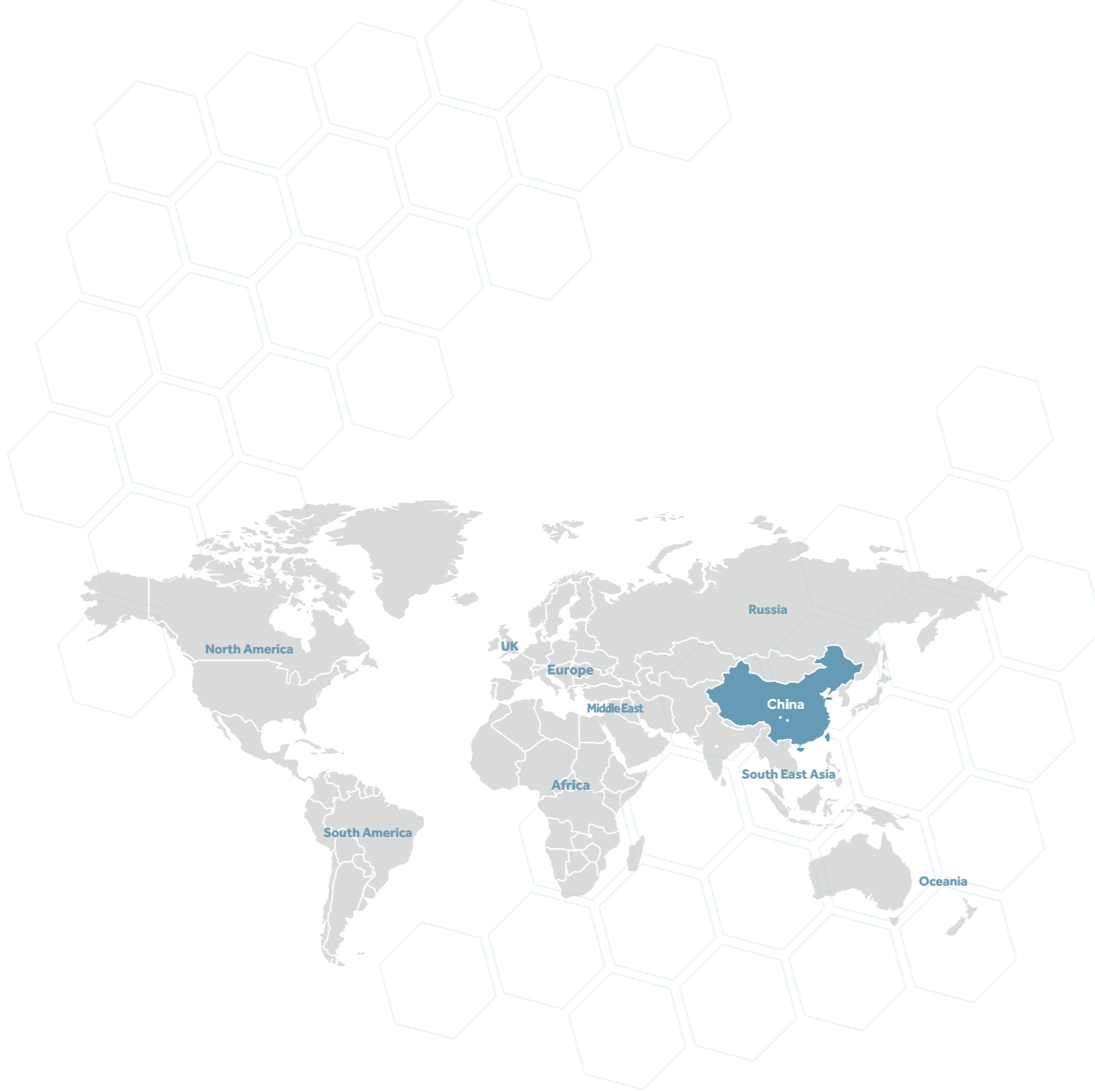


Blood Bank Refrigerator Solutions



JAN 2021



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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.



Automated Blood Management Network

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



A platform for sharing, an ecosystem of trust.

CONTENT

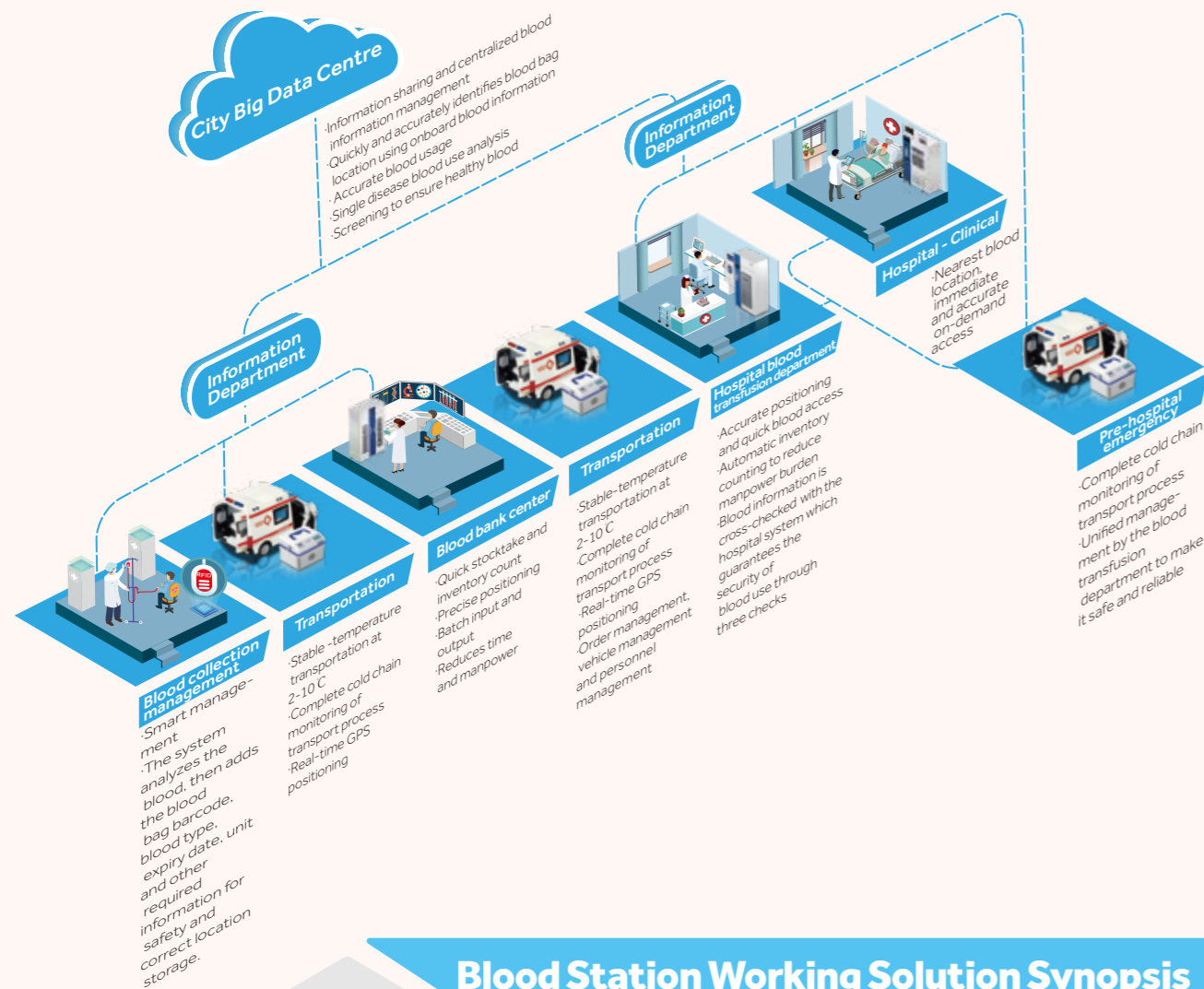
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Blood Network Solution

