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# Haier Biomedical Intelligent Protection of Life Science

# Automated Blood Management Network

IoT Management; Bedside Blood Usage; Immediate Access on Demand.



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# **Blood Network Solution**

IoT Intelligent Blood Safety Management provides a unified and secure systemized platform for the entire region's blood supply. IoT is linked with the data management system and builds blood information that interconnects between a region's blood transfusion centre and/or central blood bank and the blood usage within the hospitals through establishment of a unified blood management platform. The blood use database is strengthened by the system's surveillance of the overall process from blood collection to clinical use or from vein to vein. Through the IoT Intelligent Blood Safety Management, it guarantees total blood quality and safety across the region health network.



# **Blood Station Working Solution Synopsis**

By adding RFID tags to blood bags and either scanning or writing the information, this program ensures accurate positioning of blood products with the intelligent IoT information management system. Through batch verification, quality information control, batch storage accuracy, transport of blood from collection to clinical transfusion, this system enhances the blood quality and safety across the entire health network.

The main aim of the scheme is to strengthen the blood information management from collection to clinical infusion, enhancing blood quality and safety. It is achieved by using an RFID read-write device, RFID detector, RFID walk-in cold room, transfer boxes and blood bank refrigerators which feed data into an IoT blood solution ecosystem. Information such as, blood products batch scanning, batch check information, quality control information, batch stock-in and stock-out, quick inventory count, accurate positioning, information statistics, cold chain storage information, transport information and blood bank product movements can be assimilated to provide a complete picture of an organization's blood management and supply network.







# **Hospital Solution Summary**

# **Scheme Introduction**

# Technological Advantage

Connected to the blood bank refrigerator, the RFID tag reader and the server can also download the blood bank refrigerator and control data to the App through the network. The blood transfusion information management system and electronic blood matching system are connected with the hospital's intranet. The blood bank refrigerator can be moved to the operating room, ICU or emergency room.

The RFID tag reader can determine the positions of blood bags, and the App LCD screen can control the storage and removal of the blood bags and check the quantity and status of the blood bags. Using the server data, the user can also download control commands to the blood bank refrigerator App through the network to operate the refrigerator remotely. The intelligent operation of clinical blood matching, blood usage and safety are guaranteed.

Following extensive research and proven implementation, the UBlood solution allows a hospital via control and tracking protocols within the system, to effectively manage blood throughout the entire hospital. With this system, the hospital can allocate and track the blood product usage, record the blood product transfusion in real time, ensure accurate transfusion of the blood to the right patient, at the right time and in the right dose. The result is best practice and quality clinical transfusion improves the efficiency of blood management and the blood use safety for blood recipients.





# **Blood Station Product Overview**

# **Cold Room Storage**



# **Product Features**

- Large 10-inch screen PLC intelligent control system provides users with clear display of storage conditions.
- PLC intelligent control system with self-diagnostics alerts users in the event of a malfunction
- Cold air leakage is reduced as the air cooling fan stops when the door is opened and it is equipped with door open sensor and alarm
- Dual refrigeration system switches automatically in case of fault of one system and the laminar air flow supply device within the unit ensures the temperature uniformity of ±2°C
- Energy-saving liquid self-cooling technology cools the liquid by more than 5°C through the use of melted ice and reduces energy consumption by 5%
- Certified ISO13485 medical device quality management system
- Complies to the WHO/PQS quality and safety certification

# **Blood Bank Refrigerator**



# **Product Features**

- Smart IoT scientific and intelligent inventory management: the blood inventory management App ensures accurate, real-time and automatic management of stock-in and stock-out information
- and removal
- Intelligent and fully interactive visual blood bank management: with the touch of one button, or via the refrigerator App, view statistics and query of the blood donation code, product code, blood type, blood of the blood with the closest expiry date to ensure first-in first-out management practices
- from the blood bank to the required location
- Information is accurate and reliable: the blood information stored in the RFID tag is encrypted with secure and reliable



• RFID precise positioning and visual management: automatic RFID identification ensures intelligent and dynamic positioning of the blood bags, guides users precisely for accurate and swift blood bag identification

volume, expiry date and other information of the blood bags in stock. Clearly displaying the storage location

• The refrigerator or freezer has a built-in RFID read-write device: to ensure state of the art inventory count using a simple one-button protocol, the inventory information is displayed in real-time to fast track the bag

• Accurate positioning: users can quickly query and find the location of any blood bag stored at the blood bank

read-only information to ensure that such information cannot be deleted or tampered with, and thus is safe,

# **Hospital Blood Department Products**

# **Blood Bank Refrigerator**



# **Functional Characteristics**

- The system ensures accurate blood positioning and one-stop blood access to reduce the door opening duration of the blood bank refrigerator, guaranteeing the blood storage environment and ensuring blood quality and safety
- No need for manual count; on each occasion when the blood bank refrigerator is closed, the automatic inventory counting mechanism will be activated to automatically count and update the inventory levels
- Intelligent inventory management follows the first-in-first-out principle to improve the efficacy of blood transfusions; the blood delivery process goes through three checks to ensure the security of the blood transfusion
- The blood bank is accessible within the operating room ensuring priority to blood matching from the blood bank refrigerator within the operating area, ensuring immediate blood collection and zero wastage

# **Transport Cooler**

The transport cooler is a specially designed transport temperature/humidity controlled storage device with integral wireless monitoring to transport blood products and biological samples.



