# **Investor Handbook** Version 6.2 – May 2023



More detailed information:



## Table of contents

#### 4 Executive summary

Kardex in brief Intralogistics market and key trends Strategic growth drivers for Kardex Differentiating factors Key financials

#### 7 Kardex Company Profile

Introduction Historical evolution Group structure Business model and group strategy Financial targets Kardex divisions Acquisitions and new Ventures Corporate Governance Sustainability

#### 32 Key figures and share information

Key figures at a glance Financial highlights 2022 Consolidated balance sheet Information on the Kardex share Attractive dividend policy

#### **39** Industry outlook

Intralogistics overview Global trends and drivers impacting intralogistics

44 Competitive landscape Competitors

## Executive Summary

#### 1. Kardex in brief

Kardex is a leading intralogistics solution provider of automated storage, retrieval and material handling systems in an attractive and growing market. With two entrepreneurially managed divisions, Kardex Remstar and Kardex Mlog, Kardex developed from a product and service supplier into a global industry partner providing solutions and services under the Kardex brand name. Kardex is well positioned to grow in a market with strong fundamentals and to achieve attractive financial returns.

Kardex has four manufacturing facilities and approximately 2'100 employees in over 30 countries worldwide.

Kardex Holding AG is listed on the SIX Swiss Exchange since 1987.

#### 2. Intralogistics market and key trends

Storage and material handling is a key cost and efficiency factor, not only in traditional production and distribution facilities but increasingly also for service providers and for new (e.g. internet-based) business models. Many of these companies have to invest in modernizing their storage and warehouse facilities in the coming years. Companies with a manufacturing or distribution basis in high cost countries in Central Europe have been the main drivers of the automation trend. The rest of Europe, North America and increasingly also Asia/Pacific and South America are following this trend.

Global trends are causing a change in global economy. These trends relate to core technologies as well as the way how B2B and B2C transactions are handled. Most of these trends will therefore either directly or indirectly also have an impact on the intralogistics solution providers and their customers. The biggest impact will be in the transactions and ways of interaction with customers and the total information handling, which are directly related to the ever more globalized and digitalized business world. For instance the increase in e-commerce and the resulting delivery/return logistics demand more decentralized, smaller warehouses and "last mile" solutions. There will be a fundamental change in requirements to the intralogistics core technology and product portfolios with the increasing need for smart machines. In addition to embedded controls, artificial intelligence has become a commercial reality and these new technologies will serve as enablers for more efficient solutions.

#### 3. Strategic growth drivers for Kardex

Kardex has defined three strategic drivers to exploit further growth and profit opportunities:

- Geographical expansion
- Leverage existing customer base
- Focus on target industry segments

The main geographic growth will be based on an increased market penetration in regions such as North America and Asia. In addition, Kardex will leverage its strong position and large installed base in the current markets to generate additional sales with existing customers through an extended solution and service offering. To further broaden the revenue streams, Kardex will further exploit existing and develop additional industry segments with existing standard solutions or new industry specific solutions.

#### 4. Differentiating factors

#### Strong market position

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.

#### Large installed base and strong service network

With over 140'000 installed Kardex Remstar machines and over 1'000 Kardex Mlog warehouse systems, the Group has a broad existing customer base that counts on first-class after-sales services. Furthermore, many of these customers must and will upgrade their systems to further increase efficiency. Kardex is well positioned to benefit from these modernization needs.

#### Industry specific solutions

Both divisions strive to become subject matter experts about trends, pains and logistics requirements in selected Industry segments. Developing to this expert level will enable Kardex to offer industry specific solutions for the various segments which are enjoying a rising demand.

#### Global footprint

Kardex's global footprint offers a strong basis to provide sales and service worldwide and to partially mitigate the risk of local or regional downturns.

#### 5. Key financials

**Key figures** in EUR million

| 1.131.12.                          |       | 2022   |       | 2021   | +/-%    |
|------------------------------------|-------|--------|-------|--------|---------|
| Bookings                           | 698.6 | 123.5% | 603.0 | 132.4% | 15.9%   |
| Order backlog (31.12.)             | 510.5 | 90.3%  | 366.6 | 80.5%  | 39.3%   |
| Net revenues                       | 565.6 | 100.0% | 455.5 | 100.0% | 24.2%   |
| Gross profit                       | 177.7 | 31.4%  | 163.3 | 35.9%  | 8.8%    |
| OPEX                               | 121.9 | 21.6%  | 102.2 | 22.4%  | 19.3%   |
| EBITDA                             | 65.4  | 11.6%  | 67.7  | 14.9%  | -3.4%   |
| Operating result (EBIT)            | 55.8  | 9.9%   | 61.1  | 13.4%  | -8.7%   |
| Result for the period (net profit) | 38.6  | 6.8%   | 43.7  | 9.6%   | -11.7%  |
| Free cash flow                     | -15.2 |        | 51.4  |        | -129.6% |
| ROIC                               | 27.5% |        | 32.7% |        |         |
|                                    |       |        |       |        |         |

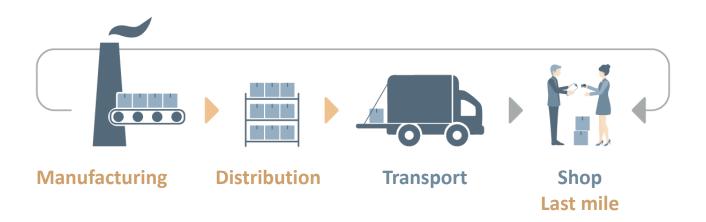
|                     | 31.1  | 2.2022 | 31.   | 12.2021 | +/- %  |
|---------------------|-------|--------|-------|---------|--------|
| Net working capital | 76.2  |        | 44.1  |         | 72.8%  |
| Net cash            | 102.7 | _      | 148.5 |         | -30.8% |
| Equity/Equity ratio | 204.6 | 56.2%  | 193.9 | 57.4%   | 5.5%   |
| Employees (FTE)     | 2'097 |        | 1'966 |         | 6.7%   |
|                     |       |        |       |         |        |

|                              | 2022 |      | 2021 | +/-%   |
|------------------------------|------|------|------|--------|
| Distribution per share (CHF) | 3.50 | 4.30 |      | -18.6% |

## Kardex Company Profile

#### 1. Introduction

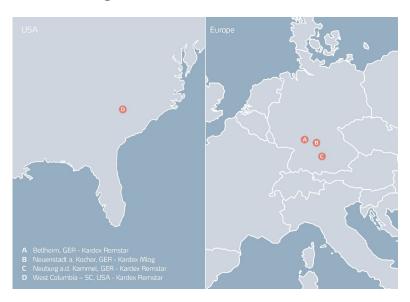
Kardex is a leading intralogistics solution provider of automated storage, retrieval and material handling systems focussing on efficient order fulfillment solutions. Intralogistics solutions cover the material logistics and handling but also the information management within manufacturing or distribution centers and aims to improve efficiency through increased performance and cost reduction. Intralogistics does not include the transportation outside the manufacturing and distribution centers. However, over the past decade the intralogistics definition has been extended to partially cover the B2C interface.



Kardex consists of the two divisions Kardex Remstar and Kardex Mlog. Both divisions are partners for their customers over the entire life cycle of a product or solution. The customer journey with Kardex includes all phases starting from design and conception to meet customer requirements, realization and start-up support through to a continuous life cycle management.

Kardex has three manufacturing facilities in Europe and one in the US, and has approximately 2'100 employees in over 30 countries worldwide.

