## Haier Medical and Laboratory Products Co., Ltd

Brand Building, Haier industrial park, No. 1 Haier Road, Qingdao, 266101, P.R. China Tel: +86-0532-88936011 / 5955 Website: www.haiermedical.com





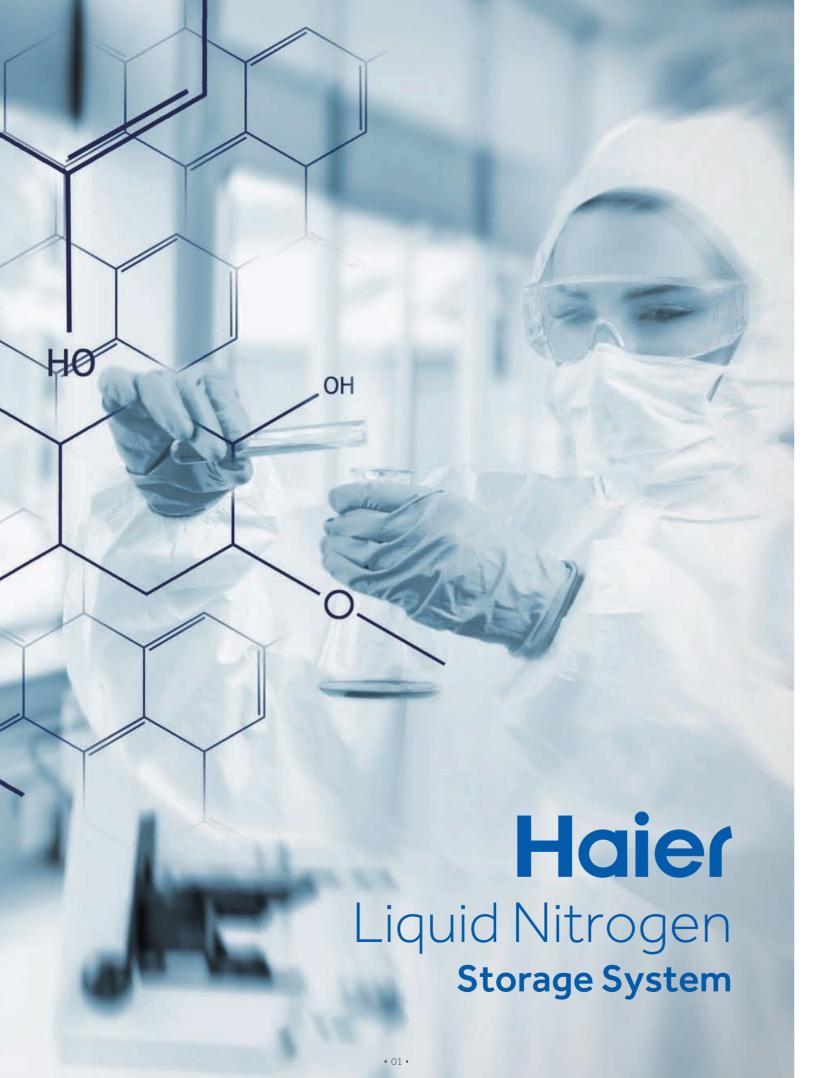
future information you might need.











# **Directory**

Liquid Nitrogen C	ontainer	05-52
Biobank Series	Introduction Key Features Product Advantages Product Details Temperature Test Graph Square Canister&Racks Layout Technical Parameters	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0
Medical Series	Introduction Key Features Product Advantages Technical Parameters Accessories	
• LAB Series	Introduction  Key Features  Product Advantages  Technical Parameters  Accessories	
BIO Series	Introduction Key Features Product Advantages Technical Parameters Cryo Tube Clamp Parameter Accessories	20 21 21
Biotrek Series	Introduction  Key Features  Product Advantages  Technical Parameters	······ 26
Cryostor Series	Introduction  Key Features  Product Advantages  Technical Parameters	3( 3:
Product List		33-38

• 02 •

## Biobank Series

LN<sub>2</sub> Splash Proof

Data Logging

Quick Chill

Rapid Specimen Storage

5 Year Vacuum Warranty

From 13000 To 94875 Cryovials

Self Diagnostic

"Dry" Sample Storage

Lockable Lid

Liquid Or Vapour

One-touch Defogging



### **Biobank Series**



### Introduction

Biobank Series has six models with capacity of 300, 500, 800, 1000, 1500, and 1800. Biobank Series is designed to ensure the maximum storage capacity with the minimum consumption of liquid nitrogen to lower the overall cost of operations.

• 04 •

### **Key Features**

- Massive capacity between 13000 to 94875×2ml Vials
- Vapor phase storage is the only guaranteed method to prevent cross-contamination
- Vapour phase storage at -190°C
- 5 year vacuum warranty

- One-touch defogging for easier access
- LN<sub>2</sub> splash proof make the operation more secure
- Biobank storage compatible

#### Optimal Use of Storage Space

Racks are stored on the rotating tray with an appropriate distance from the wall of the chamber. Liquid nitrogen or supercooled nitrogen vapor is filled in the space between the tray and the wall to maintain temperature uniformity. Storage space is equally divided into four or six fan-shaped storage rooms which are clearly labeled. Each storage room is easily rotated to the opening of the tank for convenient sample access.



## Designed for Both Liquid and Vapor Phase Storage

Each model of Biobank Series is designed for both liquid and vapor phase storage. For vapor phase storage, samples are kept away from the liquid nitrogen while stored in a uniform temperature that is close to the temperature range of liquid nitrogen.

## Advanced Vacuum Technology and Superinsulation Technology

Haier Liquid Nitrogen Storage System Biobank Series applies advanced vacuum technology and superinsulation technology to ensure storage safety and temperature uniformity while reducing the consumption of liquid nitrogen. The temperature difference of the entire storage area does not exceed 10°C even in vapor phase storage, and temperature near the top of the shelf can be as low as -190°C.

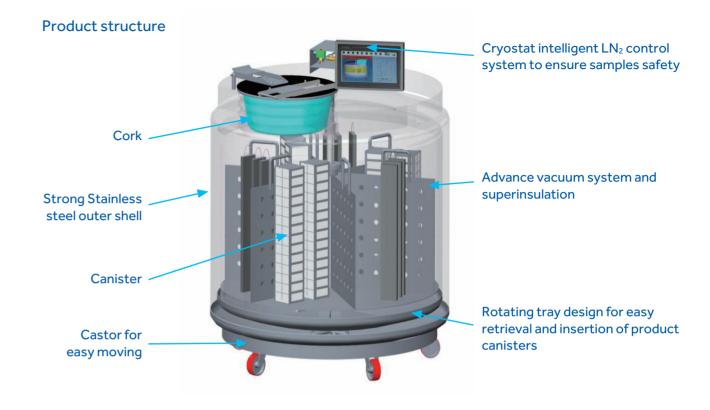


### Cryosmart Intelligent Liquid Nitrogen Control System

• 05 •

Haier Liquid Nitrogen Storage System Biobank Series features Cryosmart system for complete monitoring and controlling. High-precision temperature and liquid level censors are used to ensure accuracy. All data and samples are protected by secure access control system.

