reduction in energy usage when compared to traditional HFC refrigeration systems



### Environmental Protection

Environmentally friendly hydrocarbon refrigerant and LBA foam material



### Optional IoT System

The optional IoT monitors the operating status of the equipment in real time. Equipped with multiple alarm functions and a self-diagnostics system to identify and warn users to ensure sample safety

## Ergonomic Design



### Low Noise Design

Optimised systems and noise-reducing cabinet design lower noise out to 43dB for a quieter working experience



### Adjustable Sample Loading Tray (Optional)

The adjustable height sample load tray provides users with a convenient place to hold samples while opening and accessing storage compartments



### Large loading capacity

Maximum Capacity: 600 boxes (2 inch boxes with 10\*10 configuration) 60,000 samples can be stored



### Intelligent Control

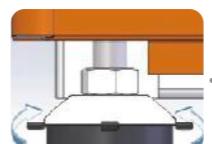
10.1-inch high-performance touch screen, sensitive touch operation. Using the optional IoT module, users can check the real-time operating status from an App

**Ergonomic design**  
Document holder for easy storage of documents



### High quality door opening experience

The ergonomic chamfer design of the handle ensures smooth operation and maximum durability



### Adjustable feet

For easy positioning and levelling



### Magnetic filter screen

Filter screen is easy to clean



DW-86L828BPST

**Microcomputer control**  
Microcontroller with 10.1 inch LCD touch screen displays temperature and other important data. Temperature display precision is 0.1°C

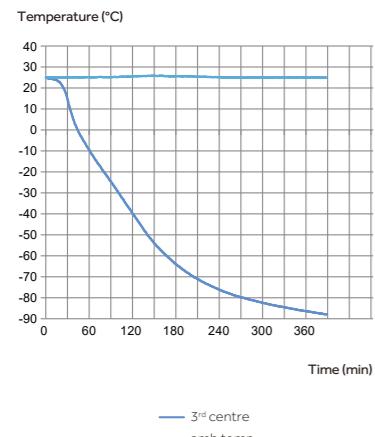
**Multiple alarms**  
Including high/low temperature alarm, sensor error alarm, hot condenser alarm, power failure alarm, low battery alarm, door ajar alarm, high ambient temperature alarm, etc

**Multiple safety lock**  
Standard mechanical lock, optional electromagnetic lock  
Optional fingerprint lock and NFC for optimal security and access

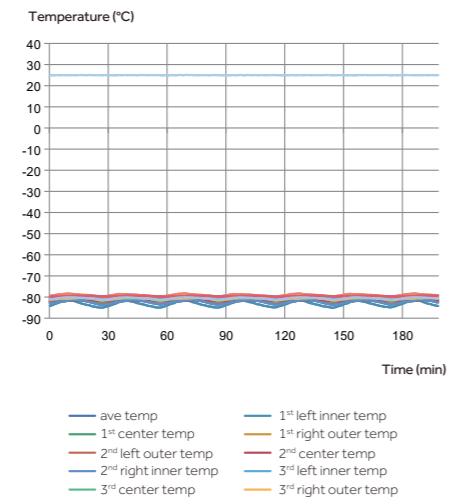
**Networking function**  
Equipped with RS485 interface to connect multiple freezers

## Temperature Curve

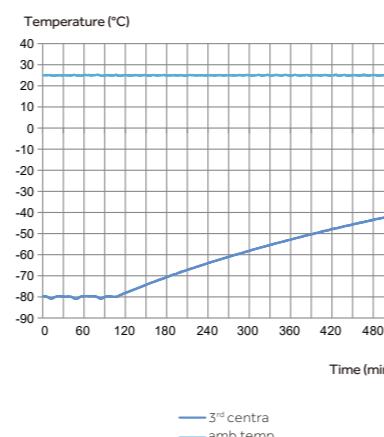
Temperature Cool Down Curve



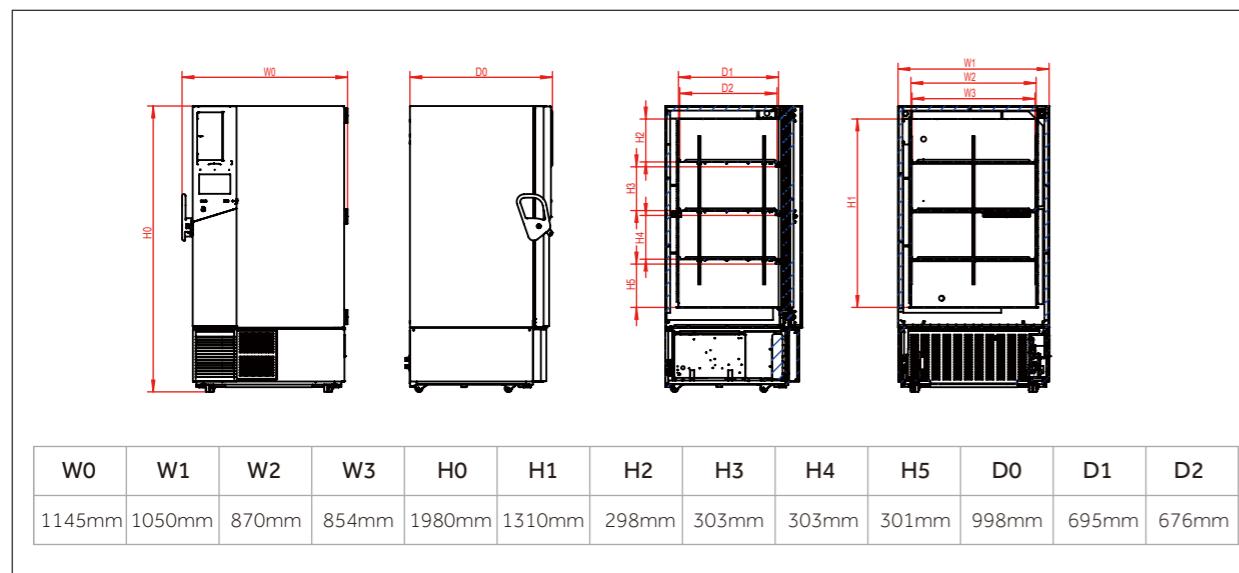
Stability Curve



Temperature Recovery Curve



## Product Dimensions



## Specifications

	Model	DW-86L578BPST	DW-86L728BPST	DW-86L828BPST
Technical Data	Cabinet Type	Upright	Upright	Upright
	Climate Class	N	N	N
	Cooling Type	Direct cooling	Direct cooling	Direct cooling
	Defrost Mode	Manual	Manual	Manual
	Refrigerant	HC	HC	HC
	Sound Level (dB(A))	42	42	42
Performance	Cooling Performance (°C)	-86	-86	-86
	Temperature Range (°C)	-40~-86	-40~-86	-40~-86
Control	Controller	Microprocessor	Microprocessor	Microprocessor
	Display	LCD	LCD	LCD
Electrical Data	Power Supply (V/Hz)	100~230/50/60Hz	100~230/50/60Hz	100~230/50/60Hz
	Electrical Current (A)	10.4	10.4	13
Dimensions	Capacity (L/Cu.Ft)	578/20.4	728/25.7	828/29.2
	Net/Gross Weight (approx)	kg 325/355	kg 350/385	kg 380/410
		lbs 716.5/782.6	lbs 771.6/848.8	lbs 837.7/914.9
	Interior Dimension (W*D*H)	mm 620*716*1310	mm 766*716*1310	mm 870*716*1310
		in 24.4*28.2*51.6	in 30.2*28.2*51.6	in 34.3*28.2*51.6
	Exterior Dimension (W*D*H)	mm 895*998*1980	mm 1046*998*1980	mm 1145*998*1980
Functions		mm 35.2*39.3*78.0	mm 41.2*39.3*78.0	mm 45.1*39.3*78.0
	Packing Dimension (W*D*H)	mm 975*1095*2130	mm 1120*1090*2130	mm 1240*1080*2130
		in 38.4*43.1*83.9	in 44.1*42.9*83.9	in 48.8*42.5*83.9
	Cabinet Width (without handle and hinge)	mm 800	mm 946	mm 1050
	Container Load (20'/40'/40'H)	12/24/24	10/22/22	5/11/11
	High/Low Temperature	Y	Y	Y
Accessories	Hot Condenser	Y	Y	Y
	Power Failure	Y	Y	Y
	High/Low Voltage	Y	Y	Y
	Sensor Error	Y	Y	Y
	Low Battery	Y	Y	Y
	High Ambient Temperature	Y	Y	Y
	Door Ajar	Y	Y	Y
	Start-up Delay	Y	Y	Y
	Caster	Y	Y	Y
	Foot	Y	Y	Y
Certifications	Porthole	Y/2	Y/2	Y/2
	Shelves/ Inner Doors	3/4	3/4	3/4
	USB Interface	Y	Y	Y
	Remote Alarm	Y	Y	Y
	5V Power Supply Port	Y	Y	Y
	Temperature Chart Recorder	Optional	Optional	Optional
	RS232/485 Port	NA/Standard	NA/Standard	NA/Standard
	CO <sub>2</sub> Backup System	Optional	Optional	Optional
	LN <sub>2</sub> Backup System	Optional	Optional	Optional
	CE	Y	Y	Y
	UL	Y	Y	Y

## TwinCool ULT Freezer



## Scope of Application

The TwinCool ULT freezer can be used for the storage and protection of valuable samples which require strict and continuous storage conditions, designed to operate even in the event of a compressor failure. Suitable for viruses, pathogens, blood cells and other biological sample cold storage applications found within hospitals, disease control, research institutions and biomedical engineering. Also used to store special materials and other products within electronics and chemicals industries.

## Advanced Hardware System



### Smart Full-size Touch Screen

10-inch touch screen with state-of-art user interface design, coupled with sample management system provides optimal user experience.

### A Dual independent refrigeration systems for maximum sample safety

The dual refrigeration systems run independently and alternately, both reaching -80°C, such that if one system fails the other will maintain temperature to ensure sample storage safety.

### B High speed refrigeration system for faster pull down and temperature recovery after door opening

Utilizing auto-cascade hydrocarbon (HC) refrigeration technology to deliver fast temperature pull down. From an ambient of 25°C it takes just 180 minutes to reach -80°C. It provides a quick temperature recovery after door opening, with the internal temperatures returning to -75°C within 1 minute, guaranteeing safety of samples.

## Optional IOT & Sample Management System (Professional Edition)



### Simplified Sample Management Experience

Barcode scanner for simple, effortless and precise identification. Input and retrieve your samples with higher precision and efficiency



### Wireless Monitoring Connectivity

Check the real-time operating status via mobile phones or palmtop, simple and reliable

### C World-leading energy saving refrigeration technology

The HC refrigeration technology coupled with superinsulation, which increases the insulation efficiency by 30%, and a cabinet designed to reduce heat loss ensures an energy efficient freezer. The 578L model has a power consumption of 11 kWh/day and is certified by The National Quality Certification Center for Energy Saving and Environmental Protection.

