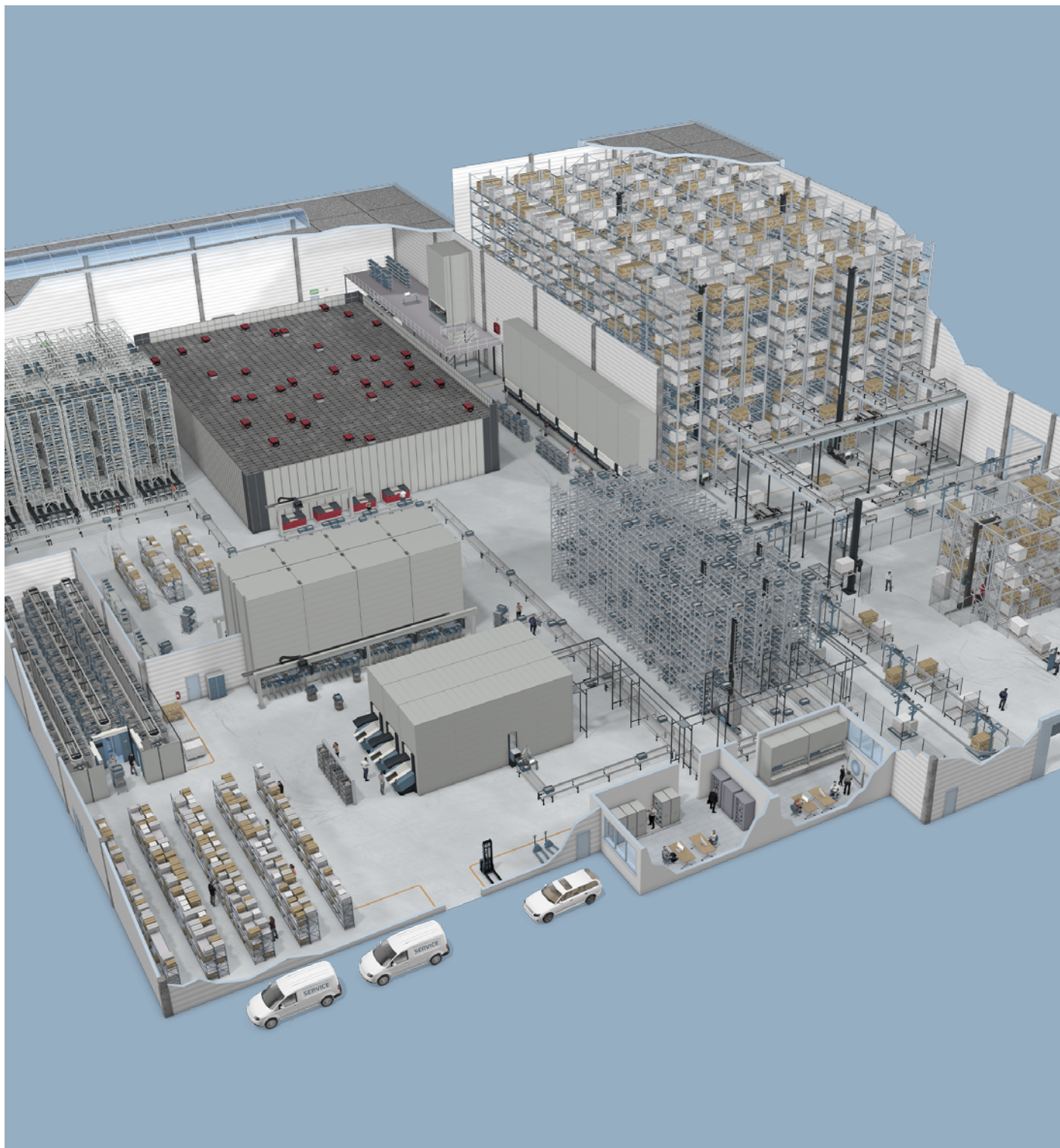


Brochure

# Dynamic Storage & Retrieval Systems



# Scalable solutions for efficient processes

As one of the leading intralogistics solution providers of automated storage, retrieval, and material handling systems, Kardex offers industry specific and tailored solutions for individual needs.

