



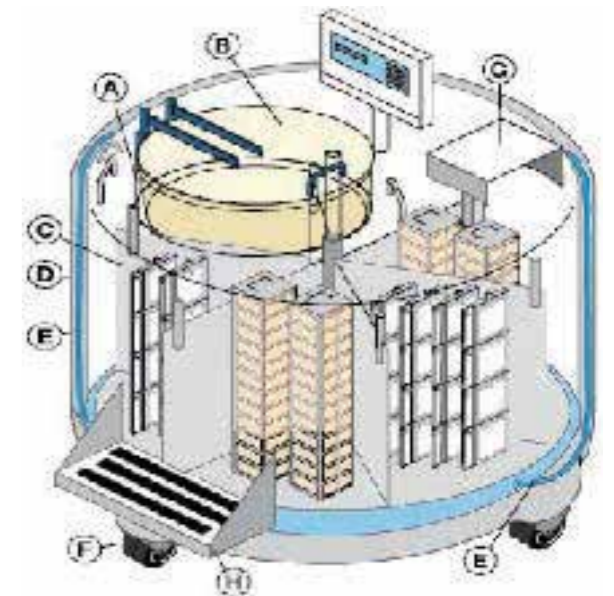
## Biobank series

## Introduction

Biobank -190°C stainless steel freezer provides the user with a fully automatic, safe and reliable cryogenic liquid nitrogen storage system. Compared with other brands, Biobank large capacity LN2 freezer can store Max. 125,800 1.2ml /2ml vials, 9,000 25ml blood bags, 5,440 50ml blood bags or 2,694 250ml blood bags with the same foot print, surpassing 40% more capacity. With similar price, We save 40% cost as well as 40% space, so as to reduce the overall operating cost for customers.

### Large capacity vapor phase LN2 container

- A** The neck design makes sure that the under lid temperature is lower than -180°C in vapor phase as well as reduces consumption of LN2
- B** Optimized lid design extends the using time to the maximum extend.
- C** Interior turntable design make it easy to fetch samples. The spindle is gyroscope, avoiding spindle damage.
- D** All stainless steel construction, longer using time
- E** Annular LN2 filling lines to reduce frost and ice formation
- F** Tough, durable casters
- H** One-piece foldable stepsflat top design, convenient working surface



## Key Features

- 1** Patented flat top design, convenient working surface-easy to place samples.
- 2** Patented insulation connection between internal and external layers, avoiding misplace of internal cavity caused by long-term uneven placed samples. Meanwhile, insulation connection can avoid heat conduction, reduce the evaporation rate to the minimum extent.
- 3** High efficient sample storage design-utilizing the maximum space to store maximum vials and blood bags.
- 4** High density foam material plug with seal coating- never peeling or cracking.
- 5** Ultra-low jacket vacuum, maintain superb heat insulation, minimize loss of LN2, ensuring temperature in tank lower than -186 C and absolute safety of samples.
- 6** Turntable shaft is strong to make the inner cavity easy to rotate; shaft not easy to get frozen.
- 7** Aluminum turntable reduces overall weight
- 8** Equipped with hot gas bypass to keep warm nitrogen gas from impacting samples during fill cycle

# Ergonomic Experience

- Top of freezer has rotating handle to rotate the sections of the internal cavity to make target samples available to the opening to fetch samples. The handle can avoid the suffering of turning 500-900KG samples and meanwhile avoid cryogenic burns.



- One-piece foldable single-layer step or one-piece foldable double-layer stainless steel steps
- Forklift can be used to load and unload, convenient to move the freezer.



- Back up battery is available for auto-fill control and alarm system, ensuring safety of the system.
- Motor-driven sample withdrawal device is available for automatic withdrawal of cryogenic racks, convenient to operate, avoid frostbite or cryogenic burns.



