

# USER MANUAL

## Vapor Shippers (VS) Series



phasetwo®



## Safety First



This manual details safety precautions and handling procedures that must be understood before using the device. Be sure to review the entire manual before using any cryogenic shipper.

A replacement manual can be downloaded from the website or ordered from your supplier as needed at any point in time.

Store and use these containers only in well ventilated areas.



In a confined area, nitrogen gas from these units may cause suffocation by displacing breathable air.

Installing an oxygen monitor is recommended.



The liquid nitrogen in these containers is extremely cold -196°C (-320°F).

DO NOT touch liquid nitrogen or cold metal surfaces with your bare skin. Exposure of skin or eyes to liquid, cold gas or frosted parts could result in a severe frostbite injury.



Because of the extremely low temperature, a face shield and protective gloves must be worn when transferring liquid nitrogen and samples into or out of these containers.



A tight-fitting plug or stopper will cause a pressure increase in the container that may damage the container and/or cause personal injury.



Disposal of liquid nitrogen should only be done outdoors or in areas specifically designed for that purpose. Pour the liquid slowly on gravel or bare earth where it can evaporate without causing damage.



## Technical specifications

VS-Series Model	VS2-1	VS4-3
LN2 Capacity (L)	1.5	4.2
Outer Diameter (in/mm)	7.25 (184)	9.2 (234)
Overall Height (in/mm)	13.5 (343)	18.38 (467)
Neck Opening (in/mm)	1.4 (36)	2.78 (71)
Canister Dimensions. (in/mm)	2.64x11 (67x279)	3.7x11 (94x279)
Weight Full (lbs/kg)	9 (4.1)	20.88 (9.47)
Weight Empty (lbs/kg)	6.4 (2.9)	13.2 (6)
Static Evaporation Rate (L/day)	0.15	0.21
Static Holding Time (days)	9	20
1.2 & 2ml Vials (6/cane)	N/A	102
1/2cc Straws (10/cane)	88	280

1. Static Evaporation Rate and Static Holding Time are nominal. Actual Static Evaporation Rate and Static Holding Time will be affected by application, atmospheric conditions, and manufacturing tolerances.

Note: For guidance regarding NER, please contact technical support or your supplier.



## Operations



Before filling the cryogenic vapor shipper for the first time, record the tare weight and serial number of each container. Recording the “as received” tare weight is without the canister but with the neck plug.

## Charging Process:

The charging of vapor shippers must be carried out by an approved member of the team.

- Step 1. Be sure there is adequate ventilation.
- Step 2. Adding liquid nitrogen to a warm container may cause splashing and will generate a significant volume of nitrogen gas.

Note - Add liquid nitrogen slowly to minimize these effects. Keep your head clear of the heavy volume of nitrogen 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 and damage to the shipper and facility due to liquid nitrogen spillage.

**CAUTION:** When filling the unit, avoid liquid nitrogen coming in contact with the vacuum plug. Do not pour the liquid nitrogen on the same side of the vacuum plug.

- Step 3. Place the unit on a scale and take the tare weight without the canister but with the neck plug, fill it with liquid nitrogen to the bottom of the necktube and replace neck plug. After each addition of liquid nitrogen replace neck plug.
- Step 4. Allow the unit to charge for 2 hours, add liquid nitrogen as needed to maintain the original liquid level.
- Step 5. Pour out the remaining liquid nitrogen before shipping the unit.

To assure proper charging, weigh the unit. The vapor shipper VS2-1 weight should increase by 2.67lbs (1.25Kgs), VS4-3 weight should increase by 7.66lbs (3.5Kgs).



The material to be stored in the refrigerator/shipper, as well as the canister should be pre-cooled before being placed inside the shipper.

Step 6. Place the pre-cooled material to be stored in the pre-cooled canister and lower it into the necktube. Install the necktube core and cap to hold the canister in place.

With regular usage moisture can accumulate in the shipper as a result of lowering a frosted canister back into the shipper cavity. This moisture will displace nitrogen in the adsorbant material on the subsequent filling and effect the overall holding time.



CAUTION: Shipper must be kept upright when in use. The holding time will be drastically reduced when the unit is on its side. Liquid nitrogen spills can be avoided by following the above-mentioned filling process.

#### Inserting or Removing Canisters/Racks:

The neck plug should remain in the container when the stored or shipped material is not being accessed to prevent unnecessary loss of liquid nitrogen and accumulation of ice.

When removing material from the canister/rack, withdraw the canister/rack just far enough to remove contents, and do so as quickly as possible. Completely withdrawing the canister/rack will expose the stored material to room temperature conditions.

When room temperature product is added, slowly lower the canister/rack into the shipper to reduce the boiling of liquid nitrogen and the surge of cold nitrogen gas. When inserting the canister/rack, tilt the bottom of the canister/rack in the direction of the index ring notch.



## Care & Maintenance

1. DO NOT attempt to fasten any device to the container.
2. Welding, brazing, and/or piercing of the container in any manner will cause permanent damage and will void the limited warranty.
3. Although the units are rugged, they can be damaged if mishandled.
4. Ensure the shipment is upright at all times and when in use.
5. Take every necessary precaution to prevent sliding, tipping, bumping or dropping the unit.
6. If high evaporation rates are apparent under normal operating conditions the vapor shipper may be losing its vacuum or a defective neck plug or the neck tube has adsorbed ice.
7. Sweating and the formation of frost on the outer casing are indications that the vacuum integrity of the vapor shipper is not normal.



If these conditions persist, contact your supplier or phasetwo customer service department at, +1 770.985.1313

E-mail us at [customerservice@phasetwoccs.com](mailto:customerservice@phasetwoccs.com) for information on how to conduct a NER test.



## Returns

Limited warranty: Manufacturing defects are covered under the containers limited warranty.

Evidence of mishandling, such as dents on the outer vessel or misalignment of the inner vessel are not considered manufacturing defects.

If you would like to return goods to phasetwo for any reason, you must first obtain a Material Return Authorization (MRA) number for tracking purposes.

Please have the unit serial number and symptoms available.

Contact your supplier or call phasetwo's Customer Service Department at +1 770.985.1313 or email us at [customerservice@phasetwoccs.com](mailto:customerservice@phasetwoccs.com)



## Accessories & Replacement parts

Ordering Information: Order replacement parts and accessories from your local distributor.

For more information or the name of your local distributor, contact phasetwo at the phone number or email listed below.



## Contact us

United States : + 1 770.985.1313

Sales support/order placement : [customerservice@phasetwoccs.com](mailto:customerservice@phasetwoccs.com)

Technical Services : [techservices@phasetwoccs.com](mailto:techservices@phasetwoccs.com)



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