With two entrepreneurially managed divisions, Kardex Remstar and Kardex Mlog, as well as corporate ventures (Rocket Solution, SumoBox, Kardex AS Solutions) offering complimentary cutting-edge technology, Kardex developed into a global industry partner.

Kardex Remstar is a global market leader for dynamic storage, retrieval, and material handling solutions. Kardex Mlog has a leading position in central Europe for stacker cranes, conveyor systems, and automated material handling systems. The two divisions are unified under a strong group brand.

With over 140,000 installations, Kardex has a broad existing customer base that counts on first-class after-sales services.



# Find the solution for your specific needs

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# Why automate

No matter the product, a reliable and efficient storage and material handling system significantly reduces staff requirements and cuts storage costs.

Kardex solutions apply the “goods-to-person” principle to quickly provide the needed goods directly to the operator. They are modular and scalable and manage everything from small, light, and single items to heavy and oversized ones. The diverse solution portfolio complimented by modern software guarantees smooth processes and a seamless material flow.

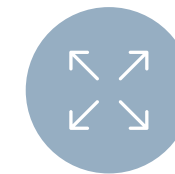
From efficient hardware to fully integrated systems, Kardex develops and installs automated storage, retrieval and material handling systems individually tailored to your needs.

Each product provides maximum productivity, performance, and safety. They also improve ergonomics and efficiency while making optimal use of the available space and securing long-term success and profitability.

## Benefits at a glance



Increase productivity significantly



Utilize up to 80% more of the existing space



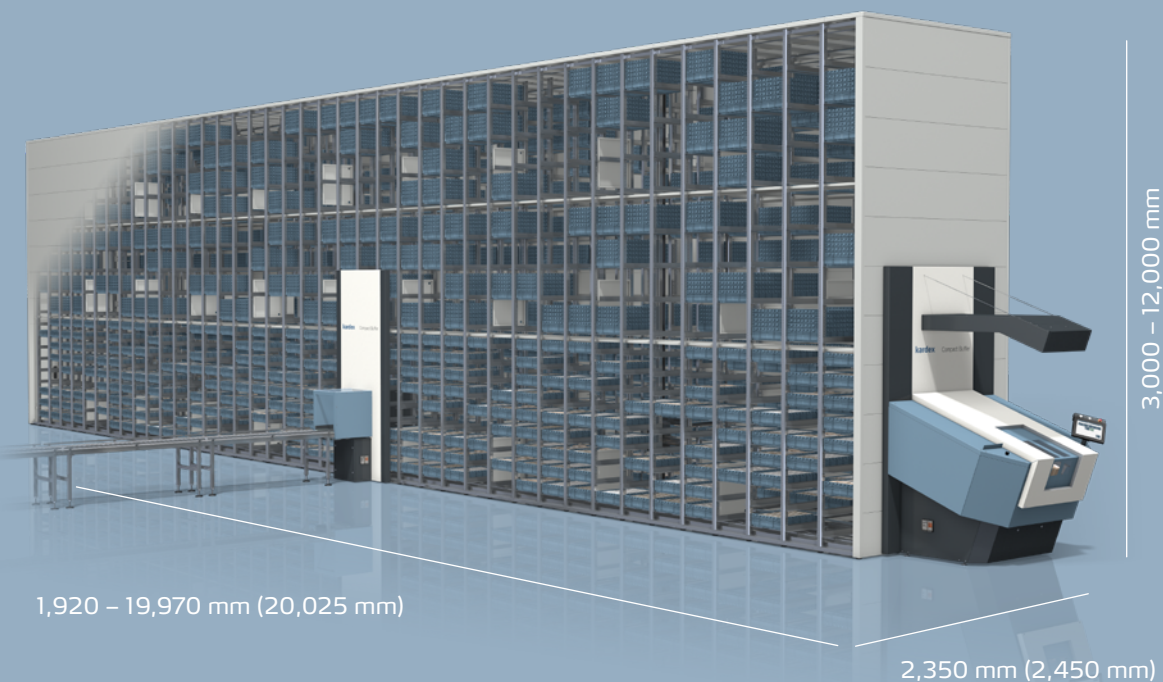
Achieve picking and stock level accuracy of up to 99%



# Kardex Compact Buffer

The Kardex Compact Buffer belongs to the product family of the Vertical Buffer Module (VBM) and provides solutions for fast-growing product ranges with limited storage space.

