

# SEMI-AUTOMATED SOLUTIONS

**2020**  
**2021**

Extract from general catalog

**ssi-schaefer.com**

**Chapter H**



**SSI SCHÄFER**

# Box and pallet conveyor technology

In the face of growing demands from Industry 4.0, digitization, and internet shopping, high-capacity intralogistics are a must. With efficient processes and a bespoke degree of automation, you can master all challenges posed by a changing business landscape. Yet some operators also wish to retain an element of flexibility too. For these customers, semi-automation is the key to an efficient installation. SSI SCHAEFER offers solutions for gradual automation that grow in line with the customer's needs.

For example, cost-intensive picking processes can be significantly

improved and accelerated through semi-automated solutions such as vertical lift modules. This results in more efficient processes, greater productivity, lower costs, and shorter delivery times.

Semi-automated storage systems, such as mobile racking and channel storage systems, achieve operational efficiencies by automating individual work steps and allowing the available space to be utilized in the most effective manner. Depending on the selected load carrier and the necessary speed, the storage density can be increased further or rack costs

can be reduced. Appropriate software products with transparent monitoring and control functions can cover all logistical requirements and ensure the systems are perfectly integrated into the overall intralogistics landscape.

For SMEs and major corporations alike, these are decisive factors in maintaining and enhancing their market position. SSI SCHAEFER is one of the few specialists capable of adapting solutions to meet your exact needs – and with everything supplied from a single source.







**SSI LOGIMAT® Vertical Lift Module** page H2



**SSI ORBITER®** page H8



**Mobile Racking Systems** page H12

# SSI LOGIMAT®

## Vertical Lift Module



**The dynamic solution for the storage and picking of small parts.**

The Vertical Lift Module, with its numerous basic functions and unique additional options, not only significantly improves the performance of warehouse processes, but also ensures the ergonomic and safe operation of the warehouse. As an autonomous system or as a module integrated into an automated application – the SSI LOGIMAT is characterized by its universal usability.



- ▶ **Highly convenient** goods-to-person principle
- ▶ **Compact design** has economic and environmental advantages
- ▶ **Travel times reduced** by more than **70 %**
- ▶ Compared with static solutions, the Vertical Lift Module requires up to **90 % less warehouse space**
- ▶ Automated processes and ergonomic design **improve performance** by over **20 %**



**The SSI LOGIMAT offers numerous basic functions as standard and impresses as a high-performance storage and picking system.**

Thanks to its scalable concept, the scope of functions of the SSI LOGIMAT can be tailored precisely to the individual customer requirements. To implement the standard design, SSI SCHAEFER offers numerous options that expand the functions in terms of ergonomics, performance, and flexibility.

Boxes /  
containersModular  
shelvingLongspan  
rackingPallet  
rackingCantilever  
rackingMezzanines /  
platformsOn-line shelving /  
KDR shelvingSemi-automated  
solutionsLogistics  
systems

Appendix



#### Exclusively from SSI SCHAEFER

- ▶ **LogiTilt** tilting mechanism of the tray for ergonomic retrieval of goods and reduced reaching depth
- ▶ **Touch user interface** with intuitive navigation
- ▶ For maximum utilization of the storage space, the **LMB** bin series of sorting accessories is optimized for a tray depth of 800 mm
- ▶ Innovative **tray design** with a focus on space and weight optimization

#### Compact

- ▶ Maximum use of the available height
- ▶ Visual, automated filling rate display
- ▶ Defragmentation and relocalization of the stored trays
- ▶ Stock addition sequence with fixed height for highly concentrated storage
- ▶ Stock addition sequence with intelligent height optimization (IHO)
- ▶ Storage of trays in 25 mm increments

#### Safe

- ▶ Automated monitoring of the storage bins ensures that the goods to be stored are within the permitted dimensions both horizontally and vertically
- ▶ Vertical shaft monitoring for checking possible tray protrusions before the elevator approaches to prevent unintentional access during storage or retrieval
- ▶ Predefined access rights to trays and functions
- ▶ Programmable logic controller (PLC)