# **Functional Characteristics**

- Equipped with cold chain monitoring module for temperature and humidity: Displays data in real-time and information is uploaded to the cloud platform for query through the 4G module GPS positioning allows users to query the movement and track the transport cooler in real time Camera monitoring to automatically identify whether there are stored items in the cooler to prevent stored items being left in error.
- Storage temperature is maintained at 2~6°C once the cooler is fully charged; the transfer temperature can be maintained at 2~10°C with no power
- Storage security is enhanced with NFC swipe card module, lock/unlock status information is uploaded in real-time
- 12V and 100-240V power supply for in-vehicle operation
- Energy-efficient optimized semi-conductor refrigeration technology







# **Automated Blood Management Refrigerator Used at Blood Station**





Effective Volume (L)	NW / GW (Kg)	Stainless Steel Shelf (layer)	Loading Capacity (400ml bags)
429	190/225	5	120
629	235/275	6	192
1369	430/490	12	384

# Automated Blood Management Refrigerator Used at Hospital



- With multiple temperature control to guarantee constant and precise temperature: the inside temperature is constant within 4±1°C
- Multiple alarms
- Large LCD touch screen, visual blood management system
- Automatic and accurate identification of blood, light-up indicators for retrieval and archiving
- In an emergency case a large amount of blood can be withdrawn
- Intelligent blood management APP and IoT functions distribute blood bags to the operating room directly



Reduce Waste and Improve Efficiency Electronic blood matching within 1 minute, reducing the cross matching time and reagent consumption. Quick and precise blood matching, combined with intelligent lighting guide indicators, guarantees the accurate identification and safe use of blood, without waste





Drastically Improves the Speed of Delivery Innovative blood bank system, enables the blood to be advanced to the operating room to achieve 1-minute rapid blood collection

Configuration







Barcode scanner

Printer



Tray

# **Specifications**

	Model		HXC-149R HXC-429R		HXC-629R		HXC-629R	RB		
	Туре		Drawer-Type		Drawer-Type		Drawer-Type		Drawer-Typ	be
	Climate Class		Ν		Ν		Ν		Ν	
Technical	Cooling Type		Forced Air Cooling		Forced Air Cooling		Forced Air Cooling		Forced Air Coo	oling
Data	Defrost Mode		Auto		Auto		Auto		Auto	
Refrigerant			R600a		R600a		R600a		R600a	
	Sound Level (dB(A))		40		41	41		41		
D (	Temperature Range (°C)		4±1		4±1		4±1		4±1	
Performance	Ambient Temperature (°C)		16-3	2	16-32	2	16-32		16-32	
Control	Controller		Microproc	essor	Microprocessor		Microprocessor		Microproces	sor
Control	Display		LCD Touch	screen	LCD Touchs	screen	LCD Touchs	screen	LCD Touchscr	reen
	Power Supply (V/Hz)		220-240/50	230/60	220-240/50	230/60	220-240/50	230/60	115/60	
Electrical	Power (W)		250		280		300		300	
Data	Electrical Current (A)		1.5		1.8		1.9		3	
	Capacity (L/Cu.Ft)		149/5	.3	429/15.1		629/22.2		629/22.2	
	Blood Storage Capacity (450ml bloc	od bags)	;) 18		60		88		88	
	Net/Gross Weight (approx)	kg	129/179		245/280		295/335		295/335	
		lbs	283.8/ 393.8		539/616		649/737		649/737	
	Interior Dimensions (W*D*H)	mm	505*560*610		505*680*	1315	645*680*1455		645*680*14	155
Dimensions	interior Dimensions (W D H)		19.7*32.3*23.8		19.7*26.5*	*51.3	25.2*26.5*56.7		25.2*26.5*5	6.7
F	Exterior Dimensions (W*D*H)	mm	625*775*	*1425	925*940*	1830	1065*940*	°1980	1065*940*19	980
		in	24.4*30.2*55.6		36.1*36.7*	*71.4	41.5*36.7	*77.2	41.5*36.7*7	7.2
	Packing Dimensions (W*D*H)	mm	740*945*1575		725*985*	1940	875*995*	2090	875*995*20	90
		in	28.9*36.9*61.4		28.3*38.4	*75.7	34.1*38.8*81.5		34.1*38.8*8	1.5
	Container Load (20'/40'/40'H)		18/36/	36	18/35/35		12/26/26		12/26/26	i
	High/Low Temperature		Y Y		Y		Y			
	Power Failure		Y		Y		Y		Y	
Alarms	Sensor Error		Y		Y		Y		Y	
	Low Battery		Y		Y		Y		Y	
	Door Ajar		Y		Y		Y		Y	
	Remote Alarm		Y		Y		Y		Y	
	Caster		4		4		4		4	
	Foot		2		2		2		2	
Accessories	Porthole		Y		Y		Y		Y	
Accessories	Drawers		9		30		44		44	
	USB Interface		Y		Y		Y		Y	
	Temperature Recorder		Y		Y		Y		Y	
Others	Certification		CE UL		CE	UL	CE	UL	UL	



# **Unattended Self-help Blood Distribution Refrigerator**

# Smart IoT and self-help blood distribution



# Self-help blood distribution of blood transfusion departments

After blood cross matching is completed for the blood bags, specified blood collection permissions will be allocated to the different blood using departments to achieve self-help blood distribution; self-help blood collection at night can save labor cost and improve efficiency

### Mobile blood storage points set up by blood stations

The refrigerators may be used as mobile blood storage points in hospitals to guarantee the applications of emergency blood use, achieve zero waiting for blood use, and guarantee the timely blood use of patients

**Product Advantages** 

# Electronic checking and bar code management

- Blood bag warehouse-in and warehouse-out management can be achieved by scanning the blood donation codes and the product codes on the bags
- The system can take the specified blood bags for the work staff accurately after identifying the operators and checking the blood bags to be error-free



A drawer corresponds to a lock

### Safe, secure and reliable, making blood collection process traceable

- Equipped with fingerprint module and NFC card punching module, providing dual permission modes to open the electromagnetic lock
- Each drawer is equipped with an independent electronic lock to ensure that only the unique and correct blood bag can be taken out in each blood collection operation
- The camera module can take photos of the operators automatically and transmit them to the platform to achieve operation information traceability



