

White Paper

Calculating the Cost of Storage Space



Space – the next savings frontier

Regardless of where in the world your manufacturing or distribution operations are located, every square meter is a significant cost. By implementing automated storage and retrieval systems, you can maximize your inventory density and reduce storage space costs.

While industrial space used for manufacturing and distribution operations may be easy to come by, the cost of rent depends on where the facility is located. The Cushman and Wakefield Marketbeat Report for Germany in Q1 2023¹ reveals a moderate start to the year with take-up being 49% below that of Q1 2022 or 20% below the Q1 10-year average. Additionally, investment transaction volume for logistics and industrial properties in Germany during Q1 2023 was €795 million – a 79% drop from Q1 2022 making it the weakest opening quarter since 2013.

Despite the generally lower take-up rates, logistics prime rent in Germany has seen a 16% rise or €8/m²/month increase on average over the last 12 months. For the same time period the UK experienced a 13% prime rent growth YoY². The excess demand for prime space in the face of a lack of supply as well as significantly increased construction costs are the drivers for this. It is expected that costs will continue to rise partly due to the European Central Bank's pursuit of high interest rates.

This puts warehouse and distribution centers in a bind – not only is there limited prime industrial space available, but it's more expensive than ever and rising.

Table 1: German industrial space prime rent Q1 2023¹

Markets	Prime Rent (€/m ² /month)	Change YoY	Outlook YE 2023
Berlin	7.20	18%	Up
Düsseldorf	7.75	24%	Up
Frankfurt	7.95	14%	Up
Hamburg	7.85	16%	Up
Munich	9.25	16%	Up
Top-5 Markets	8.00	18%	Up
Outside Top-5**	6.03	16%	Up
Germany**	6.37	16%	Up

* Rents for the top-5 markets, outside top-5 and Germany reflect average of the respective prime values of the included markets/clusters

** Germany = 24 Logistics-Industrial-clusters, Outside Top-5 = 20 clusters

Given that manufacturing and distribution operations store non-palletized inventory (cases and eases) in one of two ways:

- On traditional, static commercial or industrial shelving³ made of upright posts, with formed steel sheet panels as horizontal shelves, and end and back braces or sheet steel back and side panels for support.
- On pallet rack⁴ with bases, posts and decking material provide larger format storage of unit-loads of bulk materials.

It is therefore imperative that every square meter of floor space be carefully considered.

Automate to save space

To minimize square meter expenses, regardless of the type of facility in operation or its location, it makes sense companies would want to do more with the space they currently possess. Fortunately, when it comes to maximizing storage density in cases and eaches item handling, another option exists: self-contained, automated storage and retrieval systems (ASRS). These systems offer higher density storage in a more compact footprint than manual equipment can provide. They include:

Horizontal Carousel Module (HCM)

Consisting of bins mounted on an oval track that rotate horizontally to deliver stored items to an operator. These automated storage and retrieval systems save up to 60% of floor space when compared to standard shelving and rack.

[Learn more about HCMs.](#)



Vertical Carousel Module (VCM)

Comprised of a series of shelves that rotate around a track – similar to a Ferris wheel – these automated storage and retrieval systems quickly deliver stored items to an ergonomically positioned work counter at the operator's command. When compared to static shelving and rack, they save up to 75% of floor space.

[Learn more about VCMs.](#)



Vertical Lift Module (VLM)

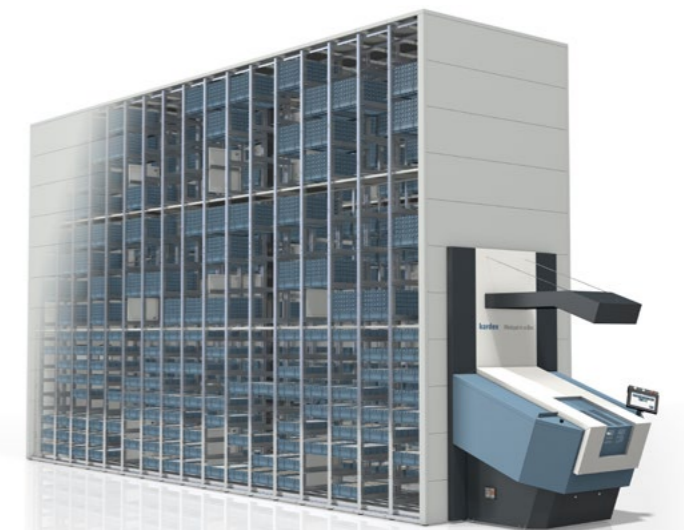
An enclosed automated storage and retrieval system that incorporates two columns of trays with a central inserter/extractor that automatically locates and retrieves stored trays from both columns, then presents them to the operator at a waist-high pick window. These systems save up to 85% of floor space compared to static shelving and rack.

