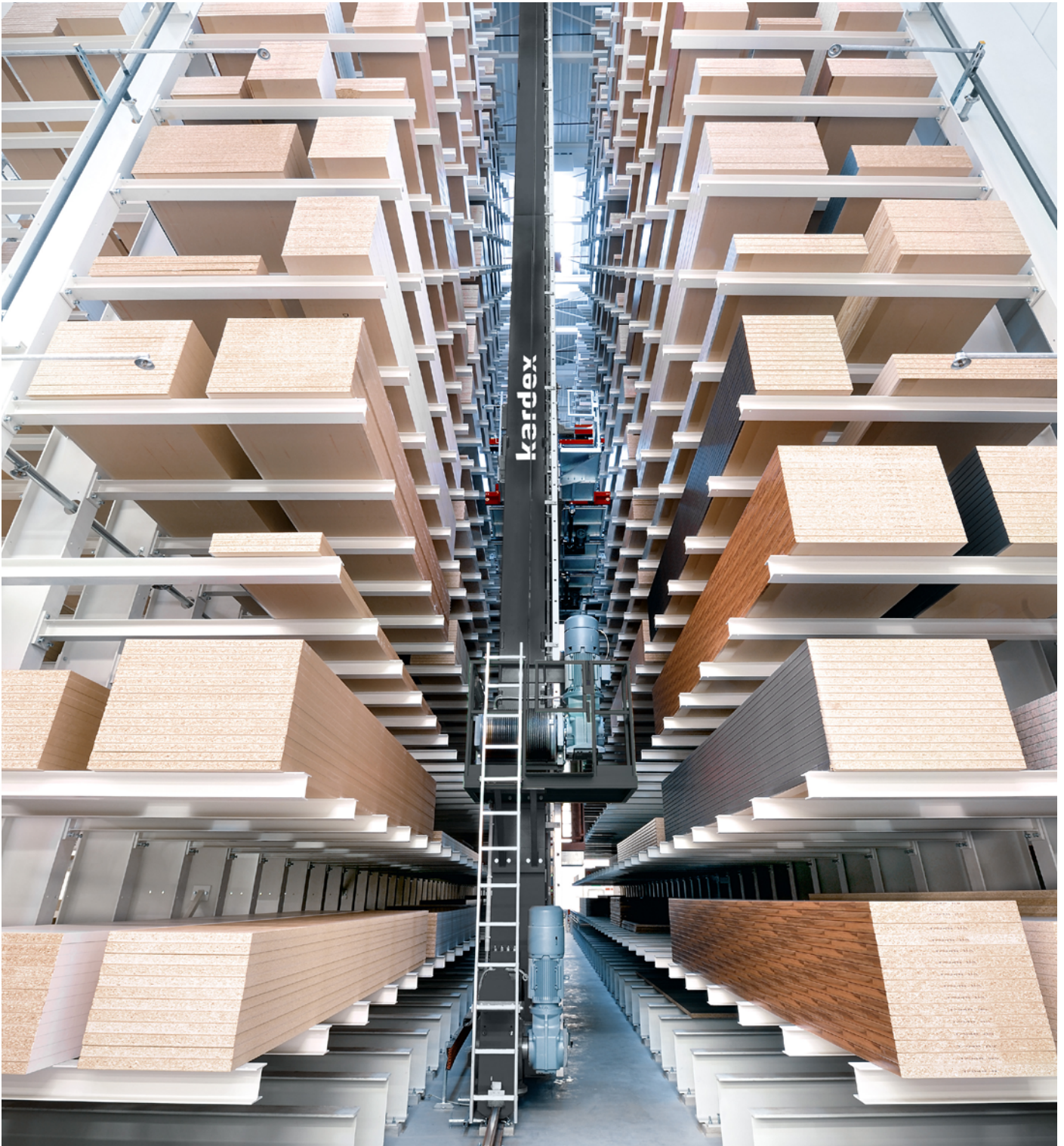


White Paper

Picking in a Panel Warehouse





Is it time to automate?

There are many different solutions for moving and storing large-format wood and decorative panels: fully automated storage and retrieval machines, semi-automated picking platforms, and the classic side-loading forklift. This article looks at the most important decision criteria.

Storing large wood and decorative panels poses a major challenge for the lumber trade and wood processing industry. The high-valued objects, which weigh up to 500 kilograms, must be picked and conveyed quickly, safely, and without damage. In addition to their weight, the dimensions are an important factor. At approximately 2.10 meters wide, the full-format pieces are up to 5.60 meters in length and the half-formats are typically up to 2.70 to 2.80 meters.

