



CAUTION - SAFETY FIRST!

- REVIEW AND UNDERSTAND ALL SAFETY PROCEDURES IN THE "HANDLE WITH CARE" BOOKLET FORM BEFORE ATTEMPTING TO INSTALL, OPERATE OR PERFORM MAINTENANCE ON THIS CRYOSTORAGE SYSTEM.
- DO NOT ATTEMPT TO USE OR MAINTAIN THIS UNIT UNTIL YOU READ AND UNDERSTAND THESE INSTRUCTIONS.
- DO NOT PERMIT UNTRAINED PERSONS TO USE OR MAINTAIN THIS UNIT.
- IF YOU DO NOT FULLY UNDERSTAND THESE INSTRUCTIONS, CONTACT YOUR SUPPLIER FOR FURTHER INFORMATION.
- BEFORE ATTEMPTING TO OPERATE THIS EQUIPMENT WITH ANY WORTHINGTON INDUSTRIES APPROVED ELECTRONIC CONTROLLER, YOU MUST READ THE SEPARATE OPERATING AND SAFETY MANUAL PROVIDED WITH THAT CONTROLLER.

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Figure 1.0 Cloud based management system is available.



Figure 2.0 & 2.1 Folding steps make retrieval of stored samples easy and efficient.

Safety Precautions for Liquid Nitrogen

Nitrogen is an inert, colorless, odorless, and tasteless gas making up four-fifths of the air you breathe – and can be **hazardous**. Air is roughly one-fifth oxygen. Liquid nitrogen is at a temperature of -196°C (-320°F) under normal atmospheric pressure.

Extreme Cold - Cover Eyes and Exposed Skin

Accidental contact of liquid nitrogen or cold issuing gas with the skin or eyes may cause a freezing injury similar to frostbite. Handle the liquid so it won't splash or spill. Protect your eyes and cover the skin where the possibility of contact with the liquid, cold pipes and cold equipment, or cold gas exists. Safety goggles or a face shield should be worn when operating this equipment. Insulated gloves that can be easily removed and long sleeves are recommended for arm protection. Trousers without cuffs should be worn outside boots or over the shoes to shed spilled liquid

Keep Equipment Area Well Ventilated

Although nitrogen is non-toxic and non-flammable, it can cause asphyxiation in a confined area without adequate ventilation. Any atmosphere not containing enough oxygen for breathing can cause dizziness, unconsciousness, or even death. Nitrogen is a colorless, odorless, and tasteless gas that cannot be detected by the human senses and will be inhaled normally as if it were air. Without adequate ventilation, the expanding nitrogen will displace the normal air resulting in death or asphyxiation.

Liquid Nitrogen System

The liquid nitrogen supply pressure at the inlet to the refrigerator should be in the range of 10 psig (0.7 bar/69 kPa) to 22 psig (1.5 bar/152 kPa) for optimum performance. Higher operating pressures will increase transfer losses and create excessive turbulence of the liquid in the refrigerator, which can generate false signals to the liquid level controller causing the refrigerator to under-fill. In "liquid phase" storage applications, excessive turbulence can cause splashing which could result in personal injury and/or damage to the refrigerator. When installing piping or fill hose assemblies, make certain a suitable safety relief valve is installed in each section of plumbing between shut-off and solenoid valves. Trapped liquefied gas will expand rapidly as it warms and may burst hoses or piping causing damage or personal injury. A relief valve is installed in the refrigerator plumbing to protect the line between the customer supplied shut-off valve and the refrigerator solenoid valve.

For more detailed information concerning safety precautions and safe practices to be observed when handling cryogenic liquids consult CGA pamphlet P-12 "Handling Cryogenic Liquids" available from the Compressed Gas Association, www.cganet.com

Dispose of Waste Liquid Nitrogen Safely

Dispose of waste liquid nitrogen out-of-doors where its cold temperature cannot damage floors or driveways and where it will evaporate rapidly. An outdoor pit filled with clean sand or gravel will evaporate liquid nitrogen safely and quickly.

WARNING:
The following safety precautions are for your protection. Before installing, operating, or maintaining this unit read and follow all safety precautions in this section and in reference publications. Failure to observe all safety precautions can result in property damage, personal injury, or possibly death.

Caution:
When installing field fabricated piping, make certain a suitable safety valve is installed in each section of piping between shut-off and solenoid valves.

WARNING:
Inlet pressure should not exceed 22 psig (1.5 bar/152 kPa). Higher pressures could result in damage to equipment.

General Information

This state-of-the-art Cryogenic System can be used in either liquid or vapor phase. Units are supplied with Worthington Industries approved controllers. If other liquid level controllers are used, please contact Worthington Industries before putting the refrigerator into service.

Worthington Industries LABS Cryostorage Systems are designed for applications where extremely low temperature storage of biological products is required. They are also appropriate for industrial or other applications where liquid nitrogen temperatures and high capacity are needed.

The LABS style refrigerator covered by this publication is designed for, but not limited to, the laboratory environment. Each model is supplied with locking casters to enable limited mobility for cleaning and positioning purposes.

