

Solution Guide

Clean, Controlled & Secure Storage

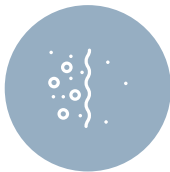




Protecting goods

Many industries often require storage and handling of goods in controlled environments. Protecting goods from dust particles and pollutants (such as microorganisms, spores and germs) can be quite a challenge for many operations. High dollar goods (for semiconductor manufacturing), finished goods (for medical device manufacturing), specialty instruments (for hospital supply) and other highly specialized goods must be stored and handled in controlled environments to maintain their usability. When these goods are exposed to the natural elements or unauthorized personnel, they can become contaminated or infected and often must be discarded or cleaned.

Automated storage and retrieval systems (ASRS) from Kardex Remstar can be used in cleanroom, temperature controlled and low humidity/dry environments to protect stored goods and reduce operating costs. These controlled environment solutions reduce floor space by up to 85% and increase productivity by reducing the walk and search time commonly associated with manual pick systems. In addition, units can also be equipped with pick-to-light technology, bar code scanning and batch pick and replenishment stations increasing inventory control and security.



Compliance with climate and cleanroom requirements



Error-free workflow



100% traceability

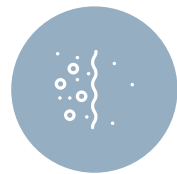


Reduce floor space by up to 85%

Cleanroom environments

Kardex units provide particle-free environments, meeting the conditions in compliance with cleanroom classes EN-ISO 5 to 8 (or classes 100 to 100,000). To reduce air particles as much as possible, the Vertical Lift Module (VLM) Kardex Shuttle is equipped with roller-based trays which do not produce dust. In addition, the VLM air conditioning solution (ACS) is equipped with dual access doors to reduce exposure to dust, dirt, particles, germs and other harmful pollutants. Controlled air streams can also ensure cleanroom conditions are maintained inside the unit.

- Constant temperatures ± 1 K
- Cleanroom classifications ranging from EN-ISO 5 to 8 (5 on request)
- Positive/negative pressure



Benefit from dust-free storage to fulfill any product requirements

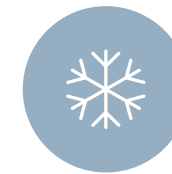


Temperature controlled environments

Many stored goods are vulnerable to temperature changes. They quickly become contaminated if temperatures are not properly managed. This applies to a very vast range of products, from frozen foods to hospital supplies to pharmaceutical products, all of which require storage at constant temperatures.

The Vertical Lift Module Kardex Shuttle and the Vertical Carousel Module (VCM) Kardex Megamat both come equipped with an integrated air conditioning system to protect stored goods. The automated storage systems can maintain a consistent temperature (± 1). Additionally, Kardex clima solutions feature temperature mapping, heated and insulated switch cabinets and humidity control to maintain peak performance levels.

- High performance of the components at constant temperatures between -22 and +131 degrees Fahrenheit (-30 to +55 degrees Celsius)
- Constant temperatures ± 1 K
- Humidity control



Control temperature and humidity as needed to protect sensitive items



Low humidity / Dry environments

Automated storage and picking solutions can also be used in dry room applications, providing a relative humidity at or below 5%. In addition to a sealing system and an airlock in the access opening, a dehumidification device is designed for use with the VLM and VCM to ensure humidity levels are maintained within the unit.

- 10% relative humidity (r.h.) through nitrogen purging
- 5% r.h. adsorption drying
- ESD-compatible design



Keep humidity levels low to protect your goods



Overview

Kardex will customize a solution based on your needs. The table below shows the various options for temperature controlled, dry and cleanroom environments based on the product type.

		Temperature controlled		Dry environment	Clean environment
Kardex Shuttle	500	-4 to +131 F	-20 to +55 C	< 5%	ISO 6 to 8
	700	-4 to +131 F	-20 to +55 C	< 5%	ISO 6 to 8
Kardex Megamat	180	+35 to +104 F	-2 to +40 C	< 5%	ISO 8
	350	+35 to +104 F	-2 to +40 C	< 5%	ISO 5 to 8
	650	-22 to +104 F	-35 to +60 C	< 5%	ISO 5 to 8

Protection
of stored goods

Increased
storage
utilization

Increased
picking
performance

About Kardex

Kardex is a global industry partner for intralogistics solutions and a leading supplier of automated storage solutions and material handling systems. The Group consists of two entrepreneurially managed divisions, Kardex Remstar and Kardex Mlog.

Kardex Remstar develops, produces, and maintains dynamic storage and retrieval systems and Kardex Mlog offers integrated materials handling systems and automated high-bay warehouses.

The two divisions are partners for their customers over the entire life cycle of a product or solution. This begins with the assessment of customer requirements and continues through planning, realization, and maintenance of customer-specific systems. It ensures a high level of availability combined with low total cost of ownership and operation.