



The **3K Liquid Nitrogen Refrigerator** features a wide neck opening for easy, unobstructed access to its large storage compartment. This makes the **3K** ideal for a wide range of applications including storage and retrieval of large volumes of biological specimens and storage of bulky materials. It is also well suited to many industrial applications, such as cryoquenching, shrink fitting, etc.

The storage compartment is **14 in. (356 mm)** in diameter and **19.2 in. (488 mm)** deep, giving a usable volume of **1.7 cu. ft. (.048 m³)**.

Safety

Before using any cryogenic refrigerator, read the "Handle with Care" booklet provided with the unit. It details safety and unit care precautions that must be read and understood before you use the equipment.

Use only liquid nitrogen or liquid argon in this refrigerator. Do not use liquid air or liquid oxygen as they can cause an explosion or a fire.

Store and use these containers only in well ventilated areas. In a confined area, nitrogen gas from these units may cause suffocation by displacing air needed for breathing. Install a suitable oxygen monitor.

Do not touch liquid or cold metal surfaces with your bare skin. The liquid nitrogen used in these units is extremely cold: -196°C (320°F). Exposure of skin or eyes to liquid, cold gas, or frosted parts could result in a frostbite-like injury. Because of these hazards, a face shield and gloves must be worn when transferring liquid or stored product to or from the refrigerator.

Improper handling or operation can cause personal injury. Subjecting the refrigerator to severe impact or vibration may cause damage or spill liquid. Move the unit carefully to prevent liquid sloshing. Heavy stored product/liquid loads should be emptied before moving the unit. Do not tilt unit or place it on its side.

Specifications

Physical Dimensions

Height, Overall	29.7 in. (754 mm)
Diameter	15.4 in. (391 mm)
Usable Height	19.2 in. (488 mm)
Necktube Inside Diameter	14.0 in. (356 mm)
Weight, Empty (approx.)	42.0 lb. (19.1 kg)
Weight, Full	125.0 lb. (56.8 kg)

Liquid Nitrogen Capacity

48 liters

Thermal Performance

Static Holding Time	19 days
Working Time*	12 days
Number of Racks	6
Capacity (2ml vials)	3024

Specifications subject to change without notice.

*Working time is an arbitrary, reference-only value to estimate container performance under the actual operating conditions. Actual working time may vary widely depending on individual use patterns.

3K Operating Instructions

Operation

Filling – Adding liquid nitrogen to a warm container may cause splashing and will generate a significant volume of nitrogen gas as cold liquid contacts warm refrigerator surfaces. Add liquid slowly to minimize these effects. Be sure there is adequate ventilation. Keep your head clear of the heavy volume of vapor that may be produced. It is extremely cold and could cause personal injury.

WARNING

DO NOT OVERFILL. Over-filling may result in personal injury due to liquid spillage. Keep liquid nitrogen level at least 7 in. (178 mm) below top rim of the container when an inventory control system is in place. Bottom of lid must remain above the liquid level at all times or liquid may be forced out as lid is inserted.

Inserting and Removing Product – To prevent unnecessary loss of liquid refrigerant, the cover lid should remain in place on the container except when the stored material is being accessed. To remove the lid, lift it straight up. If moisture condenses on the lid, wipe it dry with a clean cloth before replacing it.

Use tongs or other suitable tools for inserting and removing product stored below the liquid level. Use cryogenic gloves for handling product stored above the liquid level.

Use reasonable care when placing products in contact with the inner container. Sharp edges and undue force should be avoided.

If warm material is to be immersed in the liquid, lower it slowly and carefully to minimize the rapid boiling of the liquid that will occur. Keep clear of the heavy vapor and possible splashing liquid from the container opening.

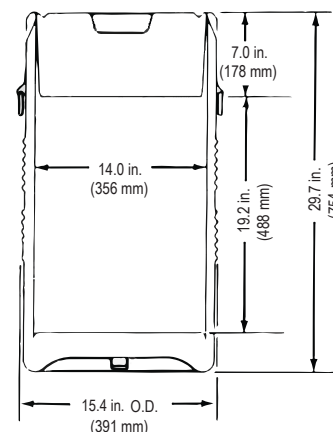
Accessories

The following accessories are available for 3K Cryostorage System:

ROLLER BASE	P/N	MODEL
With ball bearing swivel casters to provide convenience and portability within a working area where frequent container movement is necessary or desirable.	366742	3K

INVENTORY CONTROL SYSTEMS	P/N	MODEL
Of racks and boxes provide flexible storage arrangements to meet individual requirements.	Call for Information	

REPLACEMENT PARTS	
REFRIGERATORS	3K
Lid, Booted	366770



Ordering Information

Order all replacement parts and accessories from your local distributor. Please include the model number of your refrigerator, part number, quantity, and description of each part requested. For more information or to find the name of your local distributor, contact Worthington at the phone number or email listed below.



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