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UGAIYA



## UGAIYA Bio-Sciences Co., Ltd

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Seeking supreme quality, advanced technology,  
sincere service and innovative development

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## INTRODUCTION

# UGAIYA

### Company Profile

UGAIYABio-Sciences Co., Ltd, headquartered at Nishifunahashi 2-47-11, Hirakata City, Osaka, 573-112, Japan, specializes in providing a diversity of medical and Bio-medical instruments/consumables that contribute to many major workflows which are identified with healthcare and bio-research institutions. We distinguish ourselves by providing satisfied customers with integrated solutions to medical Central Sterile Services Department (CSSD), blood bank and bio-medical laboratories. Our specialized products have been exported to many countries all over the world including Italy, Russia, Turkey, Australia, Spain, Iran, Israel, India, Thailand, Vietnam, Indonesia, Philippines, Malaysia, Korea, South Africa, Egypt, Tunisia, Kenya, Mexico, Peru, Columbia and more than 40 other countries.

In order to service and connect with our clients with better proximity, we have established branches in Singapore and the People's Republic of China for providing better support and more responsive services to our esteemed customers around the region.

PRODUCTS  
UGAIYA

Biological liquid nitrogen container » »

A. Stainless steel biological liquid nitrogen container (stem cell bank and bio-medical use only)



Overview:

Large caliber biological liquid nitrogen container of stainless steel is a state patented product (Patent No: ZL200720081948.X, ZL201120352301.2). It is an innovative product that draws on technical essence of foreign excellent products and meets many industrial demands. It uses liquid nitrogen as refrigerant so that it meets the needs of low-carbon cooling and environmental protection. Various technologies are used in this product such as latest high vacuum multi-layer insulation technology, computer software technology, electronic temperature control technology and liquid nitrogen dispersion technology, which stabilize every process of intelligent cooling and constant temperature control and reduce the loss rate of liquid nitrogen because of evaporation and using cost to the lowest degree. This product offers immersion cryopreservation and vapor cryopreservation in hopes of satisfying diverse cryopreservation needs of users to the greatest degree.

Application Range:

It is appropriate for long-term static preservation of a large number of biological samples such as stem cell, plasma, semen, embryo, tissue, organ, and so on.

Production Technology:

Unique patent technology of evacuation and multi-layer insulation technology ensure an extremely low loss rate of liquid nitrogen evaporation. All weld joints go through mental flaw detection and helium mass spectrometer to see if there is leak. Every product goes through strict liquid nitrogen test. Unique polishing technology ensures aesthetic modeling. The entire manufacturing process follows strictly ISO 9001:2008 and ISO 13485:1996 quality control procedures.

Production Materials:

Materials of inner tank and outer tank are made of stainless steel of fine quality. Adsorbents are all regenerated and activated. Materials of multi-layer insulation are made of oil-and-lipid-free thin composite.

Product Feature:

1. -196°C immersion cryopreservation and -190°C vapor cryopreservation can alternate freely;
2. Effective insulation ensures 98% of system surface is shrouded by vacuum;
3. Powerful control and management system, automatic fluid infusion, real-time monitoring of liquid level, temperature and other data are installed;
4. Compared with equipments of same functions, it saves 70% of liquid nitrogen and reduces maintaining costs to the lowest degree;
5. Pallet rotation in the inner tank makes access convenient.



Stainless steel biological liquid nitrogen container (YDD series)