## Friendly Design



### Safe and secure

Equipped with key lock, padlock and optional electromagnetic lock, with optional fingerprint lock, providing multiple safeguards for sample safety



### Low noise design, reducing the noise down to 53dB

Special noise-reduction design plus super silent compressor technology and energy-saving fan, considerably lowers noise level



### Cloud data storage available

Store hundreds of millions of scientific research and sample information in the cloud server



### Optimized insulation

Double foaming for both inner and outer doors and five-layer sealing design and optimized super-thick VIP thermal insulation technology, extends temperature holdover time during power failure and increases insulation efficiency by 30%

## Specifications

	Model	DW-86L578ST	DW-86L578SAT	DW-86L728ST	DW-86L728SAT
Technical Data	Cabinet Type	Upright	Upright	Upright	Upright
	Climate Class	N	N	N	N
	Cooling Type	Direct cooling	Direct cooling	Direct cooling	Direct cooling
	Defrost Mode	Manual	Manual	Manual	Manual
	Refrigerant	HC	HC	HC	HC
Performance	Sound Level (dB(A))	53 52	53	50 53	53
	Cooling Performance (°C)	-86	-86	-86	-86
	Temperature Range (°C)	-40~-86	-40~-86	-40~-86	-40~-86
Control	Controller	Microprocessor	Microprocessor	Microprocessor	Microprocessor
	Display	LCD Touchscreen	LCD Touchscreen	LCD Touchscreen	LCD Touchscreen
Electrical Data	Power Supply (V/Hz)	220~240/50	120/60	208~230/60	208~230/50 120/60
	Electrical Current (A)	10	18	10	10 18
Construction	Capacity (L/Cu.Ft)	578/20.4	578/20.4	728/25.7	728/25.7
	Net/Gross Weight (approx)	kg 325/355	325/355	350/385	350/385
		lbs 716.5/782.6	716.5/782.6	771.6/848.8	771.6/848.8
	Interior Dimension (W*D*H)	mm 620*716*1310	620*716*1310	766*716*1310	766*716*1310
		in 24.4*28.2*51.6	24.4*28.2*51.6	30.2*28.2*51.6	30.2*28.2*51.6
Exterior Dimension (W*D*H)	mm 895*998*1980	895*998*1980	1046*998*1980	1046*998*1980	1046*998*1980
	in 35.4*39.3*78.0	35.4*39.3*78.0	41.2*39.3*78.0	41.2*39.3*78.0	41.2*39.3*78.0
	mm 975*1095*2130	975*1095*2130	1120*1090*2130	1120*1090*2130	1120*1090*2130
Packing Dimension (W*D*H)	mm 38.4*43.1*83.9	38.4*43.1*83.9	44.1*42.9*83.9	44.1*42.9*83.9	44.1*42.9*83.9
	in				
Alarms	Container Load (20'/40'/40'H)	12/24/24	12/24/24	10/22/22	10/22/22
	High/Low Temperature	Y	Y	Y	Y
	Hot Condenser	Y	Y	Y	Y
	Power Failure	Y	Y	Y	Y
	High/Low Voltage	Y	Y	Y	Y
	Sensor Error	Y	Y	Y	Y
	Low Battery	Y	Y	Y	Y
	High Ambient Temperature	Y	Y	Y	Y
	Door Ajar	Y	Y	Y	Y
	Caster	Y	Y	Y	Y
Accessories	Foot	Y	Y	Y	Y
	Porthole	Y/2	Y/2	Y/2	Y/2
	Shelves/Inner Doors	3/4	3/4	3/4	3/4
	USB Interface	Y	Y	Y	Y
	Remote Alarm (Dry contacts)	Y	Y	Y	Y
	5V Power Supply Port	Y	Y	Y	Y
	Temperature Recorder	Optional	Optional	Optional	Optional
	RS485 Port	Y	Y	Y	Y
	CO <sub>2</sub> Backup System	Optional	Optional	Optional	Optional
	LN <sub>2</sub> Backup System	Optional	Optional	Optional	Optional
Certifications	CE	Y	/	/	/
	UL	/	Y	Y	/ Y
	ENERGY STAR	Y	Y	Y	Y

Product appearance and specifications are subject to change without notice

The TwinCool ultra-low temperature freezer of Haier Biomedical provides the highest level of protection for your valuable samples.



DW-86L578S



## Safer by Design

Haier Biomedical's ultra low temperature freezers with intelligent TwinCool technology are designed to provide optimal cabinet reliability, longevity, efficiency and sample protection. This super efficient technology also improves the energy efficiency of our third generation ULT freezers and leads the way in terms of product innovation.

### Intelligent TwinCool Refrigeration System

Two independent refrigeration systems are designed to ensure optimal reliability, longevity and efficiency. Depending on the load demands and ambient conditions, one or both refrigeration systems will operate on demand, ensuring the samples are fully protected under the worst possible condition.



#### Maximum Sample Security

TwinCool system means extra insurance for temperature. Each independent refrigeration system can maintain -80°C separately.



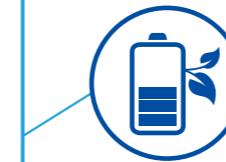
#### Fast Cabinet Pull Down

Fast and efficient cabinet pulldown, it usually takes an average of three hours to reach -80°C at 25°C ambient. This means the temperature recovery after door opening is excellent ensuring the stored samples are not exposed to undesirable temperatures.



#### Maximum Energy Efficiency

The TwinCool ultra-low temperature system operates with 12 kWh/day.



#### World-leading Energy Saving Refrigeration Technology

The Haier hydrocarbon refrigeration technology uses less than 50% energy compared to traditional CFC refrigerants to reduce the operating cost. The refrigerants do not contain fluorine or chlorine giving it a GWP value of just three, which is better for the environment.



#### Reduced Running Costs

VIP thermal insulation system is designed to significantly reduce heat gain and operating cost.

**Energy Saving Refrigeration**

High efficiency cooling fans and compressors, combined with hydrocarbon refrigerants, ensure energy savings and long-term sample security

**Pressure Equalisation Port**

Heated Pressure Equalization Port allows users to re-open the main door quickly when entering. Adopts chromium plating, rust-proof

**USB Interface**

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

**Multilayered Sealing Structure**

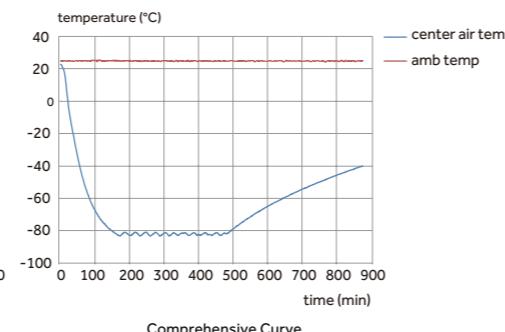
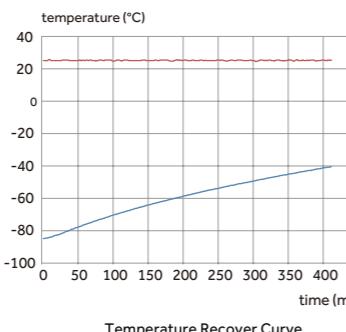
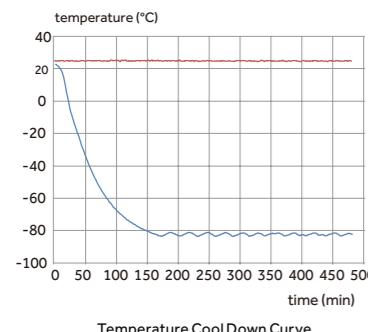
Multilayered gaskets decrease heat loss and guarantee excellent warm up times in the event of a power failure

**Improved Handle Design**

Lockable handle safeguards your precious samples. A padlock can also be added for extra sample safety

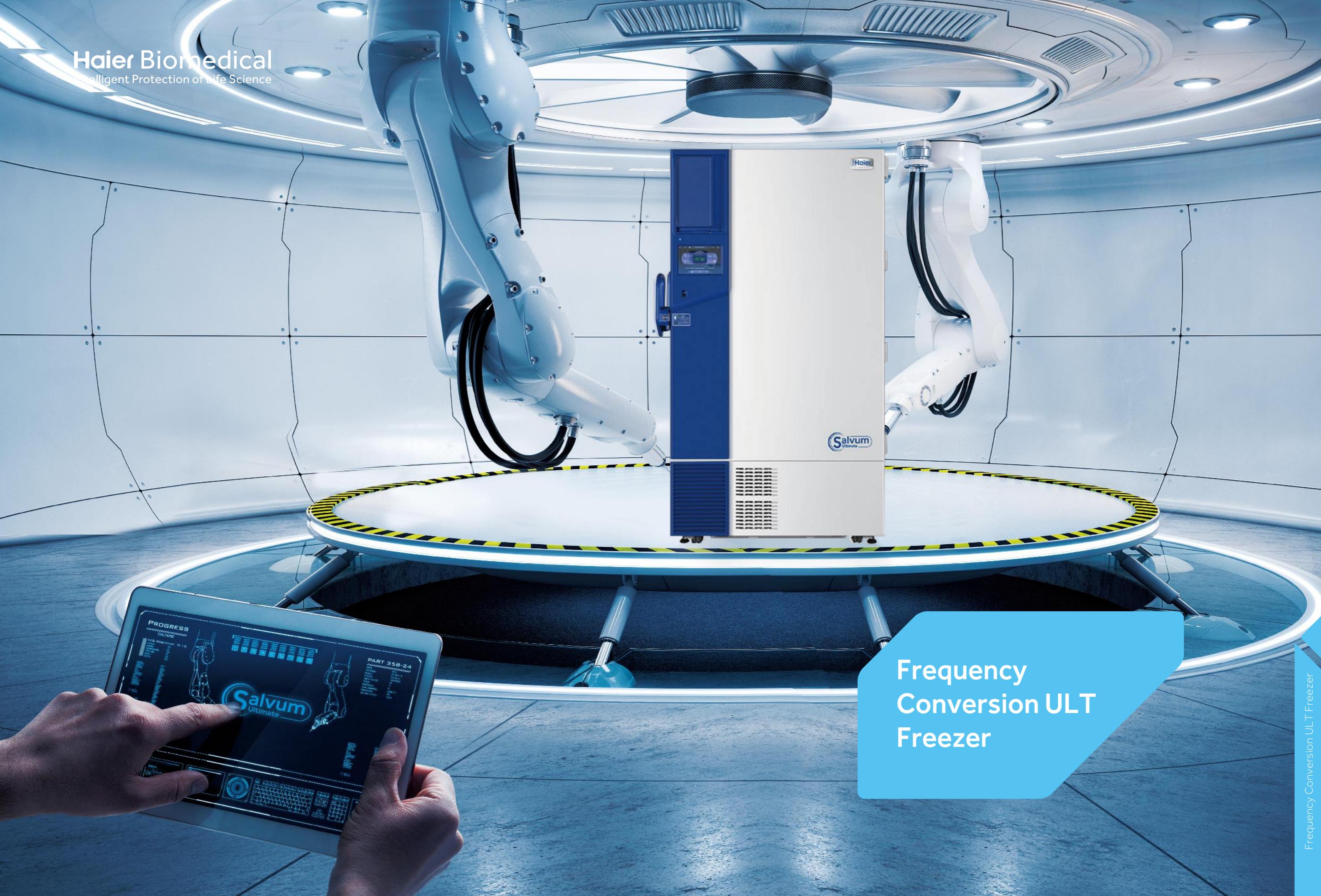
**Multi-level Alarms**

Alarm functions include high, low temperature, sensor error, power failure, high ambient, clean filter and door ajar