#### Robust

- ▶ Modular design with standard components
- ▶ Low-maintenance system thanks to high-quality components and robust design
- ▶ Range of drive options for different requirements
- ▶ Elevator with a low-maintenance gear drive

#### Ergonomic

- ▶ Visual indication of the storage position by a laser pointer
- ▶ Continuous confirmation light barrier under the operating opening to optimize picking performance
- ▶ Up to four operating openings per Vertical Lift Module in any position
- ▶ The height of the tray output can be adapted to the height of the employee



# Standard meets individuality

The SSI LOGIMAT comes in a wide selection of standard model widths and depths.

Technical Data		
Usable tray dimensions (mm)	A width (mm) incl. paneling	B depth (mm) incl. paneling
1,825 x 625	2,370	2,712
1,825 x 815	2,370	3,092
2,025 x 625	2,570	2,712
2,025 x 815	2,570	3,092
2,425 x 625	2,970	2,712
2,425 x 815	2,970	3,092
2,825 x 625	3,370	2,712
2,825 x 815	3,370	3,092
3,025 x 625	3,570	2,712
3,025 x 815	3,570	3,092
3,225 x 625	3,770	2,712
3,225 x 815	3,770	3,092
3,625 x 625	4,170	2,712
3,625 x 815	4,170	3,092
4,025 x 625	4,570	2,712
4,025 x 815	4,570	3,092

- Minimum height:

2,450 mm
- Maximum height:

up to 23,850 mm  
in 100 mm increments
- Tray load capacity:

up to 700 kg
- Machine load capacity:

up to 60 tons  
in standard design  
(higher load capacity available upon request)



RAL 5014 (Pigeon blue)	RAL 9010 (Pure white)	RAL 7024 (Graphite grey)	RAL 7035 (Light grey)
Other colors available on request. Color deviations may occur due to monitor or printer settings.			