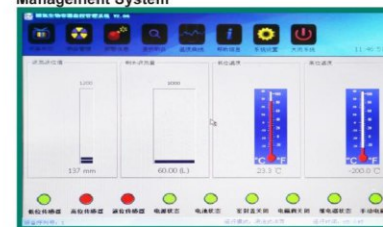
Model	YDD-500	YDD-800	YDD-1000	YDD-1500	YDD-1800										
<b>Unit Dimensions</b>															
Ln2 Capacity (L)	500	800	1000	1500	1800										
Neck Diameter (mm)	400	450	500(400)	550	635										
Usable Internal Height (mm)	585	780	835	865	865										
Inner Diameter (mm)	907	1106	1188	1310	1460										
Outer Diameter (mm)	1008	1208	1276	1412	1516										
Pallet Diameter (mm)	860	1060	1124	1250	1400										
Pallet Height (mm)	450	550	580	600	600										
Overall Height (mm)	1300	1490	1550	1600	1600										
Weight Empty (kg)	325	415	550	590	680										
Weight Liquid Full (kg)	725	1055	1350	1790	2130										
<b>Blood Bag Capacities</b>															
	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames	Total Bags	Bags/ Frame	No. Frames
25ml	2128	7	304	3388	7	484	4416	8	552	4992	8	624	6432	8	804
50ml(4R9951)	1232	7	176	1960	7	280	2528	8	316	2784	8	348	3552	8	444
250ml(4R9953)	560	4	140	1160	5	232	1320	5	264	1410	5	282	1890	5	378
<b>Maximum Storage Capacity</b>															
1.2, 1.8, 2ml Vials	22800		44200		51800		60900		83250						
Number of Racks (100 cell boxes)	16		32		32		36		54						
Number of Racks (25 cell boxes)	12		8		20		30		6						
Number of Stages per Rack	12		13		14		14		15						

Stem Cell Bank Monitoring Management System for Liquid Nitrogen Biological Container

The system is mainly made up of remote terminal unit (RTU) of intelligent monitoring of biological container and data service center (DSC). Intelligent monitoring terminal unit has the following functions: real-time collection of temperature of low and high position; real-time monitoring of liquid height; calculation of liquid nitrogen loss; automatic switch of liquid inlet electromagnetic valve according to liquid level and temperature; internal local area network is used to connect tank body computer with server of monitoring center; DTU sends warning message to the cell phone of watch keeper including low-and-high-position overheating warning and sensor failure warning; powerful MIS management system for objects in cryopreservation; and so on.

Data monitoring center analyzes and stores data provided by RTU and these data are investigated by management staff. Monitoring terminal unit can check conveniently the state of every network monitoring terminal by connection of local area network and monitoring center on a computer in the monitoring center without reaching any biological storage container. Monitoring center computer is also in charge of storing and managing all objects stored or to be stored in the liquid nitrogen tank. Monitoring center software is mainly made up of eight major modules including operation model selection, data monitoring, alarming, and object information management.

Software Main Interface Diagram of Stem Cell Bank Monitoring Management System



System Topological Structure Diagram





**Biological Liquid Nitrogen Container » »**

**B. Aluminum biological liquid nitrogen container (intelligentized)**

**a. Liquid nitrogen container for storage and transportation**

**Overview:**

Liquid nitrogen container for storage and transportation is specially designed for long time statics storing or transferring biological samples. The containers are made of high-intensive aluminium alloy with unique patent technology of evacuation and multi-layer insulation technology ensuring an extremely low loss rate of liquid nitrogen evaporation and high economy.

**Product Feature:**

1. Use advanced powder coating technique avoiding of the traditional shortcoming of paintings' drop
2. Made of high-strength aluminium alloy
3. A locked-cover switch for safety of preserved sample is optional
4. A roller base for enhancing mobility is optional
5. A protective casing is provided for preventing collision and offering convenience
6. Service life to more than five years
7. An intelligentized plug of liquid nitrogen container is optional