**DW-86L578S | TYPICAL PERFORMANCE CHARACTERISTICS AT 25°C AMBIENT****Specifications**

	Model	DW-86L578S	DW-86L728S
Technical Data	Cabinet Type	Upright	Upright
	Climate Class	N	N
	Cooling Type	Direct Cooling	Direct Cooling
	Defrost Mode	Manual	Manual
	Refrigerant	HC	HC
	Sound Level (dB(A))	53	50
	Cooling Performance (°C)	-86	-86
Performance	Temperature Range (°C)	-40~86	-40~86
	Controller	Microprocessor	Microprocessor
	Display	LED	LED
Control	Power Supply (V/Hz)	220~240/50	220~240/50
	Electrical Current (A)	10	10
	Capacity (L/Cu.Ft)	578/20.4	728/25.7
Construction	Net/Gross Weight (approx)	kg 325/355	kg 350/385
		lbs 716.5/782.6	lbs 771.6/848.8
	Interior Dimension (W*D*H)	mm 620*716*1310	mm 766*716*1310
		in 24.4*28.2*51.6	in 30.2*28.2*51.6
	Exterior Dimension (W*D*H)	mm 895*998*1980	mm 1046*998*1980
		in 35.4*39.3*78.0	in 41.2*39.3*78.0
	Packing Dimension (W*D*H)	mm 975*1095*2130	mm 1120*1090*2130
Loading Quantities		in 38.4*43.1*83.9	in 44.1*42.9*83.9
	Container load (20'/40'/40'H)	12/24/24	10/22/22
	High/Low Temperature	Y	Y
	Hot Condenser	Y	Y
	Power Failure	Y	Y
	Sensor Error	Y	Y
	Low Battery	Y	Y
Alarms	High Ambient Temperature	Y	Y
	Door Ajar	Y	Y
	Caster	Y	Y
	Foot	Y	Y
	Porthole	Y/2	Y/2
	Shelves/Inner doors	3/4	3/4
	USB Interface	Y	Y
Accessories	Remote Alarm (Dry contacts)	Y	Y
	5V Power Supply Port	Y	Y
	Temperature Recorder	Optional	Optional
	RS485	Y	Y
	CO <sub>2</sub> Backup System	Optional	Optional
	LN <sub>2</sub> Backup System	Optional	Optional
	CE	Y	Y
Certifications	ENERGY STAR	Y	Y

S suffix - Dual independent refrigeration systems  
Product appearance and specifications are subject to change without notice



**Frequency  
Conversion ULT  
Freezer**

## Scope of Application

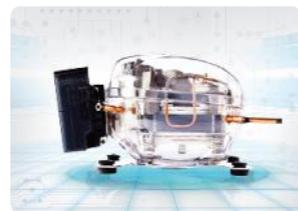
Applicable for products and samples which require strict storage conditions such as viruses, pathogens, red blood cells, white blood cells, skin, bones, bacteria, semen, biological products, electronics and special materials. Suitable for long term storage applications and compliant with typical storage requirements found in hospitals, disease control and prevention centers, scientific research institutions, biomedical engineering institutes, agriculture/ fishery companies as well as the electronics and chemical industry.

## Advanced Hardware System



### Smart Full-size Touch Screen

10-inch capacitive touch screen, state-of-art UI design coupled with sample management system to provide the optimal user experience.



### HC & Variable Frequency Drive Refrigeration System for Additional Energy Saving

Advanced innovative design delivers excellent energy savings. The energy consumption is down to a single digit.

## Optional IoT Software System



### Simplified Sample Management Experience

Optional barcode scanner for simple, effortless and precise identification. Input and retrieve your samples with higher precision and efficiency



### Wireless Monitoring Connectivity

Check the real-time operating status via mobile phones or palmtop, simple and reliable

### A Quicker product access, identification and retrieval

Instead of a manual system, the one-gun, one-code and one-key operation plus touch screen synchronization means you can access and retrieve your samples within seconds

### B 24-hour sample protection

Using Haier's app and IoT technology the unit can be monitored and can self-diagnose faults, ensuring you are always aware of your unit's status and able to make real-time and informed choices to protect your samples

### C Cloud data storage available

Store hundreds of millions of scientific research and sample information in the cloud server

## Friendly Design



### Safe and secure

Standard equipped with key lock, padlock and electromagnetic lock with optional fingerprint lock, providing multiple safeguards for sample safety



### Low noise design, reducing the noise down to 43.5dB

Special noise-reduction design plus super silent compressor technology and energy-saving fan, considerably lowers noise level



### Super energy efficient with three environmentally friendly innovations

Ultra-low power consumption, down to less than 10kWh/day, ensuring a world leading energy saving performance



### Optimized insulation

Double foaming for both inner and outer doors and five-layer sealing design and optimized super-thick VIP thermal insulation technology, extends temperature holdover time during power failure and increases insulation efficiency by 20%

## Specifications

Model	DW-86L579BPT	DW-86L729BPT	DW-86L829BPT	DW-86L959BPT
Technical Data	Cabinet Type	Upright	Upright	Upright
	Climate Class	N	N	N
	Cooling Type	Direct Cooling	Direct Cooling	Direct Cooling
	Defrost Mode	Manual	Manual	Manual
	Refrigerant	HC	HC	HC
Performance	Sound Level (dB(A))	43.5	43.5	43.5
	Cooling Performance (°C)	-86	-86	-86
	Temperature Range (°C)	-40~-86	-40~-86	-40~-86
Control	Controller	Microprocessor	Microprocessor	Microprocessor
	Display	Touch Screen LCD	Touch Screen LCD	Touch Screen LCD
Electrical Data	Power Supply (V/Hz)	100~230/50/60	100~230/50/60	100~230/50/60
	Electrical Current (A)	14	14	15
	Capacity (L/Cu.Ft)	579/20.4	729/25.7	829/29.2
Dimensions	Net/Gross Weight (approx)	kg 325/355	kg 350/385	kg 380/415
	lbs 716.5/782.6	lbs 771.6/848.8	lbs 837.7/914.9	lbs 992.1/1069.2
	Interior Dimension (W*D*H)	mm 620*716*1310	mm 766*716*1310	mm 870*716*1310
	in 24.4*28.2*51.6	in 30.2*28.2*51.6	in 34.3*28.2*51.6	in 40.0*28.2*51.6
	Exterior Dimension (W*D*H)	mm 895*998*1980	mm 1046*998*1980	mm 1145*998*1980
Functions	Exterior Dimension (W*D*H)	in 35.2*39.3*78.0	in 41.2*39.3*78.0	in 45.1*39.3*78.0
	Packing Dimension (W*D*H)	mm 975*1095*2130	mm 1120*1090*2130	mm 1240*1080*2130
	in 38.4*43.1*83.9	in 44.1*42.9*83.9	in 48.8*42.5*83.9	in 55.5*45.7*86.0
	Container load (20'/40'/40'H)	12/24/24	10/22/22	5/11/11
	High/Low Temperature	Y	Y	Y
Accessories	Hot Condenser	Y	Y	Y
	Power Failure	Y	Y	Y
	High/Low Voltage	Y	Y	Y
	Sensor Error	Y	Y	Y
	Low Battery	Y	Y	Y
	High Ambient Temperature	Y	Y	Y
	Door Ajar	Y	Y	Y
	Start-up Delay	Y	Y	Y
	Caster	Y	Y	Y
	Foot	Y	Y	Y
Certifications	Porthole	Y/2	Y/2	Y/2
	Shelves/Inner Doors	3/4	3/4	3/4
	USB Interface	Y	Y	Y
	Remote Alarm	Y	Y	Y
	5V Power Supply Port	Y	Y	Y
	Temperature Chart Recorder	Optional	Optional	Optional
	RS485 Port	Y	Y	Y
	CO <sub>2</sub> Backup System	Optional	Optional	Optional
	LN <sub>2</sub> Backup System	Optional	Optional	Optional
	CE	Y	Y	/ Y
UL	UL	Y	Y	/ Y
	ENERGY STAR	Y	Y	Y

Haier Biomedical reserves the right to change products and specifications without prior notice.

Haier Biomedical's SmartFrequency technology manages the compressor speeds on demand. The ultra-low temperature freezers can thus achieve the world-leading energy efficiency in ultra-low temperature.



DW-86L829BP

## Smarter by Design

The SmartFrequency Conversion range of ultra low temperature freezers have been designed and developed at the Haier Biomedical R&D Institute. They are certified by one of the world's leading energy conservation and environmental protection organisations.



### Intelligent frequency Conversion technology

Two variable speed compressors are controlled for optimal freezer performance. Low energy consumption is achieved.



### Maximum energy efficiency

Our SmartFrequency Technology, coupled with our environmentally safe and friendly hydrocarbon refrigeration system, allows the Haier freezers to operate at a low level of energy of 8.2 kWh/day.



### Precise temperature control

The innovative control algorithm balances the effects of temperature loss with the unique frequency conversion refrigeration system, ensuring the cabinet temperature stability of  $\pm 3^{\circ}\text{C}$ .



### Frequency conversion Adaptive technology

Variable speed compressors in Haier Biomedical freezers are operated to produce the capacity that matches the demand of the load. The control system automatically tunes the speed of the compressors to optimize the operation.



### World-leading energy saving Refrigeration technology

Our hydrocarbon refrigeration technology can save energy by 50%, significantly reducing operator's cost. The refrigerants do not contain fluoride and chloride. The global warming potential is extremely low at 3. Thus they are very friendly to the environment.



### Minimal sound level output

Adaptive control technology controls the fans and compressors to reduce the sound level to 43.5 dB(A).