Boxes /  
containers

Modular  
shelving

Longspan  
racking

Pallet  
racking

Cantilever  
racking

Mezzanines /  
platforms

On-line shelving /  
KDR shelving

Semi-automated  
solutions

Logistics  
systems

Appendix

## Control & Software

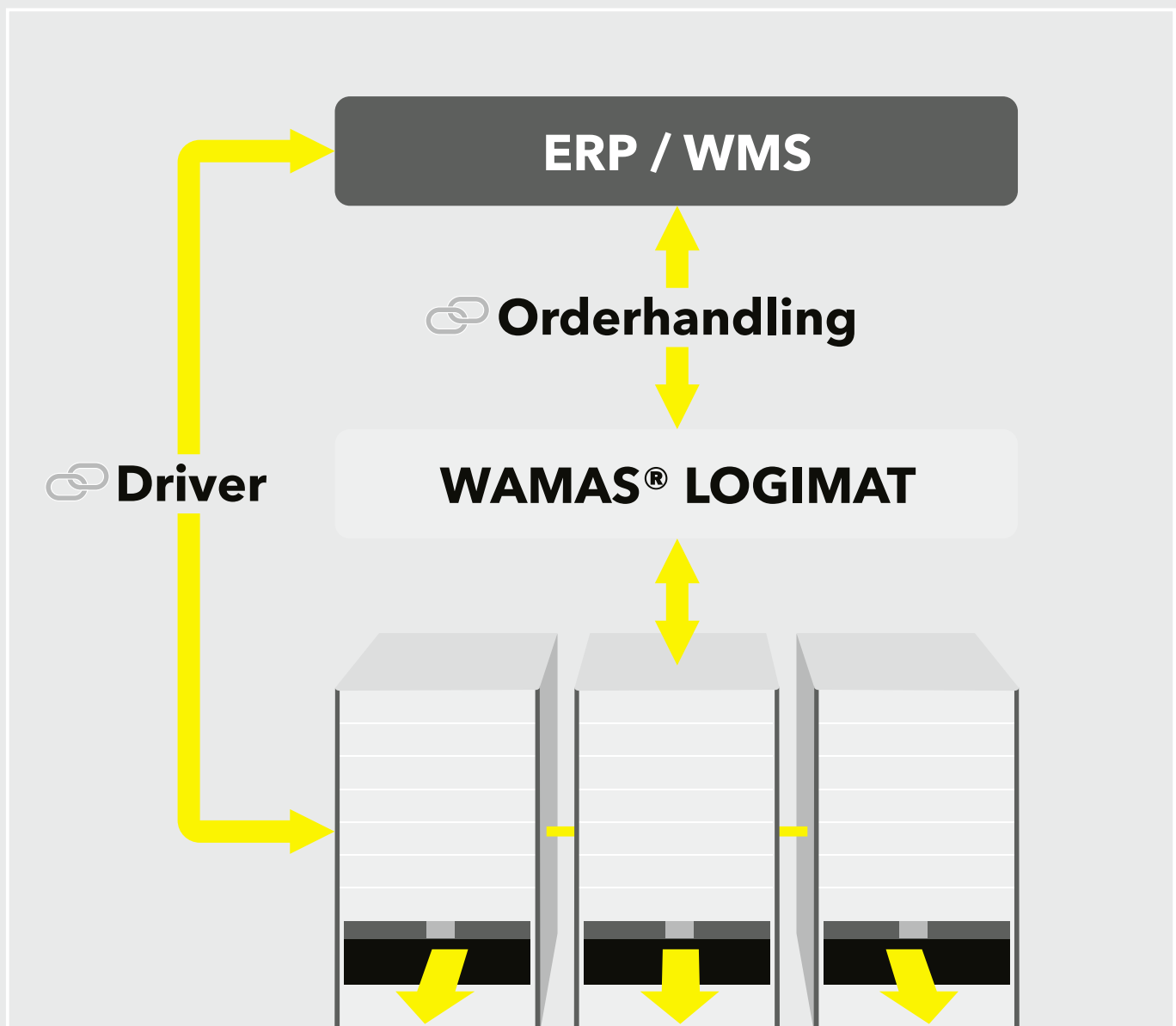
### From simple applications to complex warehouse management

The SSI LOGIMAT Vertical Lift Module is equipped with a standard controller (PLC). To connect the Vertical Lift Module to the customer's WMS or ERP system, there is a choice of the required interfaces and proprietary WAMAS® LOGIMAT software.

This means every project is based on a straightforward and reliable solution that can be individually tailored to the requirements of your logistical business processes with simple upgrades. Operation is easy with a self-explanatory touch panel user interface.

### Your Benefits

- ▶ **Streamlined warehouse processes** for picking and replenishment
- ▶ **No unnecessary actions**
- ▶ **Simple integration** into existing processes
- ▶ **Minimization of errors**
- ▶ **Scalability**
- ▶ **Intuitive user interface** with touch panel







Boxes /  
containers

Modular  
shelving

Longspan  
racking

Pallet  
racking

Cantilever  
racking

Mezzanines /  
platforms

On-line shelving /  
KDR shelving

Semi-automated  
solutions

Logistics  
systemes

Appendix

## SSI ORBITER®

### Maximum performance in channel storage systems

Increasing order numbers and the associated need for efficient storage options for pallets of varying depths requires flexible, space-saving systems. The changing market requirements demand the top to bottom optimization of entire storage volume – while at the same time achieving a high level of efficiency and cost-effectiveness.

Channel storage systems concentrate on maximizing the use of space while keeping operating costs low. Thanks to the compacted storage, they use the available space perfectly.

This technology is particularly well suited to handling large amounts of items with low diversity, such as in the food and beverage industry or in temperature-controlled environments that require a lot of power.