**Specifications:**

Specifications	Unit	Liquid nitrogen container for										storage and transportation									
		YDS-2	YDS-2-30	YDS-3	YDS-6	YDS-10	YDS-10-80	YDS-15	YDS-20	YDS-20B	YDS-25	YDS-30	YDS-30-80	YDS-30B	YDS-30B-80	YDS-35	YDS-35-80	YDS-35B	YDS-35B-80	YDS-50B	YDS-50B-80
Capacity	L	2	2	3	6	10	10	15	20	20	25	30	30	30	30	35	35	35	35	50	50
Weight empty	Kg	3	3	3.5	5	6.3	6.5	8.2	12	12.5	12.8	13	13.5	13.1	13.6	14	14.2	14.1	14.3	22	22.1
Neck diameter	mm	50	30	50	50	50	80	50	50	50	50	50	80	50	80	50	80	50	80	50	80
Outer diameter	mm	230	230	230	300	300	300	409	409	409	409	461	461	461	461	461	461	461	461	461	461
Height	mm	375	375	425	465	535	540	600	640	640	670	655	652	655	652	695	692	695	692	790	788
Static evaporation loss mass	L/d	0.10	0.07	0.10	0.11	0.10	0.21	0.11	0.12	0.19	0.13	0.11	0.20	0.19	0.28	0.12	0.22	0.20	0.29	0.23	0.33
Static holding time	d	20	29	30	54	95	48	136	172	106	186	282	150	161	108	302	162	179	121	213	150
Canister outer diameter	mm	---	19	38	38	38	63	38	38	38	38	38	63	38	63	38	63	38	63	38	63
Canister height	mm	---	120	120	120	120	120	120	120/276	120/276	120/276	120/276	120/276	120/276	120/276	120/276	120/276	120/276	120/276	120/276	120/276
Number of canisters	ea	---	3	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6	3~6
Straw holding capacity (single level)	0.5ml	ea	---	90	792	792	792	2244	792	792	792	792	2244	792	2244	792	2244	792	2244	792	2244
	0.25ml	ea	---	204	1788	1788	1788	5022	1788	1788	1788	1788	5022	1788	5022	1788	5022	1788	5022	1788	5022
Straw holding capacity (double level)	0.5ml	ea	---	---	---	---	---	---	1284	1284	1284	1284	3624	1284	3624	1284	3624	1284	3624	1284	3624
	0.25ml	ea	---	---	---	---	---	---	2832	2832	2832	2832	8460	2832	8460	2832	8460	2832	8460	2832	8460
Locked-cover is optional	ea	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Containers model with letter "B" are the transportation containers and the others are storage containers.



**b. Large caliber liquid nitrogen container**

**Overview:**

Large caliber liquid nitrogen biological container finds its wide application in preservation of big biological sample, vials and blood bags that are needed to be taken out frequently and cryogenic treatment of cutter, measuring tool, special parts, and others.

**Specifications:**

Large caliber liquid nitrogen container						
Model	Unit	YDS-10-125	YDS-30-125	YDS-35-125	YDS-47-127	YDS-50B-125
Capacity	L	10	30	35	47	50
Weight empty	Kg	7.2	14.2	15.2	19	21
Neck diameter	mm	125	125	125	127	125
Outer diameter	mm	300	461	461	461	461
Height	mm	535	655	700	780	790
Stalic evaporation loss mass	L/d	0.43	0.33	0.36	0.45	0.45
Stalic holding time	d	24	92	98	107	110
Racks and vials boxes	Number of racks	ea	1	7	7	7
	Measurement of racks	mm	82×84	82×84	82×84	82×84
	Measurement of boxes	mm	76×76	76×76	76×76	76×76
	Number of layers per rack	ea	3	3	4	6
25ml (single)	Number of vials	ea	75	525	700	1050
	Number of racks	ea	---	18	18	18
	Number of layers per rack	ea	---	2	2	3
25ml (multi)	Number of blood bags	ea	---	36	36	54
	Number of racks	ea	---	7	7	7
	Number of layers per rack	ea	---	2	2	3
Canister outer diameter	Number of boxes per layer	ea	---	4	4	4
	Number of blood bags	ea	---	56	56	84
	Number of blood bags	ea	---	56	84	84
Canister height	mm	38	97	97	97	97
	mm	120	120/276	120/276	120/276	120/276
Number of canisters	ea	3~6	3~6	3~6	3~6	3~6
	ea	792	5124	5124	5124	5124
Straw holding capacity (single level)	0.5ml	ea	1788	11952	11952	11952
	0.25ml	ea	---	9048	9048	9048
Straw holding capacity (double level)	0.5ml	ea	---	19944	19944	19944
	0.25ml	ea	---	19944	19944	19944

**Product Feature:**

1. Use advanced powder coating technique avoiding of the traditional shortcoming of paintings' drop
2. Made of high-strength aluminium alloy
3. A locked-cover switch for safety of preserved sample is optional
4. A roller base for enhancing mobility is optional
5. Service life to more than five years
6. An intelligitized plug of liquid nitrogen container is optional

