

# USER MANUAL

## HIGH CAPACITY HIGH EFFICIENCY (HCHE) SERIES FREEZERS



phasetwo<sup>®</sup>



## Safety First



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

A replacement manual can be 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 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 any damage.



# Technical Specifications

Model	HCHE20	HCHE44	HCHE50	HCHE92	HCHE107
Capacity (2ml Vial)	20,200	43,600	50,400	92,300	106,500
Large Racks (100/81 boxes)/Levels	14/13	32/13	32/15	68/13	68/15
Vertical Racks (100/81 cell)/Levels	4/5	4/5	4/6	N/A	N/A
OPTION Small Racks (25 boxes)/Levels	4/13	4/13	4/15	12/13	12/15
Static Evaporation Rate (L/day)	6.5	8	8	16	16
Static Holding Time (days)	10	20	20	22	22
LN2 Capacity Vapor (L)	67	162	162	362	362
LN2 Capacity Liquid (L)	435	820	935	1793	2022
Outer Diameter ins(mm)	34 (846)	46.2 (1173)	46.2 (1173)	63.5 (1613)	63.5 (1613)
Overall Height ins(mm)	58.8 (1494)	62.4 (1585)	67.2 (1707)	61.6 (1565)	66.4 (1687)
Lift Over Height ins(mm)	40 (1016)	43.8 (1113)	38.5 (978)	42.9 (1090)	37.8 (960)
Step Height ins(mm)	13 (330)	13 (330)	11 (279) 22 (559)	13 (330)	11 (279) 22 (559)
Neck Opening ins(mm)	12.8 (325)	18 (457)	18 (457)	27.1 (688)	27.1 (688)
Carousel ID ins(mm)	29.5 (749)	41.1 (1044)	41.1 (1044)	59 (1499)	59 (1499)
Internal Height ins(mm)	30 (762)	30 (762)	34.8 (884)	30 (762)	34.8 (884)
Weight Empty lbs(kg)	630 (286)	910 (413)	930 (422)	1782 (808)	1820 (826)
Weight Full lbs(kg)	1405 (637)	2371 (1075)	2596 (1178)	4977 (2258)	5405(2452)

1. NER and Static Holding Time are nominal. Actual rate and holding time will be affected by application, atmospheric conditions, and manufacturing tolerances.

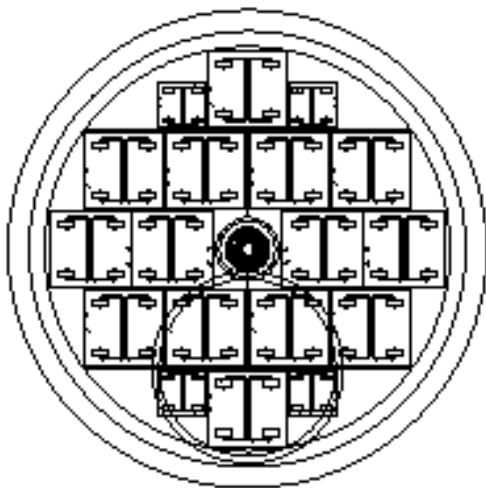


# Rack Layout Specifications

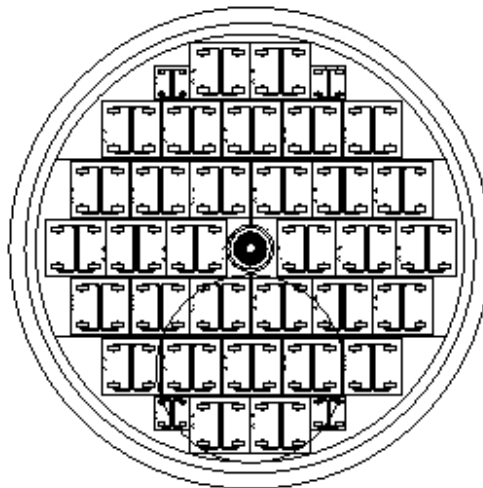
Model	HCHE20
Maximum Capacity (2ml Vials)	19,200
Configuration (Cell Horizontal Racks)	14 each 13/2 100/81 and 4 each 13/2 25

Model	HCHE44	HCHE50
Maximum Capacity (2ml Vials)	42,900	42,900
Configuration (Cell Horizontal Racks)	32 each 13/2 100/81 and 4 each 13/2 25	32 each 15/2 100/81 and 4 each 15/2 25