With the SSI Orbiter, SSI SCHAEFER has both semi-automatic and fully-automatic systems to achieve greater availability, service quality and supply capability, in addition to efficient utilization of space.





## Your Benefits

### ► Performance

Parallel work steps create high picking performance

### ► Scalability

If the stock turnover needs to be increased later, adding additional channel vehicles is simple and straightforward

### ► Availability

Using multiple channel vehicles ensures the optimum utilization of the system

### ► Cost and energy efficiency

The high level of space utilization minimizes operating costs. The high storage density creates maximum energy efficiency

### ► Durability and safety

Work is only carried out at the ends of the channels

## Channel storage system: A space-saving miracle

Channel storage systems enable compact storage. Several storage units are included one after the other in channels. The operation of the system is carried out by channel vehicles. Only the loading unit at the very front of each channel can be accessed. For this reason, this system is most suited to large volumes with low item diversity. The channels are therefore usually filled with a single item.

## The optimal solution

In semi-automatic applications, when connected to a docking station, the innovative SSI Orbiter offers optimal utilization of space alongside extremely high flexibility, maximum personal safety, sustainability, and ease of use in the channel storage system. It also enables vastly improved pallet handling efficiency.

### Safe

- The docking station remains at the front of the channel, restricting access to the channel
- Safe transport in the warehouse – the SSI Orbiter locks onto the docking station when transferring between channels
- Maximum safety in the warehouse thanks to the integrated Safety PLC

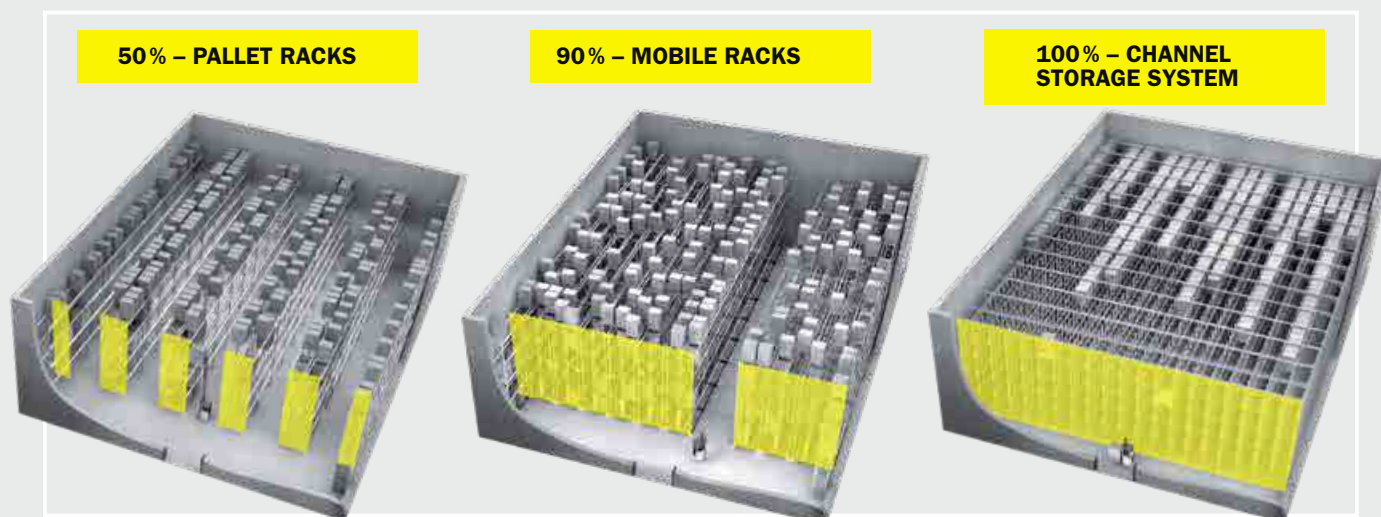
### Flexible

- Mixed LIFO/FILO operation possible within the same warehouse
- Various pallet types can be handled
- Can be implemented as either a semi-automated or fully automated system
- Suitable for use in earthquake-prone areas
- Suitable for use in deep-freeze environments

