

液氮生物容器

Liquid nitrogen biological container



使用手册

Operation Manual

一、液氮罐概述 Instruction for the Container

液氮生物容器一般是由高强度航空铝的内外胆组成，中间为真空层，可分为贮存罐、运输罐两种。

The liquid nitrogen biological container is generally composed of a high-strength aviation aluminum inner and outer bladder, with a vacuum layer in the middle. It can be divided into storage tanks and transportation tanks.

贮存罐主要用于室内液氮的静置贮存，不宜在工作状态下作远距离运输使用；

The storage tank is mainly used for the static storage of indoor liquid nitrogen, and is not suitable for long-distance transportation under working conditions;

运输罐为了满足运输的条件，作了专门的防震设计。其除可静置贮存外，还可在充装液氮状态下，作运输使用，但也应避免剧烈的碰撞和震动。

一般用于以下几方面：

In order to meet the transportation conditions, the transport tank has a special anti-vibration design. In addition to being stored statically, it can also be used for transportation when filled with liquid nitrogen, but severe collisions and vibrations should also be avoided.

Generally used in the following aspects:

1.动物精液的活性保存。

Active preservation of animal semen.

主要是用于牛、羊等优良种公畜以及珍惜动物的精液保存，以及远距离的运输贮存。

It is mainly used for the preservation of semen of excellent breeding males such as cattle and sheep and cherished animals, as well as long-distance transportation and storage.

2.生物样本的活性保存。

Active preservation of biological samples.

在生物医学领域内的疫苗、菌毒种、细胞以及人、动物的器官，都可以浸泡于液氮罐储存的液氮中，长期活性保存，需要使用时，取出解冻复温即可使用。

In the field of biomedicine, vaccines, bacterial strains, cells, and human and animal organs can all be immersed in liquid nitrogen stored in liquid nitrogen tanks for long-term active preservation. When needed, they can be used after being removed and thawed and reheated.

3.金属材料的深冷处理。

Cryogenic treatment of metal materials.

利用液氮罐中储存的液氮对金属材料进行深冷处理，可以改变金属材料的金相组织，显著提高金属材料的硬度、强度和耐磨性能。

Cryogenic treatment of metal materials with liquid nitrogen stored in a liquid nitrogen tank can change the metallographic structure of the metal material and significantly improve the hardness, strength and wear resistance of the metal material.

4.精密零件的深冷装配。

Cryogenic assembly of precision parts.

将精密零件经过液氮深冷处理后进行装配，提高零件装配质量，从而提高设备或仪器的整机性能。

The precision parts are assembled after cryogenic treatment with liquid nitrogen to improve the assembly quality of the parts, thereby improving the overall performance of the equipment or instrument.

二、液氮罐命名 Instruction for the Container Model

几何体积：(L) 由内容器内壁（不包括颈管）的几何尺寸定义的空间体积

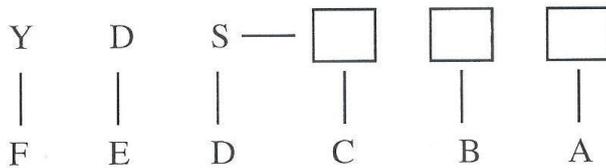
Geometric Volume: (L) Volume of space defined by the geometric size of the inside wall of the inner vessel (excluding that of the neck tube)

口径：(mm) 颈管内径

Caliber: (mm) Inside diameter of the neck tube

液氮罐型号介绍：

Instruction for the Container Model



A.直径（mm），尺寸未标注为 50mm。

Diameter (mm), size is not marked it is 50mm.

