TcCryo

Animal Breeding LN_2 Container

Operation Manual

Henan Tianchi Cryogenic Machinery Equipment Manufacturing Co., Ltd.

1、Company Profile

Henan Tianchi Cryogenic Machinery Equipment Manufacturing Co., Ltd.is a high-tech enterprise specializing inthe research, development, production and sales of liquid nitrogen biological containers and related products, creating the world's leading supplier of liquid nitrogen biological containers.

TcCryo have always taken "service, health, and future " as the corporate mission, adhering to the corporate philosophy of "making the world fall in love with Made in China", and adhering to the quality concept of "continuous improvement, striving for better", and for "building a century-old Tianchi, The corporate vision of "creating a world brand" is unremittingly forging ahead.

Liquid nitrogen biological container is the main product of TcCryo factory,has achieved excellent results in quality assessment for many times, and the products have passed ISO9001, CE, SGS and other domestic and international certifications. We always adhere to the service concept of "Begin with customers' needs, End(complete, finish) with customers' satisfaction", all focus on user experience, and constantly improve our technology and service level. On a global scale, we have helped tens of thousands of users solve questions, explore deeper user needs, continuously improve product performance, and improve user experience.

As the leading global manufacturer and supplier of liquid nitrogen biological containers, TcCryo has always been committed to bringing the most advanced products to users around the world. Through partners all over the world, we provide the highest quality products and services to users around the world. At present, the products have been sold to more than 40 countries such as the United States, Brazil, Uzbekistan and Thailand.

2、Company Qualification

The company has passed ISO9001 quality system certification, CE EU safety certification, SGS international general certification, and BV international general certification.

Production Workshop

3、Structure

- Outer liner, inner liner is composed of a high strength, special corrosion resistant Aviation aluminum plate made of durable.
- The neck tube is made of special glass fiber reinforced plastic with high strength and low heat conductivity.
- Insulation material is filled between the inner liner and the outer liner, laminated winding made use of advanced technology.
- The neck plug is made of special material, and has the dual function of reducing the evaporation of liquid nitrogen and the fixing of the lifting cylinder.
- The vacuum port is an important position to close the vacuum and must be strictly protected.
- Protection bag protects the container when moving or transported, and has a certain thermal insulation effect to reduce the amount of evaporation.

Animal Breeding LN_2 Container

An economical and practical liquid nitrogen tank for breeding industry, mainly designed for lo ng-term static storage of frozen semen and convenient sampling. And small liquid nitrogen tanks ar e suitable for Users who manually transfer and preserve biological samples, especially designed for mountain users. It has the advantages of small size and light weight, easy to carry, low daily evapor ation rate of static liquid nitrogen, economical and practical. This series of products are not only wi dely used in the storage of frozen semen, vaccines, cells and microorganisms in animal husbandry, b ut also in machinery manufacturing, electronics, metallurgy, energy and other fields.

Features

1. Cans are guaranteed 100% quality inspected to ensure the quality of liquid nitrogen dewars.
2. Free replacement within 2 years if any quality issues occur.
3. Equipped with a protective cover, preventing magnetic interference in the storage area.
4. Optional safety lock mechanism prevents unauthorized access and accidental opening.
5. 5-year warranty period.
6. Available in multiple port sizes for convenient handling and filling.
7. High insulation performance with multi-layer vacuum thermal insulation, minimizing liquid nitrogen evaporation losses.
8. Large capacity design enables efficient bulk storage.

Model	GP-2	YDS-2	YDS-3	YDS-6	YDS-10	YDS-10-80	YDS-16	YDS-30	YDS-35
Volume(L)	2	2.20	3.10	6.50	10.50	10.50	17.48	31.50	35.20

Caliber(mm)	35	35	50	50	50	80	50	50	50
O.D(mm)	180	180	223	280	304	304	440	440	440
Height(mm)	400	420	455	525	565	565	525	720	760
Static power dissipation(L/d)		0.08	0.12	0.12	0.12	0.21	0.12	0.12	0.12
Static storage(D)		27	26	53	87	50	145	260	290
Optional Canister Sample Storage Capacity									
Number of Canister(ea)	3	3	6			6	6	6	
Canister Diameter (mm)	25	23	36		36	60	36	36	36
Canister Height (mm)	80	110	120		120	120	120	120	276
Fine Tube Capacity - Single-layer 0.5ml		330	792		792	2244	792	792	/
Fine Tube Capacity - Single 0.25ml		165	1788		1788	5022	1788	1788	/
Fine Tube Capacity - Double-layer 0.5ml	/	/	/		/	/	/	/	1284
Fine Tube Capacity - Double 0.25ml	/	/	/		/	/	/	/	2832