### User-Friendly and efficient

- Simple and fast insertion into a rack thanks to precisely measured entry tolerances
- User-friendly operation thanks to pictograms on the remote control
- Parallel use of multiple SSI Orbiter creates maximum efficiency

## Compact. More compact. Channel storage system.



## SSI ORBITER®: How it works

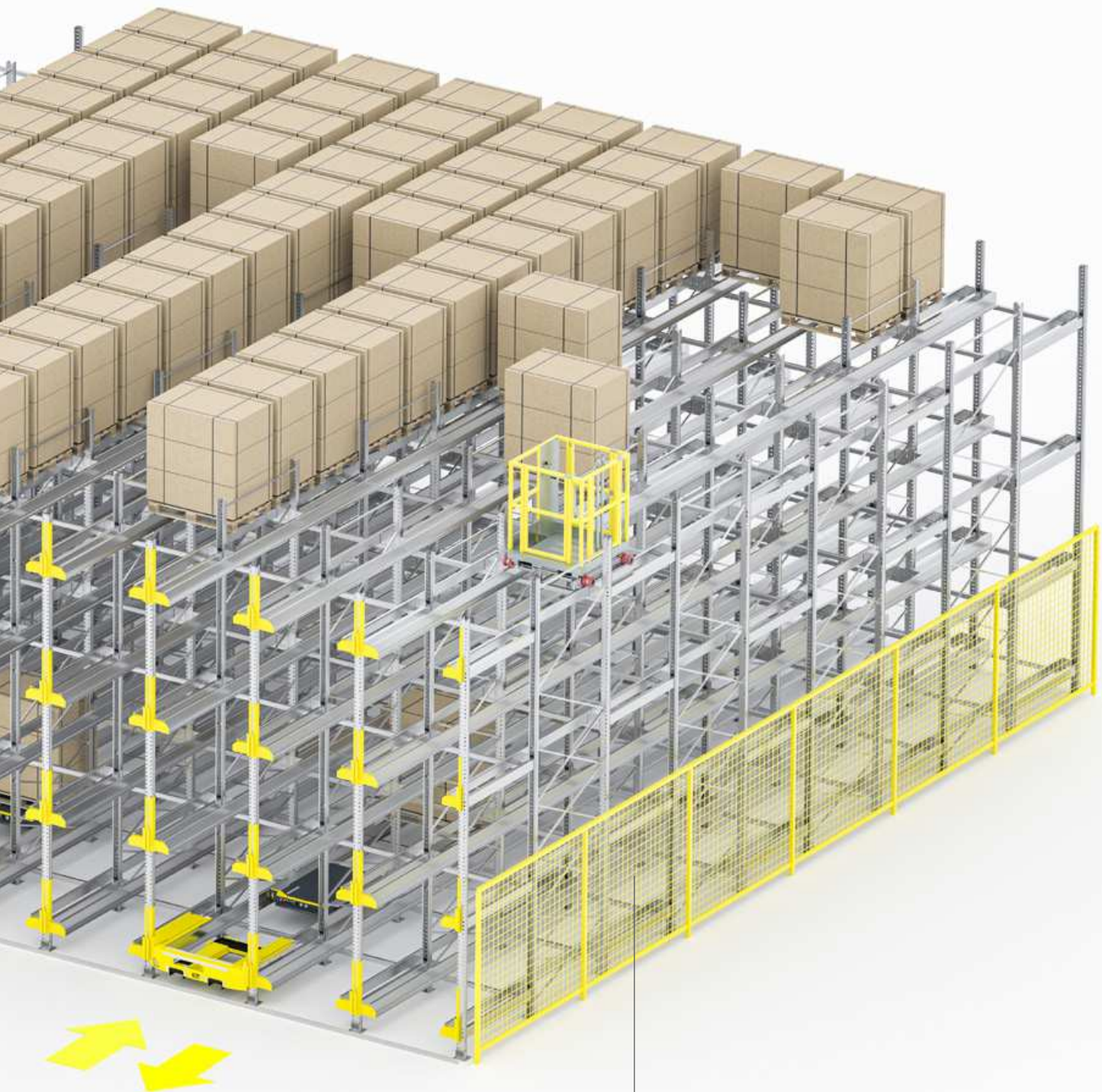


**1.** Bin stackers pick up the docking station and the SSI Orbiter and insert it into the centering console of the required rack channel. The channel storage system is fully functional even with just one SSI Orbiter.



**2.** The pallets to be loaded are picked up by the bin stacker and placed on the SSI Orbiter.





**3.** Movement commands are transmitted to the channel vehicle using a wireless remote control. The SSI Orbiter collects the pallets with a small lift and transports it to the next available storage location in the channel.

**4.** After unloading the pallets, the SSI Orbiter automatically returns to the docking station. The functional unit consisting of docking station and SSI Orbiter can be used in a different channel straight away.

**5.** Components such as retrieval platforms and safety fences guarantee the highest level of personal safety.

Boxes /  
containersModular  
shelvingLongspan  
rackingPallet  
rackingCantilever  
rackingMezzanines /  
platformsOn-line shelving /  
KDR shelvingSemi-automated  
solutionsLogistics  
systems

Appendix

# Mobile Racking Systems: More storage on less space



PDF

Our mobile racking systems not only let you optimize your space requirements, but also free up additional room. The systems offer a maximum amount of flexibility with respect to size and quality of your stored goods, which may vary from

extremely large and heavy goods to documents, apparel, small parts, spare parts, tires, or tools.

