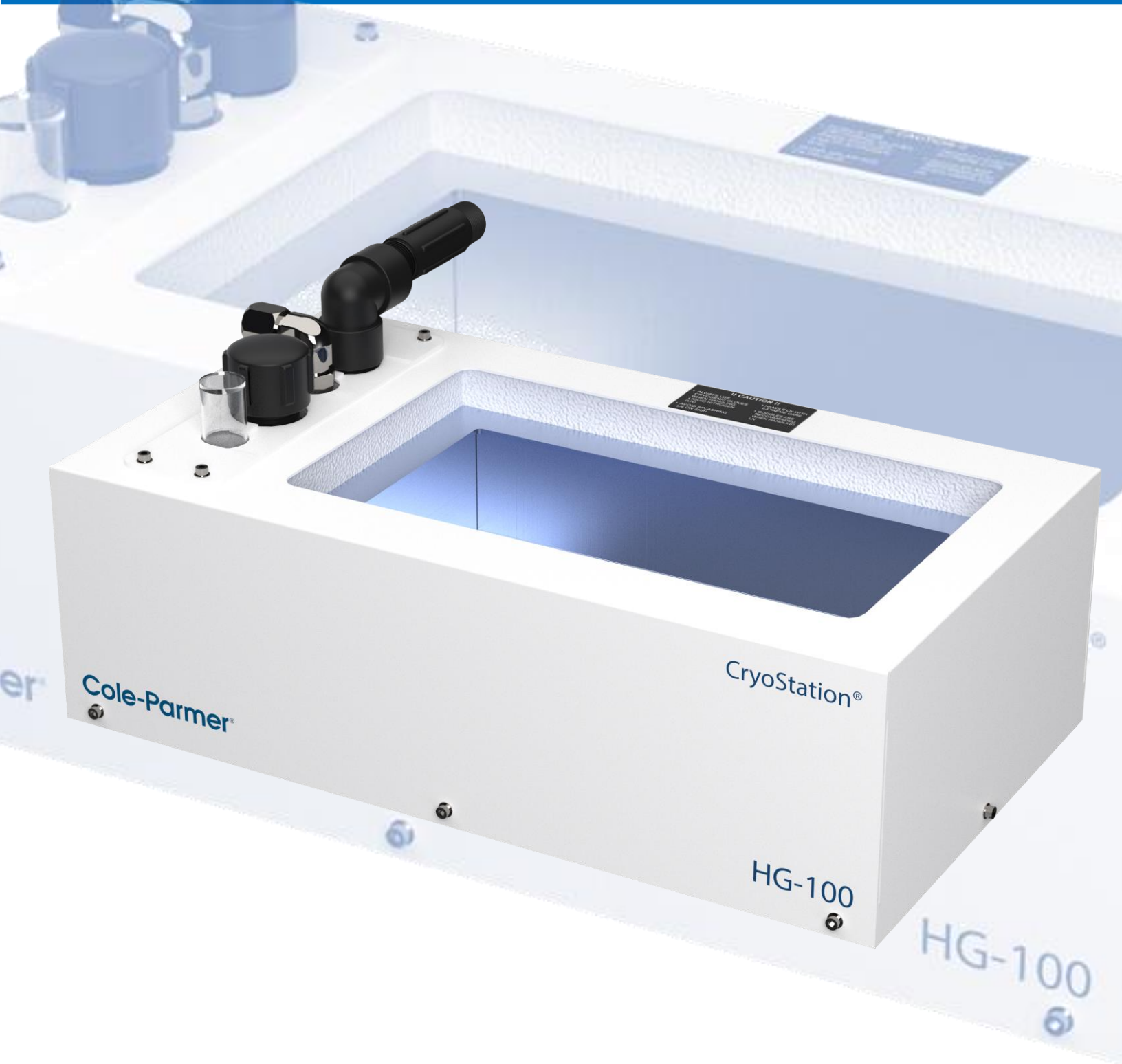
Cole-Parmer®

HG-100 CryoStation®

Cooling Device Refrigerated by Liquid Nitrogen

Operation Manual

(04575-81)