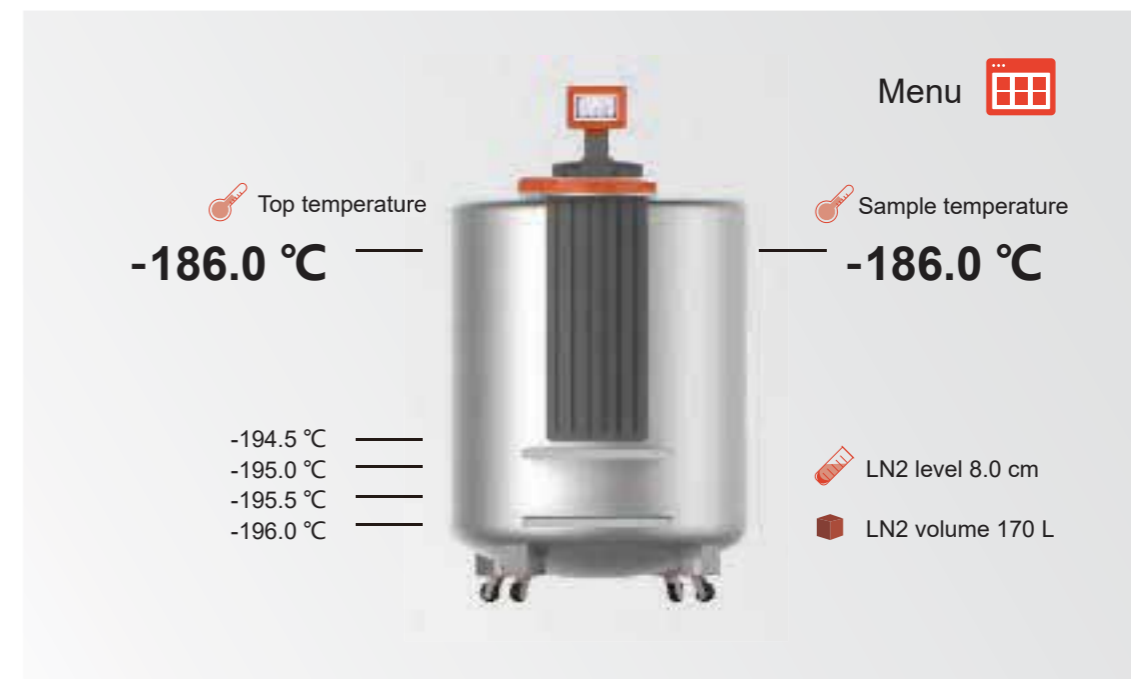
- The hinge designed lid is equipped with sealing coating and safety lock, better convenience and safety.



# Intelligent Monitor & Control System

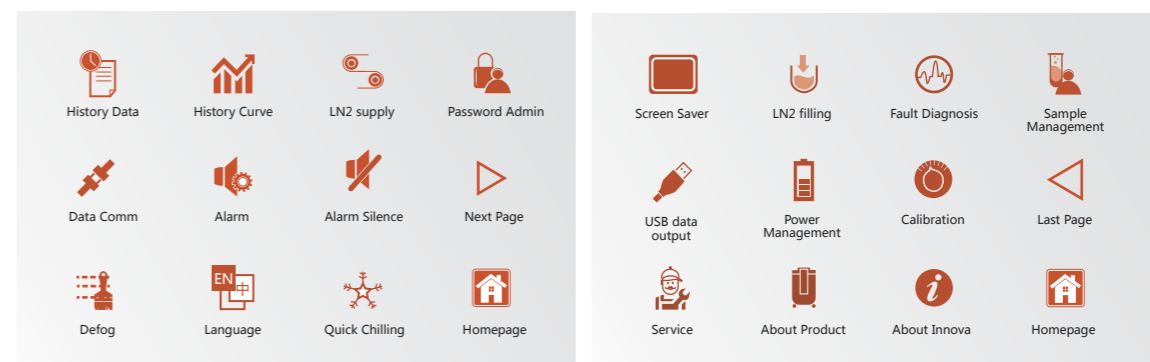
Control system consists of build-in computer and 10 inches touch screen

“i time” interface :



## Control:

- Four variable level can be set to enhance control ability to alarm system and liquid filling.
- Automatic defrosting system—defrosting time is shortened for faster sample observation.
- Controller with frozen guard sensor can actively control and prevent LN2 overflow.
- Quick chilling function can make it recover to set temperature after lid closure .
- Operator can control and manage LN2 by setting regular filling



