



# Liquid Nitrogen Tank Solution

By Innova Scientific

Qingdao Innova Bio-Meditech Co.,Ltd  
Add: No.176 JuFeng Road, Licang district, Qingdao,China  
Tel: +86 532 8789 0634  
Email: info@innobiomed.com  
www.innovabiomed.com



\*The catalogue information is for reference and subject to change without prior notice.



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# Introduction

CryoMatrix Series tanks provide users with a fully automatic, safe and reliable cryogenic liquid nitrogen storage system. The sample can be stored either in liquid phase (-196°C) or vapor phase (-180°C). Microcomputer touch control system CryMonitor 3000 provides convenience and security. Cryomatrix series introduced advanced technology and perfect vacuum thermal insulation technology to assure the safety of the barrier-free sample storage and good properties uniform temperature and characteristics of the minimum consumption of liquid nitrogen. Even if it is vapor phase, the whole storage area temperature difference is less than 10°C.

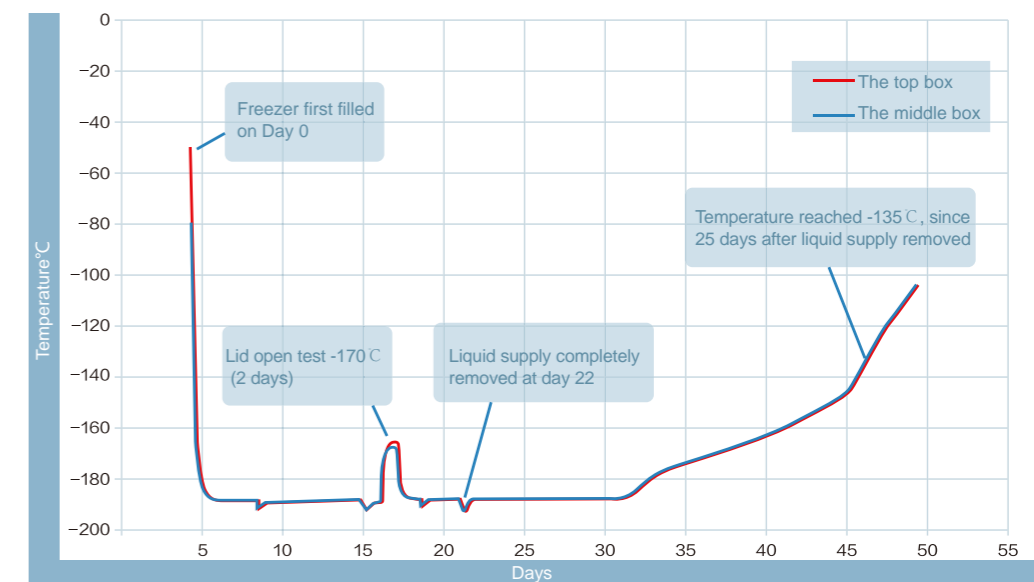
# CryoMatrix Series



## Key Features

- 1 Dry sample storage available
- 2 At least -180°C at top of tank
- 3 Maximum capacity of liquid nitrogen storage capacity below rotating tray
- 4 One-piece folding stage
- 5 Automatically liquid nitrogen supply
- 6 Variety of blood bags storage available
- 7 De-Fog and liquid nitrogen splash proof
- 8 5 years vacuum warranty
- 9 CE certificate

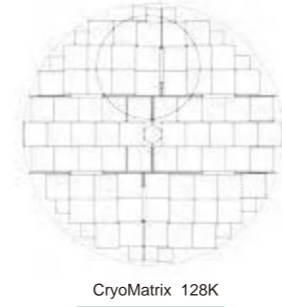
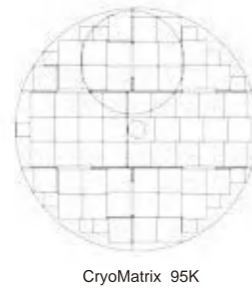
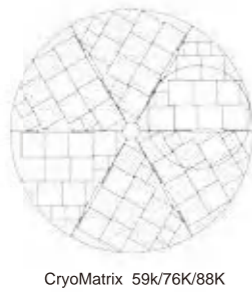
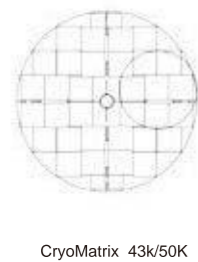
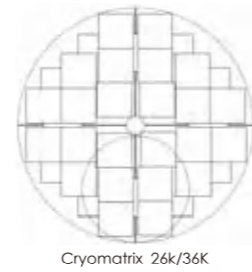
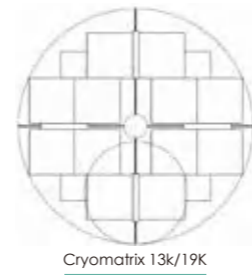
## Temperature Test Graph



# Advantages

- 1 The largest single storage capacity (CryoMatrix 128k), Small footprint.
- 2 meet customers' variable requirements.
- 3 Unique vacuum technology and cervical mouth technology ensures extremely low liquid nitrogen evaporation loss rate.
- 4 Temperature close to the neck could reach -180℃ stably.
- 5 Two steps and partition rotating tray design for easy and quick access to samples.
- 6 special strengthen structure to make the tank stable , earthquake resistant up to 8 magnitude , be able to be moved with samples inside.
- 7 5 years vacuum warranty as standard.
  1. One-piece folding stage
  2. Cryomonitor 3000 intelligent control system

# RackLayouts



# CryoMonitor 3000 Intelligent Control System



- 1 Automatically filling liquid nitrogen
- 2 Liquid nitrogen splash proof structure
- 3 Triple solenoid valve structure
- 4 Platinum resistance temperature sensor
- 5 Differential pressure type liquid level sensor
- 6 Automatically recording temperature and alarm data
- 7 Remote monitoring
- 8 Self-diagnosis
- 9 User authority setting
- 10 Run/alarm parameters setting
- 11 Abnormal alarm reminder
- 12 Standby power and UPS power(optional)
- 13 Cloud storage database center(optional)



# Technical Specification

Model CryoMatrix 13K CryoMatrix 19K CryoMatrix 26K CryoMatrix 36K CryoMatrix 43K

Maximum storage capacity					
2 ml Vials (Internal Thread)	13000	18200	26000	36400	42900
Number of Racks (100 cell boxes)	12	12	24	24	32
Number of Racks (25 cell boxes)	4	4	8	8	4
Number of Stages per Rack	10	14	10	14	13
0.5 ml Vials (Internal Thread)	18200	23400	33800	46800	56100
Number of Racks (100 cell boxes)	12	12	24	24	32
Number of Racks (25 cell boxes)	4	4	8	8	4
Number of Stages per Rack	10	14	10	15	13

Performance					
Liquid nitrogen capacity (L) (Liquid phase storage)	350	460	587	783	890
Liquid nitrogen capacity (L) (Vapor phase storage)	55	55	80	80	135
Static evaporation (L/day)*	≤3	≤4	≤5	≤6	≤6.5

Unit Dimensions					
Neck Diameter (mm)	326	326	445	445	465
Overall Height (mm)	1326	1558	1321	1591	1559
Operated Height (mm)	1263	1212	1266	1216	980
Outside Diameter (mm)	875	875	1104	1104	1190
Door Width Requirement** (mm)	895	895	1124	1124	1210
Weight Empty (kg)	219	277	328	372	441
Weight Liquid Full* (kg)	502	649	802	1005	1160

	Blood Bag Capacities														
	Total bags	No. Stages	No. Racks	Total bags	No. Stages	No. Racks	Total bags	No. Stages	No. Racks	Total bags	No. Stages	No. Racks			
25ml (791 OS/U)	1296	6	216	1728	8	216	2376	6	396	3168	8	396	3360	7	480
50ml (4R9951)	792	6	132	1056	8	132	1416	6	236	1888	8	236	2016	7	288
250ml (4R9953)	300	3	100	500	5	100	552	3	184	920	5	184	944	4	236

\*Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the condition of container usage, atmospheric conditions, and manufacturing tolerances.