B.大写拉丁字母表示特殊类型（B-表示运输型）

The capital Latin Letter means special type(B-for transportation)

C.集装箱的标称容积

C.Nominal volume of container

D.“S”表示生物

"S" means biological

“D”表示氮

"D" means nitrogen

“Y”表示液体

"Y" means liquid

例如 1：YDS-35-50 表示容积 35L，直径 50mm，液氮生物容器

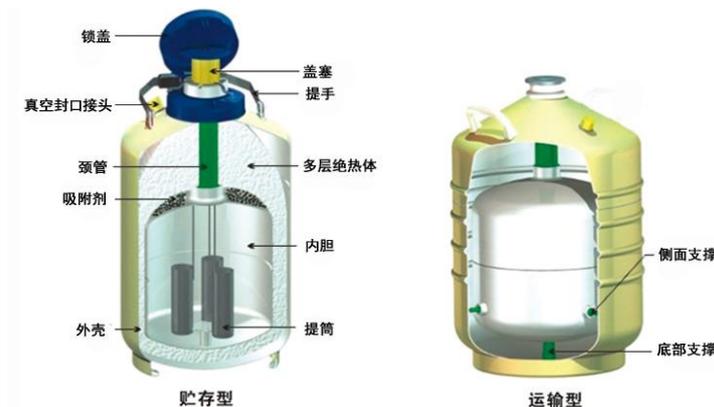
YDS-35-50 means volume 35L, Dia.50mm, liquid nitrogen biological

container.

2: YDS-50B-80 表示容积 50L, 直径 80mm, 液氮生物容器。

YDS-50B-80 means volume 50L, Dia.80mm ,liquid nitrogen biological container.

三、产品主要结构 Product structure



如图所示，容器由优质航空铝内胆、外胆及高强度玻璃钢颈管组成，坚固耐用。

As shown in the picture, the container is composed of a high quality aviation aluminum inner liner, an outer liner and a high-strength fiberglass neck tube, which is strong and durable.

内胆和外胆之间是高真空层，真空层装有多层进口绝热材料和气体吸附剂，颈管具有极低的导热率，从而长期保持高真空，具有良好冷藏性能。

There is a high vacuum layer between the inner liner and the outer liner. The vacuum layer is equipped with multi-layer imported thermal insulation materials and gas adsorbents. The neck tube has extremely low thermal conductivity, so that it can maintain a high vacuum for a long time and has good refrigeration performance.

颈塞是由保温聚氨酯材料制成，它具有减少液氮蒸发和固定提筒的作用。

The neck plug is made of thermal insulation polyurethane material, which has the function of reducing the evaporation of liquid nitrogen and fixing the lifting cylinder.

运输型液氮罐在底部和侧面有支撑，以保证罐体安全。

The transport liquid nitrogen tank has supports at the bottom and sides to ensure the safety of the tank.

四、使用须知 Usage notice

容器只能用于充装液氮，不能充装其他气体，液氮是一种超低温液体（-196℃），

在灌充时，应注意安全，以免飞溅伤人，运输储存过程中请保持罐体立放。

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.

贮存罐保存时间长，适合短途运输及长时间保存，如果需要长距离运输，建议选用运输罐，如我公司生产的 YDS-30B。

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.

只能使用与厂配套的颈塞封闭罐口，不能用其他密闭塞子代替，以免液氮持续蒸发产生压力增高导致容器损坏。

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.

容器真空封接头是保持容器夹层真空的关键部件，一旦受到破坏，将立即导致容器夹层真空恶化，产品不能继续使用，因此用户不得擅自打开容器真空封口接头。

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.

初次加液氮前请预冷，如表面结霜属于正常现象，一般 4-6h 恢复正常，如长时间持续请联系技术人员。

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.