Large caliber liquid nitrogen container							
Model	Unit	YDS-47-216	YDS-65-216	YDS-80-216	YDS-100-216	YDS-130-216	YDS-175-216
Capacity	L	47	65	80	100	130	175
Weight empty	Kg	20	28	34.5	38.5	42.5	55
Neck diameter	mm	216	216	216	216	216	216
Outer diameter	mm	570	570	681	681	681	681
Height	mm	660	765	726	796	910	1026
Stalic evaporation loss mass	L/d	0.84	0.89	0.82	0.83	0.95	0.94
Stalic holding time	d	56	73	98	120	140	186
Racks and vials boxes	Number of racks	ea	5	5	7	7	7
	Measurement of racks	mm	142×144	142×144	142×144	142×144	142×144
	Measurement of boxes	mm	134×134	134×134	134×134	134×134	134×134
	Number of layers per rack	ea	3	5	5	6	8
25ml (single)	Number of vials	ea	1500	2500	3500	4200	5600
	Number of racks	ea	30	30	30	30	30
	Number of layers per rack	ea	2	3	2	3	4
25ml (multi)	Number of blood bags	ea	60	90	60	90	120
	Number of racks	ea	7	7	7	7	7
	Number of layers per rack	ea	2	3	2	3	4
50ml (single)	Number of boxes per layer	ea	8	8	10	10	10
	Number of blood bags	ea	112	168	140	210	280
	Number of racks	ea	18	18	30	30	30
50ml (multi)	Number of layers per rack	ea	2	3	2	3	4
	Number of blood bags	ea	36	54	60	90	120
	Number of racks	ea	4	4	7	7	7
50ml (multi)	Number of layers per rack	ea	2	3	2	3	4
	Number of boxes per layer	ea	8	8	8	8	8
	Number of blood bags	ea	64	96	112	168	224



**c. Liquid nitrogen dry shipper**

**Overview:**

YDH series of liquid nitrogen dry shipper is designed especially for air transportation of biological samples. The container uses special material to adsorb and store liquid nitrogen, so the liquid nitrogen would not leak even when the container is toppled. It ensures the safety of air transportation.

**Specifications:**

		Liquid nitrogen dry shipper			
Model		Unit	YDH -3	YDH -6 -80	YDH -10 -125
Capacity		L	3	6	10
Weight empty		Kg	5.5	7.6	9.8
Neck diameter		mm	50	80	125
Outer diameter		mm	230	300	300
Height		mm	425	465	535
Static holding time		d	6	11	18
Canister	Canister outer diameter	mm	38	70	97
	Canister height	mm	120	276	276
	Number of canisters	ea	1	1	1
	Straw holding capacity	0.5ml	ea	132	430
0.25ml		ea	298	1032	1992
Racks and vials boxes	Number of racks	ea	—	—	1
	Measurement of boxes	mm	—	—	76×76
	Number of layers per rack	ea	—	—	3
	Number of vials	ea	—	—	75
25ml	Number of racks	ea	—	—	1
	Number of layers per rack	ea	—	—	2
	Number of boxes per layer	ea	—	—	3
	Number of blood bags	ea	—	—	6
50ml	Number of racks	ea	—	—	1
	Number of layers per rack	ea	—	—	1
	Number of boxes per layer	ea	—	—	3
	Number of blood bags	ea	—	—	3

**C. Level and temperature monitoring equipment of liquid nitrogen**

**a. Intelligentized plug of liquid nitrogen container**

This is our patented product which takes us 3 years to research and design. It contains data acquisition, FH communication and automatic control. With the super low consumption technology, the battery only need to be replaced every six months to one year and no need for other power. All the failures and parameters could be alarmed by sound and light; all the operating parameters of large quantity biological liquid nitrogen containers could be monitored through wireless communication. The working status of all the containers could be checked in the monitoring center. The important alarm message could be sent to the man who is responsible for this on his mobile phone. This product helps the management of the biological liquid nitrogen container and also could monitor the liquid level of every single biological liquid nitrogen container.



**b. Level and temperature monitor**

The product of SJ2012 series is designed especially for monitoring the liquid level and temperature of liquid nitrogen and liquid helium in the container. With microcontroller embedded design and multi-channel data acquisition, it has one control output, one RS-232 digital output, flexible networking and remote centralized monitoring. Low liquid level, high temperature, sensor out of working and other failures could be alarmed. With many innovative designs, it could meet the demand of monitoring all kinds of cryogenic liquid containers.