Model	YDS-30-80		YDS-35-80		YDS-30-125		YDS-35-125		YDS-16-80 (9 Slot)	YDS-47-127 (10 Slot)
Volume(L)	31.50		35.20		31.50		35.20		17.48	52.10
Caliber(mm)	80		80		125		125		80	127
O.D(mm)	440		440		440		440		440	516
Height(mm)	710		710		710		710		525	790
Static power dissipation(L/d)	0.21		0.21		0.35		0.35		0.21	0.45
Static storage(D)	150		167		90		100		83	115
Optional Canister Sample Storage Capacity										
Number of Canister(ea)	6				6				9	10
Canister Diameter (mm)	36	36	60	60	36	36	60	60	90	90	36	60
Canister Height (mm)	120	276	120	276	120	276	120	276	120	276	120	276
Fine Tube Capacity - Single-layer 0.5ml	792	/	2244	/	792	/	2244	/	5124	/	1188	/
Fine Tube Capacity - Single 0.25ml	1788	/	5022	/	1788	/	5022	/	11640	/	2682	/
Fine Tube Capacity - Double-layer 0.5ml	/	1284	/	3624	/	1284	/	3624	/	9048	/	6040
Fine Tube Capacity - Double 0.25ml	/	2832	/	8460	/	2832	/	8460	/	20706	/	14100

Note:

1. All geometric dimensions (capacity, height outer diameter, etc.) listed in this manual are actual measured values. Due to measurement tools and environmental factors, minor errors may exist, with a tolerance of no more than +3%.

2. Static Liquid Nitrogen Storage Life: Under standard conditions (atmospheric pressure: 101.325 kPa;ambient temperature: 20 °C), after filling the container with liquid nitrogen to full capacity (100%) and allowing it to reach thermal equilibrium, the number of days required for the liquid nitrogen to completely evaporate under static conditions.

3. Static Evaporation Rate: Under specified operating conditions, after reaching thermal equilibrium, the percentage of liquid nitrogen mass lost due to natural evaporation within 24 hours, relative to the total liquid nitrogen mass that can be held in the effective internal volume of the container. This value is converted to the evaporation rate under standard conditions (atmospheric pressure: 101.325 kPa;ambient temperature: 20°C).

5、Usage notice

5.1 The container can only be used to fill liquid nitrogen, not other gases. Liquid nitrogen is an ultra-low temperature liquid (-196°C). When filling, pay attention to safety to avoid splashing and hurt people. Please do so during transportation and storage. Keep the tank standing upright.

5.2 The storage tank has a long storage time and is suitable for short-distance transportation and long-term storage. If long-distance transportation is required, it is recommended to use a transportation tank, such as YDS-30B produced by our company.

5.3 Only the neck plugs matched with the factory can be used to close the mouth of the tank, and other closed plugs cannot be used instead, so as to avoid the continuous evaporation of liquid nitrogen and the increase in pressure and damage to the container.

5.4 The container vacuum sealing joint is a key component to maintain the vacuum of the container sandwich. Once damaged, it will immediately cause the vacuum of the container sandwich to deteriorate and the product cannot be used. Therefore, users are not allowed to open the container vacuum sealing joint without authorization.

5.5 Please pre-cool before adding liquid nitrogen for the first time. If the surface is frosted, it is normal, and it will return to normal within 4-6 hours. If it continues for a long time, please contact customer service.

5.6 When transporting, please put it upright and fix it if necessary.

6、Quality Guarantee

Under normal use of the liquid nitrogen biological container produced by our company, from the date of receipt by the user, if it is found that the use is affected by manufacturing reasons within one year, the following methods shall be implemented:

After the container is filled with liquid nitrogen for the first time and left for 24 hours, if there is a lot of condensation or frost on the surface of the container, please contact customer service.

Within one year, when the product is indeed a quality problem of our company's manufacturing, our company is responsible for the inspection or maintenance of the product.

Because this product involves many professional technologies, after failure, the container can only be returned to our company for inspection and maintenance.

If one of the following situations occurs, our company will not implement the Guarantees.

The user opens the vacuum connector of the container without authorization, causing the vacuum sealing connector of the container to be damaged or the valve core seal to be damaged.

The storage container is used for vehicle transportation when it is filled with liquid nitrogen or frozen goods, which causes product quality problems.

If the product is not used in accordance with the product instructions and relevant regulations, the container shell is sunken, the neck tube is scratched, deformed or leaked under internal pressure, and the inner tank is corroded.

If the product has quality problems, our company is responsible for the maintenance and replacement of this product, and does not deal with liquid nitrogen and preservation matters.

7、Liquid nitrogen static daily evaporation test

The static storage period of liquid nitrogen is tested by weighing method;

The test should be carried out in a closed and quiet environment under normal pressure, and the indoor temperature should be controlled at 20°C;

Fill the container with more than 1/2 of liquid nitrogen and let it stand for 48 hours, then weigh (A) grams for the first time, and then weigh (B) grams for the first time after 3 days. Calculate by the following formula, and the evaporation Q .