#### **Product Details**



### Top of the Container



### Lid Open



A Low-temperature hose connects the inlet and liquid nitrogen tank for supplement. A silencer reduces the noise of nitrogen emission to grant a quiet environment.



• 06 •

Vapor condensation near the container opening is controlled. The strength of the container is reinforced at liquid nitrogen temperature to extend service life.

Small self-pressurized liquid nitrogen supply system suitable for research institutes dealing with fewer samples.

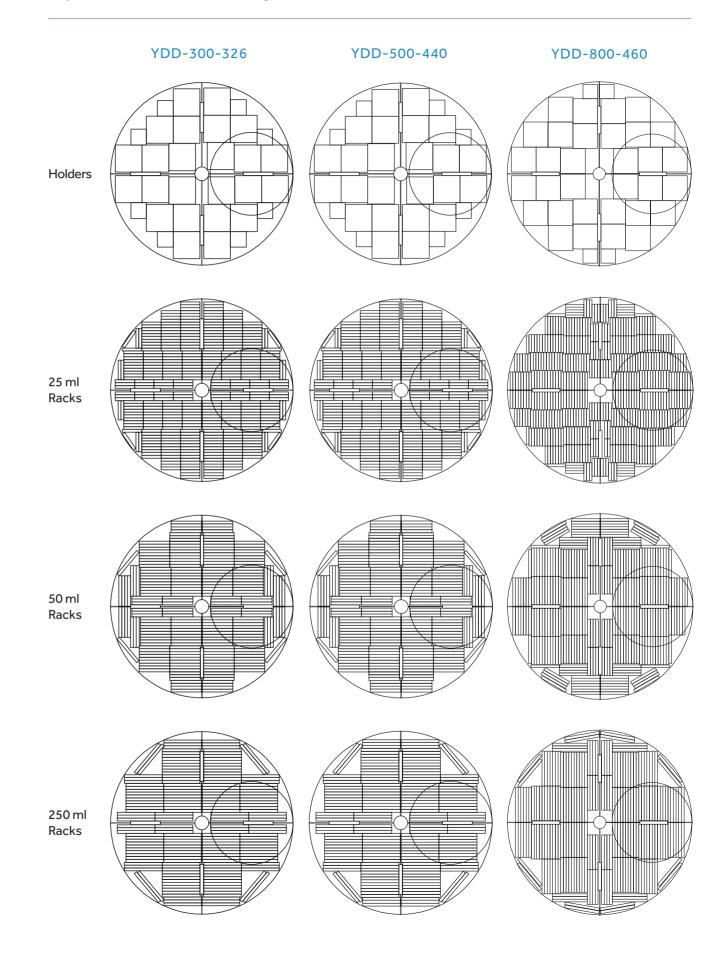




### **Temperature Test Graph**

10 times testing data within 5 days -150.0℃ -160.0℃ -140.0℃ -150.0℃ -170.0℃ -160.0℃ -170.0℃ -180.0℃ -180.0℃ -190.0℃ -190.0℃ -200.0℃ -200.0℃ 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 Testing point at the opening neck Testing point 200mm from the opening neck -170.0℃ -165.0℃ -175.0℃ -170.0℃ -180.0℃ -175.0℃ -185.0℃ -180.0℃ -185.0℃ -190.0℃ -190.0℃ -195.0℃ -195.0℃ -200.0℃ -200.0°C 1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10 Testing point 400mm from the opening neck Testing point at rotating tray

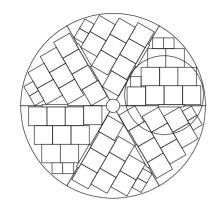
### **Square Canister&Racks Layout**

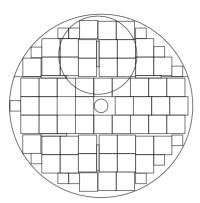


• 07 •

### YDD-1000/1500-610

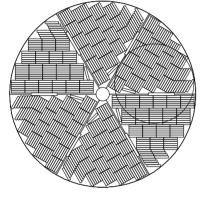
### YDD-1800-610

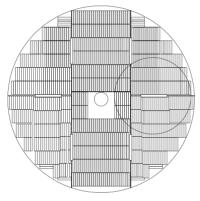




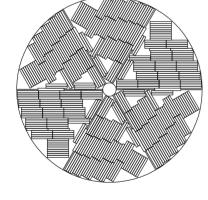


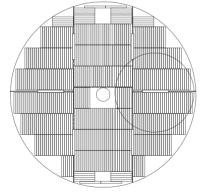
Holders



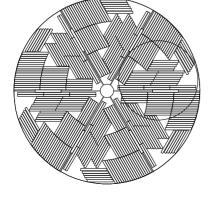


50 ml Racks

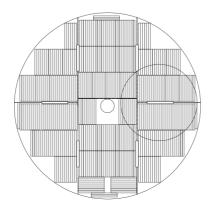




250 ml Racks



• 09 •



### **Technical Parameters**

Model	YDD-300 -326	YDD-500 -440	YDD-800 -460	YDD-1000 -610	YDD-1500 -610	YDD-1800 -610
		Maximu	um Storage Capac	city		
2 ml Vials (Internal Thread)	13000	26000	42900	58500	76050	94875
Freeze Rack (100 wells)	12	24	32	54	54	60
Freeze Rack (25 wells)	4	8	4	18	18	13
Layers of each rack	10	10	13	10	13	15
0.5 ml Vials (Internal Thread)	18200	33800	56100	81900	99450	126500
Freeze Rack (100 wells)	12	24	32	54	54	60
Freeze Rack (25 wells)	4	8	4	18	18	13
Layers of each rack	14	13	17	14	17	20
			Performance			
Volume of LN <sub>2</sub> (L)	280	470	675	895	1316	1520
Volume of LN₂ under the tray (L)	55	80	135	265	300	320
			Dimensions			
Inside Neck Diameter (MM)	326	440	460	610	610	610
Height (MM)	1180	1160	1435	1360	1570	1680
Operating Height (MM)	1180	1160	1110	1060	1070	1080
Outside Diameter (MM)	870	1080	1180	1565	1565	1565
DoonWidth Requirements (MM)	1000	1200	1300	1700	1700	1700
Empty Weight (KG)	219	328	441	733	840	925
Gross Weight (KG)	490	771	1089	1627	2127	2389

### Blc od bag capacity

	Total No. of Bags		No. of Racks									No. of Racks		Rack Layers	No. of Racks			No. of Racks
25 ml	1272	6	212	2376	6	396	3360	7	480	4716	6	786	5502	7	786	7758	9	862
50 ml	792	6	132	1416	6	236	2016	7	288	2916	6	486	3402	7	486	4905	9	545
250 ml	288	3	96	552	3	184	944	4	236	1560	4	390	1950	5	390	2095	5	419

• 10 •

## Medical Series

5 Year Vacuum Warranty

Cryobox Storage

High Thermal Efficiency

Liquid and Vapour

Durability

Auto Fill

Security



### **Medical Series**



### Introduction

Haier Liquid Nitrogen Storage System Medical Series features low  $LN_2$  consumption and relatively small footprint for medium capacity sample storage.