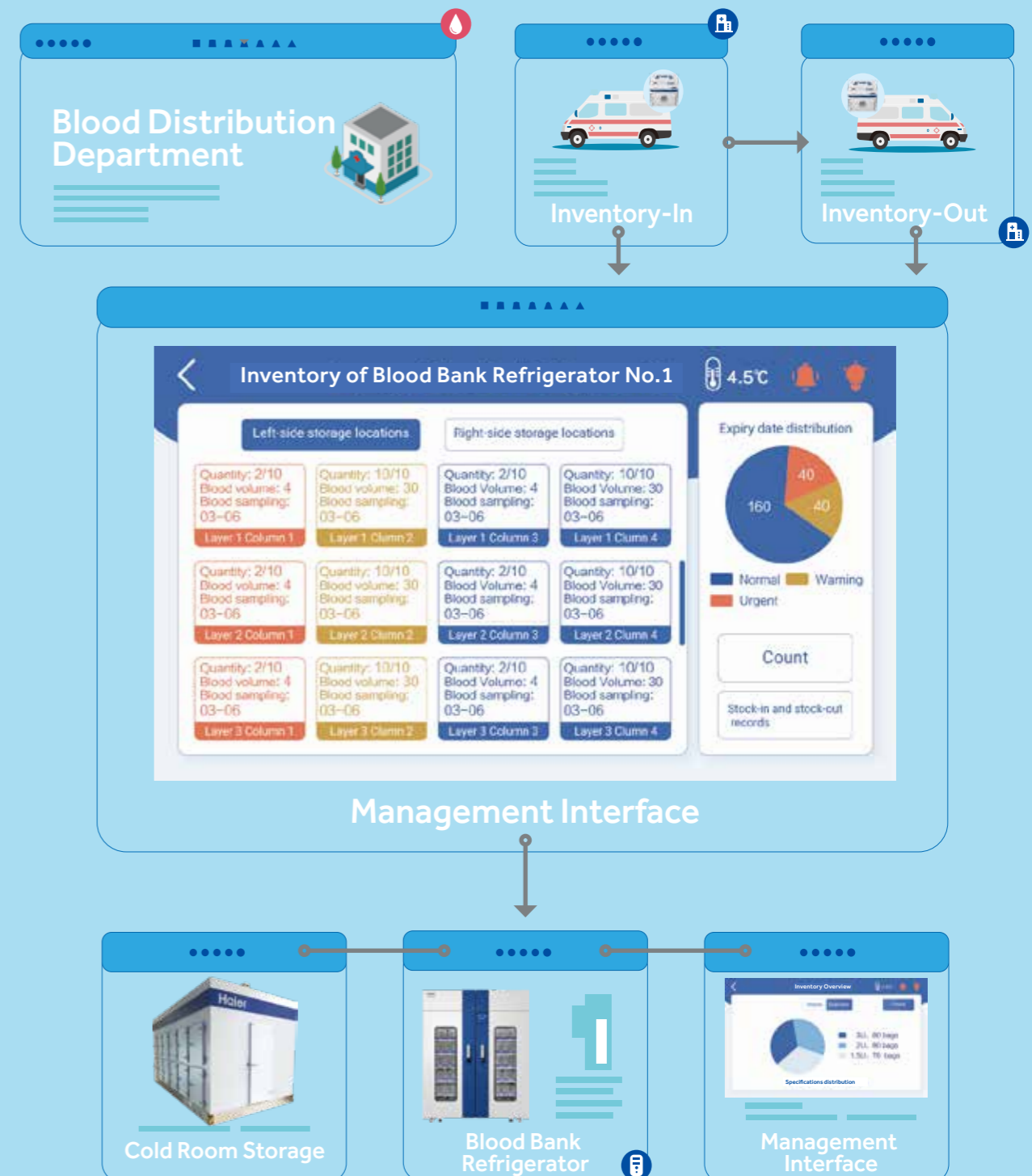
IoT Intelligent Blood Safety Management provides a unified and secure systemized platform for the entire region's blood supply. IoT is linked with the data management system and builds blood information that interconnects between a region's blood transfusion centre and/or central blood bank and the blood 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.