# Technical Specification

Model CryoMatrix 50K CryoMatrix 59K CryoMatrix 76K CryoMatrix 95K CryoMatrix128K

Maximum storage capacity					
2 ml Vials (Internal Thread)	49500	58500	76050	94875	128350
Number of Racks (100 cell boxes)	32	54	54	60	72
Number of Racks (25 cell boxes)	4	18	18	13	14
Number of Stages per Rack	15	10	13	15	17
0.5 ml Vials (Internal Thread)	66000	81900	99450	126500	166100
Number of Racks (100 cell boxes)	32	54	54	60	72
Number of Racks (25 cell boxes)	4	18	18	13	14
Number of Stages per Rack	15	10	13	15	17

Performance					
Liquid nitrogen capacity (L) (Liquid phase storage)	1014	1340	1660	1880	2270
Liquid nitrogen capacity (L) (Vapor phase storage)	130	265	300	320	262
Static evaporation (L/day)*	≤7	≤8	≤10.5	≤12.5	≤12.5

Unit Dimensions					
Neck Diameter (mm)	465	635	635	635	635
Overall Height (mm)	1704	1398	1589	1883	1680
Operated Height (mm)	950	997	967	1097	1120
Outside Diameter (mm)	1190	1565	1565	1565	1565
Door Width Requirement** (mm)	1210	1585	1585	1585	1700
Weight Empty (kg)	495	851	914	985	920
Weight Liquid Full* (kg)	1314	1934	2255	2504	2754

	Blood Bag Capacities														
	Total bags	No. Stages	No. Racks	Total bags	No. Stages	No. Racks	Total bags	No. Stages	No. Racks	Total bags	No. Stages	No. Racks			
25ml (791 OS/U)	4320	9	480	4716	6	786	5502	7	786	7758	9	862	10540	10	1054
50ml (4R9951)	2592	9	288	2916	6	486	3402	7	486	4905	9	545	6540	10	654
250ml (4R9953)	1180	5	236	1170	3	390	1560	4	390	2095	5	419	3060	6	510

\*Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the condition of container usage, atmospheric conditions, and manufacturing tolerances.



## Product Introduction

CryoGuard series provide excellent protection for biological samples. Based on the kirin cloud management platform, the operation of the equipment is closely monitored to ensure the safety of stored samples and the traceability of operating data.

CryoGuard series completely solves the technical problems of applying information technology and low power consumption technology in the low temperature environment of -196°C, and realizes real-time monitoring of temperature and liquid level, remote monitoring of alarms and automatic backup and storage of monitoring data on the cloud platform. CryoGuard series perfectly combines advanced liquid nitrogen tank production and manufacturing technology with intelligent monitoring technology. The product is light in weight, small in space, large in capacity, and efficient in sample access. It can monitor the operating status of the container in real time. In case of any problem, it can alarm in time to ensure the safety of sample storage.

## Product Features

- 01 Reliable real-time temperature monitoring
- 02 Reliable real-time monitoring of liquid level
- 03 Intelligent remote monitoring, need to configure data repeater
- 04 Automatically back up operating data and upload it to the cloud platform for permanent storage
- 05 Intelligent remote alarm system (telephone, SMS, E-mail, WeChat)
- 06 Excellent low-power technology, battery working time up to two years
- 07 Convenient battery replacement
- 08 Excellent internal temperature uniformity and stability
- 09 Ultra-low evaporation loss of liquid nitrogen
- 10 Compatible with 2ML and 5ML cryo vials (optional)
- 11 Unique and beautiful product appearance
- 12 Structure with double locks is safe and reliable
- 13 Vapor-phase storage is stable and safe (optional)
- 14 Safe and worry-free automatic filling liquid nitrogen system (optional)
- 15 Long five-year vacuum warranty

## Product Advantages



### Optimized design

Through a large number of experimental verifications, we have the best balance in product capacity, using efficiency and storage time.



### Higher performance

High vacuum coverage and innovative structure design, available for longer storage time, lower liquid nitrogen consumption, and greatly reduce liquid nitrogen volatilization rate.



### Temperature monitoring

The monitoring system based on the intelligent control system and high-precision platinum resistance temperature sensor can display the temperature in the tank in real time with an accuracy of  $\pm 0.1^{\circ}\text{C}$ . Users can set the alarm mode and alarm value according to their needs.



### Level monitoring

The monitoring system based on the intelligent control system and the original capacitive liquid level sensor can display the liquid level height in real time to ensure the effective and reliable liquid nitrogen capacity in the tank and the safe sample storage.



### Larger volume

Compared with similar products, the area of land occupied is smaller, the storage sample is larger, which can save space and reduce the storage cost of unit samples.



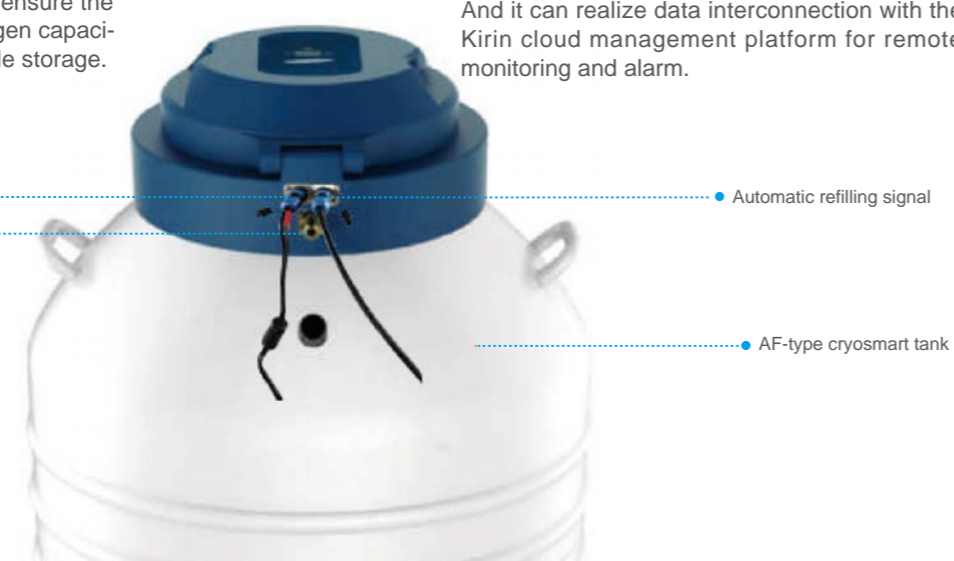
### Easier to use

Humanized structure design and intelligent liquid nitrogen management system can realize WIFI / 4G networking, support local sound and light alarms and telephone, SMS, E-mail, WeChat remote alarms. Operation data can be saved and traced permanently, downloaded and archived on your demand; The advanced independent temperature and capacitive liquid level monitoring system, making your sample storage more convenient and safety, and allowing your device to run more reliable.



### Intelligent system

Visual display of main parameters such as liquid nitrogen tank level and temperature, and permission settings of the liquid nitrogen tank. And it can realize data interconnection with the Kirin cloud management platform for remote monitoring and alarm.



Automatic power supply

Automatic refilling port

Automatic refilling signal

AF-type cryosmart tank

## Technical Parameters

Model	Cryoguard 2400	Cryoguard 3000	Cryoguard 3600	Cryoguard 4800	Cryoguard 6000
Model	Cryoguard 2400AF	Cryoguard 3000AF	Cryoguard 3600AF	Cryoguard 4800AF	Cryoguard 6000AF

### Storage capacity

	Cryoguard 2400	Cryoguard 3000	Cryoguard 3600	Cryoguard 4800	Cryoguard 6000
<b>2ml vials (100wells/box)</b>	2400	3000	3600	4800	6000
<b>Cryorack</b>	6	6	6	6	6
<b>Boxes per Cryorack</b>	4	5	6	8	10
<b>5ml vials (81wells/box)</b>	972	972	1458	1944	2430
<b>Boxes per Cryorack</b>	2	2	3	4	5

### Cooling performance

	Cryoguard 2400	Cryoguard 3000	Cryoguard 3600	Cryoguard 4800	Cryoguard 6000
<b>Volume (L)</b>	65	95	115	140	175
<b>Static daily consumption (L/day) *</b>	0.79	0.81	0.83	0.85	0.87
<b>Static daily holdover time (days)*</b>	83	117	139	165	201

### Size & Weight

	Cryoguard 2400	Cryoguard 3000	Cryoguard 3600	Cryoguard 4800	Cryoguard 6000
<b>Inner diameter of neck (mm)</b>	216	216	216	216	216
<b>Overall height (mm)</b>	740	805	875	975	1090
<b>Out diameter of tank (mm)</b>	681	681	681	681	681
<b>Empty weight (kg)</b>	41	45	49	54	58

\* Static daily consumption and holover time are theoretical values. Practical data will be affected by the processing of user, atmospheric conditions, working conditions.