The standard model is equipped with a Worthington Industries approved electronic liquid level controller that will monitor and control the supply of liquid nitrogen to the unit. Make sure to read the operating and safety instructions provided with the controller you have selected to use with your LABS unit. The addition of a liquid nitrogen supply and inventory control racks for systematic retrieval of stored product completes the total LABS Cryostorage System.

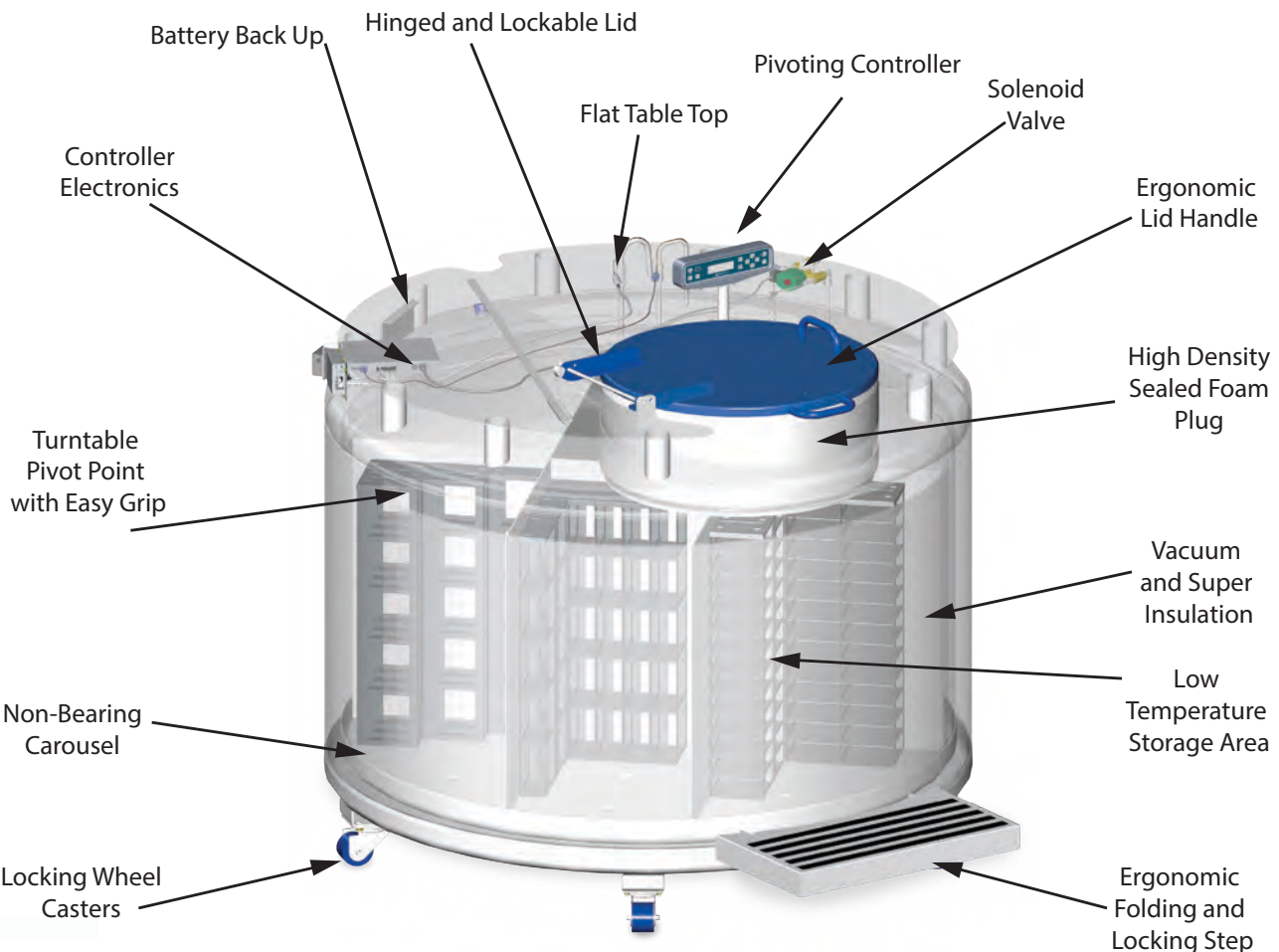


Figure 3.0 LABS 94K

LABS Cryostorage Specifications

Liquid nitrogen at atmospheric pressure weighs 1.78 lbs./liter (0.8 kg/liter). All Worthington Industries systems are designed to support the full weight of liquid nitrogen and a complete stainless steel or aluminium inventory control system with boxes and specimens.