#### Manufacturing sites





Bellheim



Neuenstadt a. Kocher



Neuburg a. d. Kammel



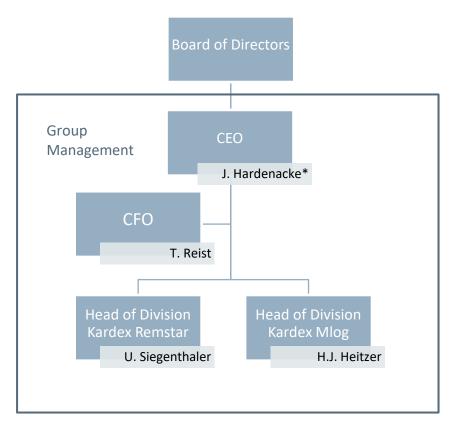
West Columbia - SC

#### 2. Historical evolution

| 1977    | Kardex incorporated under Swiss law   |  |  |  |
|---------|---|--|--|--|
| 1981    | Kardex Holding AG opens the North American operations Remstar in Westbrook, ME                                      |  |  |  |
| 1987    | Kardex listed on the SIX Swiss Exchange   |  |  |  |
| 1996    | Acquisition of Megamat GmbH, Germany (former competitor in Germany)   |  |  |  |
| 2000    | Acquisition of AFT Automation and Conveying Systems GmbH, Germany;<br>Creation of the AFT Division                  |  |  |  |
| 2001    | Acquisition of 60% of the Stow Group, Belgium   |  |  |  |
| 2003    | Kardex takes over the remaining 40% of the Belgian Stow Group;<br>Creation of the Stow Division                     |  |  |  |
| 2004    | Split Kardex shares 1:5   |  |  |  |
| 2007    | Sale of the AFT Division; Integration of Kardex International and Megamat to strengthen the Kardex Remstar Division |  |  |  |
| 2008    | Acquisition of Kardex Systems Inc. (Marietta, OH), a former competitor in the US                                    |  |  |  |
| 2009    | Remstar (Westbrook, ME) and Kardex Systems Inc. (Marietta, OH) merge to form<br>Kardex Remstar Inc.                 |  |  |  |
| 2010    | Acquisition of Mlog Logistics GmbH, Germany;<br>Creation of the Mlog Division                                       |  |  |  |
| 2011    | Change accounting standards to Swiss GAAP FER   |  |  |  |
| 2011/12 | Strategic repositioning and recapitalization  |  |  |  |
| 2013    | Sale of Stow Division   |  |  |  |
| 2020    | Acquisition of minority investment in Rocket Solution GmbH (Germany)  |  |  |  |
| 2021    | Kardex becomes global partner of AutoStore  |  |  |  |
| 2021    | Kardex becomes member of UN Global Compact  |  |  |  |

#### 3. Group structure

Kardex consists of two entrepreneurial managed divisions, organized under the roof of a holding company. The divisions run as stand-alone units with full P&L and balance sheet responsibility. The central functions managed at holding level are kept at a minimum. Kardex is led by the Board of Directors and the Group Management, which consists of CEO, CFO, Head of Kardex Remstar and Head of Kardex Mlog.



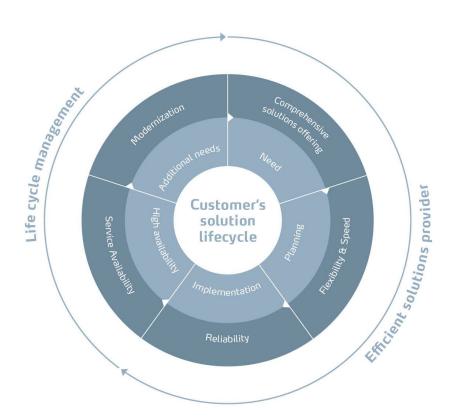
\*as of June 2023

#### 4. Business model and group strategy

The mission of Kardex is to provide solutions and services in order to increase the efficiency in storing and handling of goods and materials on a global scale. Kardex Remstar and Kardex Mlog are leading providers of solutions and services for automated storage, retrieval, and materials handling and order fulfillment. The Kardex portfolio includes products for heavy to light goods, a modern software suitesolutions, integrated subsystems and life cycle services.

Based on a comprehensive product and service offering, the divisions aim to serve their customers as a life-time partner for warehousing intralogistics solutions; starting from consulting to implementation through to service and life cycle management. In order to maintain and strengthen its competitive position through technological innovation and outstanding customer loyalty, Kardex is substantially investing in Research and Development, its Supply Chain, the expansion of its service organization as well as in new technology via acquisitions.

#### **Business Model**

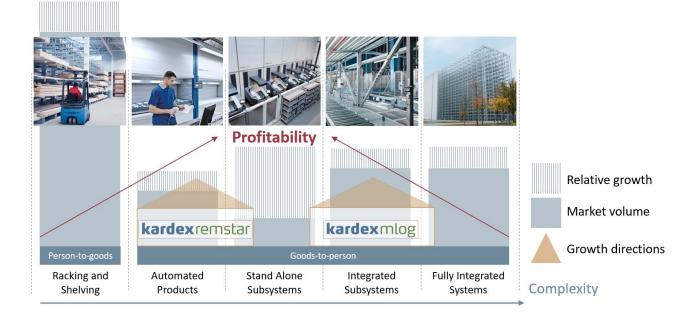


#### Strategic growth directions

Kardex will move to a next level based on three main strategic growth directions – geographical expansion, leverage of existing customer base with new solutions/new services and focus on target industry segments. Both Kardex divisions focus on organic and profitable growth and are running business development activities to further penetrate their respective markets, to identify new target countries and to define industry segments for which they will either increase the segment penetration or newly develop the segment. With a segment specific marketing each industry segment can be addressed with a tailored marketing mix. Kardex aims to grow above the industry average in the selected target industry segments and addressed markets and increase its respective market share.

In terms of product and solutions offering, both divisions are increasing their efforts to further penetrate the solution category of standardized, standalone subsystems, which shows one of the highest growth rates combined with attractive margins and lower risk levels. This market is driven by the need for standardization in many industries as well as new business model requirements from smaller (light industrial and service) companies, like webshops.

Although other solution categories are growing at a healthy pace, profitability is lower in the static Racking and Shelving market (commodities) as well as in the most complex category Automated Systems (due to the higher project risk levels). Thus Kardex is not active in these solution categories, respectively only to a limited extent (Kardex Mlog).



#### Static Products (Racking and Shelving)

The first category of static storage systems is typically used in low-bay warehouses for storage of palletized goods or for storage of smaller boxes, creation of modular warehouse shelving and racking solutions. Racking and shelving systems are the most basic requirements in any distribution, storage or material handling operation and include various types of storage racks such as cantilever storage racks, portable stacking racks, conventional pallet racks, etc.

#### **Automated Products**

This category includes automated products such as carousels (vertical and horizontal), vertical lift modules, vertical buffer modules etc. Typical solutions offered in this segment include these products combined with complementary products like bins & accessories, pick-to-light and specific software. Ergonomically designed to be user-friendly, the return of these solutions is mostly driven by reduction in labor cost and optimized space requirements.

#### Stand-alone Subsystems

This category evolves from the category of automated products by combining standard technology available from the above categories with the aim of improving efficiency and quality of the solution. These solutions are mostly tailored to industry specific requirements and can be applied for many customers within the same industry segment due to their standardization. Demand for stand alone subsystems is growing fast as it offers the best returns based on the combination of low risk and high level of standardization.

#### Integrated Subsystems and fully integrated systems

These categories present the most sophisticated step of any intralogistics automation and includes mostly greenfield projects, when the customers move from one or more manually operated sites to one central logistics center. The fully automated equipment with a stand alone warehouse control software is categorized as Integrated Subsystem, whereas a fully automated equipment with a fully integrated software solution is categorized as Fully Integrated System. The level of complexity is determined by the customer's logistics processes and the various levels of the integration of the information systems required to run the operation.