**Energy Saving Refrigeration**

High efficiency cooling fans and compressors, combined with hydrocarbon refrigerants, ensure energy savings and long-term sample security

**Pressure Equalisation Port**

Heated port with spring assisted mechanism to prevent icing on the vent allows users to reopen the main door soon after entering. Adopts chromium plating, rust-proof

**USB Interface**

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



DW-86L829BP

**Multilayered Sealing Structure**

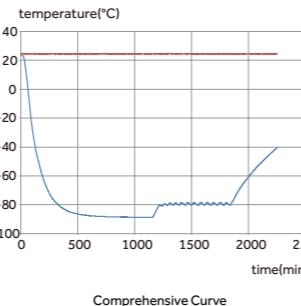
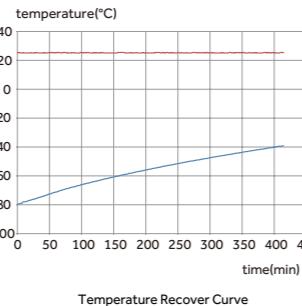
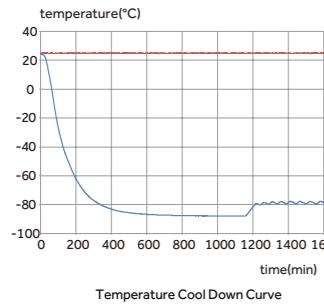
Triple layer of gaskets split between main and inner doors decreases heat loss and guarantee excellent warm up times in the event of a power failure

**Improved Handle Design**

Lockable handle with unique key prevents other Haier freezer owner's access to your precious samples, also comes with space for a padlock for that extra security

**Multilevel Alarms**

Alarming functions that include high and low temperature, sensor error, power failure, high ambient, clean filter and door ajar

**DW-86L829BP | TYPICAL PERFORMANCE CHARACTERISTICS AT 25°C AMBIENT****Specifications**

	Model	DW-86L579BP	DW-86L729BP	DW-86L829BP	DW-86L959BP
Technical Data	Cabinet Type	Upright	Upright	Upright	Upright
	Climate Class	N	N	N	N
	Cooling Type	Direct Cooling	Direct Cooling	Direct Cooling	Direct Cooling
	Defrost Mode	Manual	Manual	Manual	Manual
	Refrigerant	HC	HC	HC	HC
	Sound Level (dB(A))	43.5	43.5	43.5	47
Performance	Cooling Performance (°C)	-86	-86	-86	-86
	Temp Range (°C)	-40~-86	-40~-86	-40~-86	-40~-86
Control	Controller	Microprocessor	Microprocessor	Microprocessor	Microprocessor
	Display	LED	LED	LED	LED
Electrical Data	Power Supply (V/Hz)	100~230/50/60	100~230/50/60	100~230/50/60	100~230/50/60
	Electrical Current (A)	14	14	15	20
	Capacity (L/Cu.Ft)	579/20.4	729/25.7	829/29.2	959/33.9
Construction	Net/Gross Weight (approx)	kg 325/355	350/385	380/415	450/485
	lbs 716.5/782.6	771.6/848.8	837.7/914.9	992.1/1069.2	
Exterior Dimensions (W*D*H)	mm 620*716*1310	766*716*1310	870*716*1310	1016*716*1310	
	in 24.4*28.2*51.6	30.2*28.2*51.6	34.3*28.2*51.6	40.0*28.2*51.6	
Interior Dimensions (W*D*H)	mm 895*998*1980	1046*998*1980	1145*998*1980	1296*998*1980	
	in 35.2*39.3*78.0	41.2*39.3*78.0	45.1*39.3*78.0	51.0*39.3*78.0	
Packing Dimension (W*D*H)	mm 975*1095*2130	1120*1090*2130	1240*1080*2130	1410*1160*2185	
	in 38.4*43.1*83.9	44.1*42.9*83.9	48.8*42.5*83.9	55.5*45.7*86.0	
Alarms	Container Load (20'/40'/40'H)	12/24/24	10/22/22	5/11/11	5/10/10
	Remote Alarm (Dry contacts)	Y	Y	Y	Y
	High/Low Temp	Y	Y	Y	Y
	Hot Condenser	Y	Y	Y	Y
	Power Failure	Y	Y	Y	Y
	Sensor Error	Y	Y	Y	Y
Accessories	Low Battery	Y	Y	Y	Y
	High Ambient Temp	Y	Y	Y	Y
	Door Ajar	Y	Y	Y	Y
	Caster	Y	Y	Y	Y
	Foot	Y	Y	Y	Y
	Porthole	Y/2	Y/2	Y/2	Y/2
Certifications	Shelves/Inner Doors	3/4	3/4	3/4	3/4
	USB Interface	Y	Y	Y	Y
	5V Power Supply Port	Y	Y	Y	Y
	Temp Recorder	Optional	Optional	Optional	Optional
	RS485 Port	Y	Y	Y	Y
	CO <sub>2</sub> Backup System	Optional	Optional	Optional	Optional
CE	LN <sub>2</sub> Backup System	Optional	Optional	Optional	Optional
	CE	Y	Y	/	Y
	UL	Y	Y	/	Y
UL	ENERGY STAR	Y	Y	Y	Y
	BP suffix - Variable frequency inverter compressor				
	Product appearance and specifications are subject to change without notice				

BP suffix - Variable frequency inverter compressor  
Product appearance and specifications are subject to change without notice

Haier water-cooled ULT freezers are designed to meet strict requirements for storage of plasma, biological materials, vaccines, reagents, specimens, and other valuable samples. They are ideal for installations in hospitals, clinics, blood banks and medical research facilities where freezer heat must be removed by cooling water.



## Advantages

- Intelligent frequency conversion technology
- Advanced control Touchscreen
- Higher efficiency to yield more energy savings of up to 20%
- Approximately 90% of the compressor heat generated during operation is removed by the cooling water, thus posing little impact to a laboratory's ambient
- Use less air-conditioning power for a comfortable laboratory condition
- Advanced control
- Low sound level
- Smart coolant control
- High quality industry grade hermetically sealed compressors
- Pressure protection system due to lack of water flow



## Specifications



	Model	DW-86L828W	DW-86L959W
Technical Data	Cabinet Type	Upright	Upright
	Climate Class	N	N
	Cooling Type	Direct cooling	Direct cooling
	Defrost Mode	Manual	Manual
	Refrigerant	HC	HC
	Sound Level (dB(A))	43.5	47
Performance	Cooling Performance (°C)	-86	-86
	Temperature Range (°C)	-40~-86	-40~-86
Control	Controller	Microprocessor	Microprocessor
	Display	LCD Touch Screen	LCD Touch Screen
Electrical Data	Power Supply (V/Hz)	208-230/50/60	208-230/50/60
	Electrical Current (A)	6	7
Dimensions	Capacity (L/Cu.Ft)	828/29.2	959/33.9
	Net/Gross Weight (approx)	kg	450/485
		380/415	992.1/1069.2
		lbs	837.7/914.9
Alarms	Interior Dimension (W*D*H)	mm	1016*716*1310
		in	40.0*28.2*51.6
	Exterior Dimension(W*D*H)	mm	1296*998*1980
		in	51.0*39.3*78.0
Accessories	Packing Dimension (W*D*H)	mm	1410*1160*2185
		in	55.5*45.7*86.0
	Container Load (20'/40'/40'H)	5/11/11	5/10/10
	High/Low Temperature	Y	Y
Others	Hot Condenser	Y	Y
	Power Failure	Y	Y
	High/Low Voltage	Y	Y
	Sensor Error	Y	Y
	Low Battery	Y	Y
	High Ambient Temperature	Y	Y
	Door Ajar	Y	Y
	Caster	Y	Y
	Foot	Y	Y
	Porthole	Y/2	Y/2
	Shelves/Inner doors	3/4	3/4
	USB Interface	Y	Y
Others	Remote Alarm (Dry contacts)	Y	Y
	5V Power Supply Port	Y	Y
	Temperature Recorder	Optional	Optional
	Rs485 Port	Y	Y
	CO <sub>2</sub> Backup System	Optional	Optional
	LN <sub>2</sub> Backup System	Optional	Optional
	Certification	CE	CE

Product appearance and specifications are subject to change without notice

Haier Biomedical Salvum brand of ULT freezers has been designed to deliver energy savings and reduced carbon footprint. This range uses environmentally safe hydrocarbon refrigerants and high efficiency fan motors to maximize the cooling ability of the system and reduce energy consumption. While providing sample safety, the freezer design makes energy savings possible for laboratories.



DW-86L829



DW-86L579

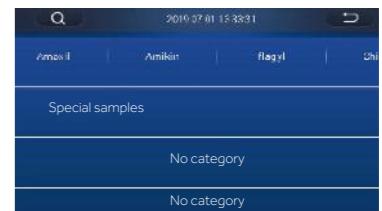
### Large Intelligent LCD Screen Visual Management

10-inch high-performance LCD capacitive screen, sensitive touch operation; intuitive display of inside temperature, ambient temperature, input voltage and other data and temperature curves.



### Inventory Management System

The single version of the inventory management allows users who do not have a racking system within the freezer to easily record item locations, entry and exit records.



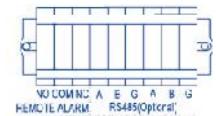
Single version (standard)



Professional version(optional)

In instances where customers use racking systems, the optional professional version of the inventory management is available. Freezer racks, boxes, and vials can easily record item locations and entry and exit records, facilitate item inventory and statistics, realize multi-screen interaction and reduce errors through secondary verification.

The freezer comes with the single version as standard.



### Equipped with Multiple Interfaces

- Standard USB interface, capable of storing data for 10 years
- Standard remote alarm terminal RS485 port



### Multiple Options for Safe Management and Control Systems

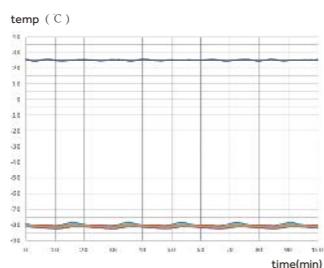
Standard password lock, optional fingerprint module, punch card module, face recognition, realizing safe and secure multi-user management.

**Optional IoT System Realizes Real-time Monitoring**

The IoT APP can monitor the operating status of the equipment anytime and anywhere. Equipped with multiple alarm functions and able to self-diagnose system faults to ensure sample safety. (Contact your local area representative to check local availability.)

**Safe and Secure with Multiple Alarms**

Multiple alarm functions include high temperature alarm, low temperature alarm, sensor failure alarm, power failure alarm, low battery alarm, door ajar alarm and high ambient temperature alarm.

**Precise Temperature Control Ensures Safe Storage**

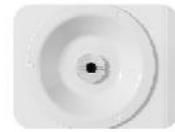
Adjustable temperature set-point between -40°C ~ -86°C and the ability to monitor temperature curves in real time, equipped with sophisticated temperature safety alarm system to ensure product safety.