## Monitor:

- Temperature is monitored via binary channels connected "T" thermocouple
- Temperature is monitored by thermal control group whose level range is 6 inches (150mm), the accuracy is  $+1/-0.0$  inch ( $+25/-0.0$ mm)
- Temperature control can be displayed as degrees Celsius, Fahrenheit, Kelvin and scale.
- Vacuum fluorescent display (VFD) improves more angles visibility and provide clearer image display.
- Cryowire safe communication provides a flexible, safe and powerful solution for all alarm conditions

## Alarm:

- High temperature alarm
- Extra-high liquid level alarm
- Extra-low liquid level alarm
- Remote alarm
- Sensor faulty alarm
- Audible/visual alarm provides notification for important operations, ensuring safety
- Alarm silence/remote alarm detection circuit
- Low LN2 supply alarm
- Lid opening alarm

## Safety:

- Security is enhanced by password and system access.
- Controller can store up to 500000 recent events, including temperature, LN2 liquid level, system access and system alarm.
- Audible/Visual alarm indicates important operations, ensuring safety.
- Optional backup battery can provide maximum 3 days full-load operation when power failure, enhancing safety of sample.



## Real-time displaying real sample temperature

Biobank series freezer can real-time display top sample temperature as well as freezer top temperature and 4 bottom temperature, showing the real sample temperature, which will dispel customer's doubt of sample temperature. PT1000 temperature is adopted, accuracy can reach  $0.01^{\circ}\text{C}$



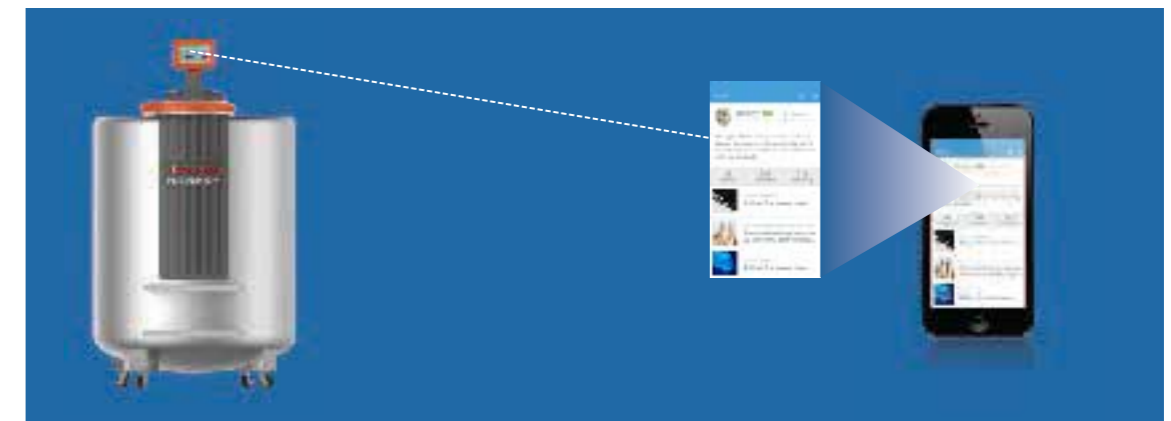
## Wireless monitor and worldwide access

You can remote monitor the operating status (freezer top temperature, liquid level, supply tank pressure, liquid level, system event, system access) of your freezer in any country, as long as WIFI is available. This function can be activated or shut down at your options.



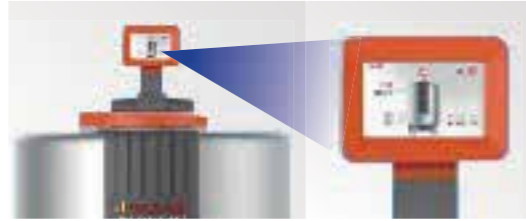
## Message alarm function worldwide

No need extra hardware or software, message alarm (showing high temperature alarm, extra high/low liquid level alarm, sensor fault alarm, lid open alarm, etc) can be sent to your mobile, technical support and service of manufacturer and any other access staff (max 10 access persons can be set) when freezer fails. Three default alarm temperature can be set:  $-160^{\circ}\text{C}$ ,  $-155^{\circ}\text{C}$  and  $-150^{\circ}\text{C}$ , which has increasing alarm frequency. And when the temperature goes up to  $-150^{\circ}\text{C}$ , freezer will call customer automatically, ensuring the absolute safety of samples. You can receive the alarm any where in the world.