## Introduction

CryoSalvum Series liquid nitrogen containers combine with the advantages of low liquid nitrogen consumption and medium range storage capacity to meet unique requirements of professional customers all over the world. CryoMaster Series containers provide high efficiency of large capacity sample cryopreservation with light weight and small space occupying. The racks and lockable lids are standard to assure the safety of samples. Mainly apply to medical field/bio-bank/laboratory field.

# CryoSalvum Series



## Key Features

- 1 Racks and boxes included
- 2 Dual-lock construction
- 3 Durable aluminum construction
- 4 Larger storage capacity, less liquid nitrogen consumption
- 5 Compatible with main brands standard storage boxes
- 6 Liquid level monitoring system (optional)
- 7 Mobile roller bases (optional)
- 8 5 year vacuum warranty





## Real-time Liquid Level Monitoring System

Liquid level monitoring system continuously monitors the temperature inside the container. The liquid level monitoring system matches all CryoMaster models, optimal choice for long time monitoring of samples storage. It realizes reminding users to add liquid nitrogen timely too. There are three models, CryoMonitor 1000/2000 and Smart Cap.

Cryomonitor 1000 liquid level monitor  
This system with real-time temperature display:  
1.High/low temperature alarm  
2.Sensor fault audible and visual alarm



## Smart Cap

The Smart Cap is a liquid nitrogen level sensor with a highly integrated IoT module that monitors the liquid nitrogen tank level (0~650mm) and the tank mouth temperature (-200°C~150°C).  
Intelligent transmission: IoT 2.4G technology, intelligent matching data optimal transmission path.  
Ultra-low power consumption: The built-in power supply works independently for more than two years.  
Remote transmission: Effective transmission distance is more than 200 meters, effectively ensuring signal penetration and data stability.



## Ultra Low-power Consumption Liquid Level Monitoring System

Data collected by Smart Sensor, and then transferred to cloud storage by Black Box. Users only have to log on Cold Cloud to query and download data. This system is the latest monitoring product easy installation and accurate data.



Biological samples liquid nitrogen storage    Intelligent data collection module Smart Sensor (wireless sensor)    Intelligent data transfer module Black Box -- (1+n Mode)    Data storage platform Cold Cloud -- (More safety)

Monitoring Temperature: +150°C~ -200°C  
Usage: Sensor put into cabinet, device attached outside cabinet by magnetism. No external power supply.

# Technical Specification

Model	CryoSalvum 100	CryoSalvum 600	CryoSalvum 750	CryoSalvum 900
<b>Maximum Storage Capacity</b>				
1.2 & 2ml Vials (25/box)	100	600	750	900
Number of Racks	1	6	6	6
Boxes Per Rack	4	4	5	6
25ml blood bag	25ml blood bag	—	36	36
	Number of Racks	—	18	18
	No. of Blood bags Per Rack	—	2	2
<b>Performance</b>				
LN2 Capacity (L)	10	30	35	50
Static Evaporation Rate (L/day)	0.37	0.33	0.36	0.36
Static holdover time (day)	54	90	97	115
<b>Unit Dimensions</b>				
Neck Opening (mm)	125	125	125	127
Overall Height (mm)	670	705	748	754
Outer Diameter (mm)	394	461	461	416
Weight Empty (kg)	9.7	12.9	14.2	15.2
Weight Full (KG)	26.1	37.5	42.9	53.74

Model	CryoSalvum 2400	CryoSalvum 3000	CryoSalvum 3600	CryoSalvum 4800	CryoSalvum 6000	
<b>Maximum Storage Capacity</b>						
1.2 & 2ml Vials	1.2 & 2ml Vials (100/box)	2400	3000	3600	4800	6000
	Number of Racks	6	6	6	6	6
	Boxes Per Rack	4	5	6	8	10
25ml blood bag	25ml blood bag	60	90	120	120	150
	Number of Racks	30	30	30	30	30
	No. of Blood bags Per Rack	2	2	3	4	5
50ml blood bag	50ml blood bag	—	60	120	120	150
	Number of Racks	—	30	30	30	30
	No. of Blood bags Per Rack	—	2	3	4	5
<b>Performance</b>						
LN2 Capacity (L)	65	95	115	140	175	
Static Evaporation Rate (L/day)	0.78	0.97	0.94	0.96	0.95	
Static holdover time (day)	83	98	122	146	184	
<b>Unit Dimensions</b>						
Neck Opening (mm)	216	216	216	216	216	
Overall Height (mm)	765	790	870	960	1060	
Outer Diameter (mm)	681	681	681	681	681	
Weight Empty (KG)	38.3	41.3	42.3	48.9	53.8	
Weight Full (KG)	91.6	119.2	136.6	163.7	197.3	

★ Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the condition of container usage, atmospheric conditions, and manufacturing tolerances.

★★ Normal Working Duration is an arbitrary reference, applying to estimate container performance under normal operating conditions. Actual working time may vary due to atmospheric conditions, container usage history, manufacturing tolerances and individual patterns of usage. Divide static holding days by 1.6, and you get empirical value.

## Introduction

CryoStock Series liquid nitrogen containers are economical small and medium size liquid nitrogen containers for long term static state storage. CryoMajor Series include two types, large capacity and long shelf life. CryoMajor Series are made of high strength and light-weight aluminum alloy. There is multilayer superior performance thermal insulation inside. Various accessories are optional. Mainly apply to animal husbandry and laboratories.

# CryoStock Series

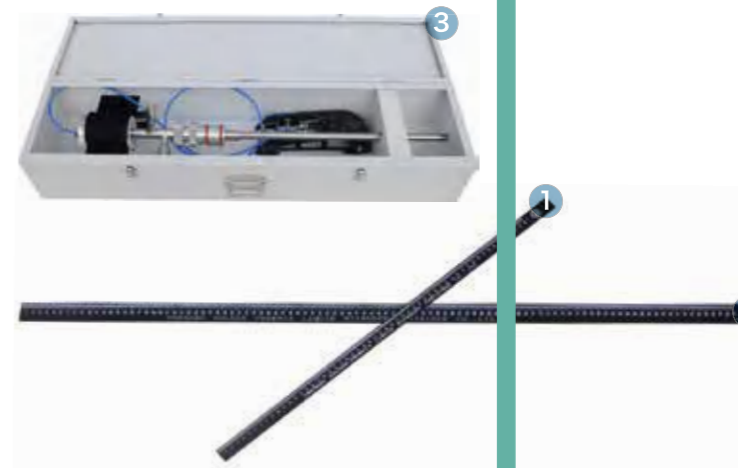


## Key Features

- 1 High strength and light-weight aluminum construction
- 2 Ultra-low evaporation loss
- 3 Numbered index location points for canisters(optional)
- 4 Mobile roller bases (optional)
- 5 Lockable lid
- 6 Straw storage
- 7 LN<sub>2</sub> pump (optional)
- 8 5 year vacuum warranty

## Important Accessories

- 1. 600mm Liquid Level Ruler
- 2. 1000mm Liquid Level Ruler
- 3. LN<sub>2</sub> Dispenser



# Technical Specification

Model	CryoStock 2/35	CryoStock 3/50	CryoStock 6/50	CryoStock 8/80	CryoStock 10/50	CryoStock 13/50
<b>Maximum Storage Capacity</b>						
Number of Canisters	3	6	6	6	6	6
Number of Straws (0.5ml)	165	792	792	2244	792	792
Number of Straws (0.25ml)	330	1788	1788	5022	1788	1788
<b>Performance</b>						
Liquid N2 Capacity(L)	2	3.1	6	8	10	13
Static Evaporation(L/D)	0.08	0.12	0.12	0.21	0.12	0.12
Static Holdover time(Day)	24	26	52	38	86	109
<b>Unit Dimensions</b>						
Neck Diameter (mm)	35	50	50	80	50	50
Overall Height(mm)	428	435	482	502	552	623
External Diameter (mm)	204	223	300	300	300	310
Canister Diameter(mm)	25	38	38	63	38	38
Canister Height (mm)	110	110	110	110	110	110
Weight Empty (KG)	2.6	3.1	4.8	5.9	5.9	6.3
Weight Full (KG)	4.2	5.6	9.7	12.5	14.1	15.9