The system uses a lightweight mini-load crane with a telescopic gripper to individually transport bins or trays to the access opening point. The energy consumption is reduced by up to 60% against comparable systems. It is very efficient for fast order picking, efficient order consolidation and assembly kitting.



Fast &  
accurate  
picking

Flexible  
system  
integration

Fully  
scalable  
design

## Fast & accurate picking

- Virtually zero error rate thanks to a single controlled bin
- Fast and precise picking using pick-to-light tools
- Cuts costs with automatic replenishment

## Flexible system integration

- Provides a wide choice of inbound and outbound automated interfaces to integrate seamlessly with both existing processes or technology and future automation
- Easily connects with AGVs/AMRs, robotics and conveyor systems
- Fast project completion/delivery

## Fully scalable design

- The scalable design can adapt to processes and building layouts
- Customers can choose from several access opening types
- Customizable unit dimensions of up to 20-meters long and 12-meters high

The Kardex Compact Buffer stores a wide range of products using a mixture of trays and bins. The Kardex VBM Box is tailor-made for the Kardex Compact Buffer and available in the dimensions 600 × 400 mm and 640 × 440 mm. It flexibly divides and quickly adapts at any time using transverse and longitudinal dividers. The Kardex Compact Buffer offers a high storage capacity combined with fast access times.

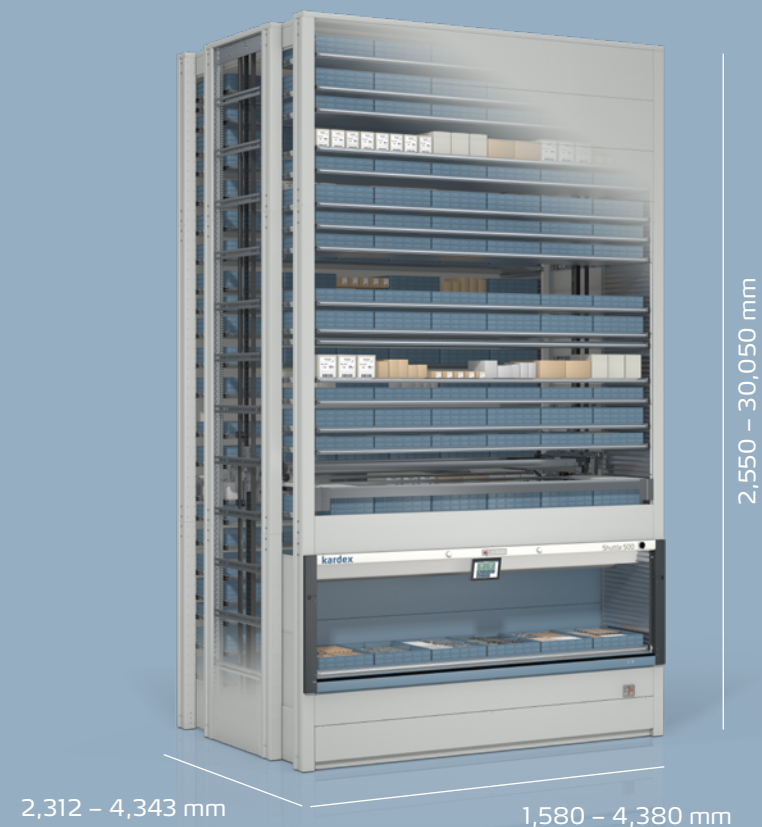
 [Click here to learn more](#)





# Kardex Shuttle

The Kardex Shuttle belongs to the product family of the Vertical Lift Module (VLM) and stores two columns of trays vertically on the front and rear of the machine. An extractor located in the middle of the VLM automatically moves trays to the access opening. Optiflex technology measures the height of the stored goods on each tray and assigns them to an ideal storage location. It is very efficient for tool storage, order picking and semi-finished products and spare parts.