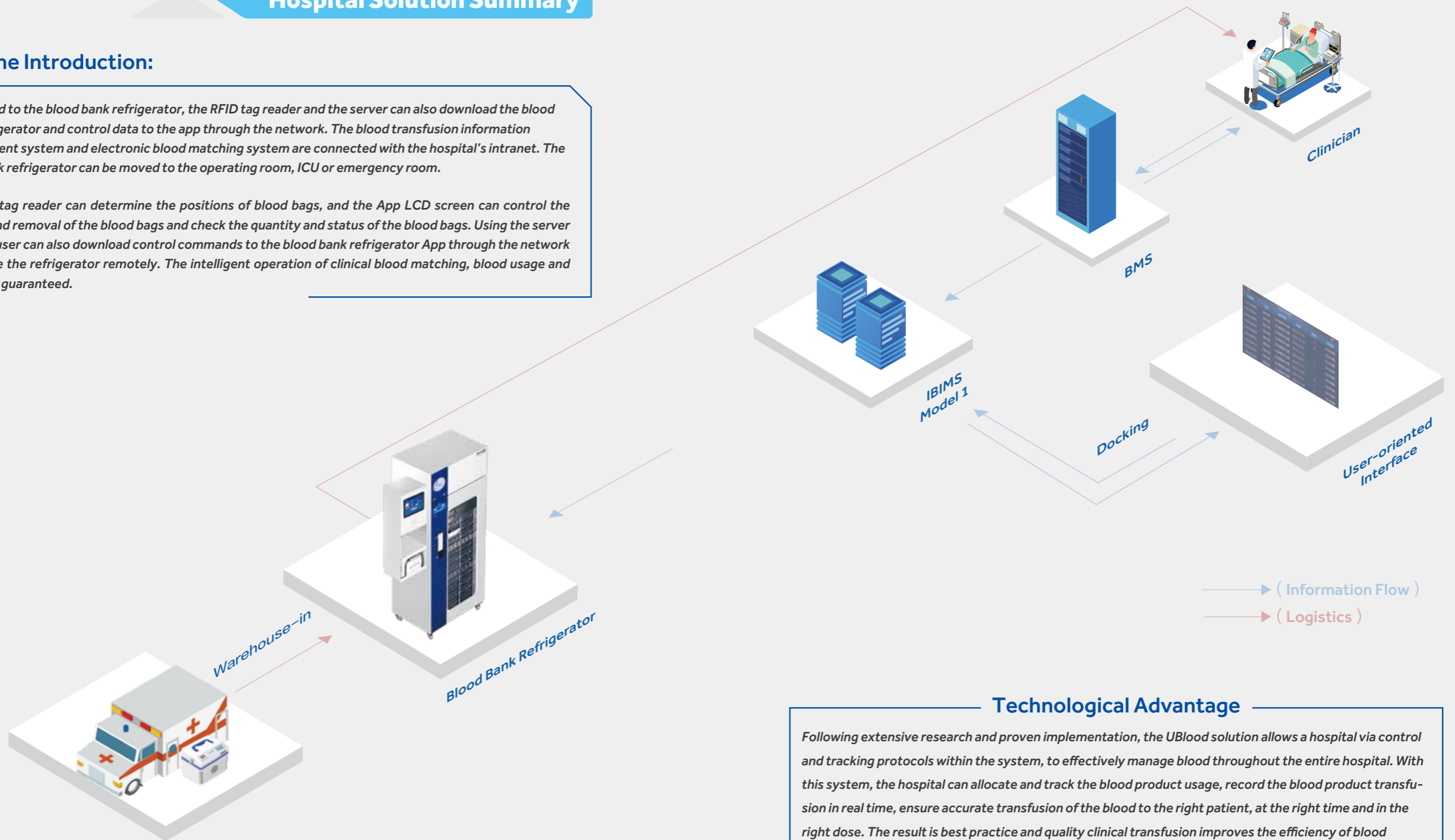


Hospital Solution Summary

Scheme Introduction:

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.



→ (Information Flow)
 → (Logistics)

Technological Advantage

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



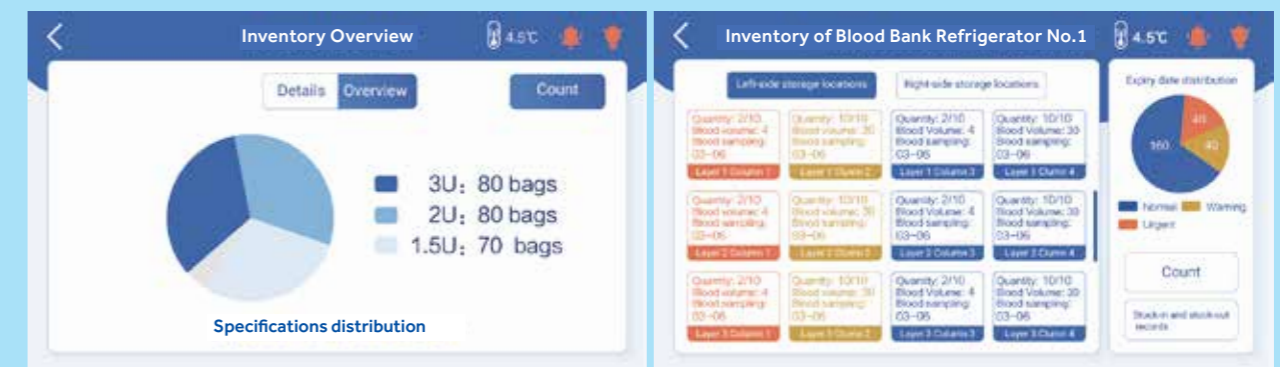
Product Features

- 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 $\pm 2^{\circ}\text{C}$.
- 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



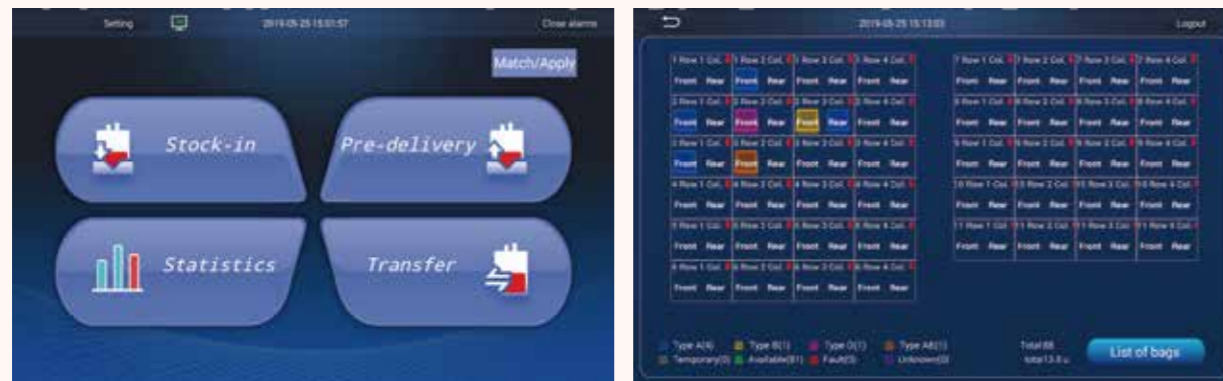
- **Smart IoT scientific and intelligent inventory management:** the blood inventory management App ensures accurate, real-time and automatic management of stock-in and stock-out information.
- **RFID precise positioning and visual management:** automatic RFID identification ensures intelligent and dynamic positioning of the blood bags, guides users precisely for accurate and swift blood bag identification 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 volume, expiry date and other information of the blood bags in stock. Clearly displaying the storage location of the blood with the closest expiry date to ensure first-in first-out management practices.
- **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 from the blood bank to the required location.
- **Accurate positioning:** users can quickly query and find the location of any blood bag stored at the blood bank.
- **Information is accurate and reliable:** the blood information stored in the RFID tag is encrypted with read-only information to ensure that such information cannot be deleted or tampered with, and thus is safe, secure and reliable.



Software management interface

Hospital Blood Department Products

Blood Bank Refrigerator



Software management interface

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.