**Ergonomic Design****Narrow Door Design**

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

**New Handle Design**

Adopting exclusive slide design, easy to open and close the door

**Pressure Equalization Port**

Equipped with pressure equalization port, realize easy opening  
Adopts chromium plating, rust-proof

**Porthole**

Two portholes as standard, allows for independent testing of cabinet temperature

**Filter Design**

Tool-free removable filter design, easy and quick to clean the filter

**Detachable Inner Door Design**

Tool-free detachable inner door, realizing easy and quick defrost

**Specifications**

	Model	DW-86L419	DW-86L579	DW-86L729	DW-86L829
Technical Data	Cabinet Type	Upright	Upright	Upright	Upright
	Climate Class	N	N	N	N
	Cooling Type	Direct cooling	Direct cooling	Direct cooling	Direct cooling
	Defrost Mode	Manual	Manual	Manual	Manual
	Refrigerant	HC	HC	HC	HC
Performance	Sound Level (dB(A))	47	47	52	52
	Cooling Performance (°C)	-86	-86	-86	-86
	Temp Range (°C)	-40~-86	-40~-86	-40~-86	-40~-86
Control	Controller	Microprocessor	Microprocessor	Microprocessor	Microprocessor
	Display	LCD Touchscreen	LCD Touchscreen	LCD Touchscreen	LCD Touchscreen
Electrical Data	Power Supply (V/Hz)	220~240/50	220~240/50	220~240/50	220~240/50
	Electrical Current (A)	5	5.5	9	10
Construction	Capacity (L/Cu.Ft)	419/14.8	579/20.45	729/25.75	829/29.3
	Net/Gross Weight (approx)	kg	255/286	300/330	350/385
		lbs	562.2/630.5	661.4/727.5	771.6/848.8
	Interior Dimensions (W*D*H)	mm	465*716*1310	620*716*1310	766*716*1310
		in	18.3*28.2*51.6	24.4*28.2*51.6	30.2*28.2*51.6
Exterior Dimensions (W*D*H)	mm	830*980*1980	903*980*1960	1049*980*1980	1153*980*1980
	in	32.7*38.6*78.0	35.6*38.6*77.2	41.3*38.6*78.0	45.4*38.6*78.0
	Packing Dimension (W*D*H)	mm	890*1090*2130	975*1095*2130	1120*1090*2130
Loading Quantities	Container Load (20'/40'/40'H)	12/26/26	12/24/24	10/22/22	5/11/11
	High/Low Temp	Y	Y	Y	Y
Alarms	Hot Condenser	Y	Y	Y	Y
	Power Failure	Y	Y	Y	Y
	High/Low Voltage	Y	Y	Y	Y
	Sensor Error	Y	Y	Y	Y
	Low Battery	Y	Y	Y	Y
	High Ambient Temp	Y	Y	Y	Y
	Door Ajar	Y	Y	Y	Y
	Caster	Y	Y	Y	Y
Accessories	Foot	Y	Y	Y	Y
	Porthole	Y/2	Y/2	Y/2	Y/2
	Shelves/Inner Doors	3/2	3/4	3/4	3/4
	USB Interface	Y	Y	Y	Y
	Remote Alarm(Dry contacts)	Y	Y	Y	Y
	5V Power Supply Port	Y	Y	Y	Y
	Temp Recorder	Optional	Optional	Optional	Optional
	RS485 Port	Y	Y	Y	Y
	CO <sub>2</sub> Backup System	Optional	Optional	Optional	Optional
	LN <sub>2</sub> Backup System	Optional	Optional	Optional	Optional
Certification	CE	Y	Y	Y	Y
	Energy star	/	Y	Y	Y

Product appearance and specifications are subject to change without notice

This product line is designed and manufactured for long term storage of various biological products, including viruses, germs, erythrocytes and leucocytes. Applications can be found in blood banks, hospitals, epidemic prevention services, research institutes, biological engineering institutes, laboratories in electronic and chemical plants.



### Advantages

- World leading energy-efficient
- Hydrocarbon refrigeration system
- Slim cabinet design
- Reliable sample protection
- Malfunction alarms
- Excellent insulation performance



### Insulation and System Design

- Special V-I-P (Vacuum Insulation Panel) insulation system reduces the heat gain by 25%
- High efficiency HC refrigeration system improves the overall efficiency by 45%
- Four individual insulated inner doors reduce the cold air loss to the minimum
- Heated Pressure Equalization Port makes re-accessing the unit fast
- About 50 dba sound level

### Safe and Reliable Storage

- Superior temperature uniformity
- Dependable fans, compressors and other system related components

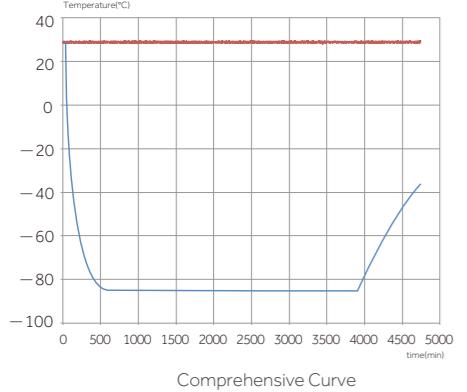
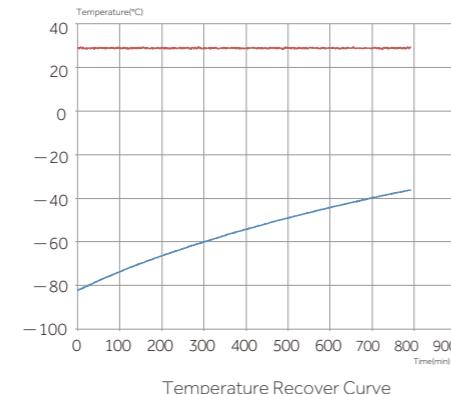
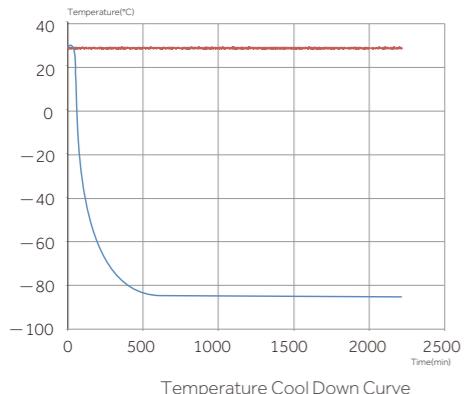
### Alarms (Visual and Audible)

- Adjustable High/Low temperature alarm
- Sensor error
- Low battery
- Door ajar
- Power failure
- Hot condenser
- High ambient
- Remote alarm contact

### Extended Warm up Time During Power Failure

- Warm up time measures the time taken for temperature to rise up (from -80°C to -50°C) at 25°C ambient when the power is interrupted.
- Haier has the longest warm up time when compared with other major brands in the market.

### TYPICAL PERFORMANCE CHARACTERISTICS AT 25°C AMBIENT



### 4 Individual Removable Foam Inner Doors

- 4 individual inner doors can be opened independently to minimize frost buildup inside the chamber.
- Unique door seal design for the minimum loss of cold temperature during a door opening.
- Compatibility with existing racking system from competitors.
- Stainless steel handle to ensure proper strength for door latching.
- Some interior door handles have been upgraded to stainless steel for more comfortable door opening experience



### High Efficiency Refrigeration Components



### Excellent Doors Seals

- Total of five gaskets to safeguard the freezer temperature, including four seals for the exterior door, one for each inner door



- Optimized slideway design, easier to open and close the door



### Pressure Equalization Port

- Heated port with spring-assisted mechanism to prevent icing on the vent.
- Allows re-accessing the freezer after initial door opening.
- Adopts chromium plating, rust-proof

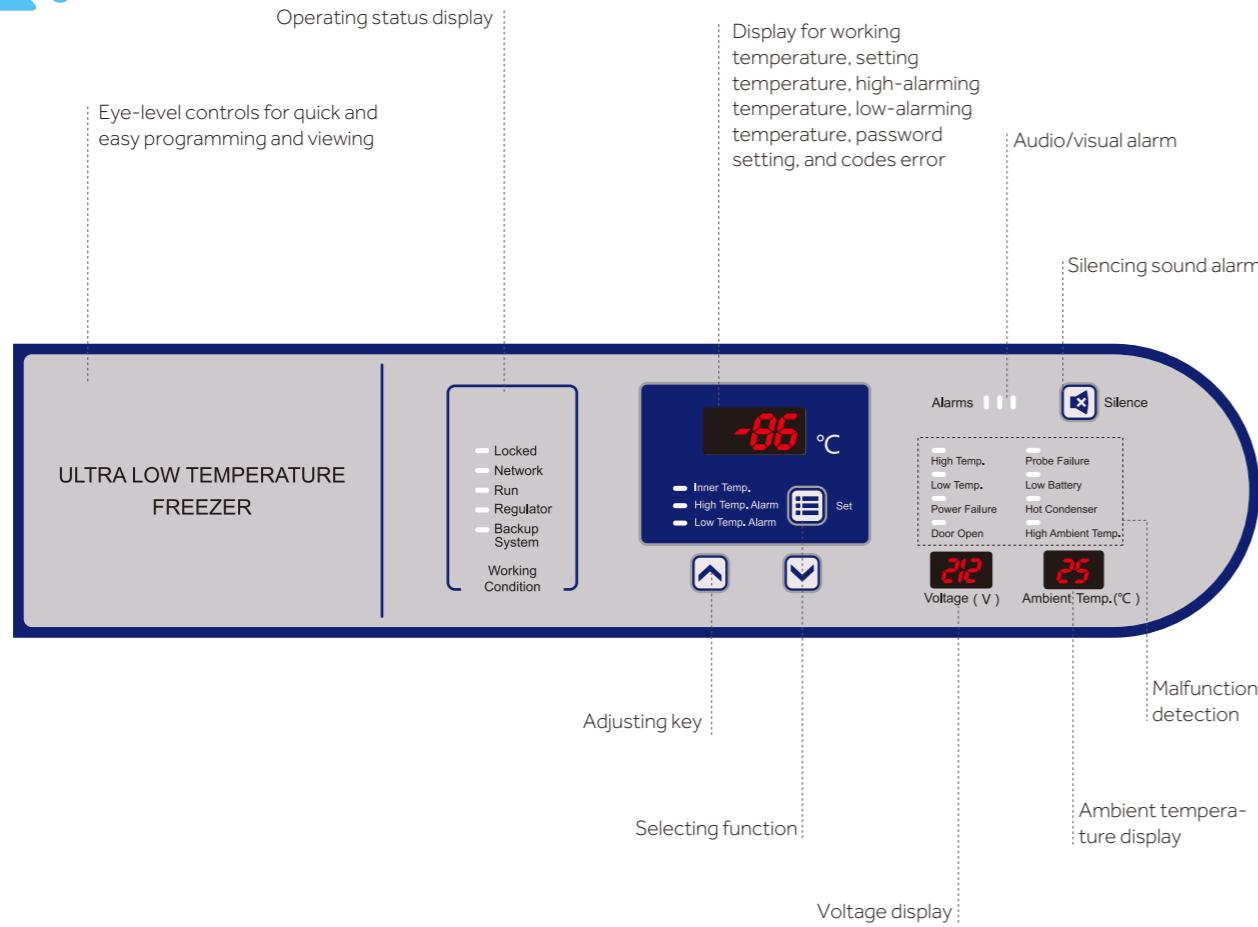


### Circular- chart Recorder (Optional)

- Front-mounted.
- For independent temperature monitoring.