#### 5. Financial targets

|                | Net revenues growth* | EBIT margin* | ROIC  |
|----------------|----------------------|--------------|-------|
| Kardex Remstar |                      | 14%-17%      |       |
| Kardex Mlog    |                      | 5%-8%        |       |
| Kardex         | 5%-7% p.a.           | 10%-14%      | > 25% |

\* Over the cycle of 5 years

| Dividend policy (pay-out ratio)     | Net debt/EBITDA |  |
|-------------------------------------|-----------------|--|
| Up to 75% of operational Net Profit | <2.5x           |  |

#### 6. Kardex divisions

#### 6.1 Division Remstar

6.1.1 Introduction

#### Overview

#### Key figures

- Marketshare >35%\*
- >1'720 FTE
- >140'000 installed solutions worldwide
- 2 manufacturing sites in Germany
- 1 manufacturing site in the USA
- Present in >30 countries

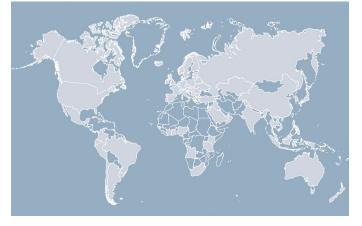
#### Solutions

- Automated Storage & Retrieval Systems
- Buffering & Sequencing
- Order Fulfilment
- Controlled Environment
- Document Storage

#### Product portfolio

- Vertical Lift Modules
- Vertical Carousel Modules
- Vertical Buffer Modules
- Horizontal Carousel Modules
- Heavy Duty Units
- Software & Control Solutions
- Kardex Accessories (VLM/VCM/VBM Box)

#### Entities, business partners & references (excerpt)



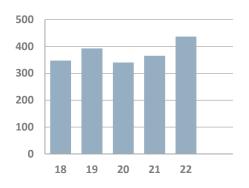
| CATERPILLAR        | AIRFRANCE /     | Correcting People LEXM | RK SIEMENS      | 🕝 Lufthansa Technik |
|--------------------|-----------------|------------------------|-----------------|---------------------|
| HILTH              | BOSS Amersham   |                        | Nestle Baye     | THE LINDE GROUP     |
| SANDVIK            |                 | The Cherrical Company  | Johnson-Johnson | BLACK&DECKER        |
| WARSTEINER         | Gillette JAGUAI | R 3M German            | KONICA MINOITA  | Míele               |
| PSA PEUGEOT CITROE |                 | ZEISS                  | ThyssenKrupp    | JUSRAM              |

\* company estimate

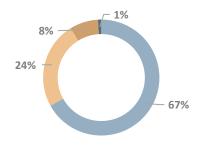
#### Key figures for Kardex Remstar

| in EUR million               |       | 2022   |       | 2021   | +/-%  |
|------------------------------|-------|--------|-------|--------|-------|
| Bookings                     | 509.8 | 116.8% | 459.9 | 125.8% | 10.9% |
| Order backlog (31.12.)       | 322.2 | 73.8%  | 238.3 | 65.2%  | 35.2% |
|                              |       |        |       |        |       |
| Net revenues                 | 436.6 | 100.0% | 365.5 | 100.0% | 19.5% |
| EBITDA                       | 64.0  | 14.7%  | 66.2  | 18.1%  | -3.3% |
| Operating result (EBIT)      | 56.1  | 12.8%  | 60.5  | 16.6%  | -7.3% |
|                              |       |        |       |        |       |
| Employees (FTE as of 31.12.) | 1'727 |        | 1'628 |        | 6.1%  |
|                              |       |        |       |        |       |

## Net revenues in EUR million



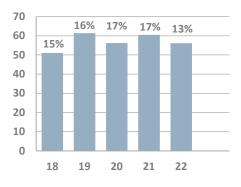
Net revenues by region 2022 financial year in %



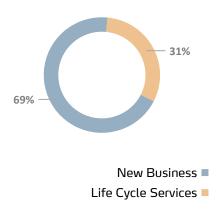
Europe

- Americas (North, Middle, South)
- Asia/Pacific
- Middle East and Africa

## **EBIT and EBIT margin** in EUR million and in %



Net revenues by business unit 2022 financial year in %



Kardex Remstar customers can be found in a broad range of industries, from highly industrialized through to office environments.

|  | Todays |  |
|--|--------|--|
| Segment Name                             | Share  |  |
| Whloesale / Retail / E-Commerce          | 17%    |  |
| Electronics                              | 14%    |  |
| Mechanical Engineering                   | 16%    |  |
| Healthcare / Pharmaceuticals / Hospitals | 9%     |  |
| Automotive / Transportation Equipment    |        |  |
| Public Administration / Government       |        |  |
| Third-party Logistics / Transportation   | 3%     |  |
| Metal                                    | 9%     |  |
| Consumer Goods                           | 5%     |  |
| Others                                   | 13%    |  |

The division has subsidiaries throughout Europe, Middle East/Africa, AsiaPacific and the US. For Kardex Remstar, the combination of local presence with a global sales and service organization has become a crucial differentiator in terms of securing and gaining market share. Key success factors are high product quality, customer proximity with short response times, high and fast availability of spare parts and reduced general maintenance intervals. In addition, a professional global support network helps to ensure timely solutions to all customer needs.

Kardex Remstar's business model consists of two business units – New Business, Life Cycle Service.

#### **New Business**

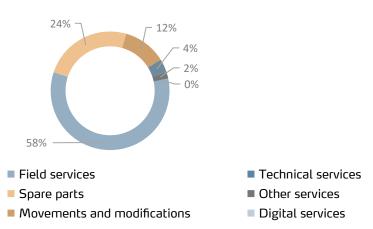
This business unit is in charge of the customer journey from first touchpoint through to implementation and acceptance of delivered solutions. One of the main goals is to assure a continuous generation of new customers in existing and new industry segments via targeted marketing and business development activities. Kardex Remstar Portfolio presents a combination of solutions and products. The entire portfolio is based on highly standardized, industry neutral products and can be adapted to specific industries (e.g. pharma, automotive, electronics) and to specific customers (e.g. special unit dimensions, specific features). The product portfolio, which is described in section 2.6.1.2, is divided into 6 families and is sold to the market either as single product or as part of systems.

#### Life Cycle Service

This business unit serves as lifetime partner supporting all customer needs from acceptance and hand-over to the end of life of a single product or an entire system. It offers support and improves the customer's installations in a proactive manner. Due to changing market environments, these activities are shifting more and more towards predictive activities, project-based services, and consulting services. One of the main goals is to assure maximum equipment and system uptime to support highest productivity for the customers. Life Cycle Services secures customer loyalty by meeting or exceeding customer expectations in terms of best-in-class accessibility, high operational speed and excellent quality. Life Cycle Service solutions offered to customers can be divided in 3 main service products. The following exhibit shows the contribution of each service product to Kardex Remstar's net sales.

#### Net revenues split LCS (2022)

in %



#### Field services, accessories and spare parts

- Service contract portfolio with three different levels "Base Care", "Flex Care" and "Full Care" covering preventive maintenance, repair and parts services
- Configurable "Software Care" contract, ensuring the best performance of the customer's software package
- Preventive maintenance and ad-hoc repair service for non-contract customers
- Spare parts services delivery to customers for preventive or corrective replacement
- Spare parts packages/kits to assure high performance and high availability of installed equipment
- After Sales accessories and software licenses

#### **Technical support**

 Remote support services for equipment and the installed software suite providing support via remote to minimize machine downtime in case no physical repair on-site is required

#### **Relocation and modifications**

- Move equipment due to customer needs, e.g. to optimize workflow layout
- Safety upgrade kits to conform to new safety regulations
- Technology update packages for hardware and software
- Functional upgrade packages

#### Other services

- Training for various levels of customer user groups (operators, super users, maintenance, etc.)
- Technician certification programs for business partners
- Data based digital services (as future product)
  - This new offering includes the monitoring and analysis of operational data and technical equipment data from the live operation.
  - The processed data is used to predict required maintenance and repair interventions to maximize uptime.
  - In addition, operational data will be used to optimize customers equipment utilization regarding storage or picking.

#### 6.1.2 Solution and product portfolio

Best-in-class equipment and software (product portfolio) is one of the most important success factors for profitable growth. All Kardex Remstar solutions are mainly based on the Kardex Remstar's equipment and software portfolio. In addition, a combination of Kardex own products with innovative 3rd party technology as well as cross-divisional solutions complete the solution portfolio offered to the customers.

The New Business product portfolio can be divided into 6 product families - Vertical Lift Modules (VLM), Vertical Carousel Modules (VCM), Horizontal Carousel Modules (HCM), Vertical Buffer Modules (VBM), Software Suite and Life Cylce Services.