Blood Bank Refrigerator



Product Line

Automated Blood Management Refrigerator
Used at Blood Station



HXC-429TR HXC-629TR HXC-1369TR

Automated Blood Management Refrigerator
Used at Hospital



HXC-149R HXC-429R HXC-629R

Unattended Self-help Blood
Distribution Refrigerator



HXC-629ZZ

Automated Blood Management Refrigerator
with Touch Screen



HXC-149T HXC-429T HXC-629T HXC-1369T

Automated Blood Management Refrigerator
with LED Display



HXC-149 HXC-429 HXC-629 HXC-1369

Standard Blood Bank Refrigerator



HXC-158 HXC-158B

Automated Blood Management Refrigerator



HXC-429TR HXC-629TR HXC-1369TR

Information Statistics

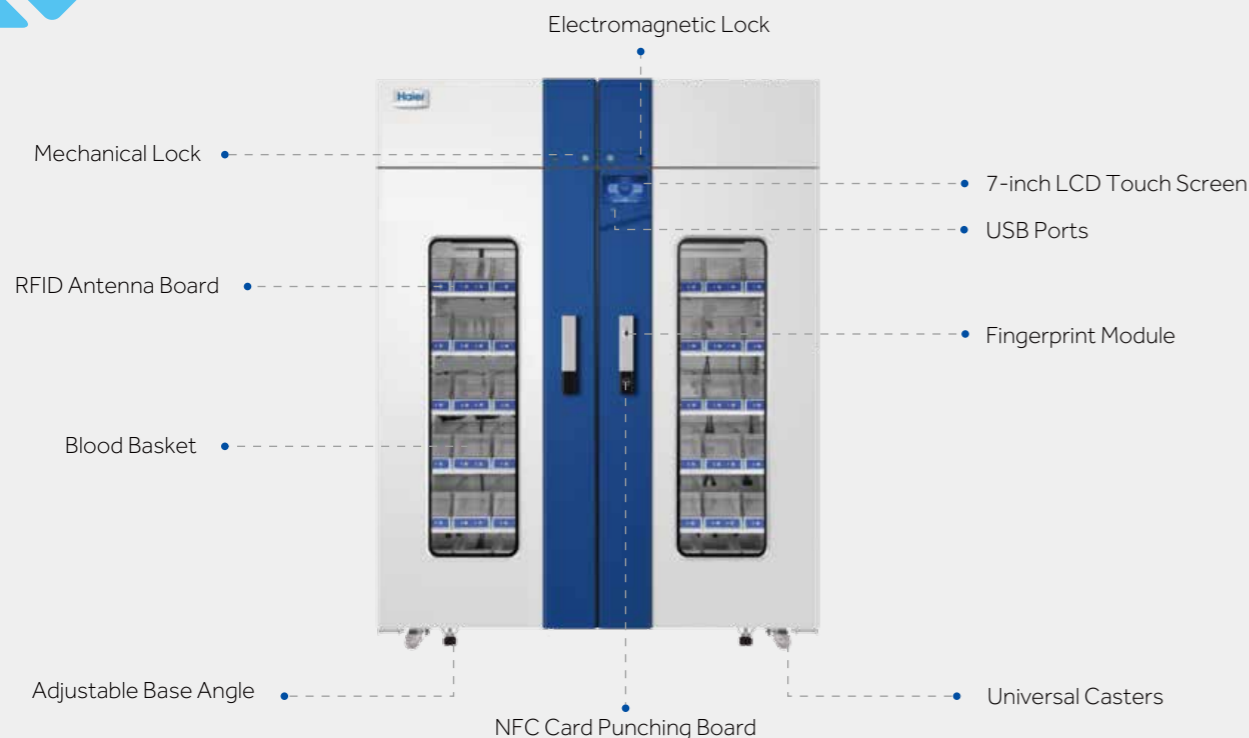
- Blood donation code, product code, blood type, blood volume, expiration date and other information of the stored blood bag can be inquired at the client terminal or refrigerator App with one-click statistics, which can clearly display the blood storage location of blood bag with the most recent expiration date, satisfying the management principle of first-in-first-out.

Precise Positioning

- It can quickly inquire and position the location information of any blood bag in the finished goods inventory.
- Smart inventory check, one-key inventory check.
- The refrigerator or cold storage has a built-in RFID read-write board to achieve fast inventory check of the physical information in the finished goods inventory with real-time inventory information display to quickly complete and confirm the blood stock handover.

Information Security

- The blood information in the RFID tag is encrypted, the information is read-only to ensure that the data cannot be deleted, changed or falsified to ensure the safety and reliability of blood products.



Microcomputer Control
The temperature inside the unit is controlled within $4\pm 1^{\circ}\text{C}$ with temperature control accuracy of 0.1°C , and the large high-definition LCD touch screen display makes it convenient to observe.

Multiple Fault Alarms
High/low temperature alarm, power failure alarm, door ajar alarm, sensor error alarm, and low battery alarm. It is configured with remote alarm interface with two alarm modes (sound buzzer alarm and light flashing alarm).

Inverter Compressor
High efficiency and energy saving, low noise and long service life.

Speed Control Condenser Fan
High efficiency and energy saving, low noise and long service life.

Three-layer Glass Foam Door
With large viewing three-layer glass foam door design, surface glass with LOW-E film to reduce heat transfer efficiency with no condensation at 25°C , and 85% humidity environment.

Double Protection of Door Mechanical Lock and Electromagnetic Lock
Electromagnetic lock can realize NFC card punching unlocking and fingerprint unlocking function.

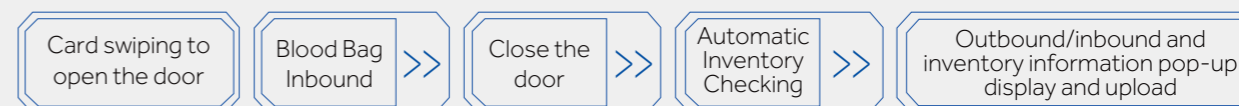
Standard USB Port
With optional disc temperature recorder.

Information Flow



Operation Instructions

Blood Bag Inbound:



Blood Bag Outbound:



Specifications

Product Model No.	Voltage (V/Hz)	Internal Temperature ($^{\circ}\text{C}$)	External Dimension (W*D*H mm)	Internal Dimension (W*D*H mm)	Effective Volume (L)	NW / GW (Kg)	Stainless Steel Shelf (layer)	Loading Capacity (400ml bags)
HXC-429TR	220/50	4 ± 1	625*940*1830	505*680*1315	429	190/230	5	120
HXC-629TR	220/50	4 ± 1	765*940*1980	644*680*1456	629	235/280	6	192
HXC-1369TR	220/50	4 ± 1	1545*940*1980	1425*680*1456	1369	430/490	6	384

Automated Blood Management Refrigerator

Product Features

- 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



HXC-629R



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



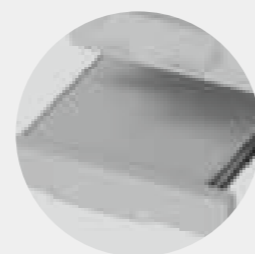
LCD



Barcode scanner



Printer



Tray

Specifications

Model	HXC-149R		HXC-429R		HXC-629R		HXC-629RB			
Technical Data	Type	Drawer-Type		Drawer-Type		Drawer-Type		Drawer-Type		
	Climate Class	N		N		N		N		
	Cooling Type	Forced Air Cooling		Forced Air Cooling		Forced Air Cooling		Forced Air Cooling		
	Defrost Mode	Auto		Auto		Auto		Auto		
	Refrigerant	R600a		R600a		R600a		R600a		
Performance	Sound Level (dB(A))	40		41		41		41		
	Temperature Range (°C)	4±1		4±1		4±1		4±1		
Control	Ambient Temperature (°C)	16-32		16-32		16-32		16-32		
	Controller	Microprocessor		Microprocessor		Microprocessor		Microprocessor		
Electrical Data	Display	LCD Touchscreen		LCD Touchscreen		LCD Touchscreen		LCD Touchscreen		
	Power Supply (W/Hz)	220-240/50	230/60	220-240/50	230/60	220-240/50	230/60	115/60		
	Power (W)	250		280		300		300		
	Electrical Current (A)	1.5		1.8		1.9		3		
Dimensions	Capacity (L/Cu.Ft)	149/5.3		429/15.1		629/22.2		629/22.2		
	Blood Storage Capacity (450ml blood 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*1455	
		in	19.7*32.3*23.8		19.7*26.5*51.3		25.2*26.5*56.7		25.2*26.5*56.7	
	Exterior Dimensions (W*D*H)	mm	625*775*1425		925*940*1830		1065*940*1980		1065*940*1980	
		in	24.4*30.2*55.6		36.1*36.7*71.4		41.5*36.7*77.2		41.5*36.7*77.2	
	Packing Dimensions (W*D*H)	mm	740*945*1575		725*985*1940		875*995*2090		875*995*2090	
		in	28.9*36.9*61.4		28.3*38.4*75.7		34.1*38.8*81.5		34.1*38.8*81.5	
Container Load (20'/40'/40'H)	18/36/36		18/35/35		12/26/26		12/26/26			
Alarms	High/Low Temperature	Y		Y		Y		Y		
	Power Failure	Y		Y		Y		Y		
	Sensor Error	Y		Y		Y		Y		
	Low Battery	Y		Y		Y		Y		
	Door Ajar	Y		Y		Y		Y		
	Remote Alarm	Y		Y		Y		Y		
Accessories	Caster	4		4		4		4		
	Foot	2		2		2		2		
	Porthole	Y		Y		Y		Y		
	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		

Product appearance and specifications are subject to change without notice

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.