Model	CryoStock13/50L	CryoStock15/50	CryoStock15/80	CryoStock 16/50(L)	CryoStock 20/50(L)
<b>Maximum Storage Capacity</b>					
No. of Canister	6	6	6	6	6
No. of Straws (1-level Canister)	0.5ml	—	792	2244	—
	0.25ml	—	1788	5022	—
No. of Straws (2-level Canister)	0.5ml	1284	—	—	1284
	0.25ml	2832	—	—	2832
<b>Performance</b>					
Liquid Nitrogen Capacity (L)	13	15	15	16	20
Static Evaporation (L/day)	0.12	0.11	0.21	0.12	0.12
Static Holdover time(Day)	109	134	71	140	168
<b>Unit Dimensions</b>					
Neck Opening (mm)	50	50	80	50	50
Overall Height (mm)	623	591	595	672	672
External Diameter (mm)	310	394	394	394	394
Canister External Diameter (mm)	38	38	63	38	38
Canister Height (mm)	276	120	120	120/276	120/276
Weight Empty (kg)	6.3	8.5	8.6	9.5	9.5
Weight Liquid Full (kg)	16.6	18.2	18.2	22.3	22.3

# Technical Specification

Model	CryoStock 25/50(L)	CryoStock 30/50(L)	CryoStock 30/80(L)	CryoStock 30/125(L)	CryoStock 35/50(L)
<b>Maximum Storage Capacity</b>					
No. of Canister	6	6	6	6	6
No. of Straws (1-level Canister)	0.5ml	792	792	2244	5124
	0.25ml	1788	1788	5022	11952
No. of Straws (2-level Canister)	0.5ml	1284	1284	3624	9048
	0.25ml	2832	2832	8460	19944
<b>Performance</b>					
Liquid Nitrogen Capacity (L)	25	31.5	31.5	31.5	35.5
Static Evaporation (L/day)	0.12	0.12	0.21	0.35	0.12
Static Holdover time(Day)	208	254	147	90	286
<b>Unit Dimensions</b>					
Neck Opening (mm)	50	50	80	125	50
Overall Height (mm)	700	706	710	705	750
External Diameter (mm)	394	462	462	462	462
Canister External Diameter (mm)	38	38	63	97	38
Canister Height (mm)	120/276	120/276	120/276	120/276	120/276
Weight Empty (kg)	10.7	12.9	13.1	12.9	14.2
Weight Liquid Full (kg)	26.4	31.7	31.7	38.7	35.0

Model	CryoStock 35/80(L)	CryoStock35/125T(L)	CryoStock47/127(L)	CryoStock47/127T(L)	CryoStock50B/50(L)	CryoStock50B/125(L)
<b>Maximum Storage Capacity</b>						
No. of Canister	6	10	6	10	6	6
No. of Straws (1-level Canister)	0.5ml	2244	8540	5124	8540	792
	0.25ml	5022	19920	11952	19920	1788
No. of Straws (2-level Canister)	0.5ml	9048	15080	9048	15080	1284
	0.25ml	3624	33240	19944	33240	2832
<b>Performance</b>						
Liquid Nitrogen Capacity (L)	35.5	35.5	47	47	50	50
Static Evaporation (L/day)	0.12	0.36	0.36	0.36	0.23	0.45
Static Holdover time(Day)	286	97	130	130	213	110
<b>Unit Dimensions</b>						
Neck Opening (mm)	50	125	125	127	50	125
Overall Height (mm)	750	748	718	718	811	818
External Diameter (mm)	462	462	508	508	462	462
Canister External Diameter (mm)	38	97	97	71	63	97
Canister Height (mm)	120/276	120/276	120/276	120/276	120/276	120/276
Weight Empty (kg)	14.2	14.2	15	15	15.2	15.4
Weight Liquid Full(kg)	35.0	46.2	53.54	55.6	55.4	56.2

Remark:  
 1. Model number end without "L" are supplied with 110mm or 120mm length canister. One layer of straws can be loaded.  
 2. Model number end with "L" are supplied with 260mm or 276mm length canister. Two layers of straws can be loaded.  
 3. For example, CryoMajor30/50 is supplied with canister height 120mm, while CryoMajor 30/50L is supplied with canister height 276mm.



# New Products and Canes



(CryoStock 35/125T)

CryoStock Series will be also used to store 0.5ML-5ML vials with cane. The storage quantity shown in the table below:

# Technical Specification

Canister Model	Length 110mm and 120mm, Diameter 38mm(50 neck opening)				Length 260mm and 276mm, Diameter 38(50 neck opening)			
Vials Model	Number of Cane/ Canister	Number of Vials/ Cane	Number of Vials/ Canister	Number of Vials/ Tank	Number of Cane/ Canister	Number of Vials/ Cane	Number of Vials/ Canister	Number of Vials/ Tank
0.5ml	4	3	12	72	4	5	20	120
1.5ml	4	3	12	72	4	5	20	120
2ml	4	3	12	72	4	5	20	120
3ml	4	3	12	72	4	5	20	120
5ml	4	1	4	24	4	3	2	72

Canister Model	Length 110mm and 120mm, Diameter 63mm(80 neck opening)				Length 260mm and 276mm, Diameter 63(80 neck opening)			
Vials Model	Number of Cane/ Canister	Number of Vials/ Cane	Number of Vials/ Canister	Number of Vials/ Tank	Number of Cane/ Canister	Number of Vials/ Cane	Number of Vials/ Canister	Number of Vials/ Tank
0.5ml	16	3	48	288	16	5	80	480
1.5ml	16	3	48	288	16	5	80	480
2ml	16	3	48	288	16	5	80	480
3ml	16	3	48	288	16	5	80	480
5ml	16	1	16	96	16	3	48	288

Canister Model	Length 110mm and 120mm, Diameter 97mm(125 neck opening)				Length 260mm and 276mm, Diameter 97(125 neck opening)			
Vials Model	Number of Cane/ Canister	Number of Vials/ Cane	Number of Vials/ Canister	Number of Vials/ Tank	Number of Cane/ Canister	Number of Vials/ Cane	Number of Vials/ Canister	Number of Vials/ Tank
0.5ml	40	3	120	720	40	5	200	1200
1.5ml	40	3	120	720	40	5	200	1200
2ml	40	3	120	720	40	5	200	1200
3ml	40	3	120	720	40	5	200	1200
5ml	40	1	40	240	40	3	120	720

# Introduction

CryoTrans Series is designed for storage and short-distance transportation of small amount liquid nitrogen. It is equipped with rubber protection rings and prefixed bottom pad for safety. Stainless steel roller base is optional for convenient transportation. CryoTrans series is widely used in animal husbandry and laboratories.

# CryoTrans Series



## Key Features

- 1 Strong, lightweight aluminum construction
- 2 Low liquid nitrogen evaporation
- 3 Unique liquid nitrogen transportation design
- 4 CE Certificate
- 5 5-year vacuum warranty

## Important Accessories

- 1. Liquid nitrogen level ruler
- 2. Liquid Nitrogen Dispenser
- 3. Roller base



## Technical Specification

Model	CryoTrans 3	CryoTrans 6	CryoTrans 10	CryoTrans 20	CryoTrans 25	CryoTrans 30	CryoTrans 35	CryoTrans 50
<b>Performance</b>								
Capacity (L)	3	6	10	20	25	30	35	50
Neck Diameter (mm)	50	50	50	50	50	50	50	50
Static Evaporation Rate (L/day)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.23
<b>Unit Dimensions</b>								
Overall Height (mm)	435	482	552	672	700	706	750	811
External Diameter (mm)	223	300	300	394	394	462	462	462
Weight Empty (KG)	3.1	4.8	5.9	9.5	11.7	12.9	14.2	15.4
Weight Full (KG)	5.56	9.72	14.1	25.9	30.4	37.5	42.9	56.4

## Introduction

CryoArk Series is the dry shipper containers. It is designed for biology, livestock breeding, research and medical fields. CryoArk Series enables the biological samples, straws, Cryo-vials and blood bags to transport under -150 C environment. There is liquid nitrogen absorbent materials placed in the inner tank, avoids the risk of outflow of liquid nitrogen. The CryoCarrier dry shipper liquid containers meet the IATA standard and protect your valuable samples in safe condition for both customers and shipper during transportation.

