

QUESTIONS & ANSWERS

The input voltage label says 230 VAC (or 208 VAC). I thought I had 220 VAC. Is that OK?

208V and 230V are NOT the same. 220V is a misnomer in the United States—there is no such standard as nominal 220V in the United States though 220V does exist in Europe. You must verify the exact type of electrical service you have. If there is any doubt, you must consult with a qualified electrician who is familiar with industrial plant wiring. In addition, the input line voltage should be measured while the chamber is operating in the COOL mode to ensure that the expected nominal voltage of either 208V $\pm 5\%$ or 230V $\pm 5\%$ is present.

Why doesn't the chamber come with a power cord and plug?

Most local and national electrical codes require permanent wiring for this type of equipment. If used as a portable device, a flexible wire with a plug may be acceptable, but local and national codes may limit the length to 6 feet. Cincinnati Sub-Zero recommends that the appropriate method for your installation be determined by a qualified electrician who is familiar with industrial plant wiring.

Why does my chamber heat or cool slower than the published specifications?

Performance is significantly affected by the characteristics of your test sample. Factors include size, weight, material, shape, and power dissipation if energized. The test sample should be placed in the chamber in a manner that allows for air circulation. You should not place the test sample directly on the chamber floor. It should be placed on the shelf. Multiple test samples should be distributed throughout the chamber to ensure even airflow and minimize temperature gradients. If necessary, additional shelves should be used to evenly distribute the load.

How can I modify the chamber to cool faster?

Unfortunately, there is little you can do to improve upon the designed-in performance. Cincinnati Sub-Zero does offer an LN₂ boost package that can be installed in the field to increase cooling performance.

Why is there water/ice/snow in the chamber?

Any time the ambient air is subjected to temperatures below the dewpoint, moisture will condense out of the air. The effect is ice or frost during low temperature operation. When the chamber is heated above 0°C, the ice or frost will turn into water. To avoid moisture condensation, make sure the port plugs are inserted at all times. Also, avoid opening the chamber door while the chamber is operating at temperatures below room ambient. When a low temperature test is completed, warm the chamber to at least room ambient before opening the chamber door and before removing your test sample.



How accurate is the chamber?

That's a loaded question! There is no "chamber accuracy" specification as such. The answer requires an understanding of several performance parameters.

Control Tolerance – The control sensor is located in the discharge airflow. Control tolerance is a measure of how much the temperature varies after stabilization at the control sensor. It is a measure of the relative variations, NOT the absolute accuracy of the readout. The control tolerance specification for this chamber is $\pm 0.5^{\circ}\text{C}$, or a total of 1°C . For example, the temperature set point may be -65.0°C . The actual temperature varies between -64.5°C and -65.5°C . These specifications are for an empty chamber. The addition of a test sample may affect the control variations. In some instances, the test sample will reduce these variations.

Uniformity – Also known as Gradients. This is a measure of variations in temperature at different locations throughout the chamber interior, at the same time, after stabilization. The uniformity specification can vary for each chamber. These specifications are for an empty chamber. The addition of a test sample may affect the temperature uniformity. For example, an energized test sample will produce a higher temperature near the sample. For more specific uniformity information, please contact CSZ.

Why do I smell something when I operate the chamber for the first time at high temperatures?

Cincinnati Sub-Zero chambers are cleaned and polished before leaving the factory. Stainless steel polish can give off an odor while at elevated temperatures. This is a temporary condition and is non-toxic.

I'm not going to use the chamber for a while. Is there anything I should do before storage?

Perform ALL the steps in the Preventive Maintenance Schedule before placing the chamber into storage. This will ensure that the chamber will be ready to operate when taken out of storage. If the chamber has a problem and is still under warranty, these problems should be resolved before being placed into storage, since the warranty period starts from the date of shipment. The chamber should be stored in a conditioned environment. Do not store it outside or where it will be subjected to dirt or excessive moisture.

I haven't used the chamber in a while. Is there anything I should do before operation?

Perform ALL the steps in the Preventive Maintenance Schedule before placing the chamber back into service. This will ensure that nothing has been damaged and that a leak has not developed.

Can the person who services our air conditioning also service the chamber?

Probably not. Most air conditioning mechanics are not familiar with low-temperature cascade refrigeration systems. While this chamber is relatively easy to maintain and repair, most air conditioning mechanics do not have the necessary refrigerants and may not be familiar with the microprocessor-based controls. This chamber should only be serviced by a qualified mechanic that is familiar with low-temperature cascade refrigeration systems. Call Cincinnati Sub-Zero to recommend one in your area, or to check if the one you would like to use is qualified.

MAINTENANCE WITH Q & A

I need to send the chamber to Europe/Asia. Will it work with their power?

Europe and Asia generally have 50 Hz power. Standard voltages in Europe are typically 220V to 240V, while parts of Asia may be 200V. Operation at 220V to 240V/ 50 Hz requires bucking transformers to lower the voltage to the compressors to 200V. These transformers are available from Cincinnati Sub-Zero for a reasonable cost and are easy to install in the field. Note that the cooling performance will be slightly reduced at 50 Hz. Please call Cincinnati Sub-Zero for details on re-configuring for 50 Hz operation.

How often should I charge the refrigeration system?

This chamber uses a closed-loop refrigeration system. Just like your refrigerator at home, it does not need periodic charging. If the charge is low, this means that there is a leak. Leaks should be repaired before recharging.

What kind of Freon does the chamber use?

The word Freon® is a DuPont registered trade name for their CFC-based refrigerants and is incorrectly used as a generic term for refrigerants. Cincinnati Sub-Zero chambers do not use CFC-based refrigerants. The high-stage system uses R-404A, which is also known as DuPont Suva® HP62. The low-stage system uses R-508B, which is also known as DuPont Suva® 95. Tundra units use R-410A, also known as Puron and Suva® 9100.

My static pressure is lower than the data plate specification. Is this an indication of a leak in my refrigeration system?

This does not always mean that there is a leak. Ozone friendly refrigerants use P.O.E. oil, which has the ability to absorb refrigerant to the point of actually causing a lower pressure reading. A decrease in the chamber's performance along with lower pressure readings is a possible indicator of a leak. (Please contact Cincinnati Sub-Zero if this occurs).

What is the hissing and clicking sound when my unit is at or approaching set point?

This is normal. The sounds are caused by the solenoid valves alternating between cooling and bypass modes.

Sometimes I see bubbles in the 404A sight glass. Does this mean my chamber has a leak in it or is undercharged?

This does not necessarily mean that the unit is undercharged or has a leak. Under certain conditions, it is possible to see bubbles in the sight glass. Contact Cincinnati Sub-Zero if you have any questions.