The following exhibit shows the product portfolio of Kardex Remstar.













Main customer benefits from operating Kardex Remstar solutions:

- High reliability based on many years of engineering experience and high level of standardization
- Fast returns on invest due to low level of investment combined with increased operational efficiencies and space savings
- Customizable to special requirements or to industry specific needs (e.g. air conditioning, built-in fire protection)
- Kardex solutions are developed according to the goods-to-man concept based on ergonomic principles and protect the health of order pickers by providing goods at an ergonomically ideal height

#### 6.2 Division Mlog

#### 6.2.1 Introduction

#### Overview

#### Key figures

- Strong market position in Germany
- >330 FTE
- >1'000 installed solutions worldwide
- I manufacturing site in Germany

#### Solutions

- Automated Storage & Retrieval Systems
- Order Fulfilment

#### Solution and product portfolio

- Integrated subsystems
- Industry specific stand alone subsystems
- Products (stacker crane modules, conveyor modules)
- Complementary warehouse technology
- Software Suite

#### Entities, business partners & references (excerpt)



#### Key figures for Kardex Mlog

| in EUR million               |       | 2022   |       | 2021   | +/-%   |
|------------------------------|-------|--------|-------|--------|--------|
| Bookings                     | 125.4 | 118.8% | 124.5 | 139.9% | 0.7%   |
| Order backlog (31.12.)       | 130.5 | 123.6% | 110.7 | 124.4% | 17.9%  |
|                              |       |        |       |        |        |
| Net revenues                 | 105.6 | 100.0% | 89.0  | 100.0% | 18.7%  |
| EBITDA                       | 5.8   | 5.5%   | 6.6   | 7.4%   | -12.1% |
| Operating result (EBIT)      | 5.1   | 4.8%   | 5.9   | 6.6%   | -13.6% |
|                              |       |        |       |        |        |
| Employees (FTE as of 31.12.) | 333   |        | 304   |        | 9.5%   |

### Net revenues and EBIT margin

in EUR million

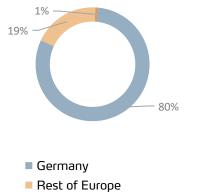


Net revenues

EBIT margin

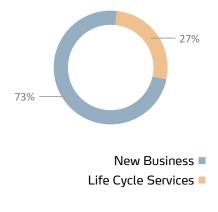
### Net revenues by region

2022 financial year in %



Rest of world

Net revenues by business unit 2022 financial year in %



Kardex Mlog has two business units: New Business (Integrated Subsystems and Products) and Life Cycle Services (incl. Refurbishment).

Kardex Mlog operates in Germany and some selected countries in Europe. In addition to a push of standardized industry specific solutions and another increase of the Service business, partner models in the product business for standardized stacker cranes and conveyor modules will help to increase business volumes in a profitable way.

#### 6.2.2 Solution and Product Portfolio

Kardex Mlog offers a full range of solutions and products for fully automated high bay warehouses for pallet and bin (miniload) handling including conveyors, monorail systems and stacker cranes. Kardex Mlog concentrates on low to mid-complex systems and positions itself as an expert in selected Industry Segments.

The Solution Portfolio is structured in three main categories:

- Systems (Integrated Subsystems and Standardized Industry Specific stand-alone Subsystems),
- Products (including Stacker Crane Modules, Conveyor and Transportation Modules)
- Life Cycle Services (incl. Maintenance, Hotline, Spare Parts, Repairs, other Services and Refurbishment).

The following exhibit shows a selection of the solution and product portfolio of Kardex Mlog.



Systems - Integrated Subsystems

Systems - Standardized Industry Specific (stand alone) Subsystems







#### Products



Mlog's powerful Software Suite (Kardex Control Center - KCC) is designed to manage and control the material flow and corresponding logistics processes on all levels from controls to warehouse management in an optimal way. With the modular software structure, high customization can be realized which supports a seamless integration into the customer ERP systems (e.g. SAP, Navision, and others). As a result, Kardex Mlog's software solutions maximize the warehouse output in a transparent and energy efficient way.

Main customer benefits from operating Kardex Mlog solutions:

- High reliability of solutions and products based on many years engineering experience and high level of standardization
- Excellent fit to customer requirements
- Efficent and fast warehouse logistic and material flow with low operating cost and reduced energy consumption

#### 7. Acquisitions and new ventures

#### 7.1 New investments strategically extend the solution portfolio

A competitive solution portfolio with continuous added value is key for success. By adding and integrating innovative technologies, Kardex will be able to offer best-in-class solutions and innovative life-cycle services. The segregation of solutions segments and the positioning of the two divisions in it (see page 12) shows that stand-alone subsystems offer a partially uncovered segment that supports profitable growth. This area cannot fully be addressed by the existing solution portfolio of Kardex Remstar and Kardex Mlog, even though both divisions independently develop stand-alone solutions based on their product portfolio. Kardex has decided to further strengthen this area through acquisitions and technology cooperations. The target of these acquisitions is to drive profitable growth by focusing on automated material handling solutions for items and bins within the extended intralogistics market.

The main criteria for acquisitions and cooperations are diverse. Targets for acquisitions and or cooperations provide market leading technology or are in the process of developing innovative technology with potential to become market leader. Key for any investment and financing decisions is the ability of each target to achieve market success independently from Kardex. In addition, each target company shall provide technology that helps enhancing the legacy Kardex portfolio thus allowing cross selling opportunities with Kardex Remstar and Kardex Mlog. Last but not least, another key criteria in line with the Kardex business model, each technology must generate potential for Life Cycle Services business.

Starting in 2020, important gaps have been closed with strategic investments in new technologies. All of these new ventures are entreprenieurally managed under the umbrella and supervision of Kardex Holding and have thus not been integrated into either of the two divisions. The following exhibit 1 shows the current investment portfolio with an outline of participation levels of Kardex.

| Rocket Solution GmbH   | SumoBox AB  | Kardex AS Solutions AG  |
|--|---|---|
| Current Share: 26.47%  | Current Share: 100%   | Current Share: 100%   |
| Rocket Solution develops needs-<br>based solutions in order to opti-<br>mize the intralogistics sector as<br>well as to make todays and fu-<br>ture challenges more economi-<br>caly and ecologically sustainable. | Sumobox develops and produces<br>intelligent molular box systems<br>that help customers to make im-<br>provements to stock solutions. | AutoStore is a warehouse robot<br>technology company that in-<br>vented and continues to pioneer<br>cube storage automation, the<br>densest order-fulfillment solu-<br>tion in existence. |

Exhibit 1: Investment Portfolio

With these acquisitions and new ventures, Kardex is extending its solution coverage in the light goods area. Exhibit 2 shows a mapping of different solution types relative to performance (presentations per hour) and capacity (storage location) criteria.

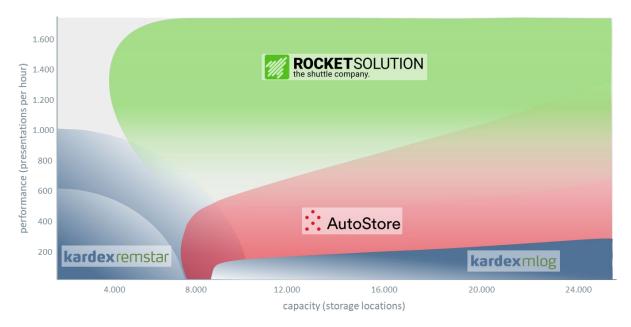


Exhibit 2: Coverage in the light good logistics

The offering of Rocket Solution and AutoStore can be considered complementary to the existing Kardex Remstar and Kardex Mlog solution portfolios.