## CryoArk Series



## Key Features

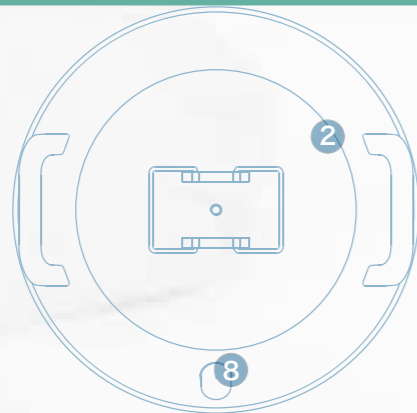
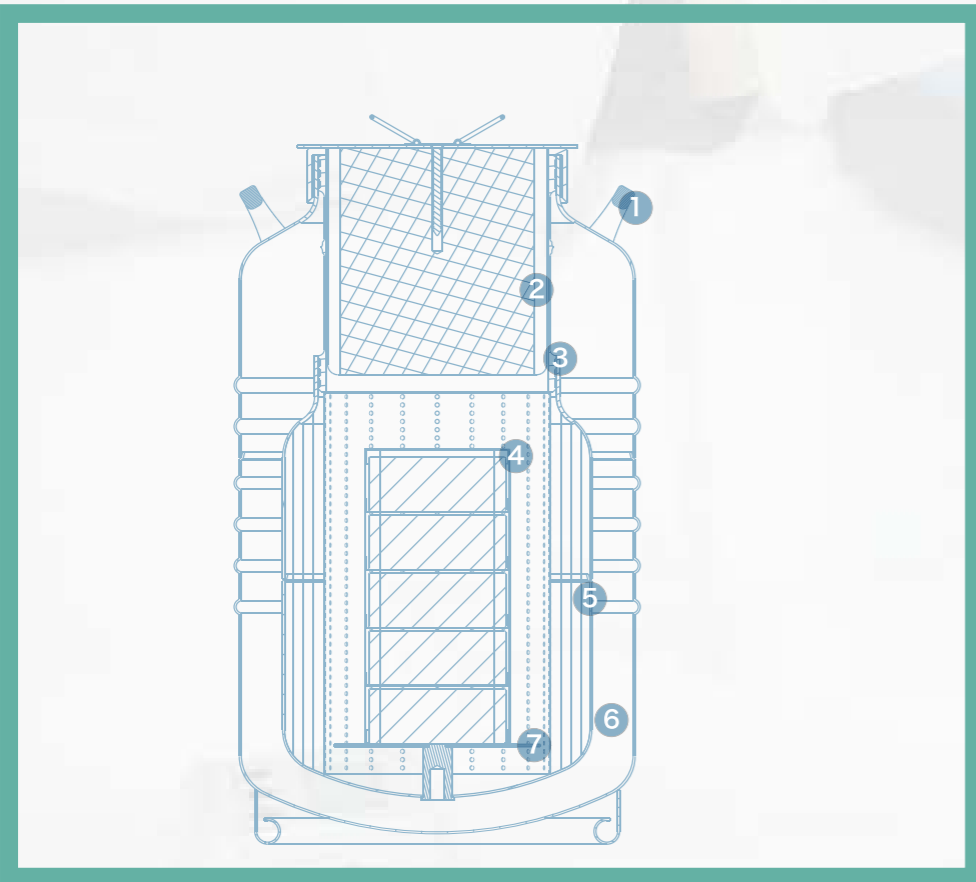
- 1 Vapor phase cryogenic storage
- 2 Robust and durable aluminum construction
- 3 Lockable lids
- 4 No spillage of liquid nitrogen
- 5 Available for biological samples straws, cryovials and blood bags
- 6 3 years vacuum warranty





# Advantages

- 1 Reliable absorption material, rapid absorption of liquid nitrogen
- 2 Meet the standards of IATA (The international Transport Association)
- 3 Excellent construction and superior vacuum performance to ensures the maximum storage time
- 4 Unique stainless steel screen construction ensure samples storage space clean
- 5 Liquid level monitor(optional)



1. Handles
2. Cap Plug
3. Neck Tube
4. Canister
5. Liquid Nitrogen Absorption Layer
6. Vacuum Jacket
7. Stage
8. Vacuum Sealing Joint

# Technical Specification

Model		CryoArk 3	CryoArk 6	CryoArk 8	CryoArk 10L(R)	CryoArk 25R
<b>Maximum Storage Capacity</b>						
Straws	Number of Canister	1	1	1	1	1
	Number of Straws (0.5ml)	132	820	820	1508	—
	Number of Straws (0.25ml)	298	1780	1780	3324	—
Vials	No. of Rack	—	—	—	1	1
	Layer of Rack	—	—	—	4	5
	1.2ml/2ml Vials	—	—	—	100	500
Blood Bags (25ml)	No. of Rack	—	—	—	1	1
	Layer of Rack	—	—	—	2	3
	Number of 25ml bags	—	—	—	6	45
Blood Bags (50ml)	No. of Rack	—	—	—	1	1
	Layer of Rack	—	—	—	1	2
	Number of 50ml bags	—	—	—	3	30

<b>Performance</b>					
Capacity (L)	3	7.5	8.0	10	25
Static Evaporation Rate (L/Day)	0.16	0.20	0.22	0.43	0.84
Static holdover time (Day)	20	37	35	23	29

<b>Unit Dimensions</b>					
Neck Diameter (mm)	50	80	80	125	216
Overall Height (mm)	428	487	509	555	678
External Diameter (mm)	223	300	300	300	394
Canister Diameter (mm)	38	63	63	97	—
Canister Height (mm)	120	120	120	276	—
Weight Empty (KG)	3.2	4.9	6.2	5.9	11.2
Weight Full (KG)	4.3	7.3	9.0	8.7	19.0

★ Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the condition of container usage, atmospheric conditions, and manufacturing tolerances.

★★ Normal Working Duration is just an arbitrary reference, applying to estimate container performance under normal operating conditions. Actual working time may vary due to atmospheric conditions, container usage history, manufacturing tolerances and individual patterns of usage. Divide static holding days by 1.6, and you get empirical value.

## Introduction

CryoAutosupply Series tanks are the latest high performance cryogenic liquid phase storage container which mainly used for liquid nitrogen storage in central laboratories. It introduces low amount of liquid vaporization to generate pressure, providing pressure for the tank to discharge liquid, thereby supply liquid nitrogen for other containers. Stainless wheel construction ensures them to be used in most rigorous environment for long time. Compared with traditional welded insulated cylinder, it largely reduces liquid nitrogen evaporation loss. The CryoAutosupply Series tanks include pressure raising valve, drip valve, drain valve and manometer.

The CryoAutosupply 200 and above tanks equip with rupture disk and muffler to provide customers with goods user's experience. In addition, CryoCenter Series tanks equip with four robust castor for easy use and move to different area.

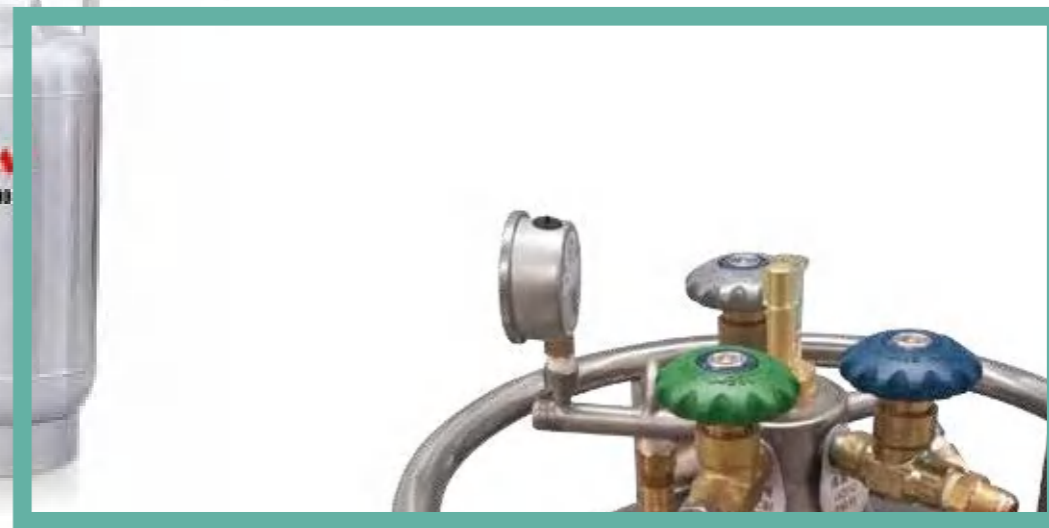
Mainly apply to laboratory and chemical enterprises in need of storing and supplying liquid nitrogen automatically.

