

## Envirotainer advances temperature-controlled shipping containers to provide vaccines around the world – with consistency and predictability



### Releye® RLP innovations

- Homogeneous conditions and redundant temperature control
- Live monitoring of position, conditions, power, and handling
- Autonomous operation reduces the impact of process deviation, unexpected delays, or change of route
- Volume efficiency with high load height and advanced airflow technology
- Outstanding environmental performance with up to 90% reduction in CO<sub>2</sub> emissions compared to available passive solutions

*Envirotainer Releye® RLP container*

Founded in 1985, [Envirotainer](https://www.vaisala.com/envirotainer) is the global leader in secure cold chain solutions for air transport of pharmaceuticals and biotechnology. Today, Envirotainer's air cargo transport systems, with more than 6,300 containers, allow global pharmaceutical and logistics companies to safely deliver temperature-controlled products all over the world.

In May of 2021, as recently authorized COVID-19 vaccine shipments were increasing, Envirotainer launched an innovative new shipping container. The newest addition to an already proven product line of temperature-controlled air cargo containers and the first of its kind, the [Releye® RLP container](#), is now revolutionizing how drugs and vaccines are shipped.

Envirotainer's Senior Product Manager Bachar Chadaideh was involved in the development of the new containers. "Along with analyzing market trends, we conducted a large study

involving the major stakeholders, including pharmaceutical companies, airlines, forwarders, and regulatory agencies to define needs, both current and emerging. Our analysis identified five clear needs for shipping containers that were either not currently met, or not fully optimized," says Chadaideh. "Based on the market needs, and our 30 plus years of experience in this field, The Releye® RLP was designed to maintain precise temperature control, being fully redundant, remotely monitored, with unsurpassed autonomous operation, while being cost-efficient and a driver

for sustainable temperature-controlled shipment."

### Controlled conditions in any climate

Temperature control in shipping containers requires the ability to manage extreme temperatures in any climate. The foundation of temperature-controlled shipping is accurate measurements with sensors that maintain their accuracy over time. In other words, highly stable sensors. Due to frequent maintenance, shipping containers have a long lifespan, often over a decade, so they must be reliable over time.

Stability and consistency are important in pharmaceutical shipments. “The Releye® RLP containers have an extensive airflow and temperature regulating system that ensures homogeneity of conditions, independent of size, mass, or load position and regardless of exposure to extreme hot or cold ambient conditions,” says Chadaideh. “The monitoring and regulation of the homogeneous temperature inside the Releye® RLP container is supported by eight internal temperature sensors with one sensor that monitors both temperature and humidity.

“In addition, there are two external sensors on each unit to monitor ambient temperature and humidity. These external sensors are important because they measure the conditions

that the container is exposed to. The containers also have several safeguards against incorrect handling. For example, settings can be locked so that temperature and other settings cannot be changed inadvertently.”

Envirotainer’s product development group chose Vaisala’s HMP110 temperature

probes, as well as the HMP110 temperature and relative humidity probes to ensure measurement accuracy. The probes were chosen for their high performance, measurement stability, low power consumption, and fast response. The HMP110 probes also feature a stainless-steel body classified IP65, making it a robust choice for tough conditions.



*Vaisala HUMICAP® Humidity and Temperature Probe HMP110*

## Live, real-time monitoring

The Releye® RLP provides live monitoring and records the conditions that containers are exposed to, as well as how they are handled. Along with internal and external temperature and humidity, live monitoring data also shows the power level of the containers, the GPS location, and whether the container has been opened, for how long, and when product has been loaded or offloaded.

“Live monitoring is of great value when delivering pharmaceutical products,” says Chadaideh. “Especially when launching new products to market, expanding to new destinations, or if cargo is urgently needed at its destination due to low-stock. Live monitoring data shows detailed information on the conditions of containers and when the cargo was loaded and off-loaded. Having instant proof of safe delivery of products supports efficient product market release.

Shippers don’t have to wait for to download and analyze data from the loggers, and the Releye® RLP temperature data is validated.”

With 24/7 access to the critical parameters and shipment statuses, involved parties can find opportunities for planning and process enhancement. “Data provided by the Releye® RLP can reveal ways to improve shipping processes. We see this as a major opportunity to encourage efficient and data-driven collaboration between all stakeholders involved,” says Chadaideh.

The Releye® RLP provides information-rich, validated data, which can enable several new applications. For example, shipment reports could be used as backup data in case of any failure or missing temperature loggers. Information can also be shared with customs agencies in transit, in advance of downloading the temperature loggers inside

the products. “The Releye® RLP provides reliable data from highly accurate sensors that could also allow the reduction or replacement of data loggers in shipments. This could provide significant downstream savings,” says Chadaideh.

## Unmatched autonomous power

“Another innovation of the Releye® RLP is that they are fully autonomous,” says Chadaideh. “These containers ship over continents and can undergo changes of routes, delays at customs, or during handovers. In case of any unexpected delays, the containers need to be able to stay fully operational without recharging. The Releye® RLP can run unattended for over 170 hours, or more than a week without recharging. Of course, it is possible to charge the unit if needed, 90 minutes of charging would add another 24 hours of autonomy.”

## Global qualification

Another feature of the Releye® RLP is that it is designed for global qualification. An operator can qualify the container for shipping anywhere in the world and expand quickly to different trade lanes and locations. The Releye® RLP can be qualified for all the trade lanes, saving on costs and reducing time spent qualifying shipping containers. The detailed performance and process data also serves as an efficient and accurate tool to follow up and improve logistical processes. Live access to shipping data during the shipment is also helpful in cases where, for example, customs requests data.



*Unique airflow system, integrated data-loggers, validated temperature data, live monitoring, and proven heating/cooling and insulation technology.*

## Efficiency & sustainability

The Releye® RLP is in the middle range of size within Envirotainer's wide selection of shipping solutions. It provides volume-efficiency in two ways; First, its industry-leading height of 132 cm, can be fully utilized. Second, the unique volume footprint provides the space of two 1-pallet capacity solutions, but allows three Euro-pallets to be loaded. The result is a 50% increase of product that can be loaded. "The addition of a 3-pallet solution provides flexibility to our portfolio, which now includes 1, 3, and 5-pallet solutions. This allows any shipment to be optimized by combining container sizes," says Chadaideh. "With more product in the container, the use of aircraft space is made highly efficient, which is good from both a cost and sustainability perspective."

## Partners in global solutions

Vaisala and Envirotainer cooperated at many levels to ensure the Releye® RLP would fulfill high expectations; from sensors, to shipping certificates, to sales support. Vaisala sales manager Janne Halonen worked closely with the Envirotainer team to provide the ideal measurement solution for the new containers.

"Envirotainer is very similar to Vaisala – they have high demands on their products like we have on our sensors," says Halonen. "I'm proud that we were able to support the development of these innovative new containers to deliver critical temperature-controlled products, especially during the COVID-19 pandemic, where vaccines are needed globally, quickly and safely."



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