#### 8. Corporate Governance

#### 8.1 Board of Directors and Group Management

#### 8.1.1 Board of Directors

| Board of Directors  | Functions                | Committees  |
|---|--------------------------|---|
| <b>Felix Thöni</b><br>(1959, Swiss citizen)<br>Since 2011               | Chairperson of the Board |   |
| <b>Ulrich Jakob Looser</b><br>(1957, Swiss citizen)<br>Since 2012       | Vice Chairperson         | Chairperson Compensation and Nomination Committee |
| <b>Philipp Buhofer</b><br>(1959, Swiss citizen)<br>Since 2004           | Member                   | Member Compensation and Nomination Committee      |
| <b>Eugen Elmiger</b><br>(1963, Swiss citizen)<br>Since 2020             | Member                   | Member Audit Committee                            |
| <b>Andreas Häberli</b><br>(1968, Swiss citizen)<br>Since 2020           | Member                   | Member Audit Committee                            |
| <b>Jennifer Maag</b><br>(1969, Swiss and German<br>citizen), since 2022 | Member                   | Chairperson Audit Committee                       |
| <b>Maria Teresa Vacalli</b><br>(1971, Swiss citizen)<br>Since 2023      | Member                   | Member Compensation and Nomination Committee      |

#### 8.1.2 Group Management



Jens Hardenacke Chief Executive Officer

1971, German citizen Dr. rer. Pol. WWU Münster, Germany

#### Since 2023

CEO of Kardex

#### 2021-2023

- MD Dematic Central Europe / MD Dematic DACH, SVP, Dematic GmbH, Germany
- 2017-2021
- MD / President Dematic China, SVP, Dematic International Trading, China
  2013–2017
- CEO DMG Asia II, DMG Mori Asia, Singapur

#### 2010-2012

 CEO DMG Asia II, Gildemeister AG / DMG Asia / DMG MORI SEIKI Cooperation Markets, Singapur

#### 2008-2009

CEO DMG Asia, Gildemeister AG / DMG Asia, Shanghai

#### 2006-2008

Managing Director DMG Charlotte, Gildemeister AG / DMG Charlotte, USA

#### 2006

 Assistant to Chairman of the Executive Board / Head of Competitive Analysis in the Group, Gildemeister AG, Germany

#### Other activities

None



Thomas Reist Chief Financial Officer

1971, Swiss citizen MAS in Corporate Finance/ Bachelor of Science FH in Business Administration, FHNW Zurich/Olten, Switzerland

#### Since 2016

- CFO of Kardex
- 2011-2016
- Head of Finance & Controlling auf Holding-Stufe, Kardex Holding AG, Zurich, Switzerland

#### 2001-2011

• Group Controller / Head of Finance & Controlling, Angst+Pfister AG, Zurich, Switzerland / Paris, France

#### 1998-2001

 Head of Finance & Controlling, Zimex Aviation AG, Zurich, Switzerland

#### Other activities

None



**Urs Siegenthaler** Head of Kardex Remstar Division

1959, Swiss citizen University Degree in Mechanical Engineering, Bern University of Applied Sciences, Biel, Postgraduate Studies in Business Management, Lucerne University of Applied Sciences, Horw, Switzerland

#### Since 2019

- Head of Kardex Remstar Division
- 2016-2019
- Head of New Business Kardex Remstar

#### 2011-2016

- Head of Life Cycle Service Kardex Remstar
- 2008-2011
- Divisional Head of TGW Group, Austria
- 2007-2008
- Senior VP Strategic Projects, Swisslog Group, Switzerland

#### 1999-2007

Head of Region / Managing Director, Swisslog Group, Switzerland

#### Other activities

None



Hans-Jürgen Heitzer Head of Kardex Mlog Division

1962, German citizen Grad. mechanical engineer, Aachen Technical University, Germany

#### Since 2011

- Head of Kardex Mlog Division
- 2010-2011
- Managing Director, Mlog Logistics GmbH, Neuenstadt, Germany
- 2002-2009
- Managing Director, Locanis AG, Unterföhring, Germany

#### 2000-2001

 Division Manager Distribution and Project Management automatic high rack storage systems, MAN Logistics, Heilbronn, Germany

#### Other activities

None

#### 8.2 Extract of the Corporate Governance Report

Kardex is divided into the two divisions (segments) Kardex Remstar and Kardex Mlog.

Kardex is led by the Board of Directors and the Group Management, which consists of CEO Jens Hardenacke, CFO Thomas Reist, Urs Siegenthaler, Head of Kardex Remstar and Hans-Jürgen Heitzer, Head of Kardex Mlog.

#### «one share – one vote»

The company's 7'730'000 fully paid-up registered shares have a nominal value of CHF 0.45 each. Each registered share corresponds to one vote at the General Meeting ("one share – one vote" principle) and is eligible for dividends. The right to apply the special rules concerning treasury shares held by the company is reserved, particularly in relation to the exception from the entitlement to dividends.

#### **Registration rules**

Entry in the share ledger is conditional upon proof of a formally correct transfer. Furthermore, the com-pany may refuse to register a shareholder with vot-ing rights if the purchaser does not expressly declare upon demand that they are holding the shares in their own name and for their own account, that there is no agreement concerning the redemption or re-turn of the shares in question and that they bear the economic risk associated with the shares.

#### Shareholders' participation rights

On 31 December 2022, there were 3'505 shareholders entered in the share register. Each Kardex Holding AG registered share entitles the holder to one vote at the General Meeting. There are no voting right restrictions. Furthermore, any shareholder has the right to have his shares represented at the General Meeting by written proxy by an independent voting proxy, another shareholder with voting rights or a third party.

Shareholders representing at least 0.5% of the shares issued may request in writing that items be added to the agenda, specifying the proposed resolutions. Such items must be submitted to the Board of Directors in writing at least 40 days before the General Meeting.

#### Statutory auditors

PricewaterhouseCoopers AG, Zurich, Switzerland, have been the statutory auditors of Kardex Holding AG since 2014.

#### 9. Sustainability Report (ESG)

#### 9.1 Extract of the Sustainability Report (ESG)

Sustainability is of central importance both within Kardex and in our interaction with customers, suppliers, and other external stakeholders. At Kardex, the efficient use of resources is at the heart of the business model, making sustainability an inherent component of the Group's DNA. Kardex sees the focus on sustainability as an opportunity and as a basis for future success.

By joining the United Nations Global Compact (UNGC) in 2021, Kardex supports the world's largest and most important initiative for sustainable and responsible corporate governance. By doing so, Kardex follows the UNGC's ten principles that fall within the categories of human rights, labor, environment, and anti-corruption. As a member of the UNGC, Kardex publishes an annual Communication on Progress (COP) report, informing about its efforts to implement the ten principles (Kardex' Communication on Progress 2022). Furthermore, Kardex is developing strategic measures to contribute to the Sustainable Development Goals (SDGs) formulated by the UN in Agenda 2030.

In 2022, Kardex formally integrated sustainability management into the Group by establishing the ESG Steering Group, composed of members of the Board of Directors and members of the Group Management (CEO and CFO). The ESG Steering Group reports to the Board of Directors. An internal Sustainability Manager coordinates the agreed upon the sustainable initiatives centrally. The material sustainability topics defined by the ESG Steering Group were confirmed by the Board of Directors and set the priorities for Kardex' sustainability activities.

The approach towards sustainable business practices is based on the continuous exchange with Kardex' most important stakeholder groups. Throughout 2022, Kardex entered into dialogues with various stakeholders to better understand the requests and requirements from customers, suppliers, investors, and other partners. Kardex strives to continuously engage with its stakeholders to strengthen its understanding and relationships with the players in the markets in which it operates. In doing so, the stakeholder dialogue also aims to identify and explore potential risks and opportunities relevant to a sustainable value chain.

Kardex continuously expands its reporting on environmental, social and governance matters. The Group follows the indirect counterproposal to the Swiss Initiative for Responsible Business. This initiative entered into force on OI January 2022, following the UN Guiding Principles. The current Sustainability Report can be downloaded <u>here</u>.