### **Key Features**

- 5 models from 2400 to 6000 cryovial capacity
- Heavy duty lockable enclosure offers excellent security
- Compatible with all major cryobox brands
- Durable aluminium construction
- Temperature data-logging monitoring available

- Liquid or vapour phase option available
- High thermal efficiency
- 5 year vacuum warranty
- Ultra-low evaporative Losses

• 11 •

## ULT Storage with Extremely Low LN<sub>2</sub> Evaporation

Freezer racks are in the ultra-low temperature environment with extremely low  $LN_2$  evaporation. Even stored in vapor phase, the temperature will be below -190°C for a long time.



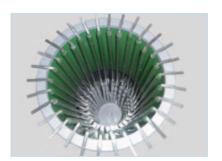
# Advanced Vacuum Technol ogy and Superinsulation Technology

Advanced vacuum and insulation technologies ensure cryopreservation for as long as four months.

#### Compatible for Blood Bag Storage

According to users' needs, Medical Series can be adapted to  $LN_2$  tanks for temporary storage of blood bags before transferred to larger scale  $LN_2$  storage.







#### Auto-Refill System

Auto-refill system is particularly suitable for vapor phase storage. For liquid phase storage, it can also facilitate users' operations by avoiding frequent refills.

The auto-refill system continuously monitors the inside temperature through ZTC-100B/100C Level Monitor, and automatically controls inlet valve to replenish  $LN_2$ . Although less economical, it provides accurate control and ensures safety storage for over 8 weeks.

#### Level Monitor

Liquid level monitor continuously and reliably monitors the temperature inside the tank and informs users to refill  $LN_2$ . It is suitable for institutes that require long time cryopreservation.

Three models (ZTC-100A/100B/100C) are available. The monitor offers real-time temperature display and audible/visual alarms for high temperature, sensor failure, and low liquid level.



### **Technical Parameters**

Model	YDS-65- 216	YDS-65- 216-F	YDS-95- 216	YDS-95- 216-F	YDS-115 -216	YDS-115 -216-F	YDS-140 -216	YDS-140 -216-F	YDS-175 -216	YDS-175 -216-F
				Maximum	Storage Cap	acity				
No. of holders	-	6	-	6	-	6	-	6	-	6
No. 2.0 ml Cryovials (100 / box)	-	2400	-	3000	-	3600	-	4800	-	6000
No. of boxes in (2ml each holder)	-	4	-	5	-	6	-	8	-	10
No. 5.0 ml Cryovials (36 / box)	-	648	-	864	-	1080	-	1296	-	1728
No. of boxes in (5ml each holder)	-	3	-	4	-	5	-	6	-	8
				Perf	ormance					
Volume of LN <sub>2</sub> (L)	65	65	95	95	115	115	140	140	175	175
Static Evaporation Rate* (L/Day)	0.79	0.79	0.81	0.81	0.83	0.83	0.87	0.87	0.87	0.87
Working Volume (L)	55	55	85	85	105	105	130	130	165	165
Duration of Normal Operation ** (Day)	44	44	66	66	80	80	94	94	126	126
				Din	nensions					
Neck Opening Diameter (MM)	216	216	216	216	216	216	216	216	216	216
Height(MM)	710	710	726	726	796	796	910	910	1026	1026
Outer Diameter(MM)	681	681	681	681	681	681	681	681	681	681
Empty Weight(KG)	27.5	27.5	34.5	34.5	38.5	38.5	42.5	42.5	55	55
Gross Weight(KG)	80.8	80.8	112.4	112.4	132.8	132.8	157.3	157.3	198.5	198.5

<sup>\*</sup> Static evaporation and static holding time is theoretical value. Actual evaporation and holding time is affected by usage, atmospheric conditions, and manufacturing tolerances.

#### Accessories



• 13 •

<sup>\*\*</sup> Duration of normal operation is for reference only to estimate container performance under normal operating conditions. Actual duration may differ due to different atmospheric conditions, usage history, manufacturing tolerances, and particular circumstances.

## LAB Series

5 Year Vacuum Warranty Durability

High Thermal Efficiency Security

Strong and Lightweight Super-Insulation

30 Litre To 50 Litre Capacity Ideal For Lab Applications



### **LAB Series**



### Introduction

Widely used in laboratories around the world.

### **Key Features**

- 5 models, from 30 litres to 50 litres capacity
- Heavy duty lockable enclosure offers excellent security
- Strong, lightweight aluminium construction
- Dual handles
- Temperature data-logging monitoring available

- Roller bases available
- High thermal efficiency
- 5 year vacuum warranty
- Ultra-low evaporative losses

• 16 •

### Low LN<sub>2</sub> consumption and small storage capacity

Haier LAB Series Liquid Nitrogen Storage System features low  $LN_2$  consumption and small storage capacity for laboratory applications. The light-weighted tanks require smaller space while provide efficient small capacity cryogenic storage.

## Advanced Vacuum Technology and Super-insulation Technology

Advanced vacuum and insulation technologies provide ultra-low liquid nitrogen evaporation loss and ensure three months cryogenic storage.



#### Five Models Available

LAB Series offers five models with different capacity from 600, 750 to 900 standard 2 ml cryovials. All models are supplied with stainless steel holders and cryogenic boxes.