# Ergonomic design

- Smart dual screen setting achieves a simple and intuitive LCD screen display and better user-machine interactions
- Upon checking of the warehouse-out blood bag's information, self-help printing of Blood Collection Sheet for Clinical Blood Transfusion and Blood Distribution Record Sheet is available

Self-service printing

### User-machine interaction, making management visual

- The intelligent blood management system can display the blood donation codes, product codes, blood types, blood quantities, expiry dates and other information of the stored blood bags in real time, designed with one-key guery of the stock blood information
- It can clearly show the storage location of the blood bag with the closest expiry date and follow the first-in-first-out management practices

### Microcomputer Control

Double temperature control composed of 6 high precision sensors and mechanical thermostat against low temperature makes control more accurate and maintains the refrigerator temperature constant at 4±1°C





Femperature Inside the Refrigerator (℃)	Uniformity (°C)
2-6	4±1

Effective Volume (L)	Blood bag Volume
629	72 bags 450 ml



# Automated Blood Management Refrigerator with Touch Screen

# Product Features

Specifications



HXC-1369T



# Control Interface

The intuitive high-definition LCD touch screen can display temperature graph, working status, events and alarm records

### Microcomputer Control

A dual control system of six high-precision sensors and mechanical thermostat ensures that the temperature inside the cabinet is maintained at  $4\pm1^{\circ}C$ 

# Information Statistics

Real-time control and monitoring of blood information in the cabinet is possible via built-in smart blood management APP and cloud network connection. Blood product information and temperature are available in large LCD display



### Stable and Reliable Operation

The refrigeration system is powered with a high-quality, energy-efficient inverter compressor and variable speed fan motors. Temperature control responses quickly and reliably for a more uniform temperature using less power and lower noise



### Multiple Safety Protection

Multiple alarms include high and low temperature, power failure, door ajar, sensor error, and low battery. Sound buzzer, visual flashing light and remote contacts are standard alarm features. Built-in battery provides power to the alarm system in the event of power failure. Fingerprint and standard NFC swipe card module are optional



Multiple storage partitions are provided. Management of blood products by types and expiration dates is easy and efficient

	Model		HXC-149T	HXC-279T	HXC-429T	HXC-629T	HXC-629TB	HXC-1369T
	Туре		Drawer-Type	Basket-Type	Drawer-Type	Drawer-Type	Drawer-Type	Drawer-Type
	Climate Class		Ν	Ν	Ν	Ν	Ν	Ν
Technical	Cooling Type		Forced Air Cooling					
Data	Defrost Mode		Auto	Auto	Auto	Auto	Auto	Auto
	Refrigerant		R600a	R600a	R600a	R600a	R600a	R600a
	Sound Level (dB(A))		39	41	40	40	41	41
Deufeure	Temperature Range (	°C)	4±1	4±1	4±1	4±1	4±1	4±1
Performance	Ambient Temperature (°C)		16-32	16-32	16-32	16-32	16-32	16-32
Control	Controller		Microprocessor	Microprocessor	Microprocessor	Microprocessor	Microprocessor	Microprocessor
Control	Display		LCD Touchscreen					
	Power Supply (V/Hz)		220-240/50/60	220/50	220-240/50/60	220-240/50/60	115/60	220-240/50/60
Electrical	Power (W)		240	400	245	255	255	400
Data	Electrical Current (A)		1.4	2.6	1.5	1.5	3	2
	Capacity (L/Cu.Ft)		149/5.3	279/9.85	429/15.1	629/22.2	629/22.2	1369/48.3
	Blood Storage Capacity (450ml blood bags)		60	135	195	312	312	624
	Not/Groce Woight	kg	108/136	113/136 182/217		212/252	212/252	380/445
	(approx)	lbs	237.6/299.2	249/299.2	/299.2 400.4/477.4		466.4/554.4	836/979
	Interior Dimensions (W*D*H)	mm	505*560*610	505*410*1365	505*680*1315	645*680*1455	645*680*1455	1425*680*1455
Dimensions		in	19.7*32.3*23.8	19.8*16.1*53.7	19.7*26.5*51.3	25.2*26.5*56.7	25.2*26.5*56.7	55.6*26.5*56.7
	Exterior Dimensions (W*D*H)	mm	625*820*1150	660*705*1750	625*940*1830	765*940*1980	765*940*1980	1545*940*1980
		in	24.4*30.2*44.9	26.0*27.8*68.9	24.4*36.7*71.4	29.8*36.7*77.2	29.8*36.7*77.2	60.3*36.7*77.2
	Packing Dimensions (W*D*H)	mm	720*920*1220	730*760*1940	725*985*1940	875*995*2090	875*995*2090	1610*995*2090
		in	28.1*35.9*47.6	28.7*30.0*76.4	28.3*38.4*75.7	34.1*38.8*81.5	34.1*38.8*81.5	62.8*38.8*81.5
	Container Load (20'/4	Container Load (20'/40'/40'H)		24/48/48	18/35/35	12/26/26	12/26/26	7/14/14
	High/Low Temperatu	re	Y	Y	Y	Y	Y	Y
	Power Failure		Y	Y	Y	Y	Y	Y
	Sensor Error		Y	Y	Y	Y	Y	Y
Alarms	Low Battery		Y	Y	Y	Y	Y	Y
	Door Ajar		Y	Y	Y	Y	Y	Y
	Remote Alarm		Y	Y	Y	Y	Y	Y
	Caster		4	Y	4	4	4	4
	Foot		2	Y	2	2	2	2
	Porthole		Y	Y	Y	Y	Y	Y
	Baskets		6	15	15	24	24	48
Accessories	Shelves/Drawers		0/2	5/0	0/5	0/6	0/6	0/12
	USB Interface		Y	Y	Y	Y	Y	Y
	Temperature Recorde	er	Y	Y	Y	Y	Y	Y
Others	Certifification		CE, UL	/	CE, UL	CE, UL	UL	CE, UL



# **Blood Management Refrigerator with LED Display**

# **Product Features**



# Dual Temperature Control Technology

Refrigeration system is designed with an inverter compressor and dual-speed fans, providing an optimal temperature performance of 4±1°C inside the cabinet to safeguard stored products.