HXC-629ZZ

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.



Self-service printing

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.

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 query 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 $4\pm 1^{\circ}\text{C}$.

Specifications

Model	Voltage (V/Hz)	Power (W)	Temperature inside the refrigerator ($^{\circ}\text{C}$)	Uniformity ($^{\circ}\text{C}$)
HXC-629ZZ	220-240/50/60	300	2-6	4 \pm 1

External dimensions (W*D*H mm)	Internal dimensions (W*D*H mm)	Effective volume (L)	Blood bag volume	Overall construction
1290*940*1980	645*680*1455	629	72 bags 400ml	Single door

Automated Blood Management Refrigerator with Touch Screen

Product Features

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.



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±1°C.

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 a main 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



HXC-1369T



Specifications

Model		HXC-149T	HXC-429T	HXC-629T	HXC-629TB	HXC-1369T	
Technical Data	Type	Drawer-Type	Drawer-Type	Drawer-Type	Drawer-Type	Drawer-Type	
	Climate Class	N	N	N	N	N	
	Cooling Type	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling	
	Defrost Mode	Auto	Auto	Auto	Auto	Auto	
	Refrigerant	R600a	R600a	R600a	R600a	R600a	
	Sound Level (dB(A))	39	40	40	41	41	
Performance	Temperature Range (°C)	4±1	4±1	4±1	4±1	4±1	
	Ambient Temperature (°C)	16-32	16-32	16-32	16-32	16-32	
Control	Controller	Microprocessor	Microprocessor	Microprocessor	Microprocessor	Microprocessor	
	Display	LCD Touchscreen	LCD Touchscreen	LCD Touchscreen	LCD Touchscreen	LCD Touchscreen	
Electrical Data	Power Supply (V/Hz)	220-240/50/60	220-240/50/60	220-240/50/60	115/60	220-240/50/60	
	Power (W)	240	245	255	255	320	
	Electrical Current (A)	1.4	1.5	1.5	3	2	
Dimensions	Capacity (L/Cu.Ft)	149/5.3	429/15.1	629/22.2	629/22.2	1369/48.3	
	Blood Storage Capacity (450ml blood bags)	60	195	312	312	624	
	Net/Gross Weight (approx)	kg	108/136	182/217	212/252	212/252	380/445
		lbs	237.6/299.2	400.4/477.4	466.4/554.4	466.4/554.4	836/979
	Interior Dimensions (W*D*H)	mm	505*560*610	505*680*1315	645*680*1455	645*680*1455	1425*680*1455
		in	19.7*32.3*23.8	19.7*26.5*51.3	25.2*26.5*56.7	25.2*26.5*56.7	55.6*26.5*56.7
	Exterior Dimensions (W*D*H)	mm	625*775*1150	625*940*1830	765*940*1980	765*940*1980	1545*940*1980
		in	24.4*30.2*44.9	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	725*985*1940	875*995*2090	875*995*2090	1610*995*2090
		in	28.1*35.9*47.6	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'/40'/40'H)		18/38/76	18/35/35	12/26/26	12/26/26	7/14/14	
Alarms	High/Low Temperature	Y	Y	Y	Y	Y	
	Power Failure	Y	Y	Y	Y	Y	
	Sensor Error	Y	Y	Y	Y	Y	
	Low Battery	Y	Y	Y	Y	Y	
	Door Ajar	Y	Y	Y	Y	Y	
	Remote Alarm	Y	Y	Y	Y	Y	
Accessories	Caster	4	4	4	4	4	
	Foot	2	2	2	2	2	
	Porthole	Y	Y	Y	Y	Y	
	Baskets	6	15	24	24	48	
	Shelves/Drawers	0/2	0/5	0/6	0/6	0/12	
Others	USB Interface	Y	Y	Y	Y	Y	
	Temperature Recorder	Y	Y	Y	Y	Y	
	Certification	CE, UL	CE, UL	CE, UL	UL	CE, UL	

Product appearance and specifications are subject to change without notice

Automated 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 $4\pm 1^{\circ}\text{C}$ inside the cabinet to safeguard stored products.

With Multiple Temperature Control to Guarantee Constant and Precise Temperature

- The inside temperature is constant within $4\pm 1^{\circ}\text{C}$, 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.



HXC-429

**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 a main power failure.
- NFC swipe card module, with safer storage management.

Standard USB Interface

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

**NFC Rights Management**

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

Specifications

	Model	HXC-149	HXC-429	HXC-629	HXC-629B	HXC-1369	
Technical Data	Type	Basket-Type	Basket-Type	Basket-Type	Basket-Type	Basket-Type	
	Climate Class	N	N	N	N	N	
	Cooling Type	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling	Forced Air Cooling	
	Defrost Mode	Auto	Auto	Auto	Auto	Auto	
	Refrigerant	R600a	R600a	R600a	R600a	R600a	
	Sound Level (dB(A))	39	40	40	41	41	
Performance	Temperature Range ($^{\circ}\text{C}$)	4 ± 1	4 ± 1	4 ± 1	4 ± 1	4 ± 1	
	Ambient Temperature ($^{\circ}\text{C}$)	16-32	16-32	16-32	16-32	16-32	
Control	Controller	Microprocessor	Microprocessor	Microprocessor	Microprocessor	Microprocessor	
	Display	LED	LED	LED	LED	LED	
Electrical Data	Power Supply (V/Hz)	220-240/50/60	220-240/50/60	220-240/50/60	115/60	220-240/50/60	
	Power(W)	215	245	255	255	320	
	Electrical Current (A)	1.3	1.5	1.5	3	2	
Dimensions	Capacity (L/Cu.Ft)	149/5.3	429/15.1	629/22.2	629/22.2	1369/48.3	
	Blood Storage Capacity (450ml blood bags)	60	195	312	312	624	
	Net/Gross Weight (approx)	kg	97/125	169/204	187/217	187/217	345/410
		lbs	213.4/ 275	371.8/448.8	411.4/477.4	411.4/477.4	759/902
	Interior Dimensions (W*D*H)	mm	505*560*610	505*680*1315	645*680*1455	645*680*1455	1425*680*1455
		in	19.7*32.3*23.8	19.7*26.5*51.3	25.2*26.5*56.7	25.2*26.5*56.7	55.6*26.5*56.7
	Exterior Dimensions (W*D*H)	mm	625*820*1150	625*940*1830	765*940*1980	765*940*1980	1545*940*1980
		in	24.4*30.2*44.9	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	725*985*1940	875*995*2090	875*995*2090	1610*995*2090
		in	28.1*35.9*47.6	28.3*38.4*75.7	34.1*38.8*81.5	34.1*38.8*81.5	62.8*38.8*81.5
Alarms	Container Load (20'/40'/40'H)	18/38/76	18/35/35	12/26/26	12/26/26	7/14/14	
	High/Low Temperature	Y	Y	Y	Y	Y	
	Power Failure	Y	Y	Y	Y	Y	
	Sensor Error	Y	Y	Y	Y	Y	
	Low Battery	Y	Y	Y	Y	Y	
	Door Ajar	Y	Y	Y	Y	Y	
	Remote Alarm	Y	Y	Y	Y	Y	
Accessories	Caster	4	4	4	4	4	
	Foot	2	2	2	2	2	
	Porthole	Y	Y	Y	Y	Y	
	Baskets	6	15	24	24	48	
	Shelves/Drawers	2/0	5/0	6/0	6/0	12/0	
	Inner Doors	2	5	6	6	12	
	USB Interface	Y	Y	Y	Y	Y	
Others	Temperature Recorder	Y	Y	Y	Y	Y	
	Certification	CE, UL	CE, UL	CE, UL	UL	CE, UL	

Product appearance and specifications are subject to change without notice

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.