## Data and curve recording

- Convenient RS232 data port
- 15 years data recording can record max. 500,000 latest event, including temperature, LN2 level, system event, system access and system alarm.
- History curve records freezer temperature, liquid level, etc.



## Power supply:

- 110V~240V AC power supply, UL/CSA certificated transformer.
- 12V DC power supply can be connected with main and auxiliary appliances; optional 12V backup power; remote alarm

## Auto/manual LN2 filling, providing both convenience and safety

Biobank series freezer has two LN2 filling method: auto and manual. In general condition, auto mode LN2 is filled automatically. When auto mode fails, manual valve can be used to fill LN2 to ensure normal LN2 supply. Customer does not need to pour LN2 into freezer which will cause bad effect to samples. Besides, auto/manual LN2 filling is able to vent warm N2 from the supply line before initiating a fill.

## Sample safety

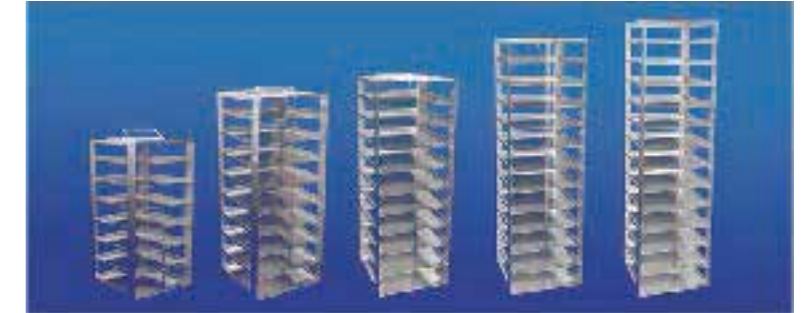
- 4 liquid level sensors to control liquid level alarm and liquid refill, real-time display liquid level and liquid volume.
- Temperature is monitored via binary channels connected "T" thermocouple, whose accuracy is +30/0.0 mm (22K/52K) and +1/0.0 in (126K), temperature can be displayed in Celsius, Fahrenheit, Kelvin and thermometric scale.
- Safety password protection: user can define different levels of password
- Patented bottom LN2-filling design reduces LN2 flow speed and pressure, with freeze protection and splash proof protection, ensuring high sample survival rate.
- The optional backup battery provides power for up to three days of operation including LN2 auto-filling when power failure occurs, thereby enhancing the safety of sample

## Auto defog function for quick observation of sample

Auto defog switch will be started automatically when we open the lid, samples will be observed within seconds, which is convenient for fetch of samples. For similar model of other brands, which don't have this function, nitrogen fog will block observation of sample, you need wait 5~10 min or use a light to provide illumination.

## Cryogenic rack

SR13-100	Hold 13 nos. of 100 cell box
SR13-25	Hold 13 nos. of 25 cell box
SR14-100	Hold 14 nos. of 100 cell box
SR14-25	Hold 14 nos. of 25 cell box
SR15-100	Hold 15 nos. of 100 cell box
SR15-25	Hold 15 nos. of 25 cell box
SR16-100	Hold 16 nos. of 100 cell box
SR16-25	Hold 16 nos. of 25 cell box
SR17-100	Hold 17 nos. of 100 cell box
SR17-25	Hold 17 nos. of 25 cell box