MODELS		20K	38K	40K	80K	94K
External Operating Height (Top of Step to Lid opening)	in.	42	44	42	42	40
	mm.	1067	1118	1067	1067	1016
Step Height (1)	in.	11	11.5	11/16.3	11/17	11/22
	mm.	275	287.5	275/407.5	275/425	275/550
Height (Floor to Opening)	in.	53	56	53	53	62
	mm.	1346	1422	1346	1346	1575
Usable Height, Internal	in.	30	30	30	30	35.3
	mm.	762	762	762	762	897
Outside Diameter	in.	34	42	45	59.5	59.5
	mm.	864	1067	1143	1511	1511
Internal Working Diameter	in.	29.5	38	40.5	55	55
	mm.	750	965	1029	1397	1397
Neck Opening	in.	13	18	18	24.5	24.5
	mm.	330	457	457	622	622
Capacity						
Total LN ₂ Capacity (Liquid Storage)	L.	371	623	698	1269	1595
Total LN ₂ Capacity (Vapor Storage)	L.	36	73	80	137	300
Weight, Empty	lb.	650	930	920	1550	1700
	kg.	295	422	417	703	771
Maximum Gross Weight (2)	lb.	1311	2040	2164	3811	4542
	kg.	595	925	981	1729	2060
Inventory Control System Specifications						
No. 100/81 Cell Racks No. Shelves/Rack		14	26	30	58	60
		13	13	13	13	15
No. 25 Cell Racks No. Shelves/Rack		4	12	8	12	8
		13	13	13	13	15
Vial Capacity, 2 ml (3)		19500	37700	41600	79300	93000
Bag 50 ml (7 Level Rack) (4)		924	1582	1876	3381	3864
Bag 250 ml (5 Level Rack) (5)		500	900	990	1920	2304
Bag 500 ml (5 Level Rack) (5)		420	690	830	1610	1932

(1) LABS 94K features independent dual stainless steel folding steps. The dual steps are optional on the LABS 40K and 80K. Optional dual step heights on LABS40K are 9.0"/16.3" (2) Includes the empty weight and total LN₂ capacity weight. (3) 2 ml vial size/12.5 mm O.D. internal thread. 6-2 vertical-rack capacity of 94,200 for LABS 94K. (4) Model LABS 94K, 8 Level Rack. (5) Model LABS 94K, 6 Level Rack.



Figure 4.0 Crated LABS

Unpacking and Inspection

Inspect shipping containers for external damage. All claims for damage (apparent or concealed) or partial loss of shipment must be made in writing within five (5) days from receipt of goods. If damage or loss is apparent, please notify the appropriate parties as indicated below:

Domestic LTL Shipments – The customer should notify and file the appropriate damage claims with the carrier. All products are shipped Ex Works Theodore, AL.

Domestic UPS Shipments – Any damage should be noted and reported to shipper upon delivery, and Worthington Industries must also be notified. Confirm with Worthington Industries Customer Service the filing procedures for any UPS damage claims.

International Shipments – Any damage and/or claims are to be filed with the carrier. Insurance agent(s) and Customs brokers should also be notified.

In all cases, Worthington Industries should be notified to assist if needed in filing damage claims.

Open the shipping containers; a packing list is included with the system to simplify checking that all components, cables, accessories, and manuals were received. Please use the packing list to check off each item as the system is unpacked. Inspect for damage. Be sure to inventory all components supplied before discarding any shipping materials. If there is damage to the system during transit, be sure to file proper claims promptly. Please advise Worthington Industries of such filings. In case of parts or accessory shortages, advise Worthington Industries immediately. Worthington Industries cannot be responsible for any missing parts unless notified within 10 days of receipt of shipment.

Freight Damage Procedures

Any freight damage claims are your responsibility. Cryostorage Systems are delivered to your carrier from Worthington Industries's dock in new condition; when you receive our product you may expect it to be in that same condition. For your own protection, take time to visually inspect each shipment in the presence of the carrier's agent before you accept delivery. If any damage is observed, make an appropriate notation on the freight bill. Then, ask the driver to sign the notation before you receive the equipment. You should decline to accept containers that show damage which might affect serviceability.

Repackaging for Shipment

If it is necessary to return any part of the system for repair or replacement, a Material Return Authorization (MRA) number must be obtained from an authorized factory representative before returning the equipment to our service department. Contact your distributor for return authorization. When returning equipment for service, the following information must be provided before obtaining an MRA:

- A. System model and serial number, and controller model and serial number, if available.
- B. User's name, company, address, and phone number
- C. Malfunction symptoms or damage
- D. Picture of damage or issue

If possible, the original packing material should be retained for reshipment. If not available, consult Worthington Industries for shipping and packing instructions. It is the responsibility of the customer to assure that the goods are adequately packaged for return to the factory. *All refrigerators returned to Worthington Industries must be clean and sterile before return. See page 13 for cleaning instructions.*

Liquid Nitrogen Supply Connection

The package included with the refrigerator includes a strainer. Ensure the strainer's arrow is oriented with the flow of the liquid. The liquid fill hose from a low pressure source of liquid nitrogen must be connected to the inlet through this fitting. This liquid nitrogen source must have a shut-off valve, and may be any portable liquid cylinder or a bulk supply. **The liquid nitrogen supply pressure at the inlet to the refrigerator should be in the range of 10 psig (0.7 bar/69 kPa) to 22 psig (1.5 bar/152 kPa) for optimum performance. Higher operating pressures will increase transfer losses and create excessive turbulence of the liquid in the refrigerator, which can generate false signals to the liquid level controller causing the refrigerator to under-fill.** In "liquid phase" storage applications, excessive turbulence can cause splashing which could result in personal injury and/or damage to the refrigerator. If the liquid nitrogen supply pressure at the inlet to the refrigerator rises above the opening pressure of the relief valve on the refrigerator, liquid nitrogen will be discharged into the surrounding area, which can cause a rapid and very dangerous depletion of oxygen in the atmosphere. Once this pressure relief device has opened and cooled to liquid nitrogen temperature, it will not reseal until it has warmed to near ambient temperature. **This could permit the entire contents of the liquid nitrogen supply system to be discharged into the immediate area of the refrigerator(s) (see warning). It is recommended to have the freezer relief valve connected to vent line that exhausts to the outside atmosphere.**

Electrical - The liquid level controllers used with these refrigerators operate from 12VDC. The external transformer has a 100/240 (50 – 60 Hz) VAC primary supply. Disconnect the electrical power cord from the outlet before attempting any service.