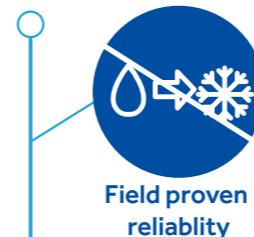


Two port holes for ease of temperature monitoring



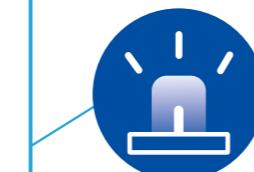
## Specifications

Alarm	Alarm Triggering Condition
High Temperature	Temperature reaches the warm alarm limit
Low Temperature	Temperature reaches the low alarm limit
Power Failure	Equipment loses power
Door Ajar	Door opening time exceeds set time, settable between 0 and 20 minutes
Sensor Error	E0.Ambient sensor fails E1.Condenser sensor fails E2.Main cabinet temperature control sensor fails E3.Heat exchanger sensor fails E4.Heat exchanger temperature fails
Low Battery	Battery capacity runs low or battery switch is not turned on
Hot Condenser	1. Condensers filter element is clogged 2. Ambient temperature is too high
High Ambient Temperature	Ambient temperature exceeds 32°C



### Field proven reliability

- Unique insulated inner door design for four separate storage compartments to minimize frost buildup inside the chamber
- Specialized control system design for a well-balanced operation of cascade refrigeration system
- Positive field proven reliability record



### Safety

- Malfunction alarms including high and low temperature, power failure, sensor error, clean -filter, and extremely high ambient
- Capable of producing two types of alarm outputs: audible buzzer and visible flashing light
- Multiple built-in system protection features including user-settable protection code for controls, user settable delay to start, voltage compensation system, and protection against extreme high voltages
- Door open feature standard and USB port for temperature data downloading standard on upright models
- Remote alarm contacts



### Installation & Application

- Wide range operating voltage system from 185V to 260 V designed to allow units installed in areas with poor voltage condition
- Suitable for 10°C to 32°C ambient temperature
- Input voltage and ambient temperature shown simultaneously for ease of monitoring environmental conditions
- Robust door latch designed for secure door closing
- Compact casters for ease of maneuvering



### Low sound level

- Specialized refrigeration system design using whisper quiet fan and compressors
- Freezer chassis designed to absorb vibration and sound



### Energy saving

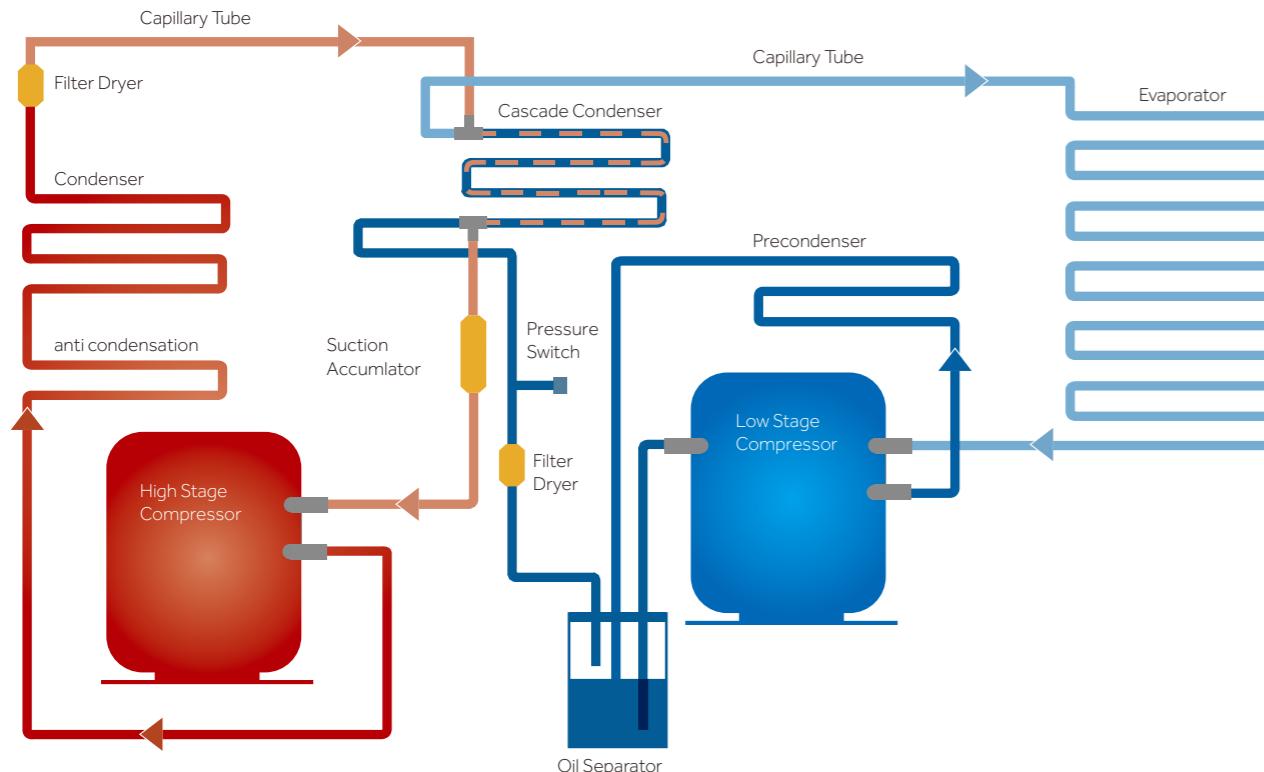
- Unique door seal design for the minimum loss of cold temperature during a door opening
- High performance VIP insulation panels to minimize cabinet heat gain and to improve temperature stability
- Patented cabinet insulation system designed for optimal performance of cold storage temperature and minimal frost buildup
- Unique design of independent insulated inner door systems for independent access of storage space to provide the maximum protection of stored samples



### Key design features

- Microprocessor-controlled system designed for controllable range of -40°C to -86°C for cabinet space with 1°C increment
- Large LED display for cabinet temperature, set temperature, ambient temperature, and input voltage
- Settable high temperature and low temperature alarms
- Automatic clean-filter alarm and sensor error alert
- Adjustable storage shelf height
- Optional temperature recorder, storage racks and storage boxes

## Heat Exchange Circulation System



### Filter dryer

- Filtration and drying device for water and debris

### Capillary tube for high stage

- Expansion device for high stage liquid refrigerant

### Capillary tube for low stage

- Expansion device for low stage refrigerant

### High stage condenser

- Extra-large air cooled condenser dissipates product heat content efficiently.

### Low stage evaporator

- Heat exchanger for expanded low stage refrigerant

### Ultra low noise compressor

- Compressor provides reliable performance with ultra low noise
- Specially designed low stage evaporator yields excellent temperature uniformity and recovery after loading and door opening.
- Both high and low stage compressors are industrial grade hermetically sealed compressor designed for low temperature application. Sound level is extremely low.

### Cascade condenser

- Heat exchanger between the high and low temperature stage in the system

### Temprite oil separator

- Temprite oil separator can effectively separate oil and water to improve the refrigeration performance



## Under Counter ULT freezer

Suitable for clinical, medical, scientific research, quarantine and other departments to store items under low temperature conditions. Applicable for universities, hospitals, disease prevention and control centers, blood stations, scientific research institutes, electronics and chemical enterprise laboratories and biomedical engineering research institutes. For storage of biological products and biological samples such as red and white blood cells, viruses, bone and bacteria. Also used for electronic devices and other materials used for cryogenic tests.



**DW-86L100J**



### Energy Efficient, Safe and Reliable

High efficiency HC refrigeration system, optimised for energy efficiency delivering a power consumption figure of just 5.5kW/24hrs.



### Personal ULT Storage

810mm cabinet height makes it easy to place on or under counter, saving storage space. Stackable design.



### Ergonomic design

Ergonomic handle design ensures easy one-hand door opening.



### Low noise

Optimized noise reduction cabinet and system design, emits sound level of only 46.8dB.

**VIP insulation and multilayered sealing design**

70mm insulating layer with 25mm VIP and 4 layers of gasket improves energy efficiency and reduces heat loss to deliver excellent warm up times in event of power failure.



Ergonomic design for easy door opening and closing. Lockable and equipped with 4 keys as standard with the ability to add a padlock for extra security when required.

**Optional IoT Module**

Real time monitoring of cabinet temperature, temperature setting, high and low temperature alarm value, temperature curve, alarm log and event log.

- User-settable parameters such as set point and alarms.
- Real-time cabinet temperature display, alarm information, power supply and compressor start/stop state.
- Standard USB port capable of storing >15 years of operating data for compliance.



Filter is easy to remove and clean without the need for tools.

4 casters + 2-foot locks, easy to move, lock and level.

Double stainless-steel inner doors to prevent cooling loss when opening the outer door, easy to clean.

**Microprocessor control system**

- Microcomputer electronic thermostat, LED temperature display, display precision 1°C, adjustable cabinet temperature set point -40°C~-86°C.
- Cabinet temperature/voltage/ambient temperature checking are available.
- Multiple alarm functions: high temperature alarm, low temperature alarm, sensor fault alarm, power failure alarm, low battery power alarm, open door alarm and high ambient temperature alert.
- Sound and light alarm mode, attachable to remote alarm interface.
- Battery backup alarm function operates continuously for >24hrs in the event of a power outage.
- Standard configuration: RS485 port and USB interface.
- Standard 5V power supply available for test equipment.
- Optional IoT module.

**Superior thermal insulation performance**

70mm super thick insulation layer design, aviation vacuum insulation material VIP, thickness of 25 mm or more, 4 layers of silicone seal, superior thermal insulation and energy saving effect.



Portholes as standard, allows for independent testing of cabinet temperature.

**Security lock**

Standard door lock and padlock to ensure sample security and prevent unauthorised access.

**USB data storage**

Capable of storing more than 15 years of data.

**-86°C ULT Freezer****-86°C ULT Freezer****Specifications**

	Model	DW-86L338J	DW-86L338JA	DW-86L388J	DW-86L486E	DW-86L490J	DW-86L490JA	DW-86L578J	DW-86L578JA	DW-86L628E
Technical Data	Cabinet Type	Upright								
	Climate Class	N	N	N	N	N	N	N	N	N
	Cooling Type	Direct cooling								
	Defrost Mode	Manual								
	Refrigerant	HC								
	Sound level (dB(A))	50	50	49	49	50	50	50	49	49
Performance	Cooling Performance (°C)	-86	-86	-86	-86	-86	-86	-86	-86	-86
	Temperature Range (°C)	-40~-86	-40~-86	-40~-86	-40~-86	-40~-86	-40~-86	-40~-86	-40~-86	-40~-86
Control	Controller	Microprocessor								
	Display	LED								
Electrical Data	Power Supply (V/Hz)	220~240/50	120/60	208~230/60	220~240/50	220~240/50	220~240/50	220~240/50	220~240/50	220~240/50
	Electrical Current (A)	7.5	12	7.5	7.5	10	8	8	7.5	12
Construction	Capacity (L/Cu.Ft)	338/11.9	388/13.7	486/17.1	490/17.3	490/17.3	490/17.3	578/20.4	578/20.4	626/22.1
	Net/Gross Weight (approx)	kg	238/278	255/286	290/310	295/335	295/335	300/330	300/330	301/323
		lbs	524.7/612.9	562.2/630.5	639.3/683.4	650.4/738.5	650.4/738.5	661.4/727.5	661.4/727.5	664.0/712.0
	Interior Dimension (W*D*H)	mm	465*630*1165	465*716*1310	590*630*1310	590*630*1310	590*630*1310	620*716*1310	620*716*1310	760*630*1310
		in	18.3*24.8*45.9	18.3*28.2*51.6	23.3*24.8*51.6	23.2*24.8*51.6	23.2*24.8*51.6	24.4*28.2*51.6	24.4*28.2*51.6	29.9*24.8*51.6
	Exterior Dimension (W*D*H)	mm	823*900*1871	830*980*1980	953*900*1980	873*900*1980	873*900*1980	903*980*1960	903*980*1960	1035*900*1980
Loading Quantities	Packing Dimension (W*D*H)	mm	887*995*2040	890*1090*2130	1020*1020*2130	920*990*2130	920*990*2130	970*1085*2130	970*1085*2130	1110*1005*2130
		in	34.9*39.2*80.3	35.0*42.9*83.9	40.2*40.2*83.9	35.2*39.0*83.9	35.2*39.0*83.9	38.2*42.7*83.9	38.2*42.7*83.9	43.7*39.6*83.9
Alarms	Container load (20'/40'/40'H)	12/26/26	12/26/26	10/22/22	12/26/26	12/26/26	12/26/26	12/24/24	12/24/24	12/24/24
	High/Low Temperature	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Hot Condenser	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Power Failure	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Sensor Error	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Low Battery	Y	Y	Y	Y	Y	Y	Y	Y	Y
	High Ambient Temperature	Y	Y	Y	Y	Y	Y	Y	Y	Y
Accessories	Door Ajar	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Caster	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Foot	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Porthole	Y/2								
	Shelves/Inner doors	3/2	3/2	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	USB Interface	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Remote Alarm (Dry contacts)	Y	Y	Y	Y	Y	Y	Y	Y	Y
	5V Power Supply Port	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Temperature Recorder	Optional								
	RS232/485 Port	Optional								
Certifications	CO <sub>2</sub> Backup System	Optional								
	LN <sub>2</sub> Backup System	Optional								
	CE	Y	/	/	Y	Y	Y	/	/	Y
	UL	/	Y	Y	/	/	Y	/	Y	/
	ENERGYSTAR	/	/	/	/	/	Y	Y	/	/