# CryoAutosupply Series



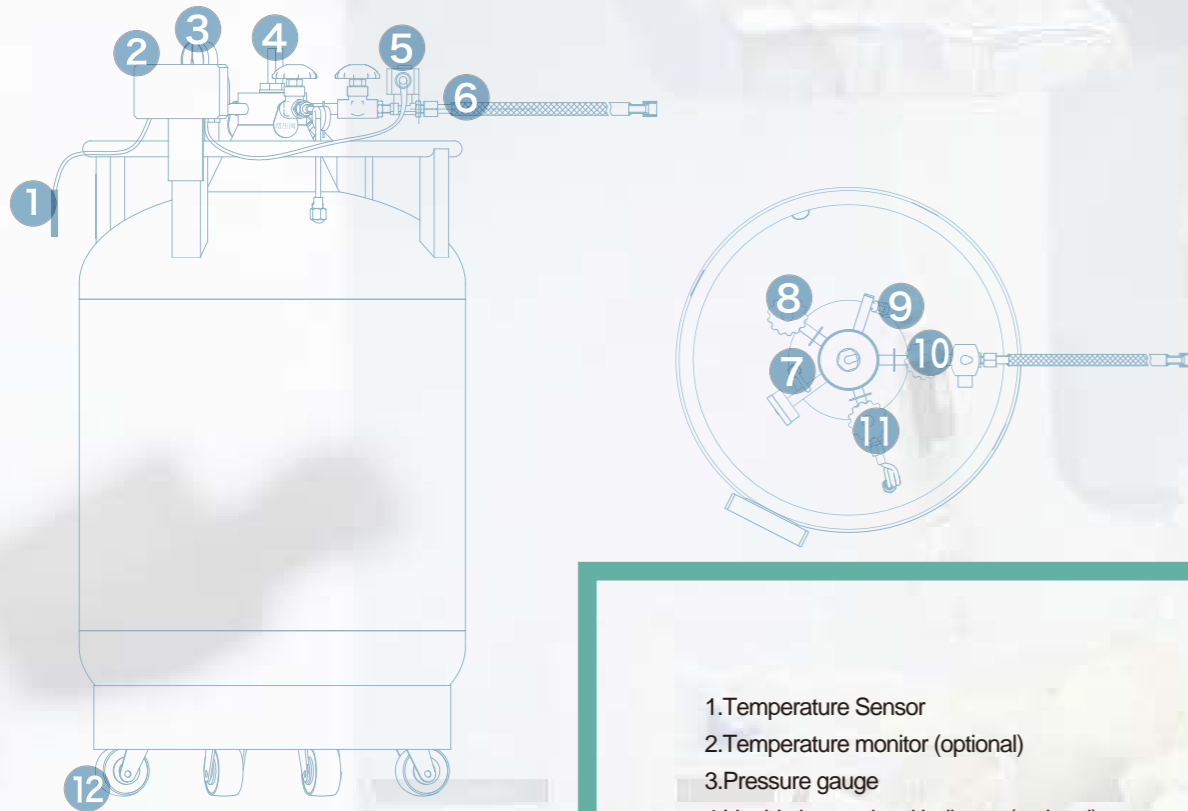
## Key Features

- 1 5 years vacuum warranty
- 2 Stainless steel tanks
- 3 Lockable casters
- 4 Low liquid nitrogen evaporation
- 5 Safety design and mutual or automatic protection
- 6 Electrical level meter and float level meter(optional)



# Back-up System

The CryoAutosupply series is a reliable device for liquid nitrogen storage and transportation. Its professional design reduces the liquid nitrogen evaporation consumption and guarantee users' safety. It can be optional for the solenoid valve, inner temperature monitor and liquid nitrogen level indicator to realize the auto supply of liquid nitrogen.



1. Temperature Sensor
2. Temperature monitor (optional)
3. Pressure gauge
4. Liquid nitrogen level indicator (optional)
5. Solenoid valve (optional)
6. Transfer hoses (optional)
7. First Safety valve,
8. Pressure relief valve
9. Second Safety valve
10. Fill and withdraw valve
11. Pressure building valve
12. Mobile castors.

Remarks:  
One CryoCenter tank supplying to more than one tank is available.

# Technical Specification

Model	CryoAutosupply 30(E/S)	CryoAutosupply 50(E/S)	CryoAutosupply 100(E/S)	CryoAutosupply 150(S)
<b>Performance</b>				
Liquid Nitrogen Capacity (L)	30	50	100	150
Static Evaporation (L/day)*	2.5	2	1.3	1.3
Infusion Volumes (L/min)	3	3	4	6
<b>Unit Dimensions</b>				
Overall Height (mm)	879	991	1185	1188
External Diameter (mm)	454	506	606	706
Weight Empty (kg)	32	54	75	102
Weight Liquid Full* (kg)	56.6	95	157	225
Standard Working Pressure (mpa)	0.05			
Highest Working Pressure (mpa)	0.09			
Primary Relief Value Opening Pressure (mpa)	0.099			
Secondary Relief Value Opening Pressure(mpa)	0.15			
Pressure Gauge Indicating Range (mpa)	0~0.25			

Model	CryoAutosupply 200(E/S)	CryoAutosupply 240(E/S)	CryoAutosupply 300(E/S)	CryoAutosupply 500(E/S)
<b>Performance</b>				
Liquid Nitrogen Capacity (L)	200	240	300	500
Static Evaporation (L/day)*	1.2	1.2	1.1	1.1
Infusion Volumes (L/min)	8	8	8	10
<b>Unit Dimensions</b>				
Overall Height (mm)	1265	1347	1459	1576
External Diameter (mm)	758	758	857	1008
Weight Empty (kg)	130	155	202	255
Weight Liquid Full* (kg)	294	375	448	665
Standard Working Pressure (mpa)	0.05			
Highest Working Pressure (mpa)	0.09			
Primary Relief Value Opening Pressure (mpa)	0.099			
Secondary Relief Value Opening Pressure(mpa)	0.15			
Pressure Gauge Indicating Range (mpa)	0~0.25			

★ Static evaporation rate and static holding time are nominal. Actual rate and holding time will be affected by the condition of container usage, atmospheric conditions, and manufacturing tolerances.