# Standard USB Interface

- Ability to record temperature data for ten years by using the USB
- Interface, disc temperature recorder is also available

HXC-429



### With Multiple Temperature Control to Guarantee Constant and Precise Temperature

- The inside temperature is constant within 4±1°C, the digital temperature display resolution at 0.1°C
- Equipped with 6 high-precision sensors and a mechanical thermostat which enables more accurate air cooling and temperature control to ensure uniform temperature inside the unit, maintained within the specified temperature range
- The multi-layer inner door design reduces thermal loss after door openings and further ensures the temperature stability inside the cabinet



# With Multiple Safety Guarantees to Provide Worry-Free Service

- Equipped with complete alarm function, including alarm on high and low temperature, power failure, door ajar, sensor error, and low battery. Two alarm modes including audible buzzer and visual lights with remote alarm interface
- Back-up battery design ensures alarm and temperature readings continue to operate in the event of power failure
- NFC swipe card module, with safer storage management



# NFC Rights Management

NFC rights management system is designed with an electromagnetic lock with controllable, checkable and traceable flow direction, providing safer blood management

Model HXC-149 HXC-Туре Basket-Type Basket Climate Class Ν N Cooling Type Forced Air Cooling Forced Air Technical Data Defrost Mode Auto Aut R13-Refrigerant R600a sound level (dB(A)) 39 41 Temperature Range (°C) 4±1 4+ Performance Ambient Temperature (°C) 16-32 16-Controller Microprocessor Micropro Control Display LED LED Power Supply (V/Hz) 220-240/50/60 220/ Electrical Power(W) 215 400 Data Electrical Current (A) 1.3 2.6 Capacity (L/Cu.Ft) 149/5.3 279/9 Blood Storage Capacity (450ml blood bags) 60 135 97/125 113/1 kg Net/Gross Weight (approx) 213.4/275 249/2 lbs 505\*560\*610 505\*410 mm Interior Dimensions (W\*D\*H) Dimensions in 19.7\*32.3\*23.8 19.8\*16 mm 625\*820\*1150 660\*705 Exterior Dimensions (W\*D\*H) in 24.4\*30.2\*44.9 26.0\*27 mm 720\*920\*1220 7.30\*760 Packing Dimensions (W\*D\*H) in 28.1\*35.9\*47.6 28.7\*30 Container Load (20'/40'/40'H) 18/38/76 24/48 High/Low Temperature Y Power Failure Sensor Error Alarms Low Battery Door Ajar Remote Alarm Caster Foot Porthole Baskets 15 Accessories Shelves/Drawers 2/0 5/ Inner Doors USB Interface Temperature Recorder Certification Others CE, UL

**Specifications** 

279	HXC-429	HXC-629	HXC-629B	HXC-1369
-Туре	Basket-Type	Basket-Type	Basket-Type	Basket-Type
	Ν	Ν	Ν	Ν
Cooling	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling
:0	Auto	Auto	Auto	Auto
4a	R600a	R600a	R600a	R600a
	40	40	41	41
1	4±1	4±1	4±1	4±1
32	16-32	16-32	16-32	16-32
cessor	Microprocessor	Microprocessor	Microprocessor	Microprocessor
D	LED	LED	LED	LED
50	220-240/50/60	220-240/50/60	115/60	220-240/50/60
0	245	255	255	320
5	1.5	1.5	3	2
9.85	429/15.1	629/22.2	629/22.2	1369/48.3
5	195	312	312	624
136	169/204	187/217	187/217	345/410
99.2	371.8/448.8	411.4/477.4	411.4/477.4	759/902
)*1315	505*680*1315	645*680*1455	645*680*1455	1425*680*1455
1*51.8	19.7*26.5*51.3	25.2*26.5*56.7	25.2*26.5*56.7	55.6*26.5*56.7
5*1700	625*940*1830	765*940*1980	765*940*1980	1545*940*1980
8*67.0	24.4*36.7*71.4	29.8*36.7*77.2	29.8*36.7*77.2	60.3*36.7*77.2
*1890	725*985*1940	875*995*2090	875*995*2090	1610*995*2090
0*74.4	28.3*38.4*75.7	34.1*38.8*81.5	34.1*38.8*81.5	62.8*38.8*81.5
8/48	18/35/35	12/26/26	12/26/26	7/14/14
	Y	Y	Y	Y
	Y	Y	Y	Y
	Y	Y	Y	Y
	Y	Y	Y	Y
	Y	Y	Y	Y
	Y	Y	Y	Y
	4	4	4	4
	2	2	2	2
	Y	Y	Y	Y
5	15	24	24	48
C	5/0	6/0	6/0	12/0
	5	6	6	12
	Y	Y	Y	Y
	Y	Y	Y	Y
	CE, UL	CE, UL	UL	CE, UL



# **Standard Blood Bank Refrigerator**

Haier Biomedical's blood bank refrigerator is specially designed to store whole blood and blood derivatives. These refrigerators can also be used to store pharmacy and biological materials in hospitals and laboratories.