用交通工具运送时，请立放，有必要须固定。

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

五、液氮罐性能参数表 Liquid nitrogen tank model

产品型号 (Model)	容积(L) (Volum	口径 (mm) (Caliber	外径 (mm) (O.D)	高度 (mm) Height	静态液氮保 存期(天) Static Storage
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	e))			time (day)
YDS-1-35	1.3	35	180	350	11
YDS-2-35	2.2	35	180	420	23
YDS-3	3.1	50	225	465	26
YDS-3-80	3.1	80	224	460	11
YDS-3-125	3.1	125	225	460	4
YDS-6	6.5	50	280	525	53
YDS-6-80	6.5	80	280	500	25
YDS-6-125	6.5	125	280	475	11
YDS-6-216	6.5	216	280	480	2
YDS-10	10.5	50	304	580	87
YDS-10-80	10.5	80	304	580	50
YDS-10-125	10.5	125	305	540	30
YDS-10-216	10.5	216	304	580	11
YDS-10B	10.5	50	304	580	52
YDS-13	15.2	50	304	675	126
YDS-15	16.4	50	385	600	136
YDS-15-80	16.4	80	385	590	78
YDS-15-125	16.4	125	385	600	50
YDS-15-216	16.4	216	385	590	24
YDS-15B	16.4	50	385	600	82
YDS-16-50	17.4	50	440	525	145
YDS-16-80/9	17.4	80	440	525	83
YDS-20	21.5	50	385	655	178
YDS-20-80	21.5	80	385	630	102
YDS-20-125	21.5	125	385	640	130
YDS-20-216	21.5	216	385	630	30
YDS-20B	21.5	50	385	655	107
YDS-25	25.2	50	440	650	210
YDS-30	31.5	50	440	715	260
YDS-30-80	31.5	80	440	715	150
YDS-30-125	31.5	125	440	740	100
YDS-30-216	31.5	216	440	715	46
YDS-30B	31.5	50	440	715	176

YDS-35	35.2	50	440	715	290
YDS-35-80	35.2	80	440	715	167
YDS-35-125	35.2	125	440	750	110
YDS-35-216	35.2	216	440	715	50
YDS-35B	35.2	50	440	715	185
YDS-47-127/6	48.5	127	516	790	115
YDS-47-127/10	48.5	127	516	790	115
YDS-50B	52.1	50	516	790	217
YDS-50B-80	52.1	80	516	790	162
YDS-50B-125	52.1	125	516	515	120
YDS-50B-216	52.1	216	516	790	70
YDS-65L-216	65.2	216	680	705	90
YDS-65-216	65.2	216	680	705	90
YDS-95-216	95.3	216	680	770	100
YDS-115-216	115.5	216	680	810	126
YDS-120-216	121	216	680	1050	142
YDS-130-216	130.5	216	680	870	140
YDS-145-216	145.5	216	680	940	155
YDS-160-216	160.5	216	680	990	169
YDS-175-216	175.5	216	680	1045	185
YDS-190-216	192.5	216	680	1110	200
YDS-210-216	209.5	216	680	1170	216
YDS-80-50	85.5	50	680	735	244
YDS-100-50	105.5	50	680	795	278
YDS-120-50	120.5	50	680	855	300
YDS-135-50	135.5	50	680	915	339
YDS-150-50	150.5	50	680	975	358
YDS-165-50	165.5	50	680	1035	376
YDS-180-50	180.5	50	680	1095	410
YDS-195-50	195.5	50	680	1155	425
YDS-210-50	210.5	50	680	1205	448
YDH-1.5-30	1.5/0.6	30	180	398	9
YDH-3	3/1.3	50	224	441	9
YDH-4-70	4/1.8	70	224	505	9

YDH-4-125	4/2	125	300	451	8
YDH-6-80	6/2.4	80	300	435	11
YDH-6-190	6/1.8	190	252	470	2
YDH-10-80	10/6	80	300	584	20
YDH-10-125	10/6	125	300	584	15
YDH-15-216	15/6	216	396	610	7
YDH-25-216	25	216	396	741	11
YDZ-15	15	/	377	830	14
YDZ-30	30	/	404	850	33
YDZ-50	50	/	455	960	45
YDZ-100	100	/	556	1120	83
YDZ-150	150	/	656	1110	100
YDZ-175	175	/	706	1370	85
YDZ-200	200	/	656	1280	125
YDZ-230	230	/	656	1580	165
YDZ-300	300	/	806	1410	125
YDZ-500	500	/	958	1500	125
Cryobank 2400	65.2	216	680	705	90
Cryobank 3000	95.3	216	680	770	100
Cryobank 3600	115.5	216	680	810	126
Cryobank 4200	130.5	216	680	870	140
Cryobank 4800	145.5	216	680	940	155
Cryobank 5400	160.5	216	680	990	169
Cryobank 6000	175.5	216	680	1045	185
Cryobank 6600	192.5	216	680	1110	200
Cryobank 7200	209.5	216	680	1170	216
YDD-370-320P	370	320	820	1400	/
YDD-460-320P	460	320	820	1600	/
YDD-550-445P	550	445	1090	1400	/
YDD-800-445R	800	445	1090	1650	/
YDD-800-445P	800	445	1090	1650	/
YDD-850-465P	890	465	1190	1600	/
YDD-1000-465 P	1031	465	1190	1700	/