1300-87014-1M, REV 2

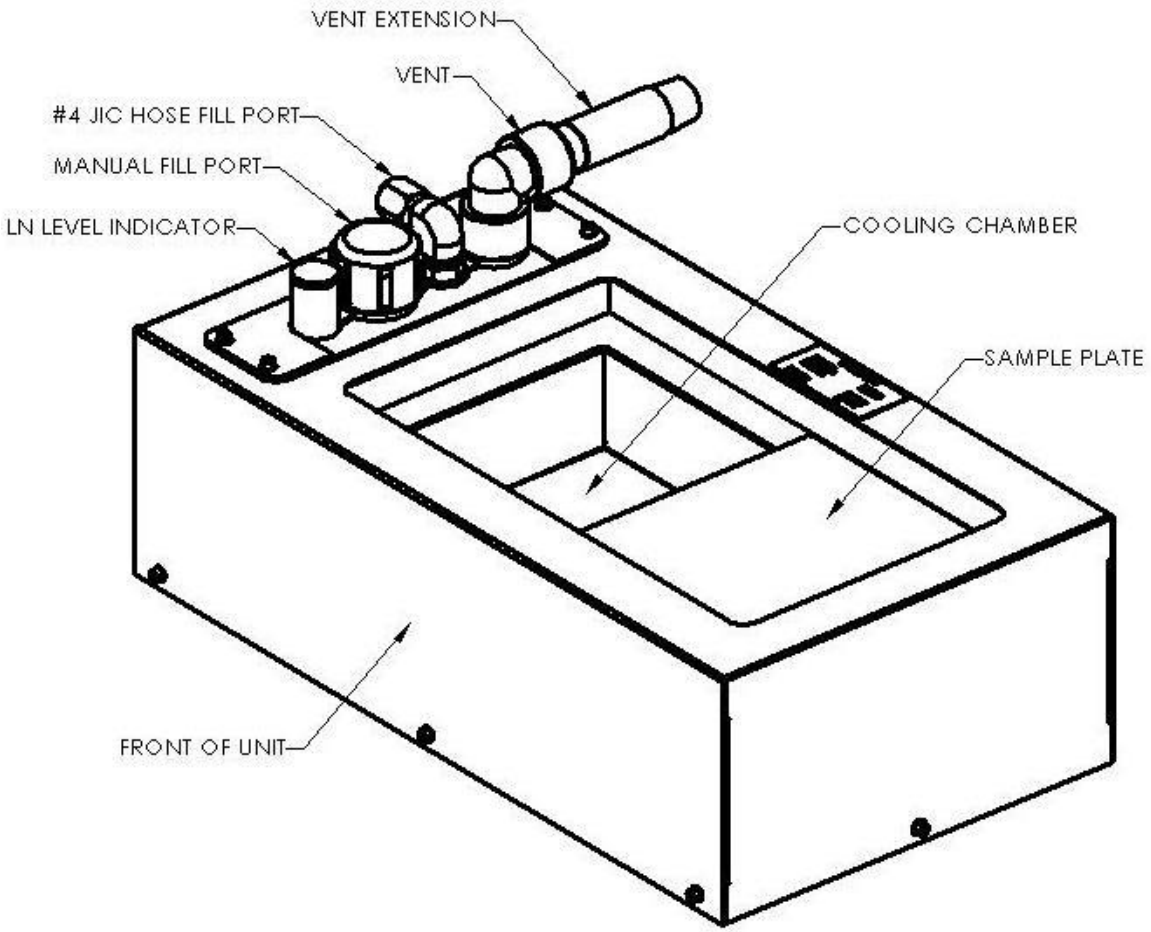
SPEX SamplePrep is now part of Cole-Parmer®.
The Cole-Parmer® HG-100 CryoStation was formerly known as SPEX 2600 CryoStation.