Power Supply Connection - Connect the power supply to the LABS Cryostorage System and then plug the power supply into a surge protected 110/220 VAC outlet.

Operation

These instructions are for operators experienced with cryogenic equipment. Before operating the system, become familiar with the safety precautions in this LABS manual and in the operating manual for the controller model you are using with your LABS unit. Make certain all applicable provisions set forth in the Installation Section have been followed before placing a system in operation. Study this manual thoroughly. Know the location and function of all system components.

Initial Fill

The LABS Cryostorage System comes preset for vapor phase storage from the factory. The liquid nitrogen supply pressure at the inlet to the refrigerator

WARNING:
In order to prevent the relief device on the nitrogen refrigerator(s) from opening when the system is in operation, the liquid nitrogen supply system must be protected by a pressure relief device that will open when the pressure at the inlet to the refrigerator(s) is approximately 22 psig (1.5 bar/152 kPa). Never install the supply system pressure relief device onto a liquid service line.

WARNING:
Electrical shock can kill. Do not attempt any service on these units without first disconnecting the electrical power cord.

WARNING:
Maintain adequate ventilation to prevent asphyxiation hazard (see Safety Precautions).

WARNING:
If the fill fails to stop for any reason, quickly close the liquid supply valve to prevent overfilling until the cause of the problem can be determined.

WARNING:
When working with Liquid Nitrogen, make sure to observe all safety guidelines and wear the appropriate safety gear to avoid personal injury, asphyxiation and possibly death.

should be in the range of 10 psig (0.7 bar/69 kPa) to 22 psig (1.5 bar/152 kPa) for optimum performance. Higher operating pressures will increase transfer losses and create excessive turbulence of the liquid in the refrigerator, which can generate false signals to the liquid level controller causing the refrigerator to under fill. In “liquid phase” storage applications, excessive turbulence can cause splashing which could result in personal injury.

Operating Parameters

When materials are immersed in liquid nitrogen, they will assume the temperature of the liquid (-196°C/-320°F). When material is stored in the vapor phase above the liquid, the liquid nitrogen vapor is still a very cold refrigerant, but the refrigerator’s interior temperature increases as product is stored higher above the liquid. This temperature differential is not significant in many biological storage applications, and is affected by the amount of product stored in the refrigerator, the type and size of inventory control system, and the liquid level in the unit.

Liquid Phase Storage

Liquid phase storage is normally utilized when liquid nitrogen temperatures are required to maintain stored product viability and the storage medium is adequate for storage in liquid nitrogen. To reconfigure the system’s setting for liquid phase, review the operating instructions for the specific controller you have selected to use with your LABS unit.

Thermocouple Positioning

The thermocouple is a separate sensor used to monitor and/or control the temperature within the refrigerator. The factory-supplied thermocouple in most of the LABS Cryostorage Systems is positioned to monitor the temperature 1.5 in. (38 mm) below the top of the carousel.

Adding an Inventory Control System (ICS)

The purpose of the inventory control system is to bring order to the storage of many small samples, and to allow direct retrieval of the particular sample you need at any time. It is important to note that when you lift an ICS rack from the refrigerator it is being moved to a warmer environment. Learn to locate your sample quickly to avoid unnecessary warming of your stored product. Keep ICS inserts (drawers or boxes) and dividers in good repair. Replacement inserts and dividers are available from your Worthington Industries distributor to keep your system as efficient as possible.

Always wear gloves when handling ICS racks or stored product, as they are very cold. Read all of the precautions in the Safety section of these instructions and in the Worthington Industries publication “Handle With Care” for more detail on handling product stored in liquid nitrogen.

When removing ICS racks to retrieve product, protect the labels, non-metallic, and electronic areas of the refrigerator from liquid nitrogen that may spill from the rack inserts. These parts of the refrigerator are subject to damage from the extremely low temperature of the refrigerant.

Do not let ice or debris collect in the bottom of the freezer. Schedule periodic clean out if racks no longer stand upright.