Q=A-B/3 (g/day)

If it needs to be expressed in volume (liter), use the following formula to convert:

D=Q/808 (liter/day)

When this product is packed, a product manual and a certificate of conformity are attached. Please check when unpacking. If you have any questions, please feedback the information to our sales department within 3 working days (for contact details, see back cover).

Universal auxiliary tool for liquid nitrogen tank

8.1 Liquid nitrogen tank transporter

TCQT-A30+ Dumping Liquid Nitrogen Dewar Trolley

Suitable for 30~35L

TCQT-A30+ is made of all stainless steel.It can be used to easily transport liquid nitrogen biological containers indoors, which solves the difficulty of transporting large-volume liquid nitrogen biological containers and the purpose of assisting manual dumping of liquid nitrogen in the container. It has the advantages of safe and reliable transport and dumping of the liquid nitrogen container, and saving the operator's physical energy.

The transportation series is mainly designed to meet the customer's requirements for short-distance movement of medium and large liquid nitrogen containers. When in use, the container can be directly placed on the trolley, and it can be moved flexibly. It is convenient and labor-saving, safe and reliable.

TCMT-A

TCMT-X

TCMT-A100	TCMT-A30	TCMT-X50	TCMT-X30
Suitable for 65~175L	Suitable for 30~50L	Suitable for 50L	Suitable for 30~35L

8.2 Automatic liquid nitrogen transfer pump

liquid nitrogen pump series is to vaporize a small amount of liquid nitrogen stored in the container, so that th e liquid nitrogen contained in the container is discharged to achieve the purpose of replenishing liquid nitrogen to other containers. Advantages such as low rate loss.

Tianchi automatic liquid nitrogen transfer pump is a high-precision intelligent transfer equipment integrating pressure measurement, display control and integration.

It has the characteristics of simple operation, good shock resistance, high control accuracy, fast boosting, rapid liq uid drainage, small liquid nitrogen loss and long service life.It can realize various functions such as easy start und er low pressure, high pressure stop control, and the full range of control pressure can be set.

The liquid nitrogen is rapidly vaporized in the vaporization chamber, resulting in a low pressure (≤0.08MPa), and the liquid nitrogen is automatically discharged from the liquid nitrogen container.Avoid the disadvantages of dama ge to the liquid nitrogen container and a large amount of volatilization loss of liquid nitrogen due to manual dumpi ng.It is an ideal equipment for animal husbandry, medical and scientific research users to realize a small amount o f liquid nitrogen transfer.

TCLNP-50

TCLNP-50A

Model	Compatible container diameter （mm）	Discharge pressure （≤MPa）	Discharge speed （L/min）
TCLNP-50	50	0.03	3-5
TCLNP-50A	50	0.05	6-8

8.3 Liquid nitrogen level monitoring alarm

TCLMA-D1 is a liquid nitrogen level monitoring alarm that uses Swiss imported high-precision sensor probe to ensure the excellent measurement of the product. The dual -section 18650 large -capacity battery is powered by power. The USB port can be connected to external power supply and charging. The ultra -low power consumption design can be used for 4 months (reporting real -time data once every 10 minutes). The data actively reports to the cloud monitoring platform. There is no need to monitor the host, the collector and other equipment, and set the related parameters such as the upper and lower limit of temperature. When the ambient temperature exceeds the upper and lower limit, the power is too low, the external power supply is broken and the equipment is offline, the alarm will be triggered immediately The alarm notification can be sent to the mailbox and mobile phone text message. Support web pages, mobile app login to view and export real -time data, real -time curve, alarm records, historical records, etc.

Scope

Widely used in liquid nitrogen -nitrogen -low temperature equipment, pharmacy, cold chain transportation, laboratory and other places.

Features

- Cloud monitoring: high temperature, low temperature, high humidity, low humidity, offline, low battery and power failure; no need to monitor equipment such as hosts and collectors; offline recording function; normal monitoring and data recording when disconnected; automatic reporting to the cloud platform after network connection.
- Log in to web site and mobile APP to view data, support SMS and email alarm.
- Preparation for LCD large screen display design, generous and beautiful, super stability and anti-interference ability.
- Used large capacity 18650 batteries, rechargeable, anti-reverse connection of batteries, anti-burn of batteries, ultra-low power design, battery power supply alone can last for four months (report interval is 10 minutes).
- Imported high-precision probes, high measuring accuracy, wide range and good consistency.

Type	TCLMA-D1
Sensor type	2 meters per external
Temperature measurement range	-200℃~200℃
Temperature measurement accuracy	±0.1℃
Local storage capacity	100,000 groups
Output interface	WIFI ， USB
Battery capacity	Two knots 6000mAh
Rated voltage	USB power supply: 5V 18650 battery power supply: 3.7V