## Blood bag rack

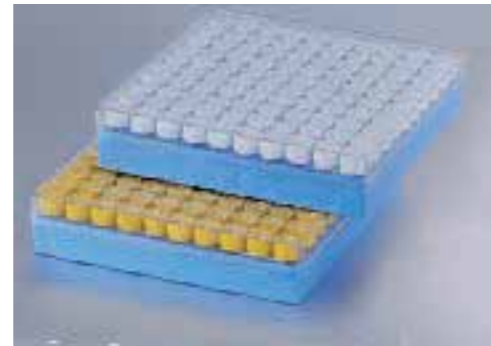
BR5-250	Hold 5 nos. of 250ml blood bag
BR6-250	Hold 6 nos. of 250ml blood bag
BR8-25	Hold 8 nos. of 25ml blood bag
BR8-50	Hold 8 nos. of 50ml blood bag
BR9-25	Hold 8 nos. of 25ml blood bag
BR9-25	Hold 9 nos. of 25ml blood bag
BR10-25	Hold 10 nos. of 25ml blood bag
BR10-50	Hold 10 nos. of 50ml blood bag



## 2D series Cryogenic box & vial kit

### Advantage:

- Whole set of vial and box
- With numbered and unique 2D barcode, the whole box can be scanned, easy to use and manage, widely used in various automatic or semi-automatic sample management system
- Small volume, easy to store and transport, saving storage and shipping cost



### Specification:

BV2DLN05100 2D cryogenic box and 100 nos. of 2D 0.5ml vials  
 BV2DLN15100 2D cryogenic box and 100 nos. of 2D 1.5ml vials  
 BV2DLN20100 2D cryogenic box and 100 nos. of 2D 2.0ml vials  
 BV2DLN05025 2D cryogenic box and 25 nos. of 2D 0.5ml vials  
 BV2DLN15025 2D cryogenic box and 25 nos. of 2D 1.5ml vials  
 BV2DLN20025 2D cryogenic box and 25 nos. of 2D 2.0ml vials

### Remark:

BV is for cryogenic box & vial kit  
 2D is for 2D barcode scanning  
 LN is for kit used in LN2 container  
 05/15/20 is for vial capacity 0.5/1.5/2.0ml  
 100 is for 100 cells

## Specialized used for 2D series cryogenic vial—cryogenic box



### Advantage:

- The whole box can be scanned, compatible with 2D barcode scanner and chip scanner as well as other cryogenic scanner
- Made of PC, high temp. & pressure resistant, can be used in cryogenic storage, e.g. LN2
- 10×10 ell design, 23% higher storage than 9×9 cell box
- 80% higher storage space with 1 inch box

### Scanner

#### Identification system

- Preset or customize DataMatrix 2D code
- Unique microimaging 2D coding system
- No need label, lifelong information
- Total automation
- 5 seconds quick-scan

## 2D series cryogenic vials

### Specification

V2DLN05:0.5ml 2D cryogenic vial  
 V2DLN15:1.5ml 2D cryogenic vial  
 V2DLN20:2.0ml 2D cryogenic vial  
 6 different colored (white, red, green, blue, yellow, purple) cap for easy identification



### Remark:

V is for vial  
 2D is for 2D barcode  
 LN is for vials used in LN2 container  
 05/15/20 is for capacity 0.5ml/1.5ml/2.0ml



## Non-2D cryogenic vials



Brady is the most professional supplier for cryogenic labels, which can provide various laboratory labels used in low temperature, high pressure sterilization and corrosive environment.

The label production system IP3000-KIT can identify the matching of label and ribbon, avoid faulty match.