Our solutions feature the highest quality, various combinations, and an extensive number of adjustment

options. A modular concept provides the capability of assembling the system according to customized requirements.

**i** **Changed frame depth in 2021**  
for **Mobile Racking Systems**  
from 1,050 mm to **1,100 mm**





### Your Benefits

- Increased **warehouse capacity** up to 90%
- **Space savings** of up to 45%
- **High efficiency** and **durability**
- Possible combinations with **conveying system** and **automated guided vehicles**

## Efficient space utilization for optimum warehouse logistics

Boxes /  
containersModular  
shelvingLongspan  
rackingPallet  
rackingCantilever  
rackingMezzanines /  
platformsOn-line shelving /  
KDR shelvingSemi-automated  
solutionsLogistics  
systems

Appendix

### Pallet racks in conventional arrangement



#### Logistical data in comparison

Total storage area	625 m <sup>2</sup>
Of which rack area	223 m <sup>2</sup>
Proportion of aisle area	402 m <sup>2</sup>
Floor space utilization	36 %
Pallet locations	1,152
Area loss	64 %

### Mobile racks for optimized use of space



#### Logistical data in comparison

Total storage area	353 m <sup>2</sup>
Of which rack area	223 m <sup>2</sup>
Proportion of aisle area	130 m <sup>2</sup>
Floor space utilization	63 %
Pallet locations	1,152
Area gained	44 %

### Mobile racks for the requirement of higher storage capacity



#### Logistical data in comparison

Total storage area	625 m <sup>2</sup>
Of which rack area	463 m <sup>2</sup>
Proportion of aisle area	162 m <sup>2</sup>
Floor space utilization	74 %
Pallet locations	2,304
Capacity gains	100 %

## Flexible Rack Systems for large and heavy warehouse goods

Heavy load modular shelving systems for pallets and oversized goods are designed for the most demanding weight and size requirements of the goods to be stored. The modular construction also allows customized solutions.