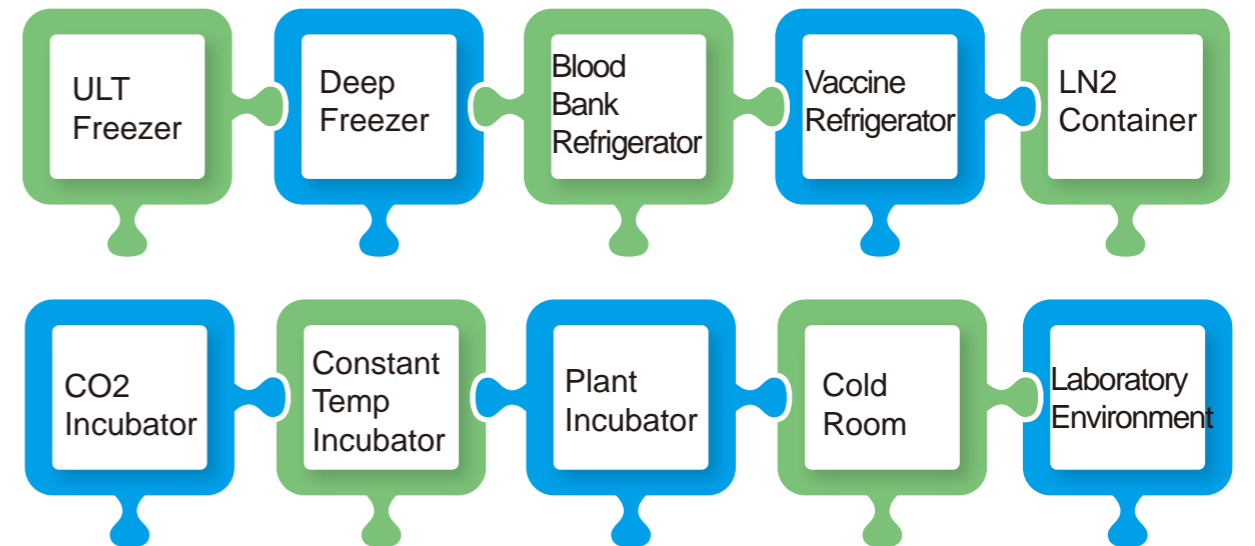
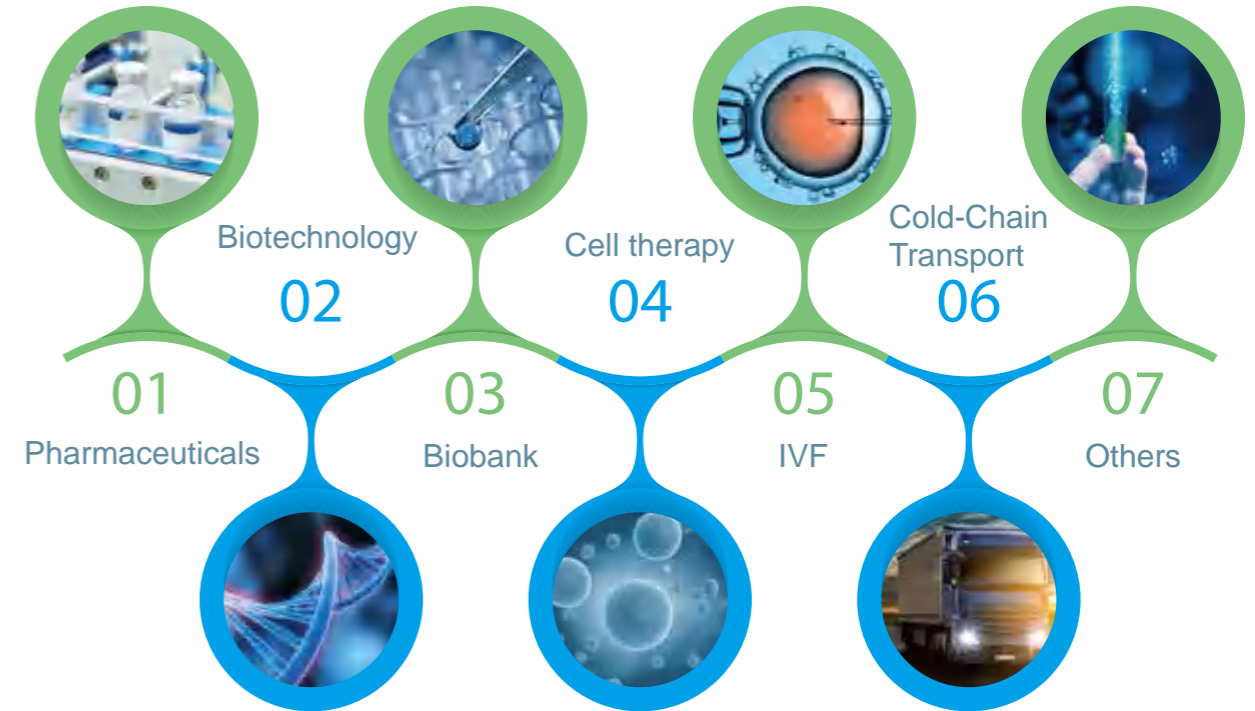
# Kirin Cloud System

Kirin Cloud System is a leading cryogenic biomedical monitoring solution, a comprehensive monitoring and management platform based on three cutting-edge technologies of low power consumption, Internet of things (IOT) and cloud technology. The platform is mainly used for customer service such as biological sample storage, research, development and application. Including temperature and humidity management platform, liquid nitrogen container management platform, gas concentration management platform, liquid nitrogen perfusion management platform, sample information management platform, and storage rack upgrade management platform, cold chain management platform and video monitoring management platform eight modules.

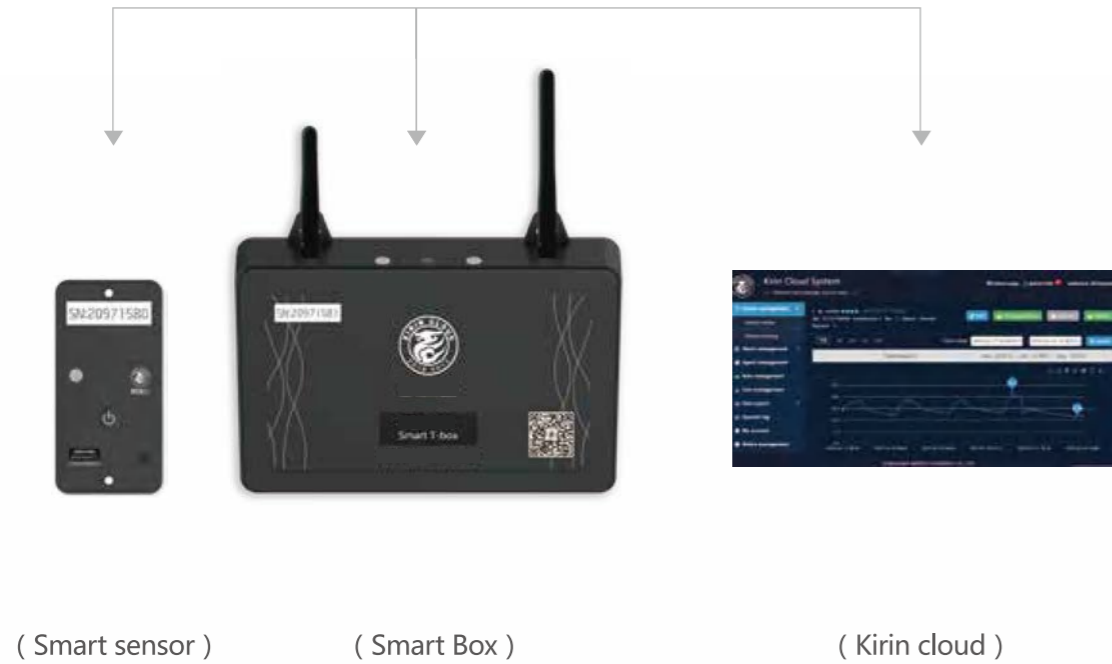
The platform is simple to install and easy to use. The data is accurate, operation is reliable, and transmission is safe. After collecting data through various data acquisition modules (smart sensors), the cloud platform is uploaded directly through the GPRS /WIFI network through the data relay module (Smart Box). Users only need to register and log in to monitor and manage related devices. With the Internet + technology, Kirin Cloud System will completely solve difficulties in the management of medical equipment.