High  
storage  
density

Wide range  
of storage  
goods

Modular  
unit design

## High storage density

- 25 millimeters storage intervals
- Up to 25% less space needed
- Small footprint and dynamic storage space allocation

## Wide range of storage goods

- It stores articles in various sizes and weights
- Different product types are available (Kardex Shuttle 250/500 for smaller parts, Kardex Shuttle 700 for medium loads and Kardex Shuttle 1000 for heavy loads or pallets)

## Modular unit design

- The unit height can be adjusted quickly and individually
- Multiple access openings (on front and rear side) across several floors possible

The Kardex Shuttle ideally stores light and heavy goods. In combination with the Kardex VLM Box and the Display LED-Navigator users benefit from clear guidance and reduce mispicks to a minimum. The Kardex Shuttle can even become fully-automated by integrating robotics.

 [Click here to learn more](#)





# Kardex Megamat

The Kardex Megamat belongs to the product family of the Vertical Carousel Module (VCM) and uses the paternoster principle to provide quick and precise access to stored goods. This future oriented system, based on the latest technologies, is built with a series of carriers attached in fixed locations to a chain drive. A motor powers the carriers to move in a vertical loop around a track in both forward and reverse directions. It is very efficient for order picking, spare parts management and SMD handling.



High  
picking  
performance

Minimal  
footprint

Ideal for  
uniform  
storage  
goods

## High picking performance

- Fast order picking and high cycle speed
- Optimized and condensed storage spaces
- Fewer picking errors thanks to position indicators

## Minimal footprint

- Up to 60% more storage capacity
- Organized storage of small parts in a minimum footprint

## Ideal for uniform storage goods

- Maximum use of available space with uniform storage goods
- Different product types are available (Kardex Megamat 180 for light loads such as textiles and small parts, Kardex Megamat 350 for medium loads like spare parts, Kardex Megamat 650 for heavy loads)
- Many customers use the Kardex Megamat for their SMD handling, it easily handles SMD reels and increases access accuracy rates

The Kardex Megamat enables fast access to needed goods while optimizing storage space. In combination with the Kardex VCM Box it provides organized storage locations.

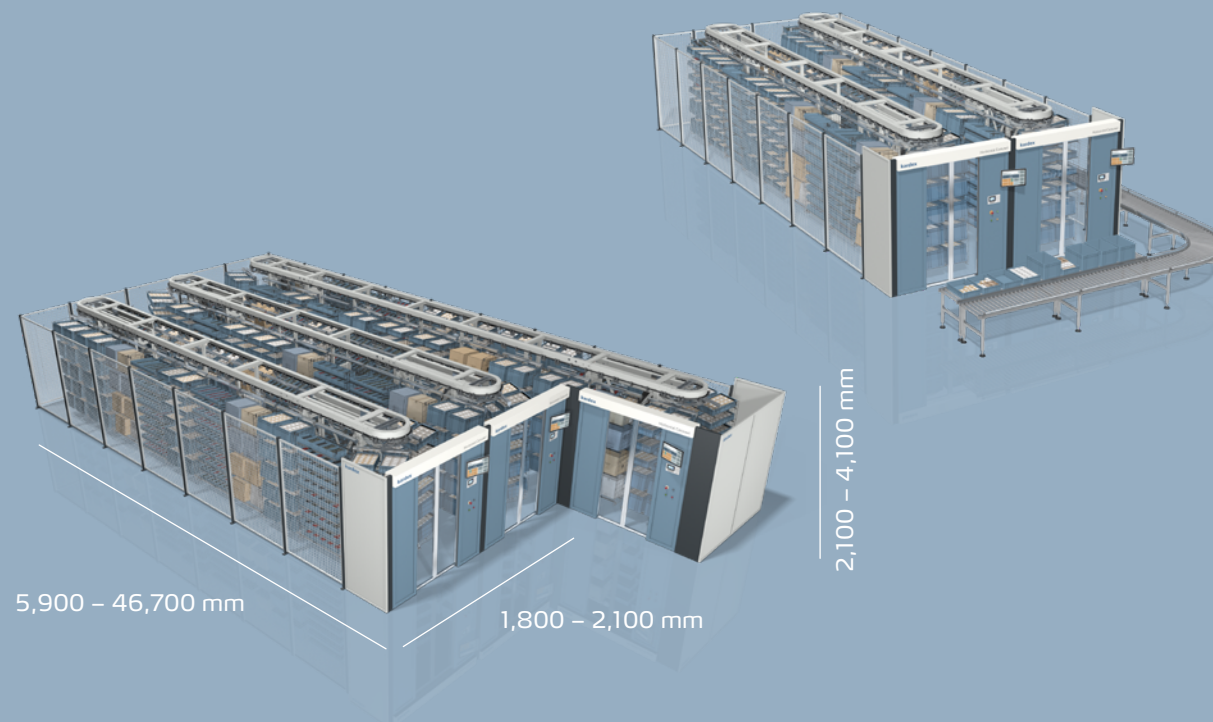
 [Click here to learn more](#)