• Product appearance and specifications are subject to change without notice  
 • DW-86L338J/490J/578/628/959 stainless steel interior optional

**-86°C ULT Freezer****Specifications****-86°C ULT Freezer**

	Model	DW-86L728J	DW-86L728JA	DW-86L828J	DW-86L828JA	DW-86L100J	DW-86W100J	DW-86W420J	DW-86W420JA
Technical Data	Cabinet Type	Upright		Upright		Upright	Chest		Chest
	Climate Class	N		N		N	N		N
	Cooling Type	Direct cooling		Direct cooling		Direct cooling	Direct cooling		Direct cooling
	Defrost Mode	Manual		Manual		Manual	Manual		Manual
	Refrigerant	HC		HC		HC	HC		HC
	Sound level(dB(A))	50		50	51.5	46.8	49		50
Performance	Cooling Performance (°C)	-86		-86		-86	-86		-86
	Temperature Range (°C)	-40~-86		-40~-86		-40~-86	-40~-86		-40~-86
Control	Controller	Microprocessor		Microprocessor		Microprocessor	Microprocessor		Microprocessor
	Display	LED		LED		LED	LED		LED
Electrical Data	Power Supply (V/Hz)	220~240/50	120/60	208~230/60	220~240/50	208~230/60	220~240/50	220~240/50	220~240/50
	Electrical Current (A)	10	18	10	10	3	6.5	4	7.5
Construction	Capacity (L/Cu.Ft)	728/25.7		828/29.2		100/3.5	100/3.5		420/14.8
	Net/Gross Weight (approx)	kg	345/385		380/410		108/132	138/160	310/357
		lbs	760.6/848.8		837.7/903.9		238/291	304.2/352.7	683.4/787.0
	Interior Dimension (W*D*H)	mm	766*716*1310		870*716*1310		330*481*630	470*450*480	1367*462*652
		in	30.2*28.2*51.6		34.3*28.2*51.6		13*19*25	18.5*17.7*18.9	53.8*18.2*25.7
	Exterior Dimension (W*D*H)	mm	1049*980*1980		1145*980*1980		770*660*810	769*825*1120	2130*870*1020
Loading Quantities		in	41.3*38.6*78.0		45.1*38.6*78.0		30*26*32	30.3*32.5*44.1	83.9*34.3*40.2
	Packing Dimension (W*D*H)	mm	1120*1090*2130		1240*1080*2130		865*755*1020	860*880*1310	2230*930*1180
		in	44.1*42.9*83.9		48.8*42.5*83.9		34.1*29.7*40.2	33.9*34.6*51.6	87.8*36.6*46.5
Alarms	Container load (20'/40'/40'H)	10/22/22		5/11/11		32/64/64	14/28/56		12/26/26
	High/Low Temperature	Y		Y		Y	Y		Y
	Hot Condenser	Y		Y		Y	Y		Y
	Power Failure	Y		Y		Y	Y		Y
	High/Low Voltage	/		/		Y	/		/
	Sensor Error	Y		Y		Y	Y		Y
	Low Battery	Y		Y		Y	Y		Y
	High Ambient Temperature	Y		Y		Y	Y		Y
Accessories	Door Ajar	Y		Y		Y	Y		Y
	Caster	Y		Y		Y	Y		Y
	Foot	Y		Y		Y	Y		Y
	Porthole	Y/2		Y/2		Y/1	Y/1		Y/1
	Shelves/Inner doors	3/4		3/4		1/2	-/1		-/3
	USB Interface	Y		Y		Y	Y		Y
	Remote Alarm	Y		Y		Y	Y		Y
	5V Power Supply Port	Y		Y		Y	N/A		N/A
	Temperature Recorder	Optional		Optional		/	Optional		Optional
	Rs232/485 Interface	Optional		Optional		NA/Y	Optional		Optional
Certifications	CO <sub>2</sub> Backup System	Optional		Optional		Optional	Optional		Optional
	LN <sub>2</sub> Backup System	Optional		Optional		Optional	Optional		Optional
	CE	Y	/	/	Y	/	Y	Y	/
UL	UL	/	Y	Y	/	Y	/	/	Y
	ENERGY STAR	/	Y	/	/	Y	/	/	/

Product appearance and specifications are subject to change without notice

## -86°C ULT Freezer

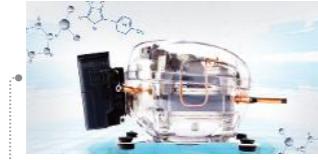
Suitable for pharmaceutical, clinical and medical research use, for the long-term storage of samples and products under ultra-low temperature conditions.

### Advantage



#### Microprocessor Control System

Microprocessor control, with temperature display precision at 0.1°C. Internal temperature is adjustable from -40°C ~ -86°C



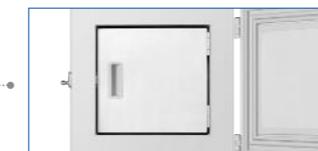
#### Auto-cascade Hydrocarbon (HC) Refrigeration Technology

Utilizing auto-cascade hydrocarbon compressor, with superior refrigeration and energy saving effect



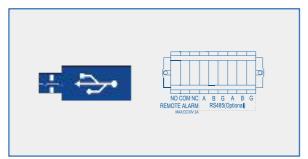
#### Excellent Doors Seals

Total six gaskets to safeguard the freezer temperature, including a 70mm insulation layer, a 25mm vacuum VIP and 4 layers of silicone seal



#### Stainless Steel Inner Door

Prevents loss of internal air to keep samples safe



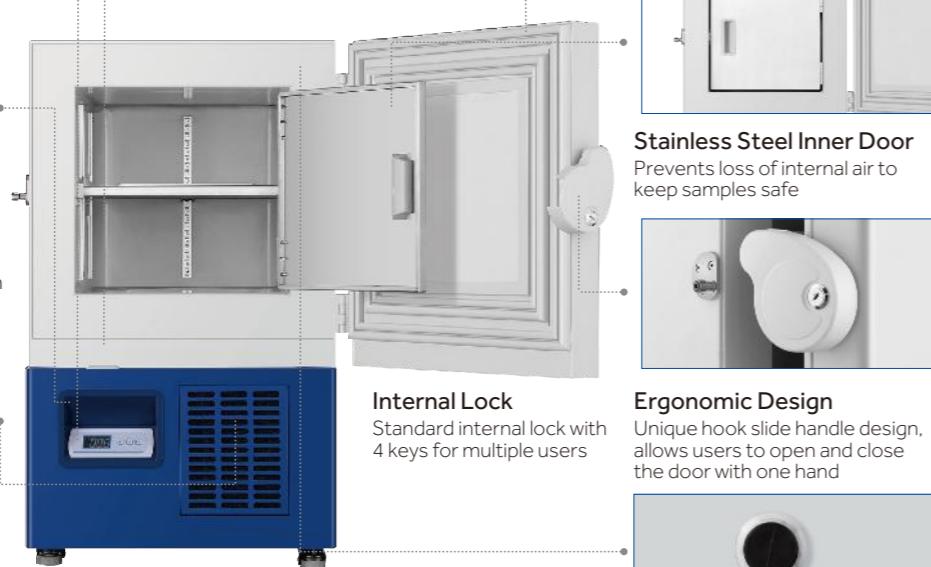
#### Multiple Ports

Enables users to download historical temperature data (up to 15 years) Equipped with remote alarm function and RS485 port



#### Quick Access Filter Design

Tool-free removable filter design, easy and quick to clean the filter



**DW86L51J**

### Advantage



**DW-80WZ15**



#### HC Energy Saving

High quality HC high-efficiency compressor with optimized refrigeration system, which can save 50% on power consumption.



#### One Unit for Multiple Applications

\*Vehicle-mounted transportation with 24V(DC) power supply  
\*Long-term storage with 110V power supply.



#### Superior Uniformity

Built-in evaporator, fast cool down refrigeration, the temperature is safe, secure and reliable with the uniformity of ±3°C at key characteristic points.

## Flexible, Portable Mini-ULT Freezer

### Ergonomic Design



#### Light Weight

The whole unit weighs 27kg, easy to carry.



#### Safety Lock Catch

Simple adjustable mechanical lock with lock catch, and it can be equipped with an external lock to guarantee the safety of sample transportation and storage.



Superior Insulation Performance  
25mm VIP + 70mm thick LBA foam insulation layer design, dual seal strips for better insulation.



#### Metal Handle

Hidden metal handle, stylish and comfortable, safe and durable, easy to carry.