Inventory Control System Layouts (LABS Cryostorage System)

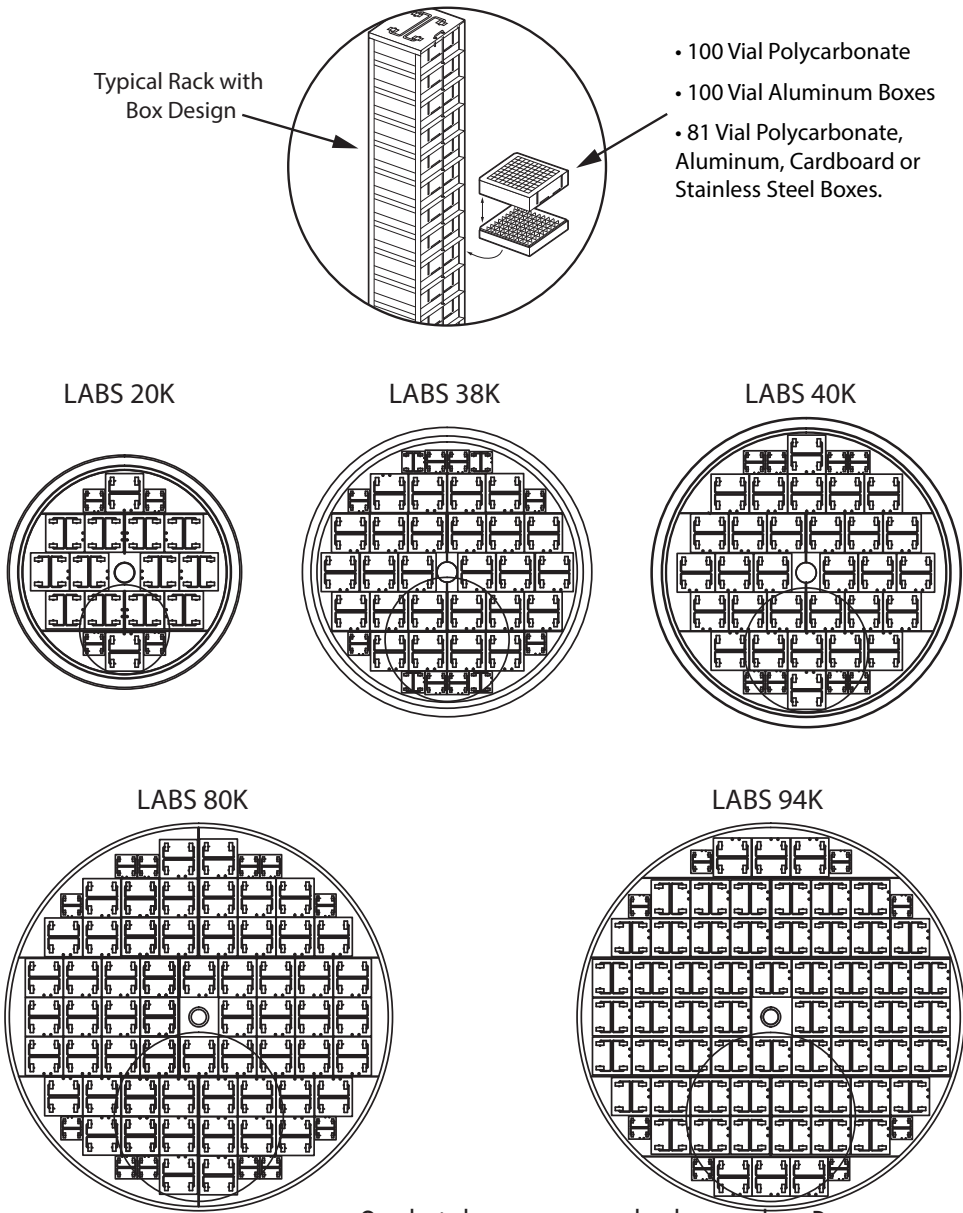
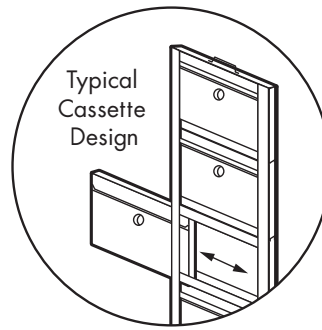


Figure 5.0
Vial Storage in Boxes on Racks (Standard Design)

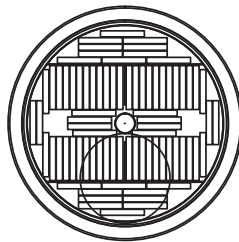
NOTE:
Racks are not square.
Orientation is important.

2 ml vial storage – ask about other Box types

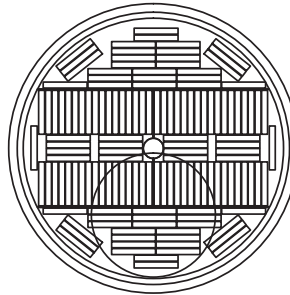
Part Number	Racks 15 x 2 x 100 9900-0005	Racks 13 x 2 x 100 R23K-8C35	Racks 15 x 2 x 25 9900-0006	Racks 13 x 2 x 25 R10K-9C44	Boxes-100 N-374187-92 (Case of 24 Polycarbonate)	Boxes-25 N-374180 (Case of 36 Polycarbonate)	Vial Capacity Max. Allowable
LABS 20K	-	14	-	4	182	52	19500
LABS 38K	-	26	-	12	338	156	37700
LABS 40K	-	30	-	8	390	104	41600
LABS 80K	-	58	-	12	754	156	79300
LABS 94K	60	-	8	-	900	120	93000