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



HXC-158B

- 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



Specifications

Model		HXC-158	HXC-158B	
Technical Data	Type	Basket-Type	Drawer-Type	
	Climate Class	ST	ST	
	Cooling Type	Forced Air Cooling	Forced Air Cooling	
	Defrost Mode	Auto	Auto	
	Refrigerant	CFC-Free	CFC-Free	
Performance	Sound Level (dB(A))	42	42	
	Temperature Range (°C)	4±1	4±1	
Control	Ambient Temperature (°C)	10-38	10-38	
	Controller	Microprocessor	Microprocessor	
Electrical Data	Display	LED	LED	
	Power Supply (V/Hz)	220-240/50/60	220-240/50/60	
	Power (W)	320	320	
Dimensions	Electrical Current (A)	1.9	1.9	
	Capacity (L/Cu.Ft)	158/5.6	158/5.6	
	Blood Storage Capacity (450ml blood bags)	84	84	
	Net/Gross Weight (approx)	kg	107/120	113/126
		lbs	235.9/264.6	249.1/277.8
	Interior Dimensions (W*D*H)	mm	460*370*950	460*370*950
		in	18.1*14.6*37.4	18.1*14.6*37.4
	Exterior Dimensions (W*D*H)	mm	560*570*1530	560*570*1530
		in	22.0*22.4*60.2	22.0*22.4*60.2
	Packing Dimensions (W*D*H)	mm	645*675*1680	645*675*1680
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	
Alarms	High/Low Temperature	Y	Y	
	Power Failure	Y	Y	
	Sensor Error	Y	Y	
	Low Battery	Y	Y	
	Door Ajar	Y	Y	
Accessories	Remote Alarm	Y	Y	
	Caster	Y	Y	
	Foot	Y	Y	
	Porthole	Y	Y	
	Shelves/Drawers	4/-	-/4	
	Inner Doors	2	-	
	USB Interface	Optional	Optional	
Temperature Recorder	Optional	Y		
Others	Certification	CE	CE	

4°C Blood Bank Refrigerator

Haier Biomedical's 4°C Medical Blood Bank Refrigerator:

High efficiency, energy - saving , safe and reliable, smart control.



HXC-106



Microprocessor Control System

The temperature range is $4\pm 1^{\circ}\text{C}$, with temperature accuracy of 0.1°C .



Air Cooling Design

The temperature in all corners of the cabinet is maintained within the calibrated temperature range, and the test hole design is added to meet the actual needs of the user.



Multiple Fault Alarms

High and low temperature alarm, power failure alarm, door ajar alarm, sensor error alarm, low battery with a remote alarm interface, two alarm modes (sound beeping alarm and light flashing alarm).



Multiple Protection

Startup delay protection, stop interval protection, display panel password protection, power failure memory data protection, sensor error protection.



Remote Alarm Function

The alarm can be connected to other rooms to achieve remote alarm functionality.



Automatic Evaporation of Condensed Water after Collection

Avoid the trouble of manual treatment of condensed water.

Product Features

Door design

Vertical single door design, double layer electric heated glass door and self - closing function.

Materials

The shell and inner liner are sprayed with steel plate, which is anticorrosive and bacterio-static.

Compressor

Deeply optimized refrigeration system, international brand compressor, energy saving, low noise, long service life.

Interior lighting:

The cabinet is equipped with LED lights and external independent light switches.

Door lock and door lock alarm:

Prevent random door opening.

Door handle:

Easy to open

Foot:

Stable and adjustable

LED digital display:

The internal temperature $2-6^{\circ}\text{C}$, digital display of upper and lower temperature, the average temperature display and the resolution of 0.1°C .

Air cooling design:

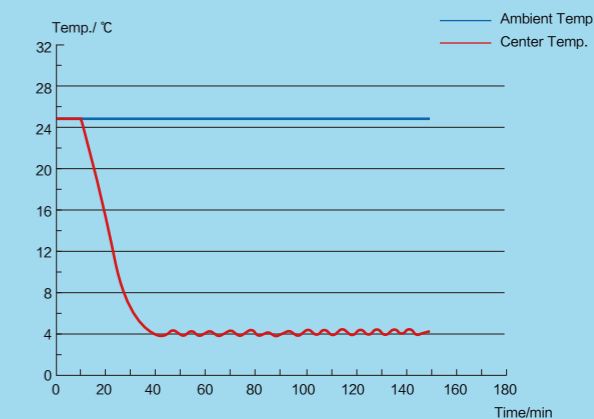
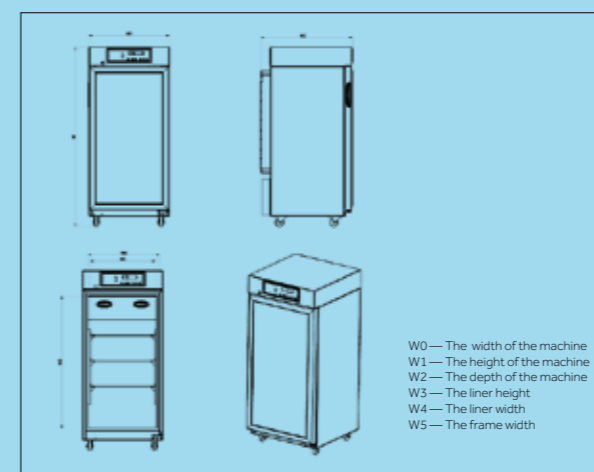
Ensure that the temperature in any corner of the box is maintained within the calibration temperature range.

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.



Product Dimension Drawings



Temperature drop and insulation curve

Specifications

Model	HXC-106	Model	HXC-106
Climate Class	N	Blood Storage Capacity (400ml blood bags)	54
Cooling Type	Forced air cooling	Net/Gross Weight (approx)	kg 49/52 lbs 108.03/114.64
Defrost Mode	Auto	Interior Dimensions (W*D*H)	mm 430*350*830 in 16.93*13.78*32.68
Refrigerant	R600a	Exterior Dimensions (W*D*H)	mm 500*514*1055 in 19.69*20.24*41.54
Noise (dB(A))	41	Packing Dimensions (W*D*H)	mm 565*615*1145 in 22.24*24.21*45.08
Temp Range ($^{\circ}\text{C}$)	4 ± 1	Container load (20'/40'/40'H)	36/72/72
Power Supply (V/Hz)	220-240-50/60	Certification	CE
Power (W)	253		
Electrical Current (A)	1.6		
Alarms	High/low temp, remote system, power failure, sensor error, low battery, door ajar		
Accessories	Foot, porthole, baskets(4), shelves (3)		
Capacity (L/Cu.Ft)	106/3.75		

Transport Cooler

Active Cooling Solution



HZY-8ZA



HZY-15ZA

- Accurate control of the temperature between 2-6°C
- PCM ice raft
- 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



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.