# Kardex Horizontal Carousel

The Kardex Horizontal Carousel is used for fast, reliable and cost-efficient storage and picking of goods. It features an oval-shaped track surrounded by carriers equipped with shelves and storage bins. A motor moves the carrier around the track horizontally, stopping at a pre-determined access point for storing and retrieving goods. It is very efficient for order picking, fast parts delivery and in halls with low ceilings.



High  
throughput

Small &  
medium sized  
storage  
goods

Flexible  
workstations  
& carriers

## High throughput

- Taking the shortest route to the access opening and simultaneous carousel movements that are independent of one another ensure high order picking performance
- Display tool assists the operator with order picking
- Batching and simultaneous picking of several orders enable significantly fewer journeys to the shelves

## Small & medium sized storage goods

- Suitable for a variety of different applications and ideal for storing a wide range of items

## Flexible work stations & carriers

- Order picking at several stations enables high throughput even at peak times and during seasonal fluctuations
- Several people can operate a system at the same time
- Individual shelf steps within the carriers

Kardex Horizontal Carousels provide full flexibility. One picking station can consist of two to four machines. Various layouts, even multilevel applications, are possible.

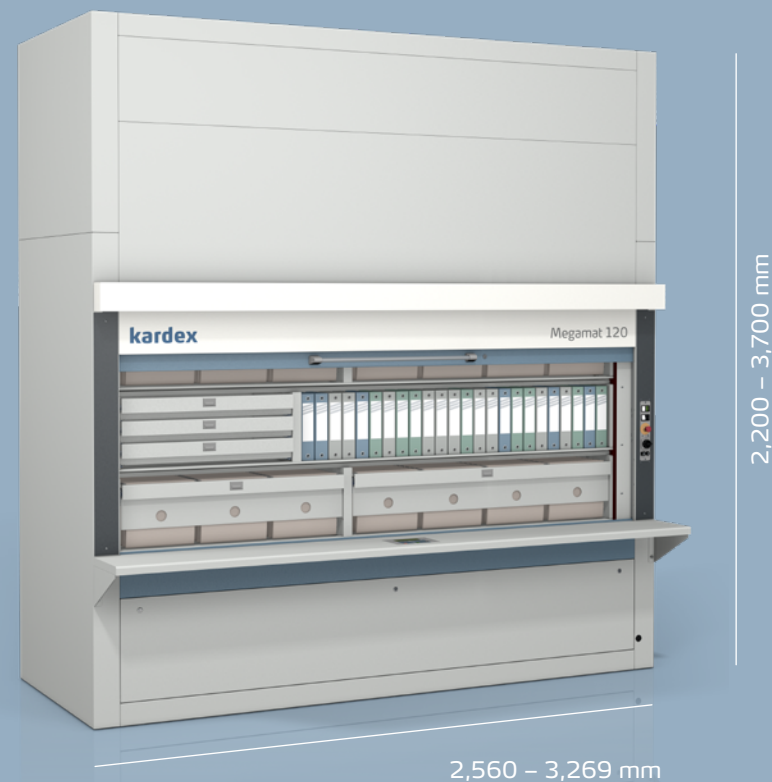
 [Click here to learn more](#)





# Kardex Megamat 115/120

The Kardex Megamat 115/120 belongs to the product family of the Vertical Carousel Module (VCM) and is an efficient office system. Using the goods-to-person principle it provides quick and precise access to thousands of media types. It is equipped with a series of carriers that attach to a chain drive in multiple, fixed locations. A motor powers the carriers to move in a vertical loop around a track in both forward and reverse directions. It is an efficient solution for the storage of documents, files and confidential media.