Over the years, we've acquired many high-quality and reputable brands. After many years of continual growth, we realize our brands are all as brilliant as each other. Rather than have a portfolio of complementary brands, we felt consolidating them under one world-class brand name enabled us to offer a single and significant brand experience. Through one brand we can speak in one voice through our team of experts who provide support in product selection, usage and troubleshooting to empower laboratories to run efficiently throughout the world.

Same Great Quality!
One World-Class Brand Name!

DESCRIPTION

The HG-100 CryoStation is an accessory for a holding station for temperature-sensitive samples such as those that must be kept chilled to preserve RNA for extraction. The aluminum body is filled with liquid nitrogen (LN); one filling will keep the CryoStation cold for about two hours. The CryoStation cooling chamber will hold three deep-well titer plates side by side, and an additional titer plate can be placed on the aluminum "sample plate" that rest on a shelf around the lip of the CryoStation cooling chamber.



WARNING! The HG-100 CryoStation is chilled by liquid nitrogen, which has a boiling point of -195.8^0 C (-320.4°F). When the CryoStation is in use, all its metal surfaces are extremely cold, and touching them with bare skin can cause instant "burns." Always use cryogenic gloves and protective clothing when working with the CryoStation and its chilled accessories, samples, and sample holders.

The HG-100 CryoStation is a passive cooling device refrigerated by liquid nitrogen. It is designed to hold up to six deep-well titer plates, or sample holders of similar size, while maintaining them at temperatures below -120^0 C. It was specifically designed as an accessory for the Cole-Parmer CG-600 Geno/Grinder 2010, to chill titer plates filled with plant and animal tissue and keep them cold until the tissue can be ground for nucleic acid extraction and other purposes. The CG-100 CryoStation can also be used to keep plant and animal tissue chilled before and after processing.

Size: 18-3/4 x 11 inches (47.5 cm x 38 cm). Cabinet height 6 inches (15 cm), approx. 9 inches" (21 cm) to top of vent. Cooling chamber 11-3/4 x 5-7/8 inches (30 x 15 cm), and 2-5/8 inches (6 cm) deep.

Weight: 10.4 lbs. (4.75 Kg) net, empty.

Accessories supplied with CryoStation: one 6-1/4 x 6-1/2 inch (16.5 x 18.4 cm) anodized aluminum Sample Plate.

Sample capacity: three deep-well titer plates in cooling chamber plus three more on top of Sample Plates. Standard titer plates have a 3-1/4 x 5 inch (8.5 x 12.7 cm) footprint and are approximately 1-1/2 inches (4 cm) high. (Titer plates and other sample holders must be purchased separately.)

Liquid nitrogen capacity: approx. 4 liters.

Duration of one liquid nitrogen filling: approx. 2 hours. The HG-100 CryoStation can remain cold indefinitely if it is refilled with liquid nitrogen at regular intervals.

OPERATIONAL PROTOCOL

The HG-100 CryoStation is a tool designed to hold temperature-sensitive samples at temperatures below -120^0 C. It can be used for rapid freezing of tissues or for holding samples during processing. Samples placed on the Sample Plate (aluminum shelf) will also stay cold as the shelf conducts cold from the LN-cooled body of the CryoStation.

Storage units, such as the standard 5 x 5 x 2-inch container used for cryogenic vials, can be placed in the CryoStation's cooling chamber for sorting and examination. Cell lines and other cryogenically stored samples can also be safely handled using the CryoStation.

The CryoStation is essentially a "double boiler" that uses liquid nitrogen (LN) as a refrigerant to chill the cooling chamber and sample plates. When the CryoStation body is charged with LN, it will keep samples in the cooling chamber at or below the glass transition temperature of water. The temperature in the cooling chamber is low enough to keep air in the chamber below -120^0 C for up to two hours on one full charge of LN in the body of the CryoStation. The actual length of time a full charge of LN will

last depends on room temperature, sample load, humidity, rate of samples being taken in and out, etc. If the CryoStation is regularly recharged with LN, it can maintain samples at low temperature indefinitely.

