

Mobile pharmaceutical storage for COVID-19 vaccine

More than cold. | Mobile and stationary use



**SAFE STORAGE AND
TRANSPORT AT -80 °C**



Benefits

- ✓ Air lock -20°C
- ✓ Full redundant system
- ✓ Monitoring
- ✓ GMP, ready qualified (DQ, IQ, OQ, PQ)
- ✓ TÜV certified / ISO 9001:2015 accredited
- ✓ Numerous options available such as pre-freezer, emergency power generator, special dimensions, shelf systems
- ✓ 24/7 Hotline
- ✓ GPS tracking

Mobile and stationary ultra low temperature storage / cold room (container)

30 years of experience brings the advantage for new challenges

This is how long L&R Kältetechnik has been developing concepts for cryogenic applications, which can be used for storage of vaccine sera, blood plasma, human biological agents, sample material, chemical substances, retention samples, stem cells, genomes, bacteria, bone marrow, biomedical materials, compounds, preparations, batches, drugs and medicines can be used.

The completely autonomously working deep-freeze containers are air-cooled, so that only a power connection is required for operation.

Even in the event of a power failure, the optional emergency power supply or even nitrogen emergency cooling (LN2) offers maximum safety.

In direct comparison, the laboratory freezers that are frequently used have significantly higher operating costs, a bigger footprint and a high demand for (re)calibration / (re)qualification.

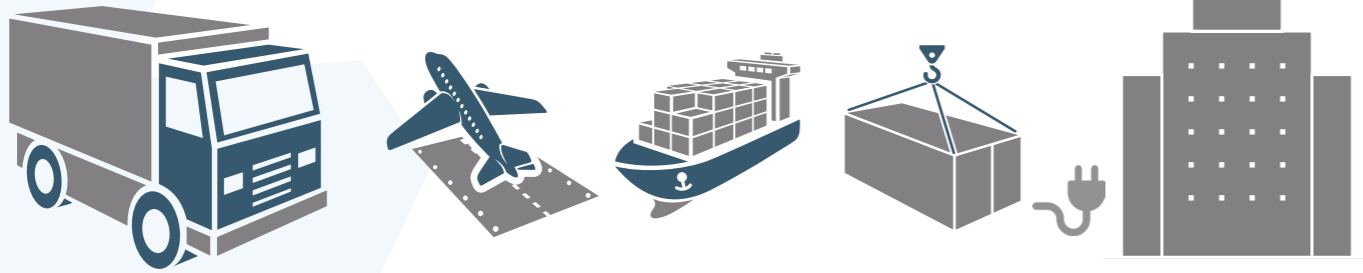
The details make the difference

With a temperature difference of more than 100 K between the external environment and the interior of the refrigerated container, it is easy

to imagine that the direct influence on the stored product when the door is opened without a pre-cooling chamber, which acts as a sort of airlock, has an undesired high impact on the quality of the goods.

In addition, at a temperature of -20 °C, the airlock causes high air dehumidification, so that in the -80 °C range, on the one hand the defrosting capacity and thus the heat input is reduced, and on the other hand the typical freezing effects (such as slippery floors and icy fans) are reduced.





The logistics chain for the transport and storage of COVID-19 vaccines at constant low temperatures down to minus 80 degrees!

In order not to expose the sensitive and expensive goods to any danger, redundant systems are used as standard. So if a fault occurs within a refrigeration circuit or the associated control board, the system automatically switches over to the second system.

This is where the Siemens S7 PLC control with touch panel, which has always been an integral part of the L&R Kältetechnik product range, comes in handy. It enables many functions such as log data acquisition, process visualisation, trend display, remote access, interface connection and GPS positioning.

Before the container is delivered to the customer, the hot spots are mapped for orientation. Since a homogeneous temperature distribution has already been ensured beforehand by design measures, the spatial temperature gradient is <2 K. Further qualification work is then carried out to ensure GMP-compliant execution.

For (mains-independent) quality assurance, the customer's temperature monitoring can be realized by separate monitoring. Lockable feedthroughs for the PI probe cables are available.

Optional access control and/or video surveillance is also possible. The implementation of an audit trail license helps to assign the process adjustments.

Diverse customization options leave nothing to be desired

As the standard version is already equipped with the most important features, further customized equipment can be supplied.

If the container is to be moved - whether by road, water or air - integrated power generators can be provided for cooling during transport. The container is designed as 20' or 40' ISO sea container. Depending on requirements, the floor space can be optimized by special dimensions. However, there is always at least 15 m³ at 20' (6 m) available.

The interior design adapts to the application. Thus, pallet storage spaces as well as shelves and/or drawers for different container sizes are conceivable. Clean room conditions can be complied with, when the interior is made of dead space free Stainless steel sheets (if necessary with fully welded bottom).

The up to 200 mm thick insulation of the cold room panels provide a low heat transfer coefficient, which is advantageous on temperature holding time and energy demand.

A ramp is available for loading and unloading at ground level. A locker room or manipulation area can be seamlessly connected to the container.

An FDA approval for materials in contact with the product is also possible.

The goal: The highest possible availability

Our cryogenic refrigeration units are manufactured for your special requirements. We pay special attention to a very high availability.