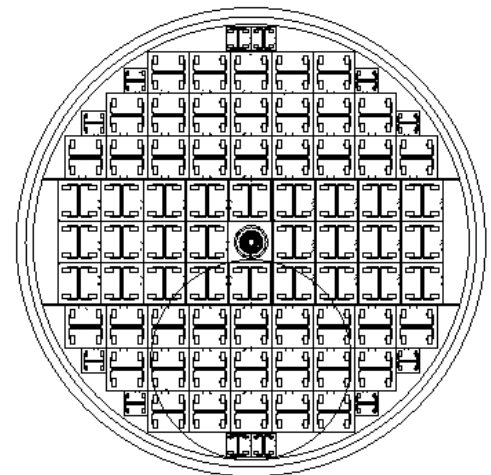
Model	HCHE92	HCHE107
Maximum Capacity (2ml Vials)	92,300	106,500
Configuration (Cell Horizontal Racks)	68 each 13/2 100/81 and 12 each 13/2 25	68 each 15/2 100/81 and 12 each 15/2 25



**HCHE20**



**HCHE44 & HCHE50**



**HCHE92 & HCHE107**



## Operations



Before filling the container for the first time, record the serial number of each container.

### Filling:

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

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 due to liquid nitrogen spillage, and may void the limited warranty.

**CAUTION:** When filling the unit, avoid liquid nitrogen coming in contact with the vacuum plug.

### Determining Liquid Level:

Refrigeration depends on the presence of liquid nitrogen and must be checked at regular intervals, even if there is an autofill system. Use a dipstick to determine liquid level by inserting it into the Liquid Level guide located in section B of the carousel.

After 5 to 10 seconds, withdraw the dipstick and wave it in the air. A frost line will form representing the depth of liquid in the container. The frost line will typically be u-shaped; read the bottom of the u-shaped line to determine liquid level. Compare the level of indication with the level readout of the controller. The measuring rod should indicate a level within  $\pm 1$  inch of the controller readout.



**CAUTION:** Never use a hollow rod or tube as a measuring rod. When a warm tube is inserted into liquid nitrogen, liquid will exit from the top of the tube and may cause personal injury.

### Inserting or Removing Racks:

The lid should remain closed when the stored material is not being accessed to prevent unnecessary loss of liquid nitrogen and accumulation of ice.

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

When room temperature product is added, slowly lower the rack into the freezer to reduce the boiling of liquid nitrogen and the surge of cold nitrogen gas. When inserting the rack, keep the rack as vertical as possible to avoid dislodging stored material.



## 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 mis-handled.
4. During installation, take every precaution to prevent dropping or bumping the unit.
5. Sweating, frost formation, or water pooling under the unit are indications of a failing vacuum.

Sweating, frost formation, or water pooling under the unit are indications of a failing vacuum.

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



E-mail us at [customerservice@phasetwoCCS.com](mailto:customerservice@phasetwoCCS.com) for information on how to conduct a normal evaporation rate (NER) test in the field.



## 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 770.985.1313 or email us at customerservice@phasetwoCCS.com



## Accessories & Replacement Parts

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

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

HCHE Replacement Parts		
Level Sensor	P2-2024832	Thermistor Sensor, DLS1 Control
Power Cord	P2-2024834	Power Cord, 125VAC, IEC C13, 14 AWG, 6'
Power Supply	P2-2024836	Power Supply, DLS1 Control
Remote Alarm Connection	P2-2024835	Remote Alarm Connector, DLS1 Control
Solenoid Valve	P2-2020059	Solenoid Valve, 1/4 FPT, ASCO SUB26H208LT
Freeze Guard Sensor	P2-2015598	Cryo Temperature Sensor
Thermocouple	P2-2024838	Thermocouple, DLS1 Control
Strainer	P2-2020168	Strainer, 3/8 NPT, INLINE, 200 Mesh SS Screen
Relief Valve, Plumbing Assy.	P2-2020167	Cryogenic Relief Valve, 100 PSI, 1/4" NPT
Casters	P2-2014984	Caster, 3" DIA, 2' W, Swivel, Brake, 1000#
Lid Assembly		
HCHE20	P2-2024840	Replacement Lid, W/O Hinge
HCHE40 & 50	P2-2024842	Replacement Lid, W/O Hinge
HCHE92 & 107	P2-2024843	Replacement Lid, W/O Hinge
Lid Gasket	P2-2024994	EDPM Seal, 0.66" x 0.45", w/ ADH Backing
HCHE20		92", Wrapped Twice
HCHE40 & 50		125", Wrapped Twice
HCHE92 & 107		96". Wrapped Once



## Contact Us

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