Liquid nitrogen has a boiling point of -195.8^0 C (-320.4°F) and can freeze skin on contact with the liquid itself. Metal chilled by LN can be even more dangerous because of its ability to conduct heat away from the skin. Samples and sample containers can also cause "freezer burn" if handled with unprotected skin. While very brief contact of LN with skin may not be harmful in open air if the LN boils away, keeping LN in contact with skin will cause damage quickly. LN has a remarkable ability to penetrate fabric, the seams of gloves, etc., so caution must be taken when working with LN. Always wear protective clothing, cryogloves, and safety glasses.

CHARGING THE CRYOSTATION

Before using the CryoStation, fill it with liquid nitrogen (LN). First place the CryoStation on a lab bench, and adjust the vent so it is pointed away from people, instrumentation, or anything that might be damaged by severe cold or water from condensation. If the CryoStation is overfilled, LN can come out of the vent, but this is rare. The vent directs nitrogen vapor from boiling nitrogen away from the CryoStation. The smoke-like appearance of the vapor is due to condensed atmospheric water (fog).

The LN vapor issuing from the vent can chill anything in its path. Once cooled it will attract condensation. If this is a problem, a tube can be attached to the vent and directed into a cooler or pail.

The CryoStation can be filled with LN manually through the manual fill port, or through a hose threaded into the hose fill port. In either case, when LN is first poured into the CryoStation most of it will boil away, and be purged through the vent. As the body of the CryoStation cools, the amount of vapor from the vent will be greatly reduced.

As the CryoStation fills with LN, the LN level indicator will rise. The CryoStation is full when the float in the LN level indicator rises to the top of the tube, or when LN overflows from either of the fill ports or the vent. If the CryoStation is being filled through a hose, turn off the LN line valve at the LN tank, then unscrew the connection at the CryoStation Hose Fill Port. Both fill ports should be capped.

If a digital, thermistor-based thermometer is available; its probe can be placed in the CryoStation cooling chamber to monitor the temperature there. Whenever the CryoStation is first being used in a new environment, it is advisable to determine how long one full charge of LN will keep samples cold in the cooling chamber.

SAMPLE STORAGE

The CryoStation is an excellent tool for sorting cryogenic vials without warming the samples. The cooling chamber can hold two cryogenic storage boxes of normal size. These boxes can be taken from storage under LN or in cryogenic freezers, and immediately placed in the CryoStation. Warm storage boxes should be chilled in the CryoStation cooling chamber for at least a minute before placing samples in them.

TISSUE FREEZING

The thick aluminum Sample Plate supplied with the CryoStation will quickly freeze tissue samples. Place the Sample Plate on top of the cooling chamber, and let it cool for 5 minutes. Tissue placed directly on the Plate, or in an aluminum weighing pan on top of the Plate, should freeze in about 2 minutes. We recommend the use of weighing pans so as not to contaminate the Plate.

Once frozen, the tissue can be transferred to a pre-chilled tube or vial in the cooling chamber. Forceps will be needed to remove tissue from the aluminum weighing pans. Discard the weighing pans after use.

CLEANING

The CryoStation, including the cooling chamber and Sample Plate, is made of aluminum for rapid cooling. Aluminum is a soft metal and can be scratched by hard materials, as well as attacked by some cleaning compounds. We recommend cleaning the CryoStation after it warms up to room temperature. Disinfect the CryoStation with alcohol (e.g. a spray of 70% isopropanol) and wash it with a mild soap or detergent.

WARRANTY

Cole-Parmer® guarantees its products against defects in materials or workmanship for one years from the date of original shipment. Repairs, replacements, or parts are guaranteed for 30 days or for the remaining original warranty period (whichever is greater) for the item that was repaired or replaced. Items not produced by Cole-Parmer® carry the manufacturer's warranty only.

We want you to be satisfied with your purchase from Cole-Parmer®. Please bring any problem to our attention, but please DO NOT RETURN any item before contacting us for a Return Authorization Number and instructions. Unauthorized returns will be refused. The cost for all return transportation is the responsibility of the customer. Credit for returned merchandise will be issued only after goods have been received and inspected. Returned goods are subject to a 25% restocking charge.

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