### **Technical Parameters**

Model	YDS-30- 125-F	YDS-30B- 125-F	YDS-35- 125-F	YDS-35B -125-F	YDS-47- 127-F	YDS-50B -125-F
		Maximu	um Storage Capacity	У		
No. of holders	6	6	6	6	6	6
1.2&2 ml Cryovials (25 per box)	600	600	750	750	900	900
No. of boxes in (holder)	4	4	5	5	6	6
			Performance			
Volume of LN <sub>2</sub> (L)	31.5	31.5	35	35	47	50
Static Evaporation * (L/Day)	0.28	0.28	0.29	0.35	0.33	0.37
Working Volume	31.5	31.5	35	35	47	50
Duration of Normal Operation** (Day)	71	71	76	63	90	85
			Dimensions			
Opening Diameter(MM)	125	125	125	125	127	125
Height(MM)	659	659	700	700	753	753
Outside Diameter(MM)	461	461	461	461	461	461
Empty Weight(KG)	14.3	14.3	14.5	14.8	15.4	21
Gross Weight(KG)	38.9	38.9	43.2	43.5	53.9	62

<sup>\*</sup> Static evaporation and static holding time is theoretical value. Actual evaporation and holding time is affected by usage, atmospheric conditions, and manufacturing tolerances.

### **Accessories**









• 17 •

<sup>\*\*</sup> Duration of normal operation is for reference only to estimate container performance under normal operating conditions. Actual duration may differ due to different atmospheric conditions, usage history, manufacturing tolerances, and particular circumstances.

## **BIO Series**

Numbered Index Canister Locations

High Capacity

High Thermal Efficiency

5 Year Vacuum Warranty

Extended Hold Time

LN<sub>2</sub>Dispenser

Straws

Lockable

Roller Bases



### **BIO Series**



### Introduction

BIO Series provides two cryopreservation solutions for long-term static storing and transporting of biological samples.

### **Key Features**

- Strong and lightweight aluminium construction
- Heavy duty lockable enclosure offers excellent security
- Numbered index location points for canisters
- Straw storage
- LN<sub>2</sub> dispense available

- Roller bases available
- High thermal efficiency
- 5 year vacuum warranty
- Ultra-low evaporative losses

• 20 •

Narrow neck design and excellent thermal conductivity reduces evaporation loss of liquid nitrogen for extended storage time.

Large-capacity models have wider necks for easier access to biological samples.



Long-term cryopreservation models have narrower necks for better thermal conductivity.

28 models, capacities range from 1 to 50 liters.

### **Technical Parameters**

	Model	YDS-2-30	YDS-2-35	YDS-3	YDS-6	YDS-10	YDS-10-80
	No. of Canister	3 (3)	3 (3)	6 (3)	6 (3)	6 (3)	6 (3)
Max- imum	No. of Straws (Single Layer) (0.5ml each holder)	90	90	792	792	792	2040
Capacity	No. of Straws (Single Layer) (0.25ml each holder)	204	204	1788	1788	1788	4554
	No. of Straws (Double Layer) (0.5ml each holder)	_	_	_	_	_	_
	No. of Straws (Double Layer) (0.25ml each holder)	_	_	_	_	_	_
	Volume of LN <sub>2</sub> (L)	2	2	3.15	6	10	10
Perfor- mance	Static Evaporation* (L/Day)	0.06	0.06	0.10	0.10	0.10	0.18
	Duration of Normal Operation ** (Day)	21	21	20	38	63	35
	Opening Diameter (MM)	30	35	50	50	50	80
	Height(MM)	378	378	429	476	536	540
Dimen-	Outside Diameter(MM)	224	224	224	300	300	300
sions	Canister Outside Diameter (MM)	19	19	38	38	38	63
	Outside Height(MM)	120	120	120	120	120	120
	Empty Weight(KG)	2.9	2.9	3.5	5	6.3	6.5
	Gross Weight(KG)	4.5	4.5	6	9.9	14.5	14.7

	Model	YDS-10-125	YDS-13	YDS-15	YDS-15-125	YDS-20	YDS-30
	No. of Canister	1 (0)	6 (3)	6 (3)	1 (0)	6 (3)	6 (3)
	No. of Straws (Single Layer) (0.5ml each holder)	_	_	792	_	792	792
Max- imum	No. of Straws (Single Layer) (0.25ml each holder)	_	_	1788	_	1788	1788
Capacity	No. of Straws (Double Layer) (0.5ml each holder)	1508	1284	_	1508	1284	1284
	No. of Straws (Double Layer) (0.25ml each holder)	3324	2832	_	3324	2832	2832
	Volume of LN <sub>2</sub> (L)	10	13	15	15	20	30
Perfor- mance	Static Evaporation* (L/Day)	0.30	0.10	0.10	0.30	0.10	0.11
	Duration of Normal Operation** (Day)	21	82	94	31	126	172
	Opening Diameter(MM)	125	50	50	125	50	50
	Height(MM)	546	610	575	585	656	655
	Outside Diameter(MM)	300	310	394	394	394	461
Dimen- sions	Canister Outside Diameter (MM)	97	38	38	97	38	38
	Outside Height(MM)	276	276	120	276	120/276	120/276
	Empty Weight(KG)	6.9	6.6	8.2	10.2	11.7	12
	Gross Weight(KG)	15.1	17.3	20.5	22.5	28.1	36.6

	Model	YDS-30 -80	YDS-30 -125	YDS-35	YDS-35 -80	YDS-35 -125	YDS-47 -127
	No. of Canister	6 (3)	6 (3)	6 (3)	6 (3)	6 (3)	6 (3)
	No. of Straws (Single Layer) (0.5ml each holder)	2244	5124	792	2244	5124	5124
Max- imum	No. of Straws (Single Layer) (0.25ml each holder)	5022	11952	1788	5022	11952	11952
Capacity	No. of Straws (Double Layer) (0.5ml each holder)	3624	9048	1284	3624	9048	9048
	No. of Straws (Double Layer) (0.25ml each holder)	8460	19944	2832	8460	19944	19944
	Volume of LN₂ (L)	30	30	35	35	35	47
Perfor- mance	Static Evaporation* (L/Day)	0.18	0.28	0.11	0.19	0.29	0.33
	Duration of Normal Operation ** (Day)	105	67	200	116	76	90
	Opening Diameter(MM)	80	125	50	80	125	127
	Height(MM)	655	659	695	698	700	754
	Outside Diameter(MM)	461	461	461	461	461	461
Dimen- sions	Canister Outside Diameter (MM)	63	97	38	63	97	97
	Outside Height(MM)	120/276	120/276	120/276	120/276	120/276	120/276
	Empty Weight(KG)	12.4	14.3	14	14.2	14.5	15.4
	Gross Weight(KG)	37	38.9	42.7	42.9	43.2	54