### **Suitable for Use in Cold Storage Environment**

Our rack systems, our competence in conveyor technology, and our powerful electric motors combined make our systems the number one choice for use in cold storage warehouses.

### **Safe Work Environment**

The pallet mobile rack systems are equipped with emergency-stop buttons, photoelectric access barriers, manual release systems, proximity sensors as well as photoelectric safety barriers. All of these features ensure that our solutions contribute significantly to the smooth and safe working environment in your warehouse.





### Your Benefits

- ▶ Increased **warehouse capacity** up to 90%
- ▶ **Space savings** of up to 45%
- ▶ Reduced operating and real estate costs as a result of **excellent system space utilization** (surface area utilization of up to 80%)
- ▶ Maximum **storage density**
- ▶ Increased **energy efficiency**
- ▶ **Direct access** to pallet locations prevents unnecessary and time-intensive relocation
- ▶ **High throughput**
- ▶ Option to connect to the **warehouse management system**
- ▶ **Earthquake-proof design**

Boxes /  
containersModular  
shelvingLongspan  
rackingPallet  
rackingCantilever  
rackingMezzanines /  
platformsOn-line shelving /  
KDR shelvingSemi-automated  
solutionsLogistics  
systems

Appendix

# Mobile Racks for light and medium-weight loads

Whether documents, clothing, small parts, spare parts, tools, or other light to medium rack loads – with its mobile racks, SSI SCHAEFER offers the ideal warehouse solution for light-weight to medium-weight loads.

## Innovative Technologies:

Depending on the stored goods and requirements, our mobile racks are offered with the following features:

- ▶ Crank drive for rail systems: Because the rails are anchored in the floor, this type is also suitable for high and narrow construction.
- ▶ Crank drive for non-rail systems: Because the existing floor does not need to be modified when installing this system type, the non-rail solution can be easily installed on almost all existing surfaces and is also ideally suited for special floors or heated floors.

## Your Benefits

- ▶ **Space gain: 40 %** less space than stationary rack lines or space for **85 %** more storage volume on the same surface area
- ▶ **Optimized space requirements**, additional space on the free surface
- ▶ **Optimized and reduced transit times** in internal workflows
- ▶ **Higher efficiency** due to fewer rack aisles
- ▶ **Three different designs**
- ▶ **Highest quality**
- ▶ **High flexibility** with modular expansion options and different combinations