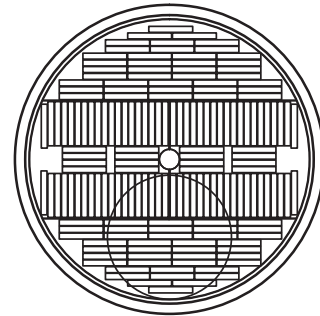
LABS 20K



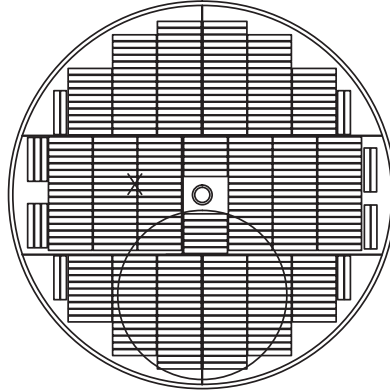
LABS 38K



LABS 40K



LABS 80K



LABS 94K

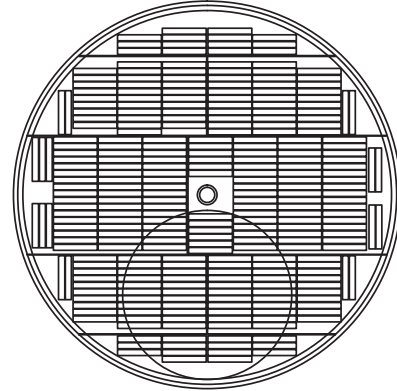
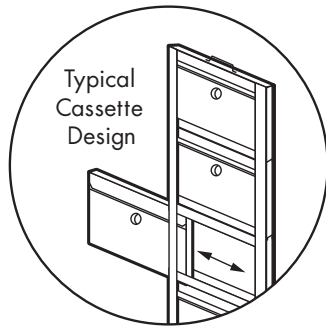


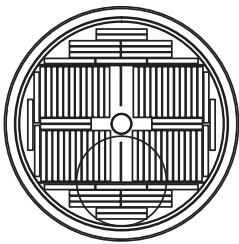
Figure 6.0 Rack Arrangements for 50 ml Cassettes

Part Number	Capacity	Frames	Cassettes
LABS 20K	924	132	924
LABS 38K	1582	226	1582
LABS 40K	1876	268	1876
LABS 80K	3381	483	3381
LABS 94K*	3864	483	3864

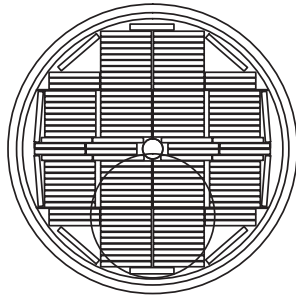
*LABS 94K use an 8-level rack. All other units utilize a 7-level rack configuration.



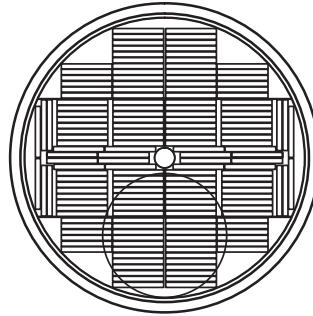
LABS 20K



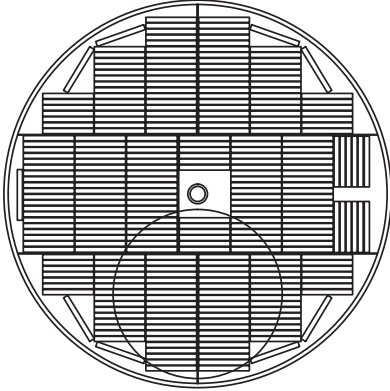
LABS 38K



LABS 40K



LABS 80K



LABS 94K

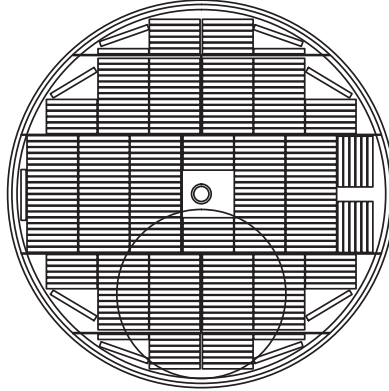
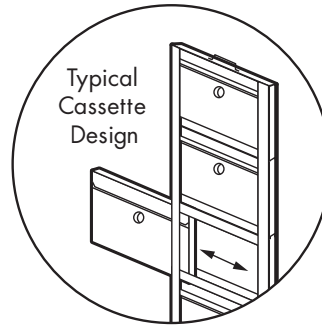


Figure 7.0 Rack Arrangements for 250 ml Cassettes

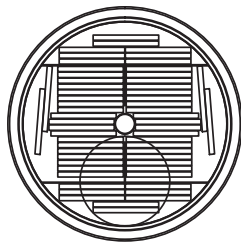
Part Number	Capacity	Frames	Cassettes
LABS 20K	500	100	500
LABS 38K	900	180	900
LABS 40K	990	198	990
LABS 80K	1920	384	1920
LABS 94K*	2304	384	2304

*LABS 94K use a 6-level rack. All other units utilize a 5-level rack configuration.