# Technical Parameters

Model/ Specification		Description	Part No.	Applicable model	Dimension
<b>Blood bag rack</b>					
25ml	Hold 8 nos. of 25ml blood bag		BR 8 -25		
	Hold 9 nos. of 25ml blood bag		BR 9 -25	Biobank 22K Biobank 52K	
	Hold 10 nos. of 25ml blood bag		BR 10 -25	Biobank 126K	
50ml	Hold 8 nos. of 50ml blood bag		BR 8 -50	Biobank 58K	
	Hold 9 nos. of 50ml blood bag		BR 9 -50	Biobank 22K Biobank 52K	
	Hold 10 nos. of 50ml blood bag		BR 10 -50	Biobank 126K	
250ml	Hold 5 nos. of 250ml blood bag		BR 5-250		
500ml	Hold 6 nos. of 250ml blood bag		BR 6-250	Biobank 22K Biobank 52K	
	Hold 500ml blood bag		BR 500	Biobank 126K	
	Hold 500ml blood bag			Biobank all models	
<b>Blood bag box</b>					
25ml	Hold 25ml blood bag				95mm (90mm)
50ml	Hold 50ml blood bag		BC50	Biobank all models	150mm (145mm)
250ml	Hold 250ml blood bag		BC250	Biobank all models	
<b>Blood bag</b>					
500ml	Hold 500ml blood bag		BC500	Biobank all models	
25ml	25ml blood bag		BB25	Biobank all models	
50ml	50ml blood bag		BB50	Biobank all models	
250ml	250ml blood bag		BB250	Biobank all models	140*137*784mm
500ml	500ml blood bag		BB500	Biobank all models	140*137*898mm
<b>Cryogenic rack</b>					
100 cell	Hold 14 nos. of 100 cell box		SR14-100		75*73*784mm
	Hold 16 nos. of 100 cell box		SR16-100	Biobank 22K Biobank 52K	75*73*898mm
	Hold 17 nos. of 100 cell box		SR17-100	Biobank 126K	75*73*955mm
25cell	Hold 14 nos. of 25 cell box		SR14-25		133*133*52mm
	Hold 16 nos. of 25 cell box		SR16-25	Biobank 22K Biobank 52K	133*133*52mm
<b>Cryogenic box</b>					
Non-2D	100 cell	Hold 17 nos. of 25 cell box	SR17-25	Biobank 126K	133*133*52mm
		Hold 100 nos. of 0.5ml vials, non-2D, used in LN2 container	BLN05100	Biobank all models	76*76*52mm
		Hold 100 nos. of 1.5ml vials, non-2D, used in LN2 container	BLN15100	Biobank all models	76*76*52mm
	25 cell	Hold 100 nos. of 2.0ml vials, non-2D, used in LN2 container	BLN20100	Biobank all models	76*76*52mm
		Hold 25 nos. of 0.5ml vials, non-2D, used in LN2 container	BLN05025	Biobank all models	133*133*52mm
		Hold 25 nos. of 1.5ml vials, non-2D, used in LN2 container	BLN15025	Biobank all models	133*133*52mm
2D	100 cell	Hold 25 nos. of 2.0ml vials, non-2D, used in LN2 container	BLN20025	Biobank all models	133*133*52mm
		Hold 100 nos. of 0.5ml vials, with 2D scanning function, used in LN2 container	B2DLN05100	Biobank all models	76*76*52mm
		Hold 100 nos. of 1.5ml vials, with 2D scanning function, used in LN2 container	B2DLN15100	Biobank all models	76*76*52mm
	25 cell	Hold 100 nos. of 2.0ml vials, with 2D scanning function, used in LN2 container	B2DLN20100	Biobank all models	76*76*52mm
		Hold 25 nos. of 0.5ml vials, with 2D scanning function, used in LN2 container	B2DLN05025	Biobank all models	
		Hold 25 nos. of 1.5ml vials, with 2D scanning function, used in LN2 container	B2DLN15025	Biobank all models	
Kit	100 cell	One box holding 100 nos. of 1.5ml vials & 100 nos. of 1.5ml vials, non-2D, used in LN2 container	BVLN100	Biobank all models	
		One box holding 100 nos. of 1.5ml vials & 100 nos. of 1.5ml vials, with 2D scanning function, used in LN2 container	BV2DLN100	Biobank all models	
	25 cell	One box holding 25 nos. of 1.5ml vials & 25 nos. of 1.5ml vials, non-2D, used in LN2 container	BVLN25	Biobank all models	
		One box holding 25 nos. of 1.5ml vials & 25 nos. of 1.5ml vials, with 2D scanning function, used in LN2 container	BV2DLN25	Biobank all models	
<b>Cryogenic cane</b>					
5 vial	Aluminum cane for 0.5,1.5,2.0ml vials, 5 nos. of vials per cane		SC5	Biobank all models	
6 vial	Aluminum cane for 0.5,1.5,2.0ml vials, 6 nos. of vials per cane		SC6	Biobank all models	
10 vial	Aluminum cane for 0.5,1.5,2.0ml vials, 10 nos. of vials per cane		SC10	Biobank all models	
<b>Cryogenic vial</b>					
Non-2D	0.5ml	0.5ml vial, non-2D	VLN05	Biobank all models	
	1.5 ml	1.5ml vial, non-2D	VLN15	Biobank all models	
	2.0 ml	2.0ml vial, non-2D	VLN20	Biobank all models	
2D	0.5 ml	0.5ml vial, 2D scanning	V2DLN05	Biobank all models	
	1.5 ml	1.5ml vial, 2D scanning	V2DLN15	Biobank all models	
	2.0 ml	2.0ml vial, 2D scanning a	V2DLN20	Biobank all models	
<b>Canister</b>					
Canisters for straws			CN	Biobank all models	
<b>Straw</b>					
1/2 CC straw			ST	Biobank all models	