Specifications

	Model		HXC-158	HXC-158B
	Туре		Basket-Type	Drawer-Type
	Climate Class		ST	ST
Technical	Cooling Type		Forced Air Cooling	Forced Air Cooling
Data	Defrost Mode		Auto	Auto
	Refrigerant		HC	HC
	sound level (dB(A))		42	42
	Temperature Range (oc)		4±1	4±1
Performance	Ambient Temperature (oc)		10-38	10-38
o	Controller		Microprocessor	Microprocessor
Control	Display		LED	LED
	Power Supply (V/Hz)		220~240/50/60	220~240/50/60
Electrical	Power (W)		320	320
Data	Electrical Current (A)		2.6	2.6
	Capacity (L/Cu.Ft)		158/5.6	158/5.6
	Blood Storage Capacity (450ml k	blood bags)	84	84
		ka	107/120	113/126
	Net/Gross Weight (approx)	lbs	235.9/264.6	249.1/277.8
	Interior Dimensions (W*D*H)	mm	460*370*950	460*370*950
Dimensions		in	18.1*14.6*37.4	18.1*14.6*37.4
		mm	560*570*1530	560*570*1530
	Exterior Dimensions (W*D*H)	in	22.0*22.4*60.2	22.0*22.4*60.2
		mm	645*675*1680	645*675*1680
	Packing Dimensions (W*D*H)	in	25.4*26.6*66.1	25.4*26.6*66.1
	Container Load (20'/40'/40'H)		27/54/54	27/54/54
	High/Low Temperature		Y	Y
	Power Failure		Y	Y
	Sensor Error		Ý	Y
Alarms	Low Battery		Y	Y
	Door Aiar		Y	Y
	Remote Alarm		Y	Y
	Caster		Y	Y
	Foot		Y	Y
	Porthole		Y	Y
	Shelves/Drawers		4/-	-/4
Accessories	Inner Doors		2	_
	USB Interface		Optional	Ontional
	Temperature Recorder		Optional	Y
Othors	Certification		CE	CE.

# Key Features

- Constant cabinet temperature at 2-6°C
- High-tech integrated sensors to display and control temperature
- Standard temperature recorder (Optional for HXC-158)
- Auto-defrost to remove moisture on cooling surface
- Large digital display for ease of observation
- Basket or drawer styles for managing stored products

# Reliability

- Microprocessor controlled forced-air cooling system with heat compensation system
- Digital temperature display for upper and lower sections in chamber with 0.1°C resolution
- Dual displays of operational parameter (temperature recorder display)
- Five alarm conditions: high/low temperature, power failure, sensor error, door ajar, low voltage in backup battery

# Ergonomic Design

- Safety lock to prevent unauthorized access
- Storage space designed for easy sorting of a variety of blood products
- Optional baskets or stainless steel drawers
- Caster design
- Interior light







HXC-158B



# 4°C Blood Bank Refrigerator





### LED digital display: The internal temperature 2-6°C, digital display of upper and lower temperature

display of upper and lower temperature, the average temperature display and the resolution of 0.1°C

# Air cooling design: Ensure that the temper

Ensure that the temperature in any corner of the box is maintained within the calibration temperature range

- • The temperature measuring box is used to monitor the temperature in the cabinet in real time
- 3 shelves, 4 blood baskets, blood basket with a label slot, easy to label. Capable of storing 54 bags of 400ml blood totally

	Archient Terre
	Center Temp.
·····	
60 180	Time (min)

HXC-106		
Blood Storage Capacity (400ml blood bags)		54
Net/Gross Weight (approx)		49/52
		108.03/114.64
nterior Dimensions (W*D*H)		430*350*830
		16.93*13.78*32.68
Exterior Dimensions (W*D*H)		500*514*1055
		19.69*20.34*41.54
Packing Dimensions (W*D*H)		565*615*1145
		22.24*24.21*45.08
Container load (20'/40'/40'H)		36/72/72
Certification		CE



# **Solar Direct Drive Blood Refrigerator**



		HTXC-240			
		Upright			
		≤43			
		Direct Cooling			
		No electric heating defrost			
		HC			
		≤43			
		2~8			
		А			
		Microprocessor			
		Solar LED Temperature display			
		24			
		5			
Vh/24h)		0.35			
Wh/24h)		0.54			
		95hrs23mins			
		151hrs10mins			
n²/day)		3.5			
js)		192			
		240/8.5			
	kg	150/185			
	lbs	330/407.9			
	mm	530*500*960			
	in	20.9*19.7*37.8			
	mm	890*825*1815			
	in	35*32*71			
	mm	985*920*1980			
	in	38.8*36.2*78			
		12/24/24			
		Y			
		Y			
		4			
		Y			
(RTMD)		Optional			
		Y			
		Y			



# -30°C Plasma Freezer

# **IoT Cryogenic Solution**



# **Product Features**

- RFID radio frequency, accurate management of plasma information, with automatic inventory and quick inquiry function
- Hydrocarbon refrigeration, efficient and quick
- Multiple alarms, safe and reliable
- 10-inch large screen, easy to operate and more intuitive display
- NFC permission management system combined with an electromagnetic lock, controllable flow direction and traceable information



### 10-inch large touch screen, easy to operate, intuitive display

The 10-inch large touch screen ensures an easier operating experience. Capable of displaying interior real-time temperature, ambient temperature, setting temperature, input voltage, network status, user logging status, temperature curve and new message/notebook, etc. Query interface can display plasma donation code, product code, blood type, blood volume, period of validity, etc

### Bottom air inlet system, low noise

Equipped with a special filter net, ensuring the cleanliness and safety of interior air



Model	Voltage	Interior Temperature	Exterior Dimension	Interior Dimension	Effective Volume	N.W./G.W.	Loading Qty
	(V/Hz)	(°C)	(W*D*H)(mm)	(W*D*H)(mm)	(L)	(kg)	(bag)
DW-30L1280FT	220/50	-10~-35	1520*1065*1980	1320*752*1260	1280	620/680	576

### Dual Cooling System, Frost Free

Equipped with dual cooling system, if one system fails, the other system can maintain the interior temperature at -25°C for an extended period, safe and reliable

