

Top considerations for selecting a ULT Freezer – space constraints and environment

From application to environment, there are many aspects for consideration that will impact the type of ultra-low temperature (ULT) freezer to be selected for the given situation. Some of these aspects include: application environment, performance standards, space constraints and environment, facilities interactions, and service support. Selecting the unit is only the beginning, getting it into operation is the next step. In order for this to happen, you need to take into account every touchpoint from delivery to install to make sure the installation environment facilitates healthy unit, long-term operation.

Key takeaways/benefits/separating features

- Can the unit get from the dock, through the doorways, and into the final location? Consider the entire start to finish transportation of the unit once it arrives at the installation facility. Will there be elevators or escalators?
- ULT freezers, like other cold storage equipment, should not be tipped more than 45° because this could negatively impact the refrigeration system.
- Will the unit be installed immediately upon receipt or will it be stored for period of time before being put into operation?
- Physical space needed for the freezer considering the ventilation requirements and potential servicing of the unit. Most ULT freezers require 6-8" (15-20cm) of space on the sides/top/rear of the unit for heat dissipation.
- ULT freezers require regular preventative maintenance and access behind the unit is paramount to facilitate these efforts.
- Ambient environment and heat output directly impacts the HVAC of the facility.

- Typical operation of a ULT freezer requires “space” for sample retrieval/access. This may require a cart or stand, to enable the workflow without impacting efficiency in the lab.
- How many samples will be stored in the freezer? And/or are there multiple labs that could share the freezer? There are various storage capacities of ULT freezers from units as small as 12 cubic feet (340L) to 33.5 cubic feet (950L) Not only can you positively impact your energy and storage efficiencies you can also minimize the necessary required lab footprint to accommodate the installed units.

In review

When you go to the appliance store to pick up a new refrigerator, there is little thought that goes into your selection that involves understanding the specific environments of your kitchen that the unit will be in. Maybe you think about the size or space needed to fit the unit without having to move your cupboards, but not much else. The selection process and furthermore the installation process for an ULT freezer is much more detailed. Understanding the size of the freezer is only step one. Then you have to account for ventilation spacing around the freezer. Voltage selection is next and with that the type of electrical infrastructure in the final installation site must also be understood – the breakers, the circuit (independent circuit is recommended), and the outlet type itself. Before you can get the unit in place, you also need to ensure the unit will not be placed under or around any HVAC vents or windows that may submit the unit to direct airflow or sunlight. All of these considerations are key in provided the proper environment for the ULT freezer to function as intended. Planning before the unit arrives is critical to facilitate an easy installation and set the stage for a long and healthy product life.

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