# Technical Parameters

Model		BioBank22K	BioBank52K	BioBank126K
Storage capacity				
Total LN2 capacity	L	430	798	1850
LN2 under truntable	L	48	118	320
S.S. Racks (100-well box)	EA	14	30	70
Layers/rack	EA	14	16	17
Vials of 1.2ml/2ml (100-well box)	EA	19600	48000	119000
S.S. Racks (25-well box)	EA	6	8	16
Layers/rack	EA	14	16	17
Vials of 1.2ml/2ml (25-well box)	EA	2100	3200	6800
Total Number of 1.2ml/2ml	EA	21700	51200	125800
S.S.rack (25ml blood bag)	EA	212	444	900
Layers/rack	EA	8	9	10
Blood bag of 25ml	EA	1696	3996	9000
S.S.rack (50ml blood bag)	EA	128	260	544
Layers/rack	EA	8	9	10
Blood bag of 50ml	EA	1024	2340	5440
S.S.rack (250ml blood bag)	EA	96	208	449
Layers/rack	EA	6	6	6
Blood bag of 250ml	EA	576	1248	2694
Specification				
Jacket sintering vacuum	Pa	$\leq 1 \times 10^{-5}$		
Temperature	℃	Top: -183~-186      Bottom: -193~-196		
Internal working diameter (step to opening)	In.	32	40	38
	mm	806	1015	957
Step height	In.	23	27	36
	mm	585.5 (2 layers)	692 (2 layers)	925 (2 layers)
Height (floor to opening)	In.	55	67	74
	mm	1391.5	1707	1882
Internal usable height	In.	32	38	40
	mm	810	962	1008
External diameter	In.	34	48	68
	mm	870	1212	1728
Internal working diameter	In.	30	41	59
	mm	750	1050	1500
Neck opening	In.	13	18	26
	mm	330	465	656
Empty weight	lb.	772	1433	2094
	kg	350	650	950
Maximum gross weight	lb.	926	1764	4299
	kg	420	800	1950
Power supply	VAC	110~240V, 50Hz/60Hz	110~240V, 50Hz/60Hz	110~240V, 50Hz/60Hz

## Introduction

CryoSmart series realize real-time temperature and liquid level monitoring, remote monitoring, alarming and automatic backup the monitoring data in cold cloud platform. CryoSmart series combined with the advanced manufacturing technology and intelligent monitoring technology to meet different needs of professional users all over the world.

This kind of container provides high efficiency of large capacity sample cryopreservation which with light weight and small space occupying. It monitors the running real time status of containers and notify users once any problems occur ensuring stable running and samples storage security. Mainly apply to medical field and samples bank users who has demand for high-end products.

CryoSmart series have completely solved the technological difficulties of electronics information technology and low power consumption technology in  $-196^{\circ}\text{C}$  low temperature application.

## Key Features

- 1 Intelligent temperature real time monitoring
- 2 Intelligent liquid level real time monitoring
- 3 Intelligent remote alarm
- 4 Running data intelligent backup
- 5 Low power consumption
- 6 Replaceable battery
- 7 Ultra less liquid nitrogen consumption
- 8 Innovative overall appearance
- 9 Dual-lock construction
- 10 5 year vacuum warranty



# CryoSmart series