RFID read-write board can read plasma label information, providing inventory plasma information statistics. Supports automatic inventory, one-key inventory and plasma in-out stock storage information

### Multistage Plasma Storage Basket

Multistage plasma storage basket design, streamlines plasma storage and placement, easy to access

# -30°C Plasma Freezer



Applicable for blood stations, hospitals, CDCs, scientific research institutes, electronics, chemical industry and other related industries, Haier's product can cryopreserve plasma, biological products, components, materials and other items that need to be kept at low temperature

### **Product Advantages**



### Dual independent refrigeration systems: Superior safety

Auto defrosting system+constant refrigeration system, has successfully solved the industries problem that inside temperatures rise sharply when fan cooling refrigerators defrost; If one system fails, the other one would reach -25°C quickly, which doubles the safety of the sample; With air cooling technology, the inside uniformity can reach  $\pm 3^{\circ}$ C ( $\pm 5^{\circ}$ C during the defrosting period).



### Advanced defrosting technology eradicates the hidden danger of electric leakage

Haier Biomedical applies full-automatic hot gas defrosting technology throughout the whole unit. Compared with heater wire defrosting technology, Haier Biomedical's technology eliminates the risk of electric leakage occurring due to wire aging, providing extra security and safety.



### Intelligent defrosting: prolongs the defrosting cycle, safeguarding the stability of the storage temperature

Compared with traditional timed defrosting, the intelligent defrosting technology reduces the defrosting frequency by half, effectively draws down the temperature fluctuation caused by defrosting during the sample storage cycle by intelligently identifying the amount of frost on the evaporator.

### Hydrocarbon energy saving: green and environmentally friendly

Using green and eco-friendly hydrocarbon refrigeration system, based on the principle of zero damage to the ozone layer with zero greenhouse effect, while reducing energy consumption to 8kW/24H.

# doors, 70mm insulation layer Safe lock • Electronic mortise lock design, with NFC clocking-in function (fingerprint optional) Casters and foots • 4 omnidirectional casters + 2 level legs, easy to move, lock and level

Insulation design of • refrigeration unit Subtle temperature rise during defrosting

### Shelves - - - - -

**Product Parts** 

Supersized double outer

Equipped with 12 stainless steel shelves of 6 layers, which are adjustable to meet different requirements of users

Optional: Blood baskets - -(48 units), and the capacity is 900\*200ml blood bags



# **Specifications**

Model	Voltage (V/Hz)	Interior Temperature (°C)	Exterior Dimension (W*D*H)(mm)	Interior Dimension (W*D*H)(mm)	Effective Volume (L)	Net/Gross Weight (kg)
DW-30L1280F	220/50	-10~-30	1520*1065*1980	1320*752*1260	1280	420/480



 Microcomputer control, LED digital temperature display with inside temperature accuracy of 0.1°C

### Standard USB port

Capable of storing more than 15 years of data

### Low noise

Optimal system and engine noise reduction design, the temperature can cool down to -30°C within 3 hours

### Bottom strainer drawable design Easy to clean



### Intelligent hot gas defrosting

Prolongs the defrosting cycle, eradicates the hidden danger of electric leakage



31/32

 Foam beam design Better insulation effect

# **Transport Cooler**

# **Active Cooling Solution**



- Constant temperature
- Complete process with cold chain monitoring
- Replace the traditional insulation method with Haier Biomedical transport cooler for transport
- Blood from blood transfusion department to clinical blood transfusion point

# **Product Advantages**

# Low Noise

The ultra-quiet fan is equipped with air outlets on both sides, noise level less than 34 dB providing a more comfortable environment



# Easy to Clean

The inner liner adopts aluminium oxidation process to make it smooth inside and easy to clean

# **Product Features**

Semiconductor for active cooling, energy saving and environmental protection Self-contained cooling function, cooling after electrified

### 2~6°C precise temperature control, suitable for storage of biological products such as blood, medicines and reagents etc.

Temporary blood storage to ensure blood safety at clinical blood stations

# Embedded with 4°C phase change PCM ice raft for cold storage, providing long insulation after power off to ensure blood safety during the transportation

- The PCM ice raft is a 4°C phase change material with freezing point greater than 2°C, which ensures the cryopreservation temperature of the blood.
- At 25°C under no load, the time for temperature inside the box rises to 10 °C is more than 1 hour
- At 25°C under full load, the time for temperature inside the box rises to 10 °C is more than 2 hours

### Multiple Fault Alarms, Making It Safer to Use

High/low temperature alarm, power failure alarm, and sensor error alarm

The Power Supply Is Configured with Vehicle Power Plug, Easy for Vehicle Transportation

# **Passive Cooling Solution**

- Multi-function handle with casters for easy transportation
- Multi dimensional binding of orders and blood, and whole process with cold chain monitoring
- From blood collection vehicle/blood donation house to blood center/blood station, from blood center/blood station to hospital





HZY-5B

- LCD screen, real-time display of inside temperature, battery level and other information
- Standard electromagnetic lock, scan the QR code to open the door, safeguarding stored items
- 4°C PCM ice pack equipped to store cold, zero freezing, keep the safety of blood during transportation

The power supply is configured with vehicle power plug, easy for vehicle transportation



### HZY-35B

- Real-time display of inside temperature.
- Integrated cold storage ice pack box, easy to access ice pack
- Rotational moulding shell, anti-knocking, easy to carry
- Multifunctional handle, sided casters, easy to be transported on flat road