## Cryogenic Liquid Container for Storage and Transportation » »

### Pressure Building Liquid Nitrogen Container

**Overview:**

Pressure building liquid nitrogen container (Dewar) generates pressure by evaporation of a small amount of liquid nitrogen, so that the container can discharge liquid nitrogen automatically, and supply liquid nitrogen for other containers. It finds its application in the transportation and storage of liquid medium and cold source of other refrigeration equipments. It is now widely used in tool and die industry, animal husbandry, medicine, semi-conductor, food, cryogenic chemical industry, aerospace, military and other industries and areas.

**Production Technology:**

Inner and outer shells of the main body are made of 304 austenite cryogenic stainless steel of fine quality; absorbents are regenerated and activated; multi-layer insulation materials are oil-and-lipid-free thin imported composite. All welds are qualified by helium mass spectrometer leak detection; 100% of products have gone through strict cryogenic testing; unique neck design ensures a very low rate of evaporation losses; machine or digital display liquid level gauge is optional; The surface of the container using a unique polishing technology, and has aesthetic modeling.

**Security Technology:**

A two-way multi-level security system is installed to ensure the safe and reliable use of the product; the layout of valve interface is reasonable for secure and convenient operation.

**Specifications:**

Pressure Building Liquid Nitrogen Container											
Specifications	Unit	YDZ-5	YDZ-15	YDZ-30	YDZ-50	YDZ-100	YDZ-150	YDZ-175	YDZ-200	YDZ-300	YDZ-500
Geometric capacity	L	5.5	16.5	32	55	110	165	185	220	330	550
Effective capacity	L	5	15	30	50	100	150	175	200	300	500
Outer diameter	mm	325	400	450	500	600	650	700	750	850	1000
Height	mm	550	725	885	970	1175	1200	1250	1300	1400	1500
Weight empty	Kg	15	23	32	54	75	102	120	130	202	255
Neck diameter	mm	40	40	40	40	40	40	40	40	40	40
Daily evaporation rate	%	3	2.5	2.5	2	1.3	1.3	1.2	1.2	1.1	1.1
Standard working pressure	Mpa	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Maximum working pressure	Mpa	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099
Liquid velocity	L/min	≥2	≥2	≥3	≥3	≥4	≥6	≥6	≥8	≥8	≥10
Setting pressure of the first safety valve	Mpa	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099	0.099
Setting pressure of the second safety valve	Mpa	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115	0.115
Pressure gauge indication range	Mpa	0~0.25	0~0.25	0~0.25	0~0.25	0~0.25	0~0.25	0~0.25	0~0.25	0~0.25	0~0.25

## Non-standard liquid nitrogen container » »

**Overview:**

Our company can customize non-standard cryogenic containers according to the special needs of the customers, contains the series of pressure building, Stainless steel large-diameter container, intelligent Cryogenic processor, etc.







## Cryogenic Liquid Transmission Pipeline »»

### Overview:

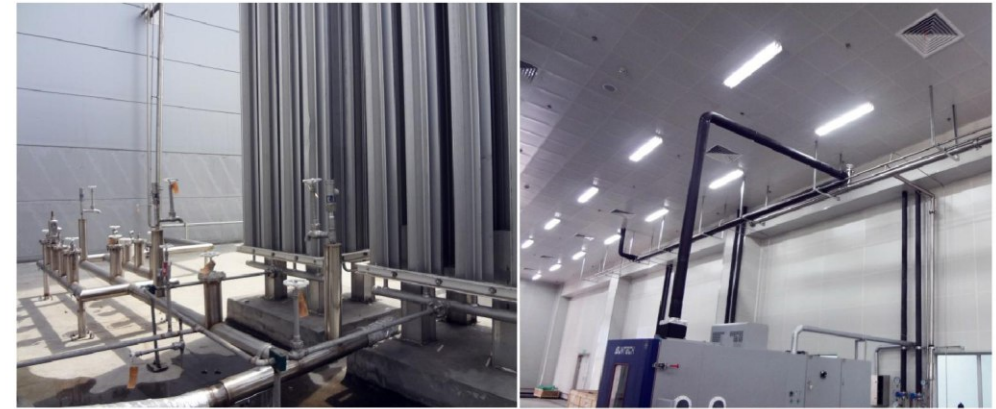
Our high vacuum multilayer insulation cryogenic liquid pipeline has its advantages of original and advanced technology, excellent performance, low evaporation loss, beautiful appearance, easy to install. The outer surface is bright, beautiful and practical. It is widely used in many industries and fields.