Secure  
storage

Minimal  
footprint

Worker  
ergonomics

## Secure storage

- Confidential documents are securely stored
- Legal regulations to protect the rights of individuals can be met
- Possibility to activate access codes or PINs so only selected individuals can use it

## Minimal footprint

- A smaller footprint is required compared to manual systems (e.g., drawer and cabinet systems)
- Optimize space with floor to ceiling installations
- They units can extend over several floors

## Worker ergonomics

- Automated retrieval (requested item is conveyed to the user)
- No physical demands, such as long walks or bending and stretching when fetching documents
- People with disabilities or restricted physical mobility can easily work with the solution

The Kardex Megamat 115/120 is a secure investment that easily integrates into existing offices and improves productivity while reducing needed space. Companies may customize the unit's color to fit internal branding.

 [Click here to learn more](#)





# Controlled environment

Kardex solutions can be designed to ensure individual storage environments. As a result sensitive goods are optimally protected at all times.

Temperature-controlled, dry atmospheres, clean room conditions or fire protection – Kardex systems allow companies to store products under controlled conditions. They can be installed in any desired location without structural restrictions and can also be linked to existing clean rooms. For example, only the access opening will be in the clean room.

## Temperature-controlled

- High performance of the components at constant temperatures between  $-35^{\circ}\text{C}$  and  $+60^{\circ}\text{C}$
- Constant temperatures  $\pm 1\text{ K}$
- Temperature mapping
- Heated and insulated switch cabinet cabins
- Humidity control
- Rapid cooling areas for warehouses with different temperature zones

## Dry solution (drying):

- 10% relative humidity through nitrogen purging
- 5% r.h. adsorption drying (application: storage of SMD components)
- ESD-compatible design

## Clean solution (clean room)

- Constant temperatures  $\pm 1\text{ K}$
- Clean room classifications ranging from EN-ISO 5 to 8 (5 on request)
- Positive/negative pressure
- Reduced air flow
- Clean room airlocks
- Pallet changer

## Fire protection

- Residue-free fire extinguisher and aspirating smoke detector (ASD)
- Fire protection gates and sprinkler technology
- OxyReduct®, a fire prevention system that reduces oxygen
- Acceptance testing for fire protection services in accordance with VdS or FM Global requirements

## Explosion protection

Whenever highly flammable gas or particles are present in the air, dangerous explosions can unpredictably occur. This is why scrupulous plant planning, designing, and construction are so critical. In such cases, Kardex systems are planned and designed taking into account the explosion protection classes.

## Controlled gas concentration

In the case of retained samples, (e.g., plant protection products), there is a risk of gas escaping. With the gas value measurement option, Kardex offers the possibility to automatically activate fans when a critical value is exceeded. The gas values are then neutralized and the gas concentration is returned to its normal range.





# Software solutions

Kardex offers modular IT concepts that individually adapt to existing intralogistics processes and warehouses.

## Kardex Power Pick System

The Kardex Power Pick System is a flexible software solution designed for storage and retrieval systems (ASRS). It optimizes both dynamic and static storage systems including manual storage areas such as pallets, shelves and drawer cabinets. It is a stand-alone-software to manage and maximize intralogistics processes.

Offering full customization, customers start with the essential storage location management system, Keytec that covers all basic functions of a flexible location management system. Based on business developments and new requirements, customers may enhance the solution with optional modules, picking strategies and special programming.

The following modules are just a selection of possible modules. Users can select from the list of optional modules to improve the efficiency and functionality of the Kardex Power Pick System. Individual needs can be met with customized programs.