Air Duct Structure



Easy to Clean

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



Internal Structure

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.



4 °C PCM Ice Rack

- 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 hour.

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.

- The power supply is configured to fit the vehicles internal 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

Product Features

- 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.



HZY-5B



HZY-35B

Product Features

- 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.

Specifications



Model		HZY-5B	HZY-8Z	HZY-15Z
Technical Data	Storage Temperature (°C)	/	2-6	2-6
	Operating Temperature (°C)	2-10	2-10	2-10
Dimensions	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
	Packing Dimensions (W*D*H mm)	357*277*287	393x362x367	595*375*404
	Net Weight (kg)	2	4	6
	Gross Weight (kg)	3	5	8
	Blood Bag Capacity	5	8	15
Functions	Foam Material	High Density Foam	HFO-1233zde	HFO-1233zde
	Refrigeration Method	Passive Cooling	Semiconductor Active Refrigeration	Semiconductor Active Refrigeration
	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

Product appearance and specifications are subject to change without notice

Specifications



Model		HZY-8ZA	HZY-15ZA	HZY-35B
Technical Data	Storage Temperature (°C)	2-6	2-6	/
	Operating Temperature (°C)	2-10	2-10	2-10
Dimensions	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
	Packing Dimensions (W*D*H mm)	393*362*367	595*375*404	674*455*490
	Net Weight (kg)	4	6	9
	Gross Weight (kg)	5	8	12
	Blood Bag Capacity	8	15	35
Functions	Cold Chain Monitoring	Y	Y	/
	NFC Unlock	/	Y	/
	Foam Material	HFO-1233zde	HFO-1233zde	Polyurethane Cycloisopentane
	Refrigeration Method	Semiconductor Active Refrigeration	Semiconductor Active Refrigeration	Passive Cooling
	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

Product appearance and specifications are subject to change without notice

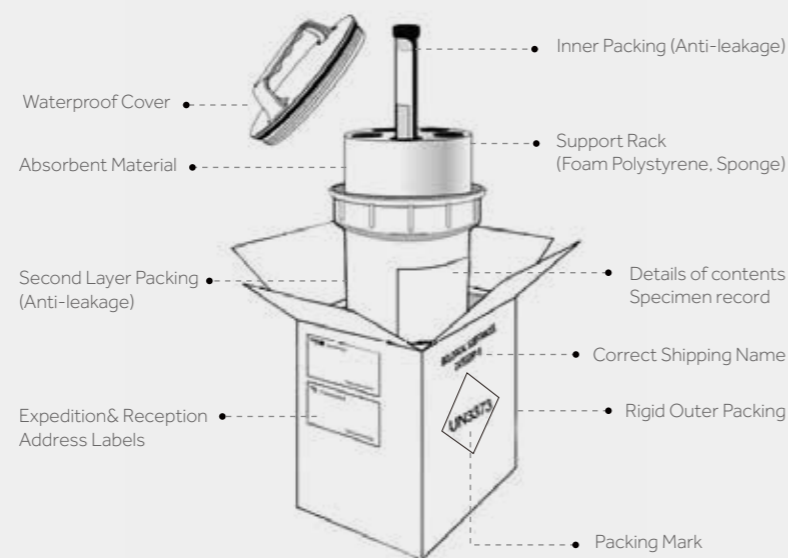
Transport Cooler for the Infectious Material

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!

Packaging System

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



HZY-8Z (Specimen)



HZY-15Z (Specimen)

Product Advantages



Active semiconductor cooling, energy saving and environment friendly

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



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.



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.



Multiple fault alarms, safer to use

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



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.

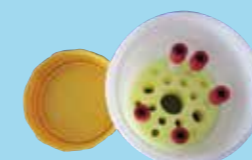
Auxiliary Container



HZY-8Z (Specimen)



HZY-15Z (Specimen)



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.

Passive Cooling 

UN2814 transport cooler
HZY-10B (P620)



UN3373 transport cooler
HZY-10B (P650)

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) separately.

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

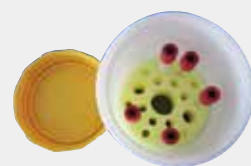
The shell is made of aluminum-magnesium alloy, with high strength; Meeting the P620 packaging requirements of Class A infectious substances(HZY-10B) and the P650 packaging requirements of Class B infectious substances(HZY-10B) separately.

Auxiliary Container 

HZY-10B (P620)



HZY-10B (P650)

**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
Type	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	

Specifications

Model	HZY-10B (P620)	HZY-10B (P650)
Type	Passive cooling	Passive cooling
Internal dimensions (W * D * H mm)	345*225*182	345*225*182
External dimensions (W * D * H mm)	430*312*272	430*312*272
Loading quantity	2 transport tanks	2 transport tanks
Effective volume	14L with 2 built-in specimen sealed tanks	14L with 2 built-in specimen sealed tanks
Specimen sealed tank size (mm)	H160*D130	H160*D130
Number of test tubes (Single tank)	16 test tubes D10 (small), 2 test tubes D15 (large)	16 test tubes D10 (small), 2 test tubes D15 (large)
Net weight (kg)	8	4
Transport temperature (°C)	2-10	2-10
Thermal insulation time (32°C full load) (h)	8	7
Cabinet material	Aluminum magnesium alloy box shell	PP plastic
Thermal insulation material	EPP foam liner	EPP foam liner
Cool storage mode	PCM ice pack cold storage	PCM ice pack cold storage

-30°C Plasma Freezer**IoT Cryogenic Solution II**

DW-30L1280TR/DW-30L818TR

- 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 cleanness and safety of interior air.