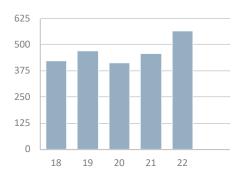
ESG key figures per EUR million revenues

|                          | Unit           | 2022 | 2021 | (+/-%) |
|--------------------------|----------------|------|------|--------|
| Total CO2 emissions      | tons           | 9.0  | 11.9 | -24.4% |
| Total waste              | tons           | 6.2  | 8.1  | -23.5% |
| Total energy consumption | MWh            | 31.7 | 42.1 | -24.7% |
| Total water consumption  | m <sup>3</sup> | 12.8 | 21.7 | -41.0% |
|                          |                |      |      |        |

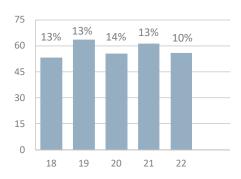
# Key figures and share information

1. Key figures at a glance

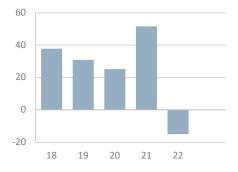
Net revenues in EUR million



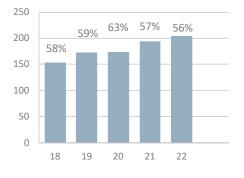
**EBIT and EBIT margin** in EUR million and in %

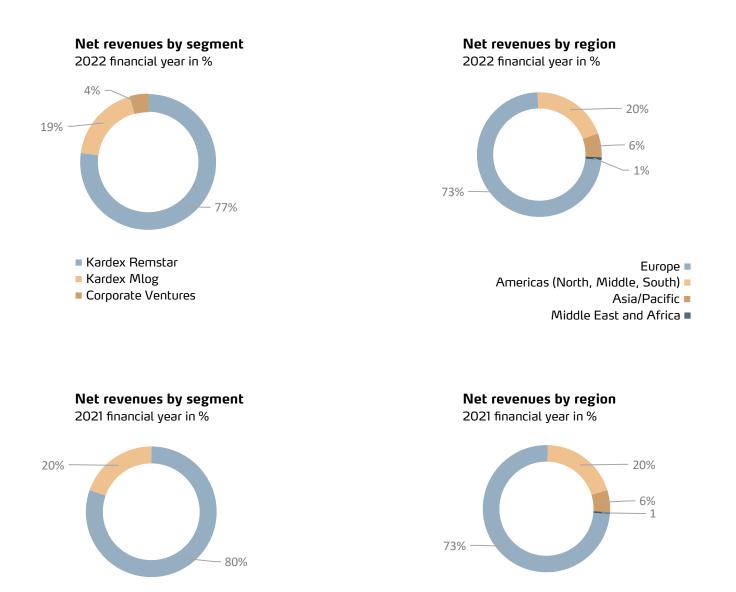


Free cash flow in EUR million



**Equity and equity ratio** in EUR million and in %





Kardex Remstar
 Kardex Mlog

Europe = Americas (North, Middle, South) = Asia/Pacific = Middle East and Africa =

#### 2. Financial highlights 2022

#### Key figures

in EUR million

| 1.131.12.                          |       | 2022   |       | 2021   | +/-%    |
|------------------------------------|-------|--------|-------|--------|---------|
| Bookings                           | 698.6 | 123.5% | 603.0 | 132.4% | 15.9%   |
| Order backlog (31.12.)             | 510.5 | 90.3%  | 366.6 | 80.5%  | 39.3%   |
| Net revenues                       | 565.6 | 100.0% | 455.5 | 100.0% | 24.2%   |
| Gross profit                       | 177.7 | 31.4%  | 163.3 | 35.9%  | 8.8%    |
| OPEX                               | 121.9 | 21.6%  | 102.2 | 22.4%  | 19.3%   |
| EBITDA                             | 65.4  | 11.6%  | 67.7  | 14.9%  | -3.4%   |
| Operating result (EBIT)            | 55.8  | 9.9%   | 61.1  | 13.4%  | -8.7%   |
| Result for the period (net profit) | 38.6  | 6.8%   | 43.7  | 9.6%   | -11.7%  |
| Free cash flow                     | -15.2 |        | 51.4  |        | -129.6% |
| ROIC                               | 27.5% |        | 32.7% |        |         |
|                                    |       |        |       |        |         |

|                     | 31.1  | L2.2022 | 31.   | 12.2021 | +/- %  |
|---------------------|-------|---------|-------|---------|--------|
| Net working capital | 76.2  |         | 44.1  |         | 72.8%  |
| Net cash            | 102.7 |         | 148.5 |         | -30.8% |
| Equity/Equity ratio | 204.6 | 56.2%   | 193.9 | 57.4%   | 5.5%   |
| Employees (FTE)     | 2'097 |         | 1'966 |         | 6.7%   |

|                              | 2022 |      | 2021 | +/-%   |
|------------------------------|------|------|------|--------|
| Distribution per share (CHF) | 3.50 | 4.30 |      | -18.6% |

#### 3. Consolidated balance sheet

| in EUR million                                | 31.12.2022 | (%)    | 31.12.2021 | (%)    |
|---|------------|--------|------------|--------|
| Cash and cash equivalents                     | 71.2       | 19.6%  | 85.9       | 25.4%  |
| Trade accounts receivable                     | 80.7       | 22.2%  | 61.3       | 18.1%  |
| Other receivables                             | 32.4       | 8.9%   | 27.3       | 8.1%   |
| Current fixed term deposits                   | 31.5       | 8.7%   | 43.2       | 12.8%  |
| Inventories and work in progress              | 33.5       | 9.2%   | 6.5        | 1.9%   |
| Prepaid expenses                              | 8.6        | 2.4%   | 4.3        | 1.3%   |
| Current assets                                | 257.9      | 70.8%  | 228.5      | 67.6%  |
| Property, plant and equipment                 | 61.2       | 16.8%  | 53.7       | 15.9%  |
| Intangible assets                             | 11.2       | 3.1%   | 7.9        | 2.3%   |
| Non-current fixed term deposits               |            | 0.0%   | 20.0       | 5.9%   |
| Financial assets                              | 33.8       | 9.3%   | 27.7       | 8.2%   |
| Non-current assets                            | 106.2      | 29.2%  | 109.3      | 32.4%  |
| Assets  | 364.1      | 100.0% | 337.8      | 100.0% |
| Trade accounts payable                        |            | 7.2%   | 19.5       | 5.8%   |
| Current financial liabilities                 | 20.5       | 0.0%   | 0.6        | 0.2%   |
| Other current liabilities                     | 47.3       | 13.0%  | 37.4       | 11.1%  |
| Current provisions                            | 4.4        | 1.2%   | 5.3        | 1.6%   |
| Accruals                                      | 54.4       | 14.9%  | 56.3       | 16.7%  |
| Current liabilities                           | 132.4      | 36.4%  | 119.1      | 35.3%  |
|   |            | 7 40/  |            | 7.0%   |
| Non-current provisions                        | 27.1       | 7.4%   | 24.8       | 7.3%   |
| Non-current liabilities                       | 27.1       | 7.4%   | 24.8       | 7.3%   |
| Liabilities                                   | 159.5      | 43.8%  | 143.9      | 42.6%  |
| Share capital                                 | 2.5        | 0.7%   | 2.5        | 0.7%   |
| Capital reserves                              | 32.1       | 8.8%   | 31.6       | 9.4%   |
| Goodwill offset                               | -42.8      | -11.8% | -44.4      | -13.1% |
| Retained earnings and translation differences | 214.3      | 58.9%  | 205.8      | 60.9%  |
| Treasury shares                               | -2.2       | -0.6%  | -1.7       | -0.5%  |
| Equity before minorities                      | 203.9      | 56.0%  | 193.8      | 57.4%  |
| Minority interests                            | 0.7        | 0.2%   | 0.1        | 0.0%   |
| Equity  | 204.6      | 56.2%  | 193.9      | 57.4%  |
| Equity and liabilities                        | 364.1      | 100.0% | 337.8      | 100.0% |
|   |            |        |            |        |