Automated warehouses: 3 planning tips



Ensure the layout will adapt to changing requirements



Secure high availability through redundancy



Match load pick-up devices to stored goods

Full or half-format

Dimensions are not defined exactly. The length and width depend on each manufacturer's production machines. From the manufacturing site, the panels move to retail trade or are processed further – either in their entire length or cut into half-formats. Storage and retrieval machines (SRMs) with side-loading forklifts or mobile picking platforms (common features in retail logistics) convey both sizes.

The different devices and their productivity vary greatly: With side-loading forklifts, the panels can only be raised in stacks from the racking shelf. For individual picking, the stack must first be put down in the aisle and the elements required must be moved manually to an order pallet. Then, the remaining stack is lifted back onto the rack. With this method, a side-loading forklift can carry out a maximum of 50 picks per shift. However there is a continuous latent risk of personal injury and serious property damage caused by falling panels.

Reduced personnel costs

Picking platforms, available in numerous variants, achieve significantly higher safety and performance figures. There are detachable platforms that can be fitted to side-loading forklifts. In a two-person operation, these enable manual panel picking directly at the racking shelf, but they are only suitable for half-formats. The key advantage of this solution is flexibility: the platform can be removed from the forklift in just a few minutes. Performance figures show up to 100 picks per shift. Self-propelled platforms, in combination with suction cross-beams, function as load pick-up devices in one-person operations and achieve similar figures.

The advantage of this variant lies primarily in reduced personnel costs. Companies must, of course, weigh this against the significantly higher investment required. The procurement costs for a self-propelled platform depend greatly on the configuration in each case. Costs of 300,000 euros and upwards per platform are not unusual. For this price, however, you receive a customized one-off machine optimally tailored to your specific requirements.



Advantages of fully-automated solutions

-  Makes full use of spaces up to 24-meters high
-  Up to 300 picks/shift
-  No personnel required
-  Higher storage density

300 percent space gains

The investment calculation must also take space costs into account – and this is where a fully automated solution comes into its own. Panel warehouse operators using storage and retrieval machines can make use of available space, up to 24-meters high. With the other solutions described above using manually operated forklifts and platforms, the height limit is approximately eight meters. The 300 percent space gains are related to the design of the storage and retrieval machines. Guided by rails, these can operate accident-free at great heights and with centimeter precision. Human-operated picking platforms or side-loading forklifts cannot achieve these working heights. The SRM does not need to maneuver and requires only slightly more space than its widest storage item. They also facilitate up to three-deep storage.

Similar to the self-propelled platform, the fully-automated SRM also features a suction cross-beam as the load pick-up device. As the warehouse is higher, it is possible to store more articles in a smaller space. This minimizes travel distances and travel times resulting in a significantly higher picking performance. In fact, a German kitchen manufacturer recorded their peak value to date at a production location.



Die Platten werden direkt im Lager mithilfe von Saugtraversen aufgenommen

Necessary redundancy

Contrary to popular opinion, fully-automated solutions are not only highly efficient but also very flexible. With some forethought in the planning stage, companies can subsequently change their warehouse layout and adjust the dimensions of the stored panels to meet changing market requirements. It is also possible to adapt the picking performance of an SRM to match current demand without time-consuming personnel planning. The production planning originates, after all, in the IT system. Companies who build at least a two-aisle warehouse also have the necessary redundancy system in the event of technical hitches.

Summary: Especially for production plants with good capacity utilization, fully-automated panel storage with SRMs is the optimal solution. This is particularly the case if a company plans to build a new warehouse on a greenfield site. It allows them to take full advantage of the potential space-saving SRMs. The necessary investment levels of approximately 2 million euros upwards are significantly higher than other available solutions.

However, considering the higher picking performance and space and personnel cost savings, the acquisition frequently pays for itself within the first three years. The seven-figure investment sums frequently deter wholesale wood distributors and they tend to opt for side-loading forklifts or mobile picking platforms. In times of low-interest rates, a shortage of skilled workers, increasing labor costs, and a lack of logistics spaces, this decision should be subject to critical review.



Picking methods in the panel warehouse

Method	Picks/shift	Personnel	Max. height (m)	Aisle width (m) approx.	Safety
Fully automated with SRM	300	0	24	2.3	****
Self-propelled platform	100	1-2	8	3.4	***
Detachable platform	100	2	8	6.5	**
Side-loading forklift	50	2	8	6.5	*