- User management (user accounts and access rights)
- Material/bin management (bin types and dimensions)
- Storage location management
- Warehouse topology (manage dynamic / static storage systems and PC / browser-based workstations and peripherals)
- Basic report generation (predefined storage statistics and lists)
- HOST communication (e.g. REST, ASCII file transfer, table transfer)
- Inventory count (annual and threshold inventory)
- Batching
- Barcode split and validation
- Serial number, lot and qualification handling
- Zones and pick-/put strategies

**The Kardex Power Pick System optimizes storage and retrieval and covers multiple picking strategies including the Kardex Color Pick System, a perfect solution to manage seasonal spikes. The team picking strategy facilitates and accelerates picking by guiding multiple operators through the process using colors or symbols.**



## Benefits

- ✓ More efficient due to shortened processing times and increased throughput
- ✓ High accuracy rates thanks to smart picking strategies
- ✓ Functional scalability thanks to modular structure
- ✓ Secure and future-proof investment with ongoing developments
- ✓ State-of-the-art IT architecture with client/server and browser based applications
- ✓ Available in 21 languages



# Solutions to integrate external systems

## Kardex Drive

Kardex Drive directly from SAP® controls all dynamic storage systems from Kardex Remstar and many other manufacturers' systems. The leading SAP® system completely handles the management of the storage space.

### Benefits

- ✓ Complete integration of Kardex Drive into SAP®
- ✓ Easy integration into customer-specific processes and less training time required
- ✓ Installed without interrupting existing processes

## Kardex JMIF (Java Machine Interface)

Kardex JMIF is a tool used for communicating between dynamic storage systems and external systems (e.g. warehouse management systems, handling equipment, robots, conveyor technology, signal lights). It is based on widely used and extensively tested open-source components.

### Benefits

- ✓ Use across platforms thanks to Java® technology
- ✓ Control several machines without compromising performance
- ✓ Highly configurable with a wide range of options

 [Click here to learn more](#)







# Life Cycle Service

In an increasingly dynamic market environment, unanticipated issues can often have serious consequences. The Kardex Life Cycle Service (LCS) team offers support and help wherever it is needed throughout a solution's entire life cycle. Whether a solution needs maintenance, optimization, modernization or training and consulting; Kardex will support its customers to reach their operative goals.

 [Click here to learn more](#)

# Service packages

## Personalized service contracts

Different contract models for different requirements. Choose the one that's best for your needs.

	Kardex <b>BASE</b> Care	Kardex <b>FLEX</b> Care	Kardex <b>FULL</b> Care	Kardex <b>Soft- ware</b> Care
	"I need reliable and dependable systems."	"I need guaranteed rapid response in case of malfunction."	"I need maximum availability at predictable costs."	"I need assistance from IT experts to ensure seamless warehouse management processes."
Annual maintenance and inspection	✓	✓	✓	optional
Multiple maintenance and inspections per year	optional	optional	optional	optional
Priority support	✓	✓	✓	✓
Helpdesk unlimited calls		✓	✓	✓
Helpdesk reaction time < 2h		✓	✓	✓
Up to 1h Helpdesk reaction time <sup>1</sup>		optional	optional	optional
Up to 24/7 Helpdesk support <sup>1</sup>		optional	optional	optional
On-site repairs		optional <sup>2</sup>	✓	
Spare parts			✓	
On-site reaction time < 16h		✓	✓	
Up to 2h on-site reaction time <sup>1</sup>		optional	optional	
Up to 24/7 on-site support <sup>1</sup>		optional	optional	
Remote Assistance & Analytics <sup>1</sup>		optional	✓	optional
Access to Kardex Portal <sup>1,3</sup>				✓

<sup>1</sup> Subject to availability. Support might not be available in local language.

<sup>2</sup> Labor cost included during warranty.

<sup>3</sup> E-mail, knowledge base, cases.



# Combining global and local resources

Kardex is a worldwide industry partner that offers semi and fully automated intralogistics solutions. Its global footprint allows a strong basis to provide sales and services worldwide. Local specialists assist customers from project analysis to realization and provide service throughout a solution's entire life cycle. When you are ready to take your intralogistics to the next level, contact a local team member for a complimentary, on-site consultation.