**Multistage Plasma Storage Basket**

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

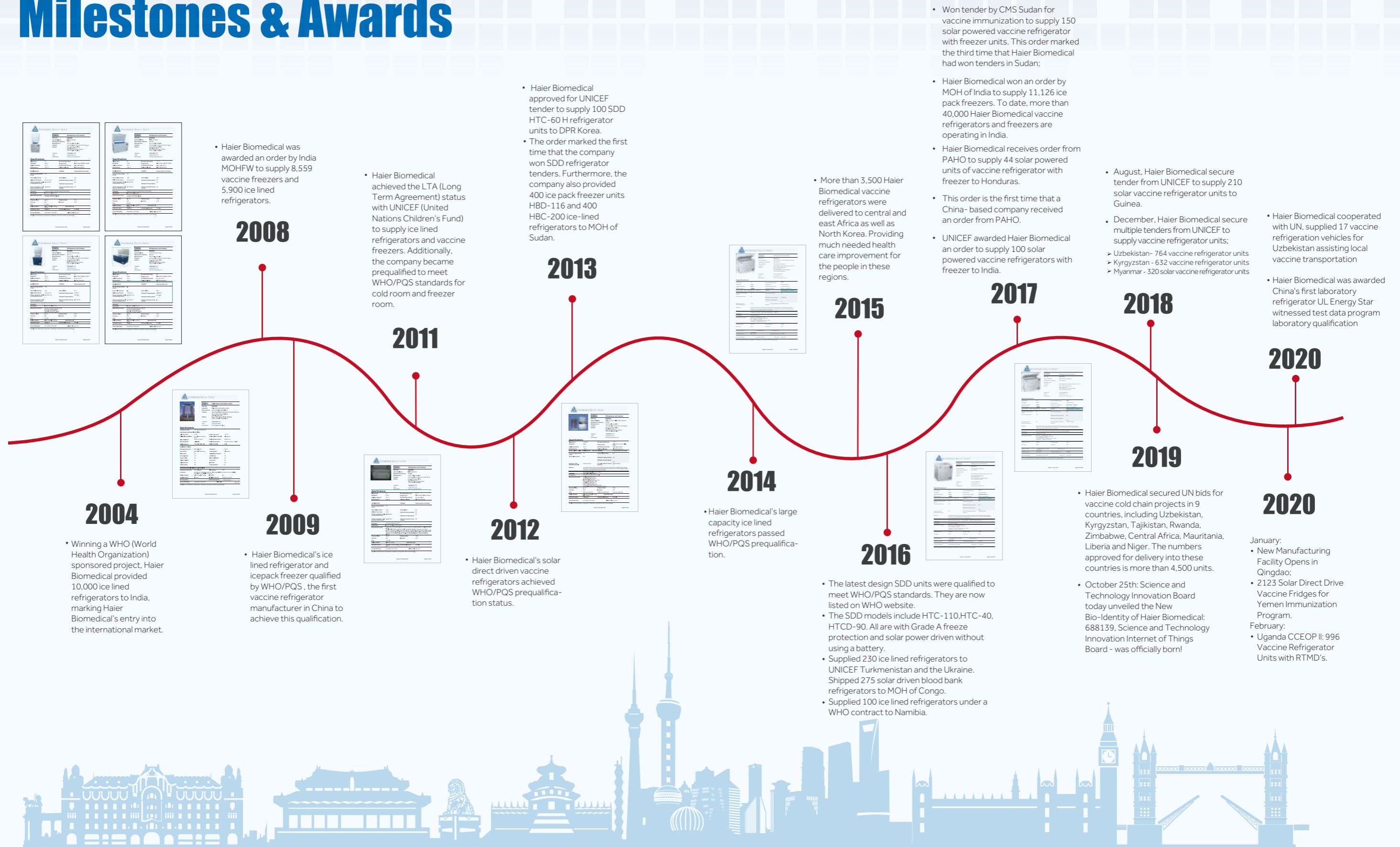
**Dual Cooling System, Frost Free**

- 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.

Specifications

Model	Voltage (V/Hz)	Interior Temperature (°C)	Exterior Dimension (W*D*H mm)	Interior Dimension (W*D*H mm)	Effective Volume(L)	N.W./G.W. (kg)	loading Qty (bag)
DW-30L1280TR	220-240/50/60	-10~-35	1520*1065*1980	1320*752*1260	1280	440/505	576
DW-30L818TR	100-230/50/60	-10~-35	988*951*1980	750*755*1460	818	235/285	360

Milestones & Awards



2004

- Winning a WHO (World Health Organization) sponsored project, Haier Biomedical provided 10,000 ice lined refrigerators to India, marking Haier Biomedical's entry into the international market.

2009

- Haier Biomedical's ice lined refrigerator and icepack freezer qualified by WHO/PQS, the first vaccine refrigerator manufacturer in China to achieve this qualification.

2008

- Haier Biomedical was awarded an order by India MOHFW to supply 8,559 vaccine freezers and 5,900 ice lined refrigerators.

2011

- Haier Biomedical achieved the LTA (Long Term Agreement) status with UNICEF (United Nations Children's Fund) to supply ice lined refrigerators and vaccine freezers. Additionally, the company became prequalified to meet WHO/PQS standards for cold room and freezer room.

2012

- Haier Biomedical's solar direct driven vaccine refrigerators achieved WHO/PQS prequalification status.

2013

- Haier Biomedical approved for UNICEF tender to supply 100 SDD HTC-60 H refrigerator units to DPR Korea.
- The order marked the first time that the company won SDD refrigerator tenders. Furthermore, the company also provided 400 ice pack freezer units HBD-116 and 400 HBC-200 ice-lined refrigerators to MOH of Sudan.

2014

- Haier Biomedical's large capacity ice lined refrigerators passed WHO/PQS prequalification.

2015

- More than 3,500 Haier Biomedical vaccine refrigerators were delivered to central and east Africa as well as North Korea. Providing much needed health care improvement for the people in these regions.

2016

- The latest design SDD units were qualified to meet WHO/PQS standards. They are now listed on WHO website.
- The SDD models include HTC-110, HTC-40, HTCD-90. All are with Grade A freeze protection and solar power driven without using a battery.
- Supplied 230 ice lined refrigerators to UNICEF Turkmenistan and the Ukraine. Shipped 275 solar driven blood bank refrigerators to MOH of Congo.
- Supplied 100 ice lined refrigerators under a WHO contract to Namibia.

2017

- Won tender by CMS Sudan for vaccine immunization to supply 150 solar powered vaccine refrigerator with freezer units. This order marked the third time that Haier Biomedical had won tenders in Sudan;
- Haier Biomedical won an order by MOH of India to supply 11,126 ice pack freezers. To date, more than 40,000 Haier Biomedical vaccine refrigerators and freezers are operating in India.
- Haier Biomedical receives order from PAHO to supply 44 solar powered units of vaccine refrigerator with freezer to Honduras.
- This order is the first time that a China-based company received an order from PAHO.
- UNICEF awarded Haier Biomedical an order to supply 100 solar powered vaccine refrigerators with freezer to India.

2019

- Haier Biomedical secured UN bids for vaccine cold chain projects in 9 countries, including Uzbekistan, Kyrgyzstan, Tajikistan, Rwanda, Zimbabwe, Central Africa, Mauritania, Liberia and Niger. The numbers approved for delivery into these countries is more than 4,500 units.
- October 25th: Science and Technology Innovation Board today unveiled the New Bio-Identity of Haier Biomedical: 688139. Science and Technology Innovation Internet of Things Board - was officially born!

2018

- August, Haier Biomedical secure tender from UNICEF to supply 210 solar vaccine refrigerator units to Guinea.
- December, Haier Biomedical secure multiple tenders from UNICEF to supply vaccine refrigerator units;
 - Uzbekistan - 764 vaccine refrigerator units
 - Kyrgyzstan - 632 vaccine refrigerator units
 - Myanmar - 320 solar vaccine refrigerator units

2020

- Haier Biomedical cooperated with UN, supplied 17 vaccine refrigeration vehicles for Uzbekistan assisting local vaccine transportation
- Haier Biomedical was awarded China's first laboratory refrigerator UL Energy Star witnessed test data program laboratory qualification

- January:
 - New Manufacturing Facility Opens in Qingdao;
 - 2123 Solar Direct Drive Vaccine Fridges for Yemen Immunization Program.
- February:
 - Uganda CCEOP II: 996 Vaccine Refrigerator Units with RTMD's.