## Application field

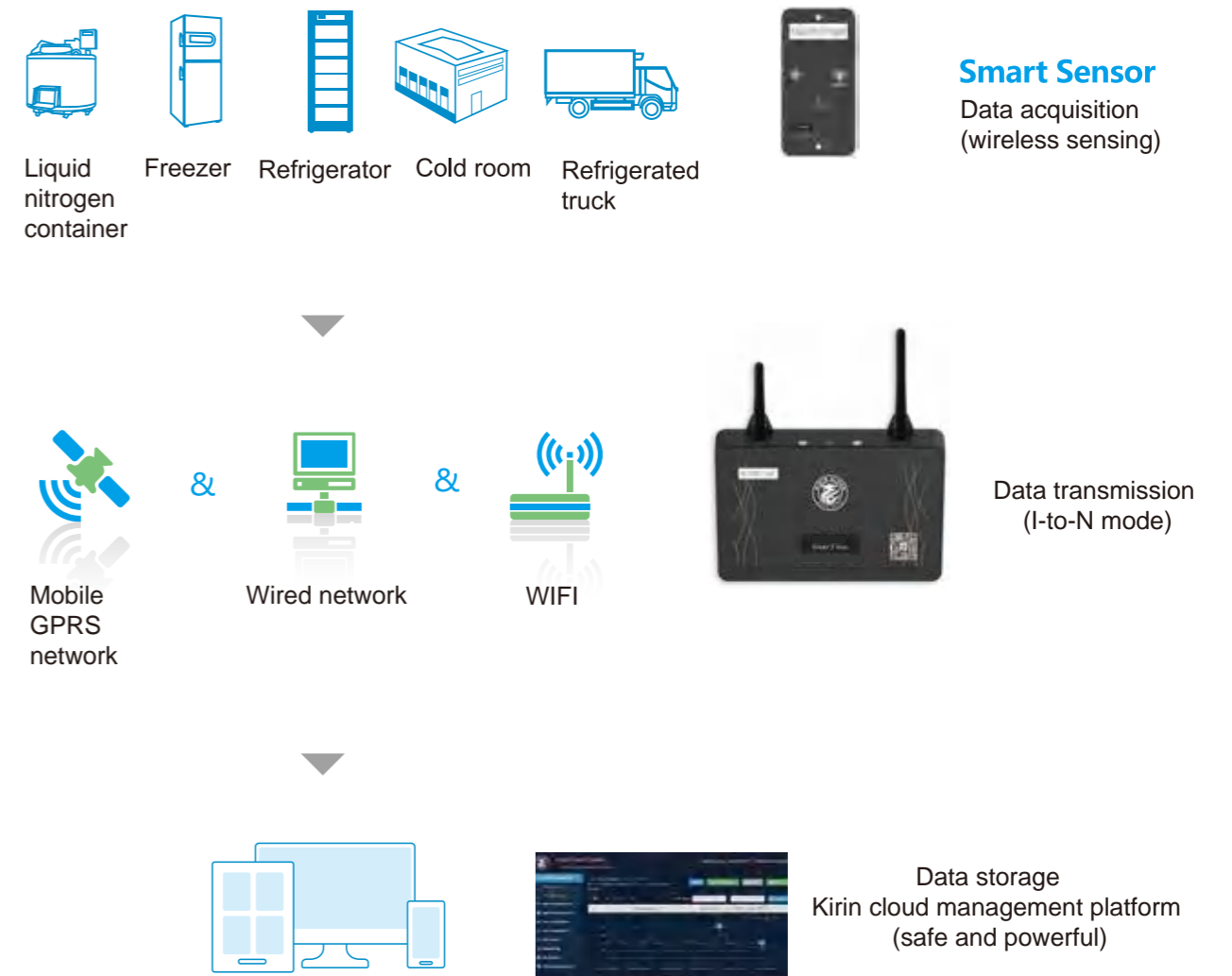


# Kirin Cloud System



Kirin Cloud temperature and humidity wireless monitoring system consists of three parts: low-power wireless sensor (Smart sensor), large-capacity data repeater (Smart Box) and Kirin cloud management platform (Kirin cloud). Users only need to register to login Kirin cloud to realize the device setting/data viewing and downloading. When exceed the alarm data, the system will automatically send the alarm information through SMS, email or WeChat. The system strictly monitor the environment and equipment: 1 monitoring environment: warehouse, clean room, blood bank, pharmacy, cold room, animal room, laboratory 2 monitoring equipment: stability test box, freezer, refrigerator, constant temperature and humidity box, ultra-low temperature freezer, liquid nitrogen container and oven.

# Product topology



After the data is collected by various sensors (Smart Sensor), the cloud management platform is uploaded via the mobile GPRS network (type I), wired network or WIFI mode (type II) via the Smart Box. Users only need to login to achieve monitoring and management.



( Smart sensor T1 )



( Smart sensor T2 )



( Smart T-BOX )

### Specification

Model	Temperature range	Humidity range	Temperature deviation	Humidity deviation	Temperature resolution	Power supply mode	Operating frequency	Installation mode
Smart sensor T1	-20°C—60°C	0—100%RH	±0.2°C	±2%RH	0.01	Built-in power supply (replaceable)	425—441Mhz	module placed inside device
Smart sensor T2	-200°C—150°C	—	±0.5°C	—	0.01	Built-in power supply (replaceable)	425—441Mhz	module placed inside device

### Product features

- Intelligent transportation** Internet of Things LORA technology, intelligent matching data optimal transmission path.
- Ultra-low power consumption** Built-in power supply can work independently for more than two years, and can be easily replaced or charged using USB
- Remote transmission** Effective transmission distance is more than 200 meters, effectively ensuring signal penetration and data stability
- Ultra-thin body** Small size, convenient and flexible, waterproof, dustproof and moisture proof, etc.

### Specification

Model	Operating temperature	Storage capacity	Network standard	External wiring	Power supply mode	Operating frequency	Installation method
Smart T-Box	Normal temperature environment	Built-in data storage TF card	Type I Select antenna or gain antenna according to actual needs	Built-in power supply	USB charging module can be placed in normal	425—441Mhz	temperature environment and have power supply





### Product features

- Ultra-low power consumption** Built-in power supply can work independently for more than 7 days.
- Wide-area networking** Up to 255 acquisitions module data can be uploaded.
- Automatic frequency conversion** When subjected to external interference frequency, it can automatically transfer to the uninterrupted frequency for data transmission, ensuring data stability and reliability.
- Freedom of networking** Data transmission can be carried out by means of GPRS/WIFI to meet the needs of global users.





Basic function

01	02	03	04
<p>whole-process monitoring</p> <p>It realizes the monitoring and management of the whole process of the target monitoring object for 24 hours and any place without interruption.</p> 	<p>Data storage</p> <p>Automatically record, save all monitoring data, and download as needed.</p> 	<p>Remote alarm</p> <p>When the monitoring data exceeds the preset threshold, it can be remotely alerted by SMS, email, WeChat, APP, etc.</p> 	<p>Record report</p> <p>The monitoring data record can form a data report according to the user's needs, which is convenient for records.</p> 

Features



**01** Stable and reliable cloud server

Kirin Cloud is a professional domain management platform built on Alibaba Cloud's mature solutions, data safe, stable and reliable. The platform can be updated in real time, greatly reducing user usage and operation and maintenance costs, and improving usage efficiency.

**02** Convenient and efficient management logic

Users can conveniently and efficiently manage the Kirin cloud management platform at any time and any way through computers, mobile phones, WeChat, platforms, etc.



**03** Simple and beautiful application interface

After professional and humanized industrial design, it presents the first-class simple and beautiful application interface. Users log in to the Kirin cloud management platform and can use 8 modules: device management, alarm management, role management, user management, device data, operation log, interface management and personal information permission.



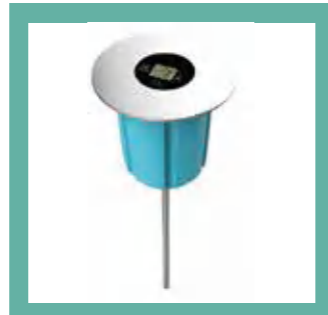
# Accessories and Cryogenic Protection



CryoMonitor 3000



CryoMonitor 1000



Smart Cap



Rack



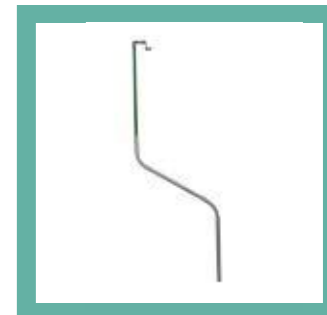
Box



Electrical Level Meter



Float Level Meter



Probe Holder



Extra Slot



Level Ruler



Liquid Nitrogen Dispenser,  
Foot Press



Liquid Nitrogen Dispenser,  
Hand Press



Roller Base



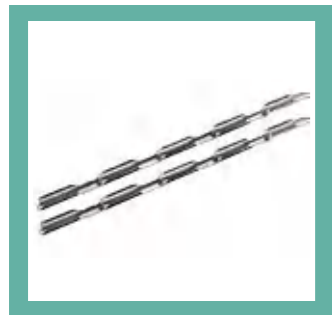
Roller Base



Shipping Case



Vial Clamps



Aluminum Cane



Cryogenic Protection



Goggles with Face Shield



Cryogenic Apron



Cryogenic Apron



Cryogenic Clothes



Oxygen Detector



CO2 Detector