Haier Biomedical

# **Transport Cooler**

Specifications

Specifications



	Model	HZY-8ZA	HZY-15ZA	HZY-35B
Technical	Storage Temperature (°C)	2~6	2~6	/
Data	Operating Temperature (°C)	2~10	2~10	2~10
	Exterior Dimensions (W*D*H mm)	320*265*260	520*300*270	550*328*370
	Interior Dimensions (W*D*H mm)	230*140*170	430*150*180	450*232*295
Dimensions	Packing Dimensions (W*D*H mm)	393*362*367	595*375*404	674*455*490
Dimensions	Net Weight (kg)	4	6	9
	Gross Weight (kg)	5	8	12
	Blood Bag Capacity	8	15	35
	Cold Chain Monitoring	Υ	Υ	/
	NFC Unlock	/	Υ	/
	Foam Material	Polyurethane Cycloisopentane	Polyurethane Cycloisopentane	Polyurethane Cycloisopentane
	Refrigeration Method	Semiconductor Active Refrigeration	Semiconductor Active Refrigeration	Passive Cooling
Functions	Warm Up Time	2 Hours (32°C ambient temperature load situation)	2 Hours (32°C ambient temperature load situation)	6 Hours (43°C ambient temperature load situation)
	Shell/Liner	ABS/Aluminium Plate	ABS/Aluminium Plate	HDPE/HDPE
	Alarm	High Temperature, Sensor Error, Power off	High Temperature, Sensor Error, Power off	/
	Battery	Rechargeable Lithium Battery	Rechargeable Lithium Battery	Button Battery

	Model	HZY-5B	HZY-8Z	HZY-15Z	
Technical	Storage Temperature (°C)	/	2~6	2~6	
Data	Operating Temperature (°C)	2~10	2~10	2~10	
	Exterior Dimensions (W*D*H)(mm)	285*186*200	320*265*260	520*300*270	
	Interior Dimensions (W*D*H)(mm)	220*118*126	230*140*170	430*150*180	
Dimensions	Packing Dimensions (W*D*H)(mm)	357*277*287	393*362*367	595*375*404	
Dimensions	Net Weight (kg) 2		3.5	6	
	Gross Weight (kg)	3	5	8	
	Blood Bag Capacity	5	8	15	
	Foam Material	High Density Foam	Polyurethane Cycloisopentane	Polyurethane Cycloisopentane	
	Refrigeration Method	Passive Cooling	Semiconductor Active Refrigeration	Semiconductor Active Refrigeration	
Functions	Warm up Time	3 Hours (32°C ambient temperature load situation)	2 Hours (32°C ambient temperature load situation)	2 Hours (32°C ambient temperature load situation)	
	Shell/Liner	ABS/ABS	ABS/ aluminium plate	ABS/ aluminium plate	
	Alarm	Low Battery	High Temperature, Sensor Error, Power off	High Temperature, Sensor Error, Power off	
	Battery	Lithium Battery	Rechargeable Lithium Battery	Rechargeable Lithium Battery	

 $\ensuremath{^*}\xspace{Haier}$  Biomedical reserves the right to change products and specifications without prior notice.





# **Transport Cooler for the Infectious Material**

The virus is high-risk specimen, and if there is collision during the transportation or transmission, there will be a risk of leakage and re-infection. A solution is urgently needed to ensure the viability of the samples and the safety of transport personnel, Haier Biomedical has the solution!

# **Product Features**

### Three-layer packaging

- Main container Test tube with cap (user configures according to business)
- Auxiliary container ≥95kPa pressure sealed tank (EPS or EPE bracket for fixing test tube, 16 hole D10 test tube and 2 hole D15 test tube)
- Outer packaging

Transfer box (ice row, foam used to fix sealed container, activated carbon and other adsorbed substances. sample labeling)



# **Active Cooling**



# Product Advantages



The power supply is equipped with a Vehicle Power plug, which is convenient for vehicle transport

The power supply can support 12V and 220V conversion, so the container can be put into the car to plug in and transfer

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### Built-in, 4°C phase change PCM, ice row cooling, long-term insulation after power failure, to ensure the safety of specimen

Under the condition of no load at 25°C, the temperature of the air in the box rising to 10°C takes 1 hour; Under the loading condition of 25°C, the air temperature in the box rising to 10°C takes 2 hours

# **Auxiliary Container**



### Pressure sealed tank (EPS or EPE holder for fixing test tubes, 16-hole D10 test tube and 2-hole D15 test tube)

The pressure-sealed tank remains intact at the temperature of the refrigerant used, as well as the temperature and pressure that may occur after loss of refrigeration.

Under the condition of no leakage, it can withstand the internal pressure of 95kPa, and can ensure that it will not be damaged in the temperature range of -40°C to + 55°C



# Precise Temperature Control

Precise temperature control at 2°C ~ 6°C is suitable for the temporary storage of biological products such as serum and blood specimens



# Active semiconductor cooling, energy saving and environment friendly

Active semiconductor cooling, energy saving and environmental protection, built-in cooling function, cooling after power on



### Multiple fault alarms, safer to use

High and low temperature alarm, power failure alarm, sensor error alarm







# **Transport Cooler for the Infectious Material**

# **Passive Cooling**



Product Advantages



Passive cooling, long heat preservation time, suitable for air transportation At 32°C ambient temperature, the temperature

inside the box (pre-cooled in advance) rising to 10°C takes 7 hours (P650) and 8 hours (P620) seperately



PCM ice row, frozen at 4°C, to ensure the safety of specimen storage

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The shell is made of aluminum-magnesium alloy, with high strength; Meeting the P620 packaging requirements of Class A infectious substances (HZY-10B) and the P650 packaging requirements of Class B infectious substances(HZY-10B) seperately

# **Auxiliary Container**

### Pressure sealed tank (EPS or EPE holder for fixing test tubes, 16-hole D10 test tube and 2-hole D15 test tube)

The pressure-sealed tank remains intact at the temperature of the refrigerant used, as well as the temperature and pressure that may occur after loss of refrigeration.