#### 4. Information on the Kardex share

#### Share capital and capital structure

|                                | 2022      | 2021      | 2020      | 2019      | 2018      |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|
| Par value per share (CHF)      | 0.45      | 0.45      | 0.45      | 0.45      | 0.45      |
| Total registered shares        | 7'730'000 | 7'730'000 | 7'730'000 | 7'730'000 | 7'730'000 |
| Number of treasury shares      | 16'832    | 17'984    | 19'560    | 11'640    | 13'195    |
| Number of outstanding shares   | 7'713'168 | 7'712'016 | 7'710'440 | 7'718'360 | 7'716'805 |
| Registered capital (CHF 1'000) | 3'479     | 3'479     | 3'479     | 3'479     | 3'479     |
| Total voting rights            | 7'713'168 | 7'712'016 | 7'710'440 | 7'718'360 | 7'716'805 |

#### Key stock exchange figures per share

| CHF   | 2022     | 2021     | 2020     | 2019     | 2018   |
|---|----------|----------|----------|----------|--------|
| Share price high                                  | 306.00   | 313.00   | 197.60   | 178.40   | 180.00 |
| Share price low                                   | 125.80   | 184.00   | 92.30    | 112.20   | 106.40 |
| Closing rate                                      | 152.00   | 300.00   | 193.60   | 163.00   | 113.40 |
| Average volume per trading day (no. of shares)    | 9'629    | 9'667    | 23'664   | 17'167   | 17'110 |
| Market capitalization per 31.12.<br>(CHF million) | 1'174.96 | 2'319.00 | 1'496.53 | 1'259.99 | 876.58 |

#### Key figures per share

| CHF   | 2022  | 2021  | 2020  | 2019  | 2018  |
|---|-------|-------|-------|-------|-------|
| Earnings per share (EPS) <sup>1</sup> – basic   | 4.93  | 6.15  | 5.65  | 6.39  | 5.74  |
| Earnings per share (EPS) <sup>1</sup> – diluted | 4.93  | 6.15  | 5.65  | 6.39  | 5.74  |
| Price earning ratio (closing rate)              | 30.94 | 48.87 | 34.35 | 25.54 | 19.80 |
| Dividend <sup>2</sup>                           | 3.50  | 4.30  | 4.00  | 4.50  | 4.00  |
| Dividend yield                                  | 2.3%  | 1.4%  | 2.1%  | 2.8%  | 3.5%  |

<sup>1</sup> Calculated by the generally accepted method (net profit/average number of outstanding shares).

<sup>2</sup> 2022: Distribution of a dividend as proposed to the Annual General Meeting on 20 April 2023.

Kardex Holding AG is listed on the SIX Swiss Exchange, underlies the Swiss Reporting Standard and the shares are included in the SPI (Swiss Performance Index). Stock exchange symbol: KARN; Swiss securities number: 10083728; ISIN number: CH0100837282; Bloomberg: KARN SW Equity; Reuters: KARN.S. Current prices can be seen at <u>www.kardex.com</u>.

#### Share price performance

Kardex Holding AG share

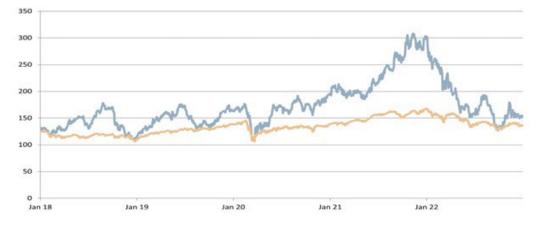


On SIX Swiss Exchange 1 January to 31 December 2022, based on the daily closing price in CHF

Registered shares of Kardex Holding AG (KARN)

Swiss Performance Index – rebased

The value of the Kardex share decreased by 49.3 % (increase of 55.0%) from CHF 300.00 to CHF 152.00 during 2022. Kardex paid a dividend of CHF 4.30 per share in April 2022. The Total Shareholder Return (TSR) for the year was -47.9% (+57.0%).



On SIX Swiss Exchange 1 January 2016 to 31 December 2022, based on the daily closing price in CHF

Registered shares of Kardex Holding AG (KARN)

Swiss Performance Index – rebased

#### Shareholder structure

As at 31 December 2022, there were 3'505 shareholders (3'117) entered in the share register. The following shareholders held 3% or more of the outstanding share capital of Kardex Holding AG at year end.

|                                     | 31.12.2022 | 31.12.2021 |
|-------------------------------------|------------|------------|
| BURU Holding AG and Philipp Buhofer | 22.1%      | 22.1%      |
| Kempen Capital Management N.V.      | 6.4%       | 4.9%       |
| Alantra Partners S.A.               | 5.4%       | 3.9%       |
| Invesco Ltd.                        | 3.1%       | 4.0%       |

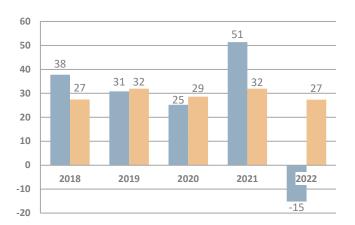
#### 5. Attractive dividend policy

Based on a resolution at the Annual General Meeting, up to 75% of the net profit (based on the consolidated group result) will be paid out to the shareholders.

Over the last four years the free cash flow has been well in excess of the dividend amounts.

#### Cash flow and dividend/payout to the shareholders

In EUR million



Free cash flow

Ordinary dividend incl. capital reduction (related to financial year)

## Industry outlook

#### 1. Intralogistics overview

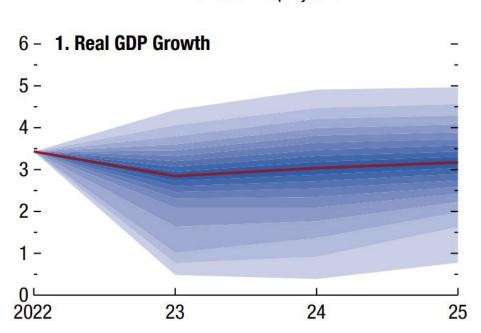
Modern, smooth intralogistics has a major impact on the productivity of companies in any industry segment and of any size. Whatever goods are stored, a reliable and efficient storage and retrieval system significantly reduces human resource requirements and logistics costs. Excellent logistics processes are expressed in the form of low stock levels, short supply times, on-time delivery, low error rate and low logistics costs. For manufacturing and warehousing/distribution companies, the task is to plan, control and monitor logistics processes with a very high degree of precision and to define the required level of automation to support those processes in the best possible way.

#### 2. Global trends and drivers impacting intralogistics

#### 2.1 Sound global demand

According to the IMF's World Economic Outlook, global economic activity is expected to grow by 2.8% in 2023 and 3% in 2024. Growth in emerging and developing countries is expected to outpace that of advanced economies by around 2.6% in 2023 and 2.8% in 2024, which bodes well for Kardex's divisions, whose strategies are geared to benefiting from geographical expansion. However, many economies are still absorbing the impact of the COVID-19 measures and the war in Ukraine, which is a concern for the outlook.

#### Distribution of forecast uncertainty around world growth



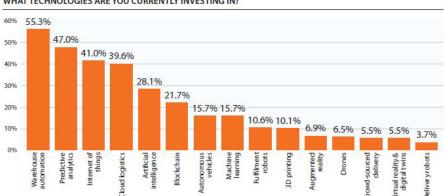
WEO baseline projection

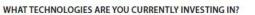
The intralogistics market as a whole moves in line with the global economy, albeit with a time lag. This cyclicality is induced in the industry by its end users, who postpone or cancel their investment activities in the event of a downturn but have to invest heavily in the event of an economic upturn. This cyclicality and the associated time lags were also observed during the great financial crisis of 2008/2009 and the subsequent economic recovery. The time lag between economic recovery and an increase in intralogistics orders and shipments is approximately 9-12 months and is determined by factors such as the capital intensity of installed solutions and the dependence of new orders on capacity expansion. Although Kardex has been affected by this cyclicality in the past, the increase in revenues from after-sales services, which account for around 30% of total revenues, has significantly reduced the impact of economic cycles on the company. During the COVID pandemic in 2020, after-sales services proved to be a stabilizing pillar in terms of revenues and margin.