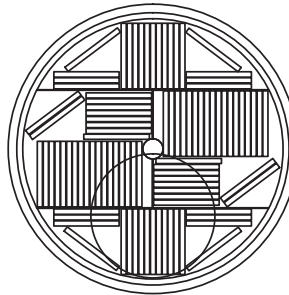
Installation



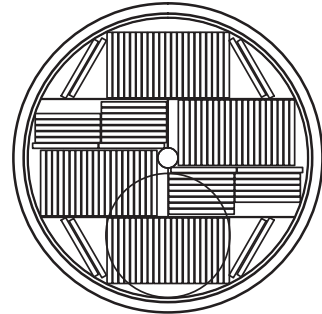
LABS 20K



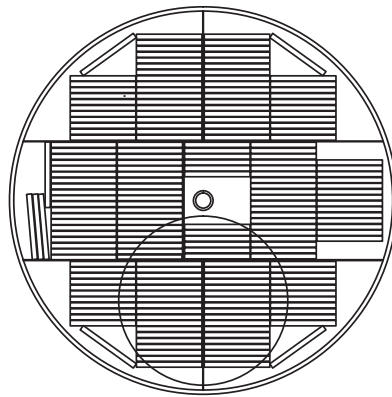
LABS 38K



LABS 40K



LABS 80K



LABS 94K

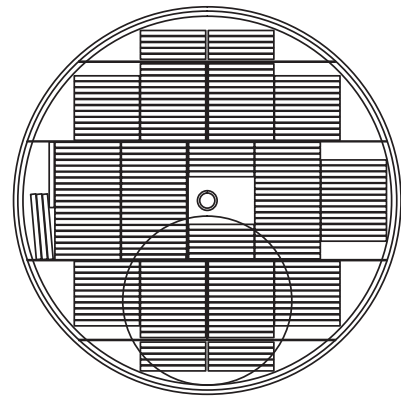


Figure 8.0 Rack Arrangement for 500 ml Cassettes

Part Number	Capacity	Frames	Cassettes
LABS 20K	420	84	420
LABS 38K	690	138	690
LABS 40K	830	166	830
LABS 80K	1610	322	1610
LABS 94K*	1932	322	1932

*LABS 94K use a 6-level rack. All other units utilize a 5-level rack configuration.

Strainer Cleaning Instructions

The container will not fill properly if the strainer is clogged with ice or dirt. To clean the strainer, first close the liquid nitrogen supply valve to the refrigerator. Vent the fill line of all pressure. Remove and warm the strainer to ambient temperature. Purge the strainer from both directions with dry nitrogen gas or dry oil-free air. Rinse the strainer with alcohol and purge it again with dry nitrogen gas or dry oil-free air to clear contaminants. If the cleaning process doesn't clear the blockage, replace with a new strainer (P/N 367326) in the correct orientation.

Defrosting Your LABS Cryostorage System

All liquid nitrogen storage systems are subject to ice and frost buildup over time. Regular preventive maintenance programs should be instituted to remove ice and frost from the sensor, fill tube and the refrigerator lid. Ice and frost buildup in the sensor tube may result in false readings being relayed to the controller from the sensors. Ice can form a thermal barrier around a level sensor, rendering it insensitive to the temperature differences between vapor and liquid.

Ice and frost buildup in the fill tube may block the flow of liquid nitrogen into the refrigerator during fill. This blockage can result in the liquid level dropping to dangerously low levels, and may result in activation of the Low Level Alarm. In addition, a fill line blockage may cause the Low LN₂ Supply Alarm to be activated. If the fill line becomes blocked, the freezer must be warmed until the ice blockage is cleared.

If it is determined that defrosting is necessary the following procedure must be followed. Cryogenic freezers of these types must be carefully warmed to ambient temperatures to avoid the ingress of water. As long as liquid nitrogen is present in the unit, the evaporation of the liquid nitrogen provides slightly positive gas pressure in the unit, preventing the entrance of moisture-laden air. When the liquid nitrogen has evaporated and the unit temperature is still below the dew point of the surrounding atmosphere, condensation will start to collect in the unit. When frost and condensation collect in the unit, damage to the level sensors will occur. If one of these units is to be taken out of service for any reason the following steps must be performed to avoid damaging the unit.

1. Disconnect power and liquid nitrogen source.
2. Remove all stored product and inventory control system components.
3. Remove Sensors.
4. A source of dry nitrogen gas must be used to purge the unit as the temperature rises to ambient. The purge gas can be installed on the sensor tube or fill tube or directly into the liquid via a tube or hose after the appropriate components have been removed. The purge gas may also be delivered to the unit through a bent metal tube under the lid. A flow rate of 5 to 10 SCFM is sufficient to prevent water from collecting inside the unit. This flow of purge gas will also speed the warming of the unit to ambient temperature.

Cleaning Your Worthington Industries Cryostorage System

The cryogenic vessel of all LABS Cryostorage Systems may need to be cleaned, and

WARNING:
Never use chlorine-based disinfectants to clean a LABS Cryostorage System.

sterilized if the type of stored product is changed or the unit is taken out of service. ***The vessel must be defrosted, cleaned, and sterilized regardless of the type of stored product, prior to return to Worthington Industries for repair or maintenance.***

Prior to cleaning, the unit must be warmed and defrosted as described in the previous section.