The corresponding operational safety is guaranteed by the following points:

- Use of components from renowned manufacturers
- Use of mostly worldwide stocked components
- Very good manufacturing quality „made in Germany“
- Remote supervision for technical support
- Integration and support of the local refrigeration company (if desired) or an L&R partner company

- Customer or application-specific service and maintenance concept
- Technical support by competent staff around the clock (in case something unforeseen occurs)

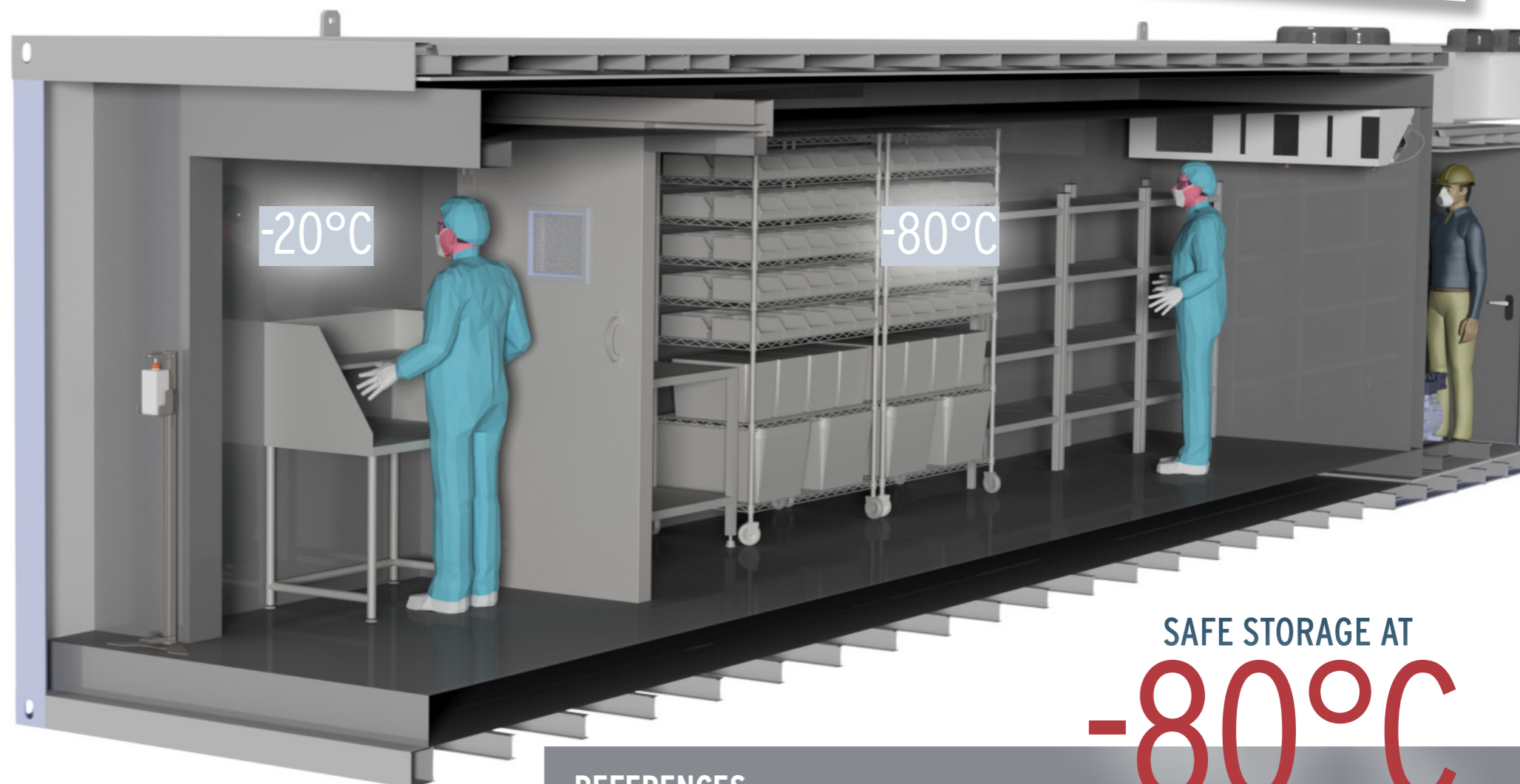
Trust in 30 years of experience with L&R cascade technology in low temperature applications!

The rental of these systems is possible!

Please contact us!
We will be happy to advise you!

technical features

- ✓ Special low temperature lighting
- ✓ Circulating air cooling system with specially beared and heated fans
- ✓ Door contacts, monitored and controlled frame heaters, air curtains
- ✓ Heat recovery for stationary systems



SAFE STORAGE AT

-80°C

REFERENCES

Baxter Bio Science, Vetter Pharma-Fertigung, Lonza, Octapharma, Bayer, Uni Kiel, WWU Münster, Boehringer Ingelheim, Novartis, IDT Biologica, GSK



Industrial refrigeration systems
Low temperature chillers
Control engineering

L&R KÄLTETECHNIK

Since 1991, L&R Kältetechnik has stood for reliable refrigeration technology with a focus on the environmentally and energy-conscious use of high-performance, high-quality cooling systems.

Even before the company was founded, the managing director Burkhard Rüßmann developed the first 3-stage cascades for rubber deburring at temperatures of -110°C . This quickly developed into further concepts for the medical and pharmaceutical industry, since very low temperatures are also required here - mostly -80°C .

An idea has grown into a globally operating company. In close cooperation with the customer, overall concepts are developed that make a lasting contribution to the success of your company.

Our holistic concept enables a particularly high vertical range of manufacture. Combined with 24/7 service, we offer extremely high availability.

We look forward to your project!



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