Under the condition of no leakage, it can withstand the internal pressure of 95kPa, and can ensure that it will not be damaged in the temperature range of -40°C to + 55°C



**Specifications** 

Model	HZY-8Z	HZY-15Z	
Туре	Active cooling, portable	Active cooling, portable	
Internal dimensions (W*D*H mm)	230*140*170	430*150*180	
External dimensions (W*D*H mm)	320*265*260	520*300*270	
Loading quantity	1 transport tank	2 transport tanks	
Effective volume	6L, 1 built-in specimen seal can	12L, built-in 2 specimen seal cans	
Specimen seal can dimension (mm)	H160*D130	H160*D130	
Tube storage capacity	16 pcs D10 test tubes (small),	2 pcs D15 test tubes (large)	
Net weight (kg)	3.5	6	
Controller	Microprocessor control	Microprocessor control	
Temporary storage temperature (°C)	2-6	2-6	
Transfer temperature (°C)	2-10	2-10	
Holdover time (25°C, no load) (h)	1	1	
Holdover time (25°C, full load) (h)	2	2	
External material	ABS, high-density EPS foam filling	ABS, high-density EPS foam filling	
Internal material	Aluminum plate	Aluminum plate	
Door material	ABS, high-density EPS foam filling	ABS, high-density EPS foam filling	
Cold storage	PCM ice-pack for cold storage	PCM ice-pack for cold storage	
Cooling type	Optimized semiconductor cooling	Optimized semiconductor cooling	
Cooling fan	ADDA fan	ADDA fan	
Temperature control and display	Microprocessor control, dual sensors for control and display, display accuracy 0.1 °C		
Alarms	Sensor failure alarm, high temperature alarm, power failure alarm		

Model	HZY-10B (P620)	
Туре	Passive cooling	
Internal dimensions (W*D*H)(mm)	345*225*182	
External dimensions (W*D*H)(mm)	430*312*272	
Loading quantity	2 transport tanks	
Effective volume	14L with 2 built-in specimen sealed tanks	
Specimen sealed tank size (mm)	H160*D130	
Number of test tubes (Single tank)	16 test tubes D10 (small), 2 test tubes D15 (large)	
Net weight (kg)	8	
Transport temperature (°C)	2-10	
Thermal insulation time (32°C full load) (h)	8	
Cabinet material	Aluminum magnesium alloy box shell	
Thermal insulation material	EPP foam liner	
Cool storage mode	PCM ice pack cold storage	

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

# Plasma Blast Freezer

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# **Plasma Blast Freezer**



Three phase fan, with more air volume and better performance Direct contact refrigeration, •improve the heat transfer rate PLC control, stable and reliable •

XSD-48WFL

**Cooling Down Curve** 

# **Cooling Down Curve**



**Specifications** 



# **Product Parts**

Model	Rapid-cooling Type	Power Supply (V/HZ)	Cooling Method	Power Cord	External Dimension (mm)	Weight (KG)
XSD-24FL	Plate contact refrigeration	3N 380-50/60	Forced air cooling	Plug and play	1455*915*1465	480
XSD-24WFL	Plate contact refrigeration	3N 380-50/60	Forced air cooling	Plug and play	(Indoor unit /Outdoor unit) 1455*915*1465 1340*760*1640	(Indoor unit /Outdoor unit) 320 360
XSD-48WFL	Plate contact refrigeration	3N 380-50/60	Forced air cooling	Plug and play	(Indoor unit /Outdoor unit) 2040*880*1895 1500*860*1850	(Indoor unit /Outdoor unit) 320 360

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

### Plasma Blast Freezer





# **Platelet Incubator with Agitator**



This incubator includes an integrated platelet agitator and is designed to create the optimal storage environment of platelets after collection. Suitable for hospitals, blood stations and research applications



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# Data Traceability

	Real-time temperature monitoring, records and
	stores historical data, alarm records and events
•	USB interface convenient and safe data transfer



# Multiple Alarms

Multiple alarms including overtemperature alarm, power failure alarm, sensor failure alarm, door ajar alarm, low battery alarm, abnormal alarm of oscillating motor, remote alarm ensures maximum safety



# **Reliable Oscillation**

The agitator mechanism is equipped with an alarm and calibration device to ensure platelet quality

# Low Noise

Semiconductor and EBM oscillating motor provide a quiet working environment





# Energy Saving





### Superior Insulation Performance

60mm thickened foam layer. In the event of a power failure within a 25°C ambient and an empty load, the warm up time from 22°C to 24°C in the center of the chamber is more than 4 hours



# Precise Temperature Control

Semiconductor temperature control, internal temperature is maintained at 22°C±1°C



### **Ultraviolet Disinfection**

The UV disinfection function helps maintain a sterile environment



# **Cooling Down Curve**

**Product Parts** 



HXZ-1369



Lock •-

3 Oscillating •

Caster •----

modules



# **Specifications**

Model	HXZ-149	HXZ-1369
Temperature (°C)	22 ± 1	22 ± 1
Oscillation Range (mm)	50	50
Oscillation Frequency (Times/min)	60	60
Power Supply (V/Hz)	220/50	220/50
Exterior Dimensions (mm)	625*795*1050	1545*915*1945
Interior Dimensions (mm)	505*560*610	1425*680*1455
Effective Capacity (L)	149	1369
Tray	9	18
Maximum Storage Capacity (300ml blood bags)	36	216
Net Weight (kg)	114	345





# HXZ-149 Running temperature curve (Empty loaded)



# **Product Portfolio**

Automated Blood Management Refrigerator Used at Blood Station



# Automated Blood Management Refrigerator Used at Hospital



Cold Room -30°C





# Unattended Self-help Blood Distribution Refrigerator



# Automated Blood Management Refrigerator with Touch Screen



Plasma Blast Freezer



# Automated Blood Management Refrigerator with LED Display



Solar Direct Drive Blood Refrigerator



### Transport Cooler



# Standard Blood Bank Refrigerator

### Platelet Incubator with Agitator