To clean and sterilize your defrosted LABS Cryostorage System, spray the entire inner vessel surface with ample amounts of an approved & compatible disinfectant. Allow surface contact to be maintained for a minimum of five minutes. Rinse the inner vessel with water, remove all water and debris through the access opening located in the carousels bottom tray, and vacuum or towel dry the surface. Spray the inner vessel surface with a 70% alcohol to water solution and maintain surface contact for fifteen minutes. Rinse the inner vessel surface with water and vacuum or towel dry excess water. Lastly, dry the inner container sensor tube, and fill line using a dry nitrogen gas purge.

WARNING:
Never use hollow rods or tubes as dipsticks. When a warm tube is inserted into liquid nitrogen, liquid will spout from the top of the tube and may cause personal injury.

WARNING:
The source power supply at 110/220 can cause a lethal electrical shock. Unplug the power cord before beginning any repairs.

Normal Evaporation Rate (NER) Test

Nitrogen consumption is an accumulation of all system components and user introduced evaporation. The storage chamber is a double walled, vacuum insulated vessel and contributes to the daily consumption of liquid nitrogen. The liquid nitrogen supply vessel and transfer hose also contribute greatly to the daily consumption rate. Choosing to control the vapor temperature, combined with the liquid level and temperature specified, will affect the overall nitrogen consumption. In addition to these variables, opening the lid to retrieve product, and adding new product into the storage chamber will play a role in the accumulative liquid nitrogen consumption.

If the nitrogen consumption of your Cryostorage System seems excessive, it may be appropriate to perform an estimated Normal Evaporation Rate (NER) test on the Cryostorage chamber. To perform an NER test:

1. Fill the Cryostorage unit to the "High Level" sensor.
2. Measure the liquid nitrogen level with a plastic or wooden measuring rod.
3. Close and lock the lid of the LABS Cryostorage System for forty-eight (48 hours).
4. Open the LABS Cryostorage System and measure the liquid nitrogen level. Typically, liquid nitrogen levels will drop approximately 3/8 in. (9.53 mm) per day. If your measurement indicates a drop in excess of 3/4 in. (19 mm) per day, please contact your Worthington Industries distributor or Worthington Industries for further information. Please have your serial number, this manual and service history available.

Troubleshooting

Symptoms

The key to troubleshooting your LABS Cryostorage System is to determine which component in the system is the source of the problem. Utilizing this manual along with your controller's manual, determine if the problem is occurring in any of the following sub-systems: Supply Vessel, Transfer Line, Power Source, Temperature, Level Sensing, Security, Lid Switch, Solenoid Valve, Control Display, Alarm System, Communications. After determining which sub-system is having the problem, isolate

the problem further by performing sub-system tests. Once the problem is isolated and defined, it will be easier to solve.

A complete list of Replacement Parts and Accessories for the LABS Series is available from the following Worthington Industries Customer Care Centers:

US Toll Free: 844-273-7517

Global: +43 7485 606 286 / +1 614-438-7968

REFRIGERATOR SERVICE AND MAINTENANCE HISTORY LOG

Fill in top section at installation. Copy this form each time service is required.

Fill bottom section with service notes to keep a complete log of each refrigerator service and maintenance history.

End User Company Name _____ LOG NO _____

Service Contract/Company Name _____

Service Contract Phone Number/Fax _____

LAB Series Model/Serial Number _____

Controller Serial Number _____

Controller Version Number _____

In-service Date _____

Describe Conditions – Actual Describe Conditions – Controller Reading

Liquid Level – via Dipstick _____ Liquid Level – Per Controller _____

Level Sensor Type ____ FG ____ 8T ____ 4T ____ Liquid Level Setting ____ HIGH ____ LOW

Lid ____ Open ____ Closed Lid ____ Open ____ Closed

Filling ____ Yes ____ No Filling ____ Yes ____ No

Temperature _____ Temperature _____

LN₂ Supply _____ ltr _____ psi Supply Alarm ____ On ____ Off

Note: Ice Build-up ____ a little ____ a lot Remote Alarm ____ On ____ Off

Note: Gasket condition ____ Seals ____ Leaks Audible Alarm ____ On ____ Off

Display Lights ____ On ____ Off Temp. control set point @ _____ degrees

Worthington Industries Technical Services - Phone: USA Toll Free 844-273-7517

Global: +43 7485 606 286 • +1 614-438-7968

Email: techservices@worthingtonindustries.com

Service History Log (note date and log number on each service entry)

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

NOTE: All Worthington Industries Cryostorage Systems must be cleaned and sterilized prior to return to Worthington Industries for repair or maintenance and must be accompanied by a written statement to this effect. Any LAB SERIES-Service Cryostorage System received without this statement will be returned to the sender, freight collect. Contact Customer Service by telephone: 844-273-7517 USA Toll Free or Global +43 7485 606 286 / +1 614-438-7968. Or email: customerservice@worthingtonindustries.com.



WORTHINGTON
INDUSTRIES

CONTACT US

US Toll Free: 844-273-7517

Global: +43 7485 606 286 / +1 614-438-7968

Sales Support/Order Placement:

customerservice@worthingtonindustries.com

Technical Services:

techservices@worthingtonindustries.com