YDD-1300-526 P	346	635	1565	1500	/
YDD-1600-526 P	1634	635	1565	1650	/
YDD-1800-635 R	1854	635	1565	1750	/

注：1. 产品静态液氮保存期采用称量法测试。

The product static liquid nitrogen storage period is tested by weighing method.

产品型号栏中 B 表示内胆底部及侧面有支撑，耐倾倒、耐运输的容器。

B in the product model column indicates a container with support at the bottom and sides of the inner liner, which is resistant to tipping and transportation.

由于技术改进，有的数据可能有些改进，特殊定制需求请联系厂家。

Due to technological improvements, some data may be somewhat improved. Please contact the manufacturer for special customization requirements.

六、使用和维护 Use and maintenance

1. 放进和取出冷冻物品时，要尽量使罐口打开时间短，以减少液氮损耗量，也不要提筒完全提出来，免得影响物品的贮存效果。

When putting in and taking out frozen items, try to make the opening of the tank as short as possible to reduce the loss of liquid nitrogen, and do not lift the bucket completely, so as not to affect the storage effect of the items.

2. 严防过度冲击和碰撞，以防真空度破坏。

Strictly prevent excessive impact and collision to prevent vacuum damage.

3. 应经常检查液氮存有量，以免贮存物品损坏。

The amount of liquid nitrogen should be checked frequently to avoid damage to the stored items.

4. 容器在使用过程中，由于液氮的不纯，内胆中会慢慢积蓄水分，同时有杂菌繁殖，会降低精液的受精率，因此建议每年用 40-50℃ 的温水洗涤容器 1-2 次。

During the use of the container, due to the impurity of liquid nitrogen, water will gradually accumulate in the inner tank. At the same time, the multiplication of bacteria will reduce the fertilization rate of semen. Therefore, it is recommended to wash the container with warm water at 40-50℃ 1-2 times a year.

七、产品质保 Quality Guarantee

本公司生产的液氮生物容器在正常使用情况下，自用户收货之日算起，一年内如发现确因制造原因而影响使用的，按下述方法执行：

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:

容器初次充注液氮静置 24 小时后，如发现容器表面出现有大量冷凝水，结霜等异常现象，请联系客服。

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.

在一年内，当产品出现确属我公司制造上的质量问题，我公司负责对产品进行检查或维修。

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.

本产品由于涉及多项专业技术，因而出现故障后，只能将容器返回我公司进行检查和维修。

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

若出现下列情况之一，我公司概不实行“三包”。

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

用户擅自打开容器真空接头，造成容器真空封口接头破坏或阀芯封签破损的。

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.

将贮存型容器在充满液氮或放有冷冻物品情况下，作车载运输使用，致使产品质量问题的。

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

未按产品使用须知及有关规定要求使用，容器外壳凹陷，颈管被划伤，受内压



变形或者泄露，内胆被腐蚀等情况。

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.

如产品出现质量问题，我司负责维修、调换本产品，不作液氮和保存物的理赔事宜。

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.

八、液氮静态日蒸发量测试 Liquid nitrogen static daily evaporation test

液氮静态保存期采用称重法测试；

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

测试应在常压封闭安静的环境下进行，室内温度控制在 20℃；

将容器灌入 1/2 以上的液氮，静放 48 小时后，进行第一次称重（A）克，3 日后第一次称重得（B）克，按下式计算，蒸发量 Q。

$$Q=A-B/3 \text{ (克/天)}$$

如果需要以容积（升）表示，用下式换算：

$$D=Q/808 \text{ (升/天)}$$

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 .

$$Q=A-B/3 \text{ (g/day)}$$

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

$$D=Q/808 \text{ (liter/day)}$$

感谢您的订购!

Thank you for your order!