### Specifications

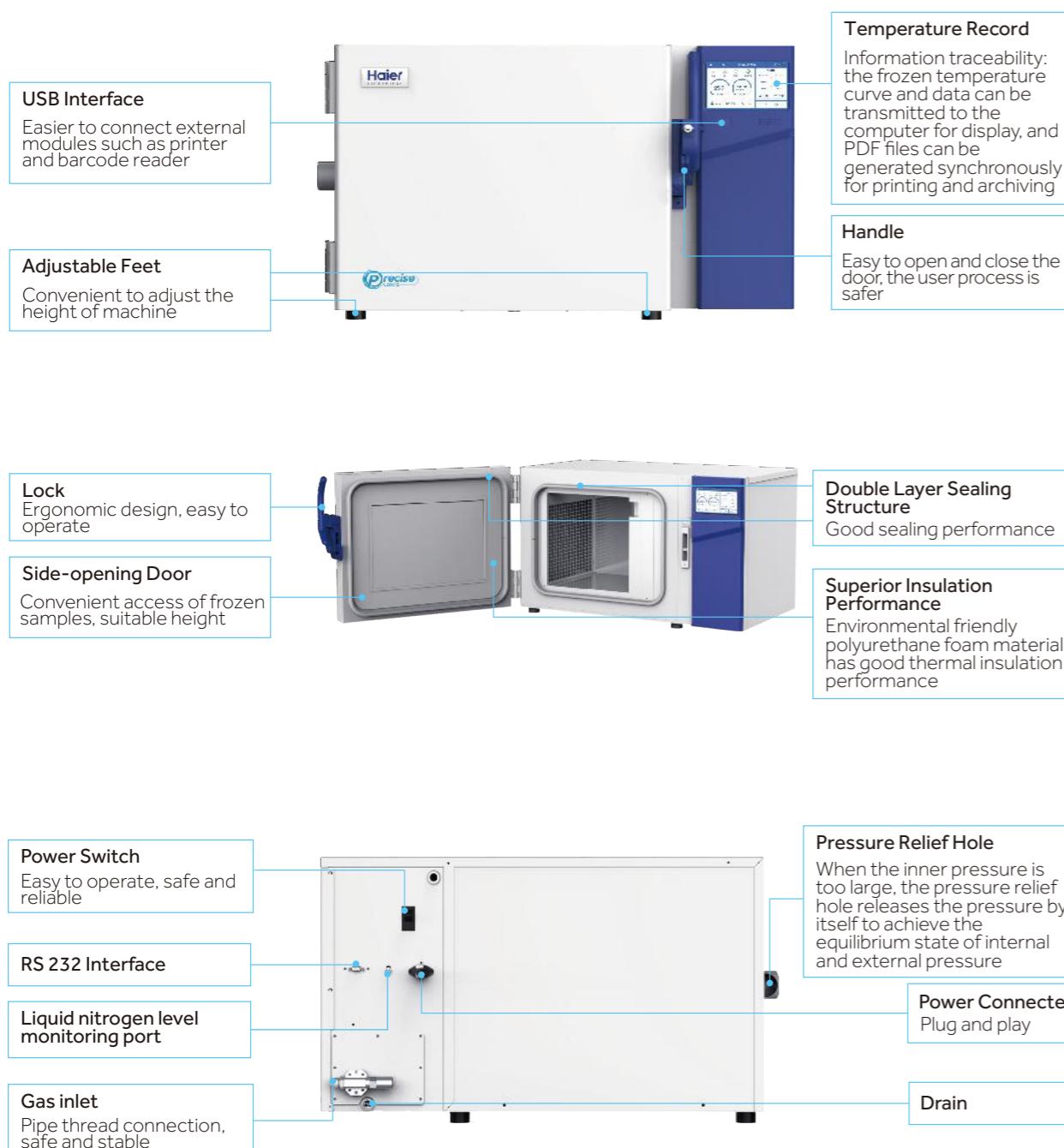
	Model		DW-80WZ15	DW-86L51J
Technical Data	Cabinet Type		Chest	Upright
	Climate Class		N	N
	Cooling Type		Direct Cooling	Direct Cooling
	Defrost Mode		Manual	Manual
	Refrigerant		HC	HC
	Sound Level (dB(A))		60	46.8
Performance	Cooling Performance (°C)		-80	-86
	Temperature Range (°C)		-60~80	-40~86
Control	Controller		Temperature Controller	Microprocessor
	Display		LED	LED
Electrical Data	Power Supply (V/Hz)	220/50, DC 24	110/60, DC 24	120/60
	Electrical Current (A)	2.5, 12	4.5, 12	7.5
Dimensions	Capacity (L/Cu.Ft)		15/0.53	51/1.8
	Net/Gross Weight (approx)	(kg)	27/33	77/90
		(lbs)	59.52	169.8/198.4
	Exterior Dimension (W*D*H)	(mm)	690*320*500	532*640*806
		(in)	27.2*12.6*19.7	20.9*25.2*31.7
	Interior Dimension (W*D*H)	(mm)	260*180*330	330*481*316
Alarms	Packing Dimension (W*D*H)	(mm)	805*430*725	570*735*1100
		(in)	31.7*17.0*28.5	22.4*28.9*43.3
	Cabinet Width (Without Handle and Hinge)		/	470
	Container Load (20'/40'/40'H)		105/210/210	60/126/126
	High/Low Temperature		Y	Y
	Hot Condenser		N	Y
Accessories	Power Failure		Y	Y
	High/Low Voltage		N	Y
	Sensor Error		Y	Y
	Low Battery		N	Y
	High Ambient Temperature		N	Y
	Door Ajar		N	Y
Other	Start-up Delay		/	Y
	Caster		N	Y
	Foot		Y	Y
	Porthole		N	Y/1
	Shelves/Basket		N/N	1/1
	USB Interface		N	Y
Other	Remote Alarm		N	Y
	RS232/485 Port		N	NA/Standard

\*Haier Biomedical reserves the right to change products and specifications without prior notice.

## Controlled Rate Freezer

Suitable for primary cells and cooling cells that are highly sensitive to temperature changes.

### Product Functions



## Controlled Rate Freezer

### Product Advantages



#### Precise Temperature Control

- Fine temperature control, the temperature rises and fall rate can be controlled in a large range, can achieve the cooling rate of 0.1~99°C/min
- Stable temperature control, double solenoid valve design and special jet ring design, stable temperature control, effectively reduces cell damage
- Precise temperature control, ADCR control algorithm, temperature fluctuation range is  $\pm 0.5^{\circ}\text{C}$



#### Ergonomic Design

- 7-inch touch LCD screen, easy to operate
- Liquid nitrogen allowance warning: Real-time display of liquid nitrogen allowance, timely warning when it is lower than 20%
- Single handle press lock, simple and labor-saving, locking function, and the safety of the test process is guaranteed
- Equipped with a real-time temperature curve printer and electronically archived temperature records

### Standard System Consists of

- Controlled Rate Freezer
- LN<sub>2</sub> Container
- LN<sub>2</sub> Transfer Hose
- Sample Probe
- Printer



LN<sub>2</sub> Container



LN<sub>2</sub> Transfer Hose



Sample Probe



Printer

### Specifications

Model	Power Supply (V/Hz)	Rated Power (W)	Effective Volume (L)	Temperature Range (°C)	
CJ-L37	230~50/60	1300	37	-180~50	
Display Screen		Serial Port Form	Exterior Dimensions (W*D*H mm)	Interior Dimensions (W*D*H mm)	Net Weight (Kg)
7 "colorful LCD touch screen		USB Interface/RS232 serial port	941*571*527	330/340/330	73

\*Haier Biomedical reserves the right to change products and specifications without prior notice.

## CO<sub>2</sub> Backup System

### Advantage

- Small footprint, light and easy for installation
- User adjustable temperature setting
- Simple to program and operate
- Flexible – Can be installed on any ULT freezer, which has a port hole
- The CO<sub>2</sub> injection pipe is designed in combination of filter, to prevent the blockage of CO<sub>2</sub> back-up system



### Safety

- Liquid CO<sub>2</sub> test button to ensure the backup system is working
- Low CO<sub>2</sub> alarm system alerts the user when liquid CO<sub>2</sub> bottle is low in liquid level
- Ultra-low sound level compressors

### Reliability

- Stainless steel covering, more elegant
- Stainless steel input pipe design, allows for flexibility and ease of cylinder positioning
- Durable battery lasts up to 48 hours



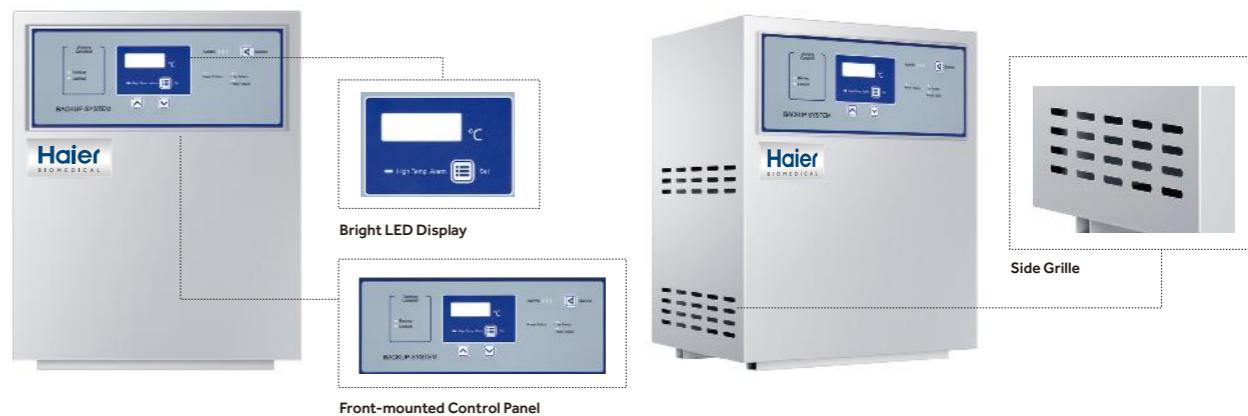
### Specifications

	Model	HBX-IC
Technical Data	Climate Class	N
	Cooling Type	Direct cooling
	Refrigerant	CO <sub>2</sub>
Performance	Cooling Performance (°C)	-70
	Temperature Range (°C)	-40~ -70
Control	Controller	Thermostat
	Display	LED
Electrical Data	Power Supply (V/Hz)	220-240/50 208-230/60 115/60
	Power (W)	20
	Electrical Current (A)	0.25
Dimensions	Net/Gross Weight (approx)	11.2/14 24.7/30.86
	Exterior Dimensions (W*D*H)	200*400*160 7.8*15.7*6.3
	Packing Dimensions (W*D*H)	550*390*330 21.7*15.4*13.0
Alarms	CO <sub>2</sub> Margin Insufficient Alarm	Y
	Low Battery Alarm	Y
	Sensor Error Alarm	Y
	Main Power Off Alarm	Y
	Charge Indicator	Y
	CO <sub>2</sub> Injection Test Button	Y
Accessories	Foot	4
Others	Certification	CE/UL

Product appearance and specifications are subject to change without notice

## LN<sub>2</sub> Backup System

LN<sub>2</sub> backup cooling system is an independent refrigeration system generally used for a -150°C mechanical cryo freezer. When there is a loss of power or the temperature of the freezer rises to the high alarm set point, the LN<sub>2</sub> backup system can be automatically activated to inject LN<sub>2</sub> into the chamber to maintain the freezer temperature. The backup system operates on a rechargeable battery when there is a loss of mains power.



### Features

- Interlocked design to turn off the LN<sub>2</sub> injection when the door is opened
- Protection circuit to prevent over-charging battery
- Light weight and portable design, suitable for installation on top of a freezer
- Alarm functions to include low battery and sensor error

### Specifications

	Model	HBX-IIA
Technical Data	Cabinet Type	Horizontal
	Cooling Type	Direct cooling
	Refrigerant	LN <sub>2</sub>
Performance	Cooling performance (°C)	-135
	Temperature Range (°C)	-90~ -135
Control	Controller	Thermostat
	Display	LED
Electrical Data	Power Supply (V/Hz)	220-240/50 208-230/60 115/60
	Power (W)	20
	Electrical Current (A)	0.05
Dimensions	Net/Gross Weight (approx)	15/17 33.1/37.5
	Exterior Dimensions (W*D*H)	360*305*445 14.2*12.0*17.5
	Packing Dimensions (W*D*H)	450*375*720 17.7*14.8*28.3
Alarms	Low Battery Alarm	Y
	Sensor Error Alarm	Y
	Main Power Off Alarm	Y
	Charge Indicator	Y
Others	Certification	CE/UL

Product appearance and specifications are subject to change without notice