• 21 •

	Model	YDS-20B	YDS-30B	YDS-30B -80	YDS-30B -125	YDS-35B
	No. of Canister	6 (3)	6 (3)	6 (3)	6 (3)	6 (3)
	No. of Straws (Single Layer) (0.5ml each holder)	792	792	2244	5124	792
Max- imum	No. of Straws (Single Layer) (0.25ml each holder)	1788	1788	5022	11952	1788
Capacity	No. of Straws (Double Layer) (0.5ml each holder)	1284	1284	3624	9048	1284
	No. of Straws (Double Layer) (0.25ml each holder)	2832	2832	8460	19944	2832
	Volume of LN <sub>2</sub> (L)	20	30	30	30	35
Perfor- mance	Static Evaporation* (L/Day)	0.18	0.17	0.23	0.34	0.17
	Duration of Normal Operation ** (Day)	70	111	82	56	129
	Opening Diameter(MM)	50	50	80	125	50
	Height(MM)	656	656	656	659	695
	Outside Diameter(MM)	394	461	461	461	461
Dimen- sions	Canister Outside Diameter(MM)	38	38	63	97	38
	Outside Height(MM)	120/276	120/276	120/276	120/276	120/276
	Empty Weight(KG)	11.5	12.5	13	14.6	14.1
	Gross Weight(KG)	27.9	37.1	37.6	39.2	42.8

	Model	YDS-35B-80	YDS-35B-125	YDS-50B	YDS-50B-80	YDS-50B-125
	No. of Canister †	6 (3)	6 (3)	6 (3)	6 (3)	6 (3)
	No. of Straws (Single Layer) (0.5ml each holder)	2244	5124	792	2244	5124
Max- imum	No. of Straws (Single Layer) (0.25ml each holder)	5022	11952	1788	5022	11952
Capacity	No. of Straws (Double Layer) (0.5ml each holder)	3624	9048	1284	3624	9048
	No. of Straws (Double Layer) (0.25ml each holder)	8460	19944	2832	8460	19944
	Volume of LN <sub>2</sub> (L)	35	35	50	50	50
Perfor- mance	Static Evaporation* (L/Day)	0.23	0.35	0.20	0.26	0.37
	Duration of Normal Operation ** (Day)	96	63	157	121	85
	Opening Diameter(MM)	80	125	50	80	125
	Height(MM)	698	700	770	766	753
	Outside Diameter(MM)	461	461	461	461	461
Dimen- sions	Canister Outside Diameter (MM)	63	97	38	63	97
	Outside Height(MM)	120/276	120/276	120/276	120/276	120/276
	Empty Weight(KG)	14.3	14.8	19.3	20.1	21
	Gross Weight(KG)	43	43.5	60.3	61.1	62

 $<sup>\ \, \ \, \ \, \! \! \</sup>uparrow \text{A(B): A for maximum number of canisters, B for number of canisters in standard configuration}$ 

### **Cryo Tube Clamp Parameter**

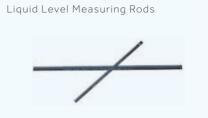
Canister Parameters		120 mm Long, 3 (50-diameter	8 mm diameter storage tank)			276 mm Long, 3 (50-diameter	8 mm diameter storage tank)	
Cryovial Parameters	No. of holders in a canister	No. of vials in a holder	No. of vials in a canister	No. of vials in a storage tank	No. of holders in a canister	No. of vials in a holder	No. of vials in a canister	No. of vials in a storage tank
0.5 ml	3	3	9	54	3	6	18	108
1.5 ml	3	3	9	54	3	6	18	108
2.0 ml	3	3	9	54	3	6	18	108
3.0 ml	3	3	9	54	3	6	18	108
5.0 ml	3	1	3	18	3	3	9	54
Canister Parameters		120 mm Long, 6 (80-diameter				276 mm Long, 6 (80-diameter	3 mm diameter storage tank)	
Cryovial Parameters	No. of holders in a canister	No. of vials in a holder	No. of vials in a canister	No. of vials in a storage tank	No. of holders in a canister	No. of vials in a holder	No. of vials in a canister	No. of vials in a storage tank
0.5 ml	11	3	33	198	11	6	66	396
1.5 ml	11	3	33	198	11	6	66	396
2.0 ml	11	3	33	198	11	6	66	396
3.0 ml	11	3	33	198	11	6	66	396
5.0 ml	11	1	11	66	11	3	33	198
Canister Parameters		120 mm Long, 9 (125-diamete				276 mm Long, 9 (125-diamete	7 mm diameter r storage tank)	
Cryovial Parameters	No. of holders in a canister	No. of vials in a holder	No. of vials in a canister	No. of vials in a storage tank	No. of holders in a canister	No. of vials in a holder	No. of vials in a canister	No. of vials in a storage tank
0.5 ml	27	3	81	486	27	6	162	972
1.5 ml	27	3	81	486	27	6	162	972
2.0 ml	27	3	81	486	27	6	162	972
3.0 ml	27	3	81	486	27	6	162	972
5.0 ml	27	1	27	162	27	3	81	486

### Accessories











• 23 •

<sup>\*</sup> Static evaporation and static holding time is theoretical value. Actual evaporation and holding time is affected by usage, atmospheric conditions, and manufacturing tolerances.

<sup>\*\*</sup> Duration of normal operation is for reference only to estimate container performance under normal operating conditions. Actual duration may differ due to different atmospheric conditions, usage history, manufacturing tolerances, and particular circumstances.

## Biotrek Series

3 Year Vacuum Warranty

Vapour Phase Storage

Rugged And Durable

Security



## **Biotrek Series**



### Introduction

Biotrek Series is designed for safe sample transportation under cryogenic conditions (vapor phase storage, temperature under  $-190^{\circ}$ C). As the risk of LN<sub>2</sub> release is avoided, it is suitable for short-haul air transportation.

### **Key Features**

- Straw and cryovial storage options
- Rugged and durable aluminium construction
- No LN₂ spillage
- Vapour phase cryogenic storage

- $\bullet$  Faster LN $_2$  fill times
- Lockable lids
- 3 year vacuum warranty

#### Liquid Nitrogen Adsorption

Adsorbent materials are used to absorb and retain  $LN_2$  for safe transport. There will not be spillover of liquid nitrogen even when the tank is capsized.

#### Five Models Available

Biotrek Series offers five models of shippers with different capacities for the storage of straws and 2 ml vials.

#### Stainless Steel Mesh

Special stainless steel mesh divides storage space and  $LN_2$  absorbents to prevent absorbent materials from contaminate the samples.

### Complete Accessories Set

All models are offered a variety of stainless steel canisters and polycarbonate cryogenic boxes. Locking cover is optional.