### Production Materials:

Inner and outer tubes are made of SUS 304 seamless stainless steel.

### Application:

The main application of vacuum pipeline: transporting cryogenic liquid (oxygen, nitrogen, argon, LNG, etc.). Application industry: Industrial gas, medicine, biology, electronics, aerospace, automotive, food and beverage, beverage and other industries.



### Rigid Vacuum Pipeline Feature:

1. Innovative Structure: Non-metallic materials support is used between inner and outer tubes so that cold loss brought about by short circuit of inner and outer tubes due to pipe deflection or unreasonable support is prevented.
2. Excellent insulation: between pipe sections are seamless corrugated compensator structures. Interlayer is made of insulation materials of high reflectivity and excellent insulation properties.
3. Long service life: outer tube has adjustable vacuum valve so that degree of sealed vacuum is high. The vacuum can also be pumped repeatedly. Some defects like low vacuum degree, short service life and high evaporation loss in "one-off vacuum" of traditional product are removed.
4. High safety and reliability: adjustable vacuum valve could relief pressure automatically when overpressure brought about by damage of vacuum interlayer occurs.

### Flexible Vacuum Pipeline Feature:

1. The location of the vacuum flexible pipeline can be adjusted according to the surroundings;
2. Excellent effect in cold insulation, no-condensation and no-frost on the surface while using;
3. Bending radius is small;
4. Customize special-structure flexible vacuum pipeline according to the special needs of customers.

### Model:

Pipeline specifications (mm)		
Nominal diameter	Inner tube	Outer tube
Dn15	φ20	φ76
Dn20	φ25	φ89
Dn25	φ32	φ89
Dn32	φ38	φ102
Dn40	φ45	φ108
Dn50	φ57	φ114
Dn65	φ76	φ133
Dn80	φ89	φ159
Dn100	φ108	φ180
Dn125	φ133	φ219
Dn150	φ159	φ219

### Specifications:

Performance parameter	
Working pressure	Design in line with customer's demands
Design temperature	-196°C~-183°C
Working medium	LO <sub>2</sub> , LN <sub>2</sub> , LAr, LNG
Materials for inner & outer tubes	SUS 304
Design basis	According to the customer's demand
Heat-insulating method	High vacuum, multi-layer, multi-screening insulation
Interlayer vacuum degree	< 0.002Pa
Cold loss amount of pipeline	< 0.5~2W/m (design data )
Vacuum leak rate	< 2×10 <sup>-10</sup> Pa·m <sup>3</sup> /s
Strength test of tube	Design according to working pressure
Air-tight test	Design according to working pressure

## Solutions and Cases of Cryogenic Application System » »

In recent years, it is more and more of using liquid nitrogen as the refrigerant for cryogenic applications. Such as assembling parts in cold, freezing high pressure hose and so on in industry; seafood cryopreservation, frozen meat, ice cream, top grade dishes etc. in food service industry; refrigeration equipment in chemical industry; aerospace industry; metallurgical industry; superconducting experiments etc. Our company has a lot of success cases in these industries.



Cryogenic Treatment System for High-pressure Hose



Cryogenic Treatment Producing Line for Diesel Engine Parts



Super-cryogenic Chemical Reaction System



Germane Cryogenic Treatment Producing Line



Stem Cell Bank



Cryogenic Storage for Biological Samples

## Accessories of Cryogenic Equipment » »



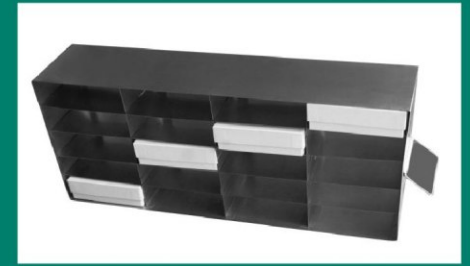
Square Canister Rack and Vial Box



Insemination Gun



Roller Bases for Aluminum Dewars (Carrying Cart)



Rack for Cryogenic Freezers



Blood Bag Frame, Blood Bag Box, Vial Box



Cryo-Gloves



Liquid Nitrogen Pump



Plug, Canister