### Your Benefits

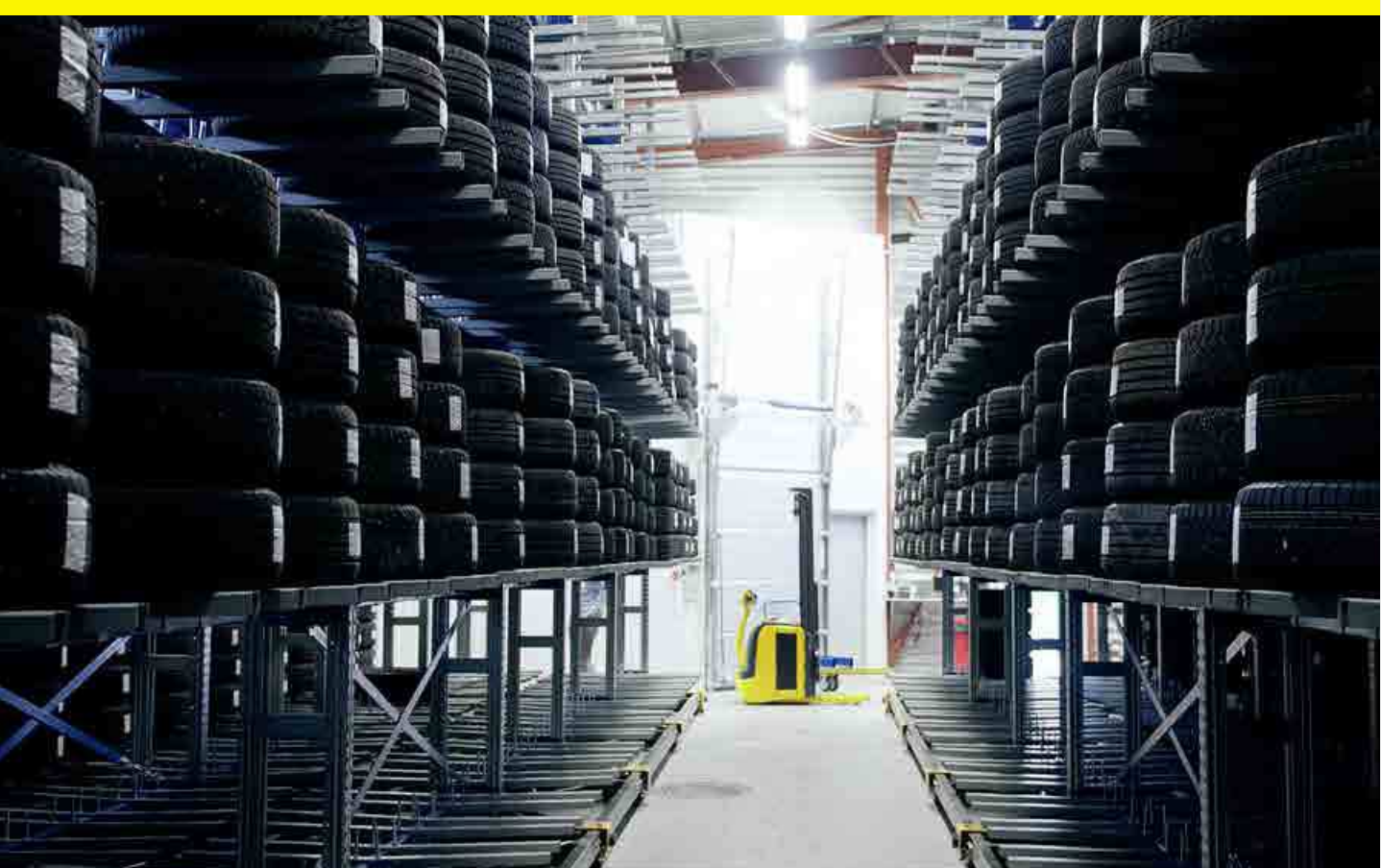
- ▶ Almost **twice** the **warehouse capacity** as static warehouse solution on the same area
- ▶ All **wheel and tire sizes up to 800 mm diameter** can be stored
- ▶ **Compliance with all applicable health regulations**, because the wheels, some of which might be difficult to install, do not need to be manually lifted by one person
- ▶ Thanks to carriers that can drive underneath the rack, the wheel stacks can be **quickly and safely stored in and out** from the ground using a forklift
- ▶ **Reduced operating and real estate costs** as a result of excellent system space utilization
- ▶ Equipped with state-of-the-art **PLC control unit**
- ▶ **Carrier loads up to 50 t, carrier length up to 25 m**
- ▶ **Modular expansion option**
- ▶ High **flexibility, quality** and **durability**
- ▶ Different **combinations**
- ▶ **Comprehensive expertise**

## Mobile Rack EMX for tire storage

A tire warehouse is only efficient if it is well adapted to the local conditions. Benefit from our space saving, flexible, and safe EMX mobile rack system.

Our mobile rack systems for tires and wheels include conventional tire or cantilever racks mounted on carriages and moved parallel to each other using a motorized drive. As the rack is moved along rails, only the aisle needed is opened.

This solution ensures maximum economic efficiency because of the reduced space requirement in the workshop or in the warehouse.

Boxes /  
containersModular  
shelvingLongspan  
rackingPallet  
rackingCantilever  
rackingMezzanines /  
platformsOn-line shelving /  
KDR shelvingSemi-automated  
solutionsLogistics  
systems

Appendix