### **Technical Parameters**

Model	YDH-3	YDH-6-80	YDH-8-80	YDH-10-125	YDH-10 -125-F	YDS-25 -216-F
		Maximu	m Storage Capacit	у		
No. of Canister	1	1	1	1	1	1
No. of Straws (0.5ml / EA)	132	820	820	1508	_	_
No. of Straws (0.25ml / EA)	298	1780	1780	3324	_	_
No. 2.0 ml Cryovials (25 / box)	_	_	_	_	75	500
No. of boxes in (2ml per holder)	_	_	_	_	3	5
		ı	Performance			
Volume of LN <sub>2</sub> (L)	3	6	8	10	10	25
Static Evaporation* (L/Day)	0.21	0.40	0.40	1.25	1.25	0.89
Duration of Normal Operation**(Day)	14	15	18	8	8	10
			Dimensions			
Opening Diameter(MM)	50	80	80	125	125	216
Height(MM)	428	481	581	546	546	705
Outside Diameter(MM)	224	300	300	300	300	394
Canister Outside Diameter(MM)	38	63	63	97	_	_
Outside Height(MM)	120	120	120	276	_	_
Empty Weight(KG)	3.5	5	5.8	6.9	6.9	15
Gross Weight(KG)	6	10	12	15	15	35

<sup>\*</sup> Static evaporation and static holding time is theoretical value. Actual evaporation and holding time is affected by usage, atmospheric conditions, and manufacturing tolerances.

• 27 •

<sup>\*\*</sup> Duration of normal operation is for reference only to estimate container performance under normal operating conditions. Actual duration may differ due to different atmospheric conditions, usage history, manufacturing tolerances, and particular circumstances.

# Cryostor series

5 Year Vacuum Warranty

Muffler

Decant Valves

Pressure Raising

Liquid Storage

Security

Stainless Steel Construction

Relief Valve



## **Cryostor Series**



### Introduction

Cryostor Series is the latest innovation for high-performance liquid phase cryopreservation. The container uses the pressure generated from vaporization of small amount liquid nitrogen to discharge  $LN_2$  for other containers. Storage capacities range from 5 to 500 liters.

### **Key Features**

- Ten models with capacities range from 5 to 500 liters.
- All models are equipped with safety valves, 200 L and above models have additional rupture disc.
- All welded stainless steel construction

- Rotary ring construction
- Labelled valves for easy identification.
- 5 year acuum warranty

• 29 •

#### Stainless Steel Structure

Stainless steel structure can withstand the most demanding environment and ensure long-lasting security. It also provides reduced evaporation loss rate, compared with conventional welding insulation tanks.

#### Casters

All models have four casters for better mobility and convenient use in different occasions.

#### A variety of accessories

Each Cryostor Series model is equipped with a pressure valve, a drain valve, a relief valve, and a pressure gauge. For 200 L and above models also apply safety structures such as rupture discs and silencers.



#### Self-pressurized LN₂ Backup System

Self-pressurized  $LN_2$  back up system is used for Cyro freezers. In extreme cases, such as power outage, system failure and so on, the backup system automatically opens cryogenic solenoid valves and injects liquid nitrogen to ensure the set temperature and protect samples.

Compared to traditional high pressure cylinder backup system, the self-pressurized  $LN_{\rm 2}$  backup system has the following advantages:



- Safer: under required operating condition, self-pressurized  $LN_2$  backup system has lower working pressure and hence safer than traditional high-pressure backup system.
- More Economical: self-pressurized liquid nitrogen tank has better insulation performance, lower evaporation losses and longer working duration with the same amount of  $LN_2$ .
- More convenient: self-pressurized  $LN_2$  backup system combines the controllers with self-pressurized components and greatly reduces pipelines and cables used in traditional backup systems.
- More stable: due to the reduction of intermediate pipe connections, impact of environmental factors on the system is reduced.
- Cheaper: self-pressurized LN<sub>2</sub> backup system costs less than traditional backup systems.

### **Technical Parameters**

Model	YDZ-5	YDZ-15	YDZ-30	YDZ-50	YDZ-100			
Performance								
Volume of LN <sub>2</sub> (L)	5	15	30	50	100			
Static Evaporation* (L/Day)	0.15	0.38	0.75	1	1.3			
LN₂ output (L/Min) 2 2		3	3	4				
		Dimen	sions					
Height(MM)	510	750	879	991	1185			
Outside Diameter(MM)	329	404	454	506	606			
Empty Weight(KG)	15	23	32	54	75			
Gross Weight(KG)	19.1	35.3	56.6	95.0	157.0			
Pressure Parameters (MPA)	1. Standard working pressure 0.05, 2. Maximum working pressure 0.09, 3. First stage safety valve relief pressure 0.099, 4. Second stage safety valve release pressure 0.15, 5. Pressure gauge range 0~0.25							

Model	YDZ-150	YDZ-175	YDZ-200	YDZ-240	YDZ-300	YDZ-500	
Performance							
LN₂ capacity (L)	150	175	200	240	300	500	
Static Evaporation* (L/Day)	1.95	2.1	2.4	2.9	3.3	5.5	
LN₂ output (L/Min)	6	6	8	8	8	10	
Dimensions							
Height(MM)	1188	1298	1265	1350	1459	1576	
Outside Diameter(MM)	706	706	758	758	857	1008	
Empty Weight(KG)	102	120	130	148	202	255	
Gross Weight(KG)	225	264	294	366	448	665	
Pressure Parameters (MPA)		g pressure 0.05, 2. M fety valve release pro	91	essure 0.09, 3. First s sure gauge range 0-0	9		

<sup>\*</sup> Static evaporation and static holding time is theoretical value. Actual evaporation and holding time is affected by usage, atmospheric conditions, and manufacturing tolerances.