#### 2.2 Growing level of automation

The shortage of human resourcescombined with the learnings of the COVID-19 pandemic will accelerate the future level of supply chain automation. It is becoming increasingly apparent that traditional supply chain models are ripe for disruption. Re-shoring of manufacturing, a faster than ever booming e-commerce industry (see below) and the adoption of robotics will have a long-term positive effect on the warehouse automation.

Based on a 2019 survey of supply chain professionals in retail, manufacturing and logistics fields, warehouse automation is already the supply chain technology with the highest investments (55%).





Source: SUPPLY CHAIN HOT TRENDS 2019, www.eft.com (EyeforTransport)

Other technologies receiving significant investments – such as predictive analytics, internet of things, autonomous vehicles or fulfillment robots – integrate well into intralogistics automation.

Future manufacturing units as well as warehouse and distribution centers will be focused on agility and a high degree of flexibility. They will utilize technologies that can change order fulfillment strategies instantly and handle big swings in demand. To further improve efficiencies, companies will leverage software solutions to connect technologies throughout the supply chain for a more holistic and efficient order fulfillment process. As manufacturing units and distribution centers look to position themselves for the future, automation have already become a key factor.

#### 2.3 Increase in e-commerce

More and more companies in the B2B and the B2C business are adapting to e-commerce resulting in an exploding number of goods which need to be stored and picked and ultimately forces these companies to optimize their supply chain and logistics. E-commerce is setting new standards, with tight delivery deadlines and first-rate service. Many companies will have to change their overall supply chain strategy; instead of a centralized distribution center, many smaller, decentralized distribution hubs must be available to ensure a quick or same-day shipping. Clear order processes and competitive returns procedures (reverse logistics) are absolutely essential for success in the e-business. Through the implementation of new affordable, flexible automated storage and retrieval systems, the reverse logistics process can be simplified and managed at lower cost.

#### 2.4 Industry 4.0

The broad penetration and application of modern information technology creates a network where smart machines can share information with one another and can work independently or together with humans, making modern production and distribution more flexible and efficient. Smart machines are able to collect data, analyze them and take decisions or provide advice upon them in a decentralized way. Industry 4.0 drives the change from central to embedded intelligence and this leads to fundamentally new requirements to the intralogistics core technology and product ranges.

All these changes will affect total supply chains, taking intralogistics to the next level. Smart businesses will need smart products and solutions, where real-time data will be shared among machines, robots, employees, suppliers and customers to enhance the productivity, reliability and ultimately profitability.

#### 2.5 Cloud computing

The provision of hosted services over the internet enables companies, organizations and private individuals to consume shared computing resources (e.g. virtual machines, servers, storage or applications) as a utility rather than having to build and maintain local servers. Cloud platforms are enabling new business models and services, such as Software as a Service (SaaS), also known as on-demand software.

Decentralized and cloud-based supply chain software systems make it easier to gather, monitor, analyze, and distribute data across the entire value chain. It helps in improving inventory management, mobile field services, and mobile sales, along with compatibility with other mobile devices. Besides eliminating the cost for hardware acquisition, installation, maintenance and even IT staff, organizations can benefit from automatic software updates over the air, accessibility from any location and cross device compatibility. These are new revenue opportunities for intralogistics providers, uplifting after-sales services into a new dimension. This will not only generate more predictable and stable revenues but also help increase customer efficiency and loyalty.

#### 2.6 Ageing society and stronger health and safety regulations

One of the great achievements of the last century is the rise in life expectancy, not only in the western economies but also in developing countries. This accomplishment combined with a reduction of birth rates leads to changed demographics and thus comes with significant long-term economic consequences. An aging population means fewer people in their working age in the economy, which leads to a supply shortage of qualified workers, higher labor costs, increased health care costs and pension commitments.

This leads to not only a need for an increased level of automation in the entire supply chain from sourcing to manufacturing and logistics, but also to adjustments on the machines, tools, devices and software to suit the requirements of an aging workforce. The industry will have to adapt to support and accommodate the user needs of the aging workforce. More and more organizations are starting to deploy ergonomically designed automation systems which help workers complete their tasks while simultaneously eliminating the risk of injury. In addition to enhancing safety, the devices can boost productivity and reduce a variety of costs – positioning both workers and companies for operational success.

In addition to the higher standards required for an aging workforce, companies will have to comply with stronger health and safety regulations. This can also be seen as an opportunity for companies to modernize and automate their intralogistics.

#### 2.7 After-sales service and support

Economic constraints resulting in pro-longued utilization of assets increase the importance of improved product or system related services (which include support, refurbishment, maintenance, repair and engineering services. Due to increasing competition, intralogistics companies need to differentiate from low-cost providers from emerging markets and are therefore focusing on providing consultative value added services to their customers after the normal sales cycle.

With the implementation of new technologies under the "Industry 4.0" framework, intralogistics providers will be able to monitor their installed machines and systems in real time and provide valuable operational efficiency insights to their customers. This helps customers to proactively identify and address potential technical or operational problems and increase uptime of their installed base. The machine downtime can drastically be reduced as customers are enabled to order repair tasks or replacement of critical parts before shut-downs of the installations occur. In addition, manufacturers can use predictive methods to define correct spart levels and offer maintenance-per-use packages for their customers.

#### 2.8 Urbanization & smart cities

Half of the world's population now lives in cities. By 2050, this figure is predicted to rise up to 75% *(source: UN DESA 2018).* The largest movements towards urban centres are taking place in Asia, Africa and Latin America. The interplay between modern information and communication technologies and wireless sensor networks allows cities to become smart cities. Goods, people and traffic flows can be managed in a decentralized and adaptive way. The local production and distribution of goods lead to a growing demand for smart intralogistics solutions. As the need for same-day (or even faster)

delivery will increase, goods have to be stored closer to the end-customer, but storage space in cities is limited and expensive. Therefore new distribution and warehouse concepts will emerge.

Large distribution centers will still be necessary to store a high number of products & goods. In addition there will be a trend to smaller or shared warehouses/distribution centers in the suburban areas and "micro depots" in the cities. This trend leads to increasing demand for scalable, flexible and automated storage solutions.

Micro-fulfillment goes hand in hand with urbanization. This concept is about placing small-scale warehouse facilities in accessible urban locations close to the end-consumer – tiny, city warehouses that utilize highly automated systems to fulfill online orders with greater efficiency and substantially reduced delivery times.

## Competitive landscape

#### 1. Competitors

Overall, Kardex competes with many large and mid-size companies which are operating businesses similar to one or both divisions of Kardex. It is important to note that Kardex is not competing as a whole because it operates with two independent entrepreneurially managed divisions.

Kardex Remstar enjoys market leadership in the dynamic storage solutions market in many countries with a global market share of approximately >35%. A long-standing experience in the dynamic storage and retrieval market, a broad range of automated storage and retrieval solutions, a global presence and first-class after-sales services are the factors that give Kardex Remstar an edge over its competitors. Today, about 80% of total revenue of Kardex Mlog is generated in the German market. Kardex estimates that Kardex Mlog ranks amongst the first three manufacturers of stacker crane modules in Germany and is leading in certain niche markets.

The following table lists various peers (direct competitors) of Kardex by division.

| Kardex Remstar                           | Kardex Mlog                                      |
|--|--|
| Modula S.p.A.                            | SSI Schäfer Fritz Schäfer GmbH                   |
| Hänel GmbH & Co. KG                      | Dematic/HK Systems (Kion Group)                  |
| Ferretto Group S.p.A.                    | Swisslog (KUKA Group)                            |
| SSI Schäfer Fritz Schäfer GmbH           | KNAPP AG   |
| Weland Solutions AB                      | viastore SYSTEMS GmbH                            |
| Electroclass                             | LTW Intralogistics GmbH                          |
| Constructor (Gonvarri Material Handling) | Stöcklin Logistik AG                             |
|  | Vanderlande Industries (Toyota Industries Corp.) |
|  | Körber AG  |
|  | Gebhardt Intralogistics Group                    |

The majority of Kardex Mlog's peer companies is held privately or is a division of a larger group.

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