[Learn more about VLMs.](#)

Vertical Buffer Module (VBM)

In the middle of a multi-segment shelving system is an aisle, where a moveable mast with a telescopic gripper operates. The control unit sets the gripper in motion picking a bin and transporting it to a picking station.

[Learn more about VBMs.](#)



Investing in automation

Implementing one of the four types of high-density ASRS immediately reduces the amount of square meters required to store items within static shelving and pallet rack in two ways: one, by utilizing previously unused overhead space, and two, by compressing items stored within the technology for greater storage capacity.

An investment in ASRS enables much more highly compressed storage of the same number of stock keeping units (SKUs) previously held in static shelving, but within a smaller footprint. The resulting increase in available floor space can then be leveraged in one of two ways:

1. By storing a greater quantity of existing SKUs, or an expansion in the number of different SKUs, within the same amount of existing facility space.
2. Through repurposing the space via an internal expansion, such as the adding other revenue-generating activities.



How much does storage space cost?

Depending on the type of ASRS selected, the resulting space savings will range from 65% to 85%. To determine the potential cost savings associated with replacing static storage shelving or rack used within a manufacturing facility's parts, stockroom, warehouse or toolcrib area or within a distribution warehouse with ASRS, reduce the current cost of total square meters by a sample 80%.

This figure represents the amount of square meters saved from implementing an automated storage system. To determine the actual cost of the space, multiply the amount by your current rent per m². For example, a manufacturing facility in Munich recovering 5,000 m² could save over €46,000 to the bottom line.

$$5,000 \text{ m}^2 \text{ Space Savings} \times \text{€}9.25 \text{ Cost per m}^2 = \text{€}46,250 \text{ Potential Savings}$$

The value of added revenue.

Because an investment in an ASRS will free up anywhere from 65% to 85% of existing square meters currently used by static shelving or rack in a manufacturing parts, stockroom, warehouse or toolcrib area or within a distribution warehouse, the recovered space can be repurposed for other value added – and revenue generating – activities.

 Calculate your potential space savings with ASRS

Adding VLMs and HCMs saves 73% floor space in DC Dental's Baltimore, USA Warehouse

Based in Baltimore, USA DC Dental is the fastest growing, full service dental supplier in the USA, delivering competitively priced supplies to dental professionals in the mid-atlantic region. Within their warehouse, the company stores more than 20,000 of the most commonly used dental products – from burs to bibs to curing lights.

The company increased its warehousing volumes by 54% with an acquisition, filling its existing 2,787 m² facility to near capacity. To accommodate this uptick in inventory, DC Dental moved to a three-zone, pick-and-pass fulfillment strategy that incorporates two, 6.4-meter-tall Vertical Lift Modules Kardex Shuttle and four 17-meter-long Horizontal Carousel Modules.

By using these ASRS, roughly 1,208 m² of shelving was consolidated into 325 m² – a 73% space savings. This recovered floor space actually allowed DC Dental to reduce the overall footprint of the facility from 2,787 m² to 1,858 m².

Further, the company resigned its lease, saving nearly \$1 million USD (€921,500) in rent and utilities over the next 10 years and further justifying the investment in automated storage and retrieval equipment.



About Kardex

Kardex is a leading intralogistics solution provider of automated storage, retrieval, and material handling systems. With two entrepreneurially managed divisions, Kardex Remstar and Kardex Mlog, as well as Corporate Ventures (Rocket Solution, SumoBox, Kardex AutoStore 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 and are partners for their customers over the entire life cycle of a solution. This begins with the assessment of customer requirements and continues through planning, realization and maintenance of customer-specific systems.



Contact us

Bibliographical references

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- ³ MHI, "Glossary>Shelving." accessed May 14, 2023. <http://www.mhi.org/glossary?q=shelving>
- ⁴ MHI, "Glossary>Rack." accessed May 14, 2023. <http://www.mhi.org/glossary?q=rack>