• 31 •



## **Product List**

Model		Description	Accessories			
''	ouei	Description	Standard	Optional		
_	YDS-2-30	2L,neck opening diameter 30mm	3*120mm canister,jacket	Locking cover SG-30		
	YDS-2-35	2L,neck opening diameter 35mm	3*120mm canister,jacket	Locking cover SG-35		
	YDS-3	3L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister,locking cover SG-50		
	YDS-6	6L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister, locking cover SG-50		
	YDS-10	10L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister, locking cover SG-50		
	YDS-10-80	10L,neck opening diameter 80mm	3*120mm canister,jacket	Additional 3 canister, locking cover SG-80		
	YDS-10-125	10L,neck opening diameter 125mm	Jacket	1*276mm canister,locking cover SG-125		
	YDS-13	13L,neck opening diameter 50mm	3*276mm canister,jacket	Additional 3*276mm canister, locking cover SG-50		
	YDS-15	15L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3*120mm canister, locking cover SG-50		
	YDS-15-125	15L,neck opening diameter 125mm	Jacket	1*120mm canister,locking cover SG-125		
	YDS-20	20L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choos locking cover SG-50,trolley/caster base		
	YDS-30	30L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister, 276mm canister can choos locking cover SG-50, trolley/caster base		
	YDS-30-80	30L,neck opening diameter 80mm	3*120mm canister,jacket	Additional 3 canister, 276mm canister can choos locking cover SG-80, trolley/caster base		
	YDS-30-125	30L,neck opening diameter 125mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choos locking cover SG-125,trolley/caster base		
i- Alloy	YDS-30-125-F	30L,neck opening diameter 125mm	6 square rack with 4 layers, 5*5 cryogenic box,jacket	Locking cover SG-125,trolley/caster base		
For ge	YDS-35	35L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choos locking cover SG-50,trolley/caster base		
	YDS-35-80	35L,neck opening diameter 80mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choos locking cover SG-80,trolley/caster base		
	YDS-35-125	35L,neck opening diameter 125mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choos locking cover SG-125,trolley/caster base		
	YDS-35-125-F	35L,neck opening diameter 125mm	6 square rack with 5 layers, 5*5 cryogenic box,jacket	Locking cover SG-125,trolley/caster base		
	YDS-47-127	47L,neck opening diameter 127mm	3 *120mm canister,jacket	Additional 3 canister,276mm canister can choos locking cover SG-125,trolley/caster base		
	YDS-47-127-F	47L,neck opening diameter 127mm	6 square rack with 6 layers, 5*5 cryogenic box,jacket	Locking cover SG-125,trolley/caster base		
	YDS-65-216	65L,neck opening diameter 216mm	/	Locking cover SG-216,trolley/caster base		
	YDS-65-216-F	65L,neck opening diameter 216mm	6 square rack with 4 layers, 9*9 cryogenic box	Locking cover SG-216,trolley/caster base		
	YDS-95-216	95L,neck opening diameter 216mm	/	Locking cover SG-216,trolley/caster base		
	YDS-95-216-F	95L,neck opening diameter 216mm	6 square rack with 5 layers, 9*9 cryogenic box	Locking cover SG-216,trolley/caster base		
	YDS-115-216	115L,neck opening diameter 216mm	/	Locking cover SG-216,trolley/caster base		
	YDS-115-216-F	115L,neck opening diameter 216mm	6 square rack with 6 layers, 9*9 cryogenic box	Locking cover SG-216,trolley/caster base		
	YDS-140-216	140L,neck opening diameter 216mm	/	Locking cover SG-216,trolley/caster base		
	YDS-140-216-F	140L,neck opening diameter 216mm	6 square rack with 8 layers, 9*9 cryogenic box	Locking cover SG-216,trolley/caster base		
	YDS-175-216	175L,neck opening diameter 216mm	/	Locking cover SG-216,trolley/caster base		
	YDS-175-216-F	175L,neck opening diameter 216mm	6 square rack with 10 layers, 9*9 cryogenic box	Locking cover SG-216,trolley/caster base		

Model		Doscription	Accessories		
Model		Description	Standard Optional		
	YDS-20B	20L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choose locking cover SG-50,trolley/caster base	
	YDS-30B	30L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choose locking cover SG-50,trolley/caster base	
	YDS-30B-80	20L,neck opening diameter 80mm	3*120mm canister,jacket	Additional 3 canister, 276mm canister can choose locking cover SG-80, trolley/caster base	
	YDS-30B-125	30L,neck opening diameter 125mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choose locking cover SG-125,trolley/caster base	
	YDS-30B-125-F	30L,neck opening diameter 125mm	6 square rack with 4 layers, 5*5 cryogenic box,jacket	Locking cover SG-125,trolley/caster base	
Alumi- num Alloy	YDS-35B	35L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choose locking cover SG-50,trolley/caster base	
Series For Trans-	YDS-35B-80	35L,neck opening diameter 80mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choose locking cover SG-80,trolley/caster base	
ortation	YDS-35B-125	35L,neck opening diameter 125mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choose locking cover SG-125,trolley/caster base	
	YDS-35B-125-F	35L,neck opening diameter 125mm	6 square rack with 5 layers, 5*5 cryogenic box.jacket	Locking cover SG-125,trolley/caster base	
	YDS-50B	50L,neck opening diameter 50mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choose locking cover SG-50,trolley/caster base	
	YDS-50B-80	50L,neck opening diameter 80mm	3*120mm canister,jacket	Additional 3 canister,276mm canister can choose locking cover SG-80,trolley/caster base	
	YDS-50B-125	50L,neck opening diameter125mm	3*120mm canister,jacket	Additional 3 canister ,276mm canister can choose locking cover SG-125,trolley/caster base	
	YDS-50B-125-F	50L,neck opening diameter125mm	6 square rack with 6 layers, 5*5 cryogenic box,jacket	Locking cover SG-125,trolley/caster base	
	YDH-3	3L,neck opening diameter 50mm	1*120mm canister,jacket	Locking cover SG-50	
Alumi-	YDH-6-80	6L,neck opening diameter 80mm	1*120mm canister,jacket	Locking cover SG-80	
num Alloy Series For	YDH-8-80	8L,neck opening diameter 80mm	1*120mm canister,jacket	Locking cover SG-80	
Air Trans- portation	YDH-10-125	10L,neck opening diameter 125mm	1*276mm canister,jacket	Locking cover SG-125	
	YDH-10-125-F	10L,neck opening diameter 125mm	1 square rack with 3 layers, 5*5 cryogenic box,jacket	/	
	YDH-25-216-F	25L,neck opening diameter 216mm	1 square rack with 5 layers, 9*9 cryogenic box,jacket	/	
	YDD-300-326	300L,neck opening diameter 326mm	/	Square rack,cryosmart monitoring system	
	YDD-500-440	500L,neck opening diameter 440mm	/	Square rack,cryosmart monitoring system	
Stainless	YDD-800-460	800L,neck opening diameter 460mm	1	Square rack, cryosmart monitoring system	
Steel Series	YDD-1000-610	1000L,neck opening diameter 610mm	/	Square rack,cryosmart monitoring system	
	YDD-1500-610	1500L,neck opening diameter 610mm	/	Square rack,cryosmart monitoring system	
	YDD-1800-610	1800L,neck opening diameter 610mm	/	Square rack,cryosmart monitoring system	
	YDZ-5	5L	Transport castor, double safety valve system to ensure usage safety	/	
	YDZ-15	15L	Transport castor, double safety valve system to ensure usage safety	/	
	YDZ-30	30L	Transport castor, double safety valve system to ensure usage safety	/	
Self Pressur- ization Series	YDZ-50	50L	Transport castor, double safety valve system to ensure usage safety	/	
	YDZ-100	100L	Transport castor, double safety valve system to ensure usage safety	/	
	YDZ-150	150L	Transport castor, double safety valve system to ensure usage safety	/	
	YDZ-175	175L	Transport castor, double safety valve system to ensure usage safety	/	
	YDZ-200	200L	Transport castor, three safety valve system to ensure usage safety	/	
	YDZ-240	240L,gas cylinder type (slim and tall)	Transport castor, three safety valve system to ensure usage safety	1	
	YDZ-300	300L	Transport castor, three safety valve system to ensure usage safety	/	
	YDZ-500	500L	Transport castor, three safety valve system to ensure usage safety	/	

Acces- sories	Image Model		Description	Description		
		PS-30	Suitable for LNC with neck opening diameter 30mm			
Cork		PS-35	Suitable for LNC with neck opening diameter 35mm	Standard		
		PS-50	Suitable for LNC with neck opening diameter 50mm			
		PS-80	Suitable for LNC with neck opening diameter 80mm	Staridard		
		PS-125	Suitable for LNC with neck opening diameter 125mm			
		PS-216	Suitable for LNC with neck opening diameter 216mm			
		SG-30	Suitable for LNC with neck opening diameter 30mm			
		SG-35	Suitable for LNC with neck opening diameter 35mm			
Locking		SG-50	Suitable for LNC with neck opening diameter 50mm	Optional		
Cover		SG-80	Suitable for LNC with neck opening diameter 80mm	Ориона		
		SG-125	Suitable for LNC with neck opening diameter 125mm			
		SG-216	Suitable for LNC with neck opening diameter 216mm			
	_ 1	TT-30D	Suitable for LNC with neck opening diameter 30mm, height is 120mm			
	17717	TT-35D	Suitable for LNC with neck opening diameter 35mm, height is 120mm			
		TT-50D	Suitable for LNC with neck opening diameter 50mm, height is 120mm			
Canister		TT-50S	Suitable for LNC with neck opening diameter 50mm, height is 276mm	Store tubes and vials		
Carrister		TT-80D	Suitable for LNC with neck opening diameter 80mm, height is 120mm			
		TT-80S	Suitable for LNC with neck opening diameter 80mm, height is 276mm			
		TT-125D	Suitable for LNC with neck opening diameter 125mm, height is 120mm			
		TT-125S	Suitable for LNC with neck opening diameter 125mm, height is 276mm			
		FTT-4-55	4 layers,including 5*5 cryogenic box,suitable for YDS-30-125-F / YDS-30B-125-F			
		FTT-5-55	5 layers,including 5*5 cryogenic box,suitable for YDS-35-125-F / YDS-35B-125-F			
		FTT-6-55	6 layers,including 5*5 cryogenic box,suitable for YDS-50B-125-F / YDS-47-127-F			
	Co	FTT-10-55	10 layers,including 5*5 cryogenic box,suitable for YDD-300-326 / YDD-500-440 / YDD-1000-610			
		FTT-13-55	13 layers,including 5*5 cryogenic box,suitable for YDD-800-460 / YDD-1500-610			
		FTT-15-55	15 layers,including 5*5 cryogenic box,suitable for YDD-1800-610	Store standard		
Square Rack		FTT-4-99	4 layers,including 9*9 cryogenic box,suitable for YDS-65-216-F	cryogenic tube: 5*5, 9*9,10*10		
		FTT-5-99	5 layers,including 9*9 cryogenic box,suitable for YDS-95-216-F	is optional		
		FTT-6-99	6 layers,including 9*9 cryogenic box,suitable for YDS-115-216-F			
		FTT-8-99	8 layers,including 9*9 cryogenic box,suitable for YDS-140-216-F			
		FTT-10-99	10 layers,including 9*9 cryogenic box,suitable for YDS-175-216-F/YDD-300-326/YDD-500-440/YDD-1000-610			
		FTT-13-99	13 layers,including 9*9 cryogenic box,suitable for YDD-800-460 / YDD-1500-610			
		FTT-15-99	15 layers,including 9*9 cryogenic box,suitable for YDD-1800-610			

• 35 •

Acces- sories	lmage	Model	Description		
Cryo	/\	DCGJ-3	Suitablse for 120mm height round canister, including cryo racks and plastic sleeve	Store standard cryogenic	
Tube Clip		DCGJ-6	Suitablse for 276mm height round canister, including cryo racks and plastic sleeve	tube in the canister	
Level Measuring		YWC-600	Suitable for aluminum alloy series LNC with capacity less than 20L	— Measure liquid level	
Scale		YWC-1000	Suitable for aluminum alloy series LNC with capacity no less than 20L		
	Motor management	ZTC-100A	Suitable for aluminum alloy series LNC	1. Temperature display 2. Audible and visual alarm for sensor failure 3. Alarm silencing function 4. High temperature alarm 5. Audible and visual alarm for low liquid level	
Level Monitor		ZTC-100B	Suitable for aluminum alloy series LNC, including low temperature magnetic valve	The same main functions as ZTC-100A, and 1. Controlling function to realize liquid nitrogen auto refill; 2. Temperature is settable; 3. Temperature accuracy is settable	
		ZTC-100C	Suitable for aluminum alloy series LNC, including low temperature magnetic valve	The same main functions as ZTC-100B.     Added RS485 port for online monitoring	
		Cryosmart	Suitable for stainless steel series LNC	1. 10" LED display     2. The operation status of nitrogen container can be displayed, including temperature, level, etc.     3. Low-level, high-temperature, and other alarm functions are competed.     4. User authorization management	
Stainless Steel		YSC-S	Suitable for aluminum alloy series LNC with capacity less than 50L		
Trolley/- Caster Base		YSC-M	Suitable for aluminum alloy series LNC with capacity no less than 50L and neck opening diameter no less than 216mm	- Optional	

Acces- sories	lmage	Model	Description		
		YDCJ-3	3 layers,can store 250ml blood bag,suitable for YDD-300-326 / YDD-500-440		
Cryogenic Rack		YDCJ-4	4 layers,can store 250ml blood bag,suitable for YDD-500-440 / YDD-800-460 / YDD-1000-610 / YDD-1500-610		
		YDCJ-5-I	5 layers,can store 50ml/25ml blood bag,suitable for YDS-175-216-F	Used to store 25ml,50ml,250ml blood bag	
		YDCJ-5-II	5 layers,can store 250ml blood bag,suitable for YDD-1800-610		
		YDCJ-6	6 layers,can store 50ml/25ml blood bag,suitable for YDD-300-326 / YDD-500-440 / YDD-1000-610		
		YDCJ-7	7 layers,can store 50ml /25ml blood bag,suitable for YDD-800-460 / YDD-1500-610		
		YDCJ-8-II	8 layers,can store 2ml cryo tube,8 pcs for each layer, suitable for YDS-175-216-F		
		YDCJ-9	9 layers,can store 50ml /25ml blood bag,suitable for YDD-1800-610		
		YDCJ-10	10 layers,can store 2ml cryo tube,8 pcs for each layer, suitable for YDD-500-440 / YDD-800-460		
		YDCJ-12	12 layers,can store 2ml cryo tube,8 pcs for each layer, suitable for YDD-1000-460 / YDD-1500-610 / YDD-1800-610		

• 37 •