

RackBot Systems – Automation That Grows With You

Improve your capacity, speed and flexibility in goods-to-person workflows – without the need for complex integration, quickly and in an uncomplicated manner, with the right partner by your side.

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SSI SCHAEFER



Scalable Solutions to Meet Your Individual Requirements

SSI SCHAEFER's RackBot Systems simplify semi-automated logistics using an efficient, scalable and cost-effective approach.

The holistic goods-to-person solution works completely autonomously and makes optimum use of the available space. The systems can be integrated into existing warehouses and facilitate autonomous storage and retrieval for a wide range of load carrier sizes – from tiny bins to large-volume cartons.

Low start-up costs and the option to extend the system at any time by adding more robots or racks render this solution particularly appealing.

This results in picking systems with considerably higher storage density and technical performance compared to conventional systems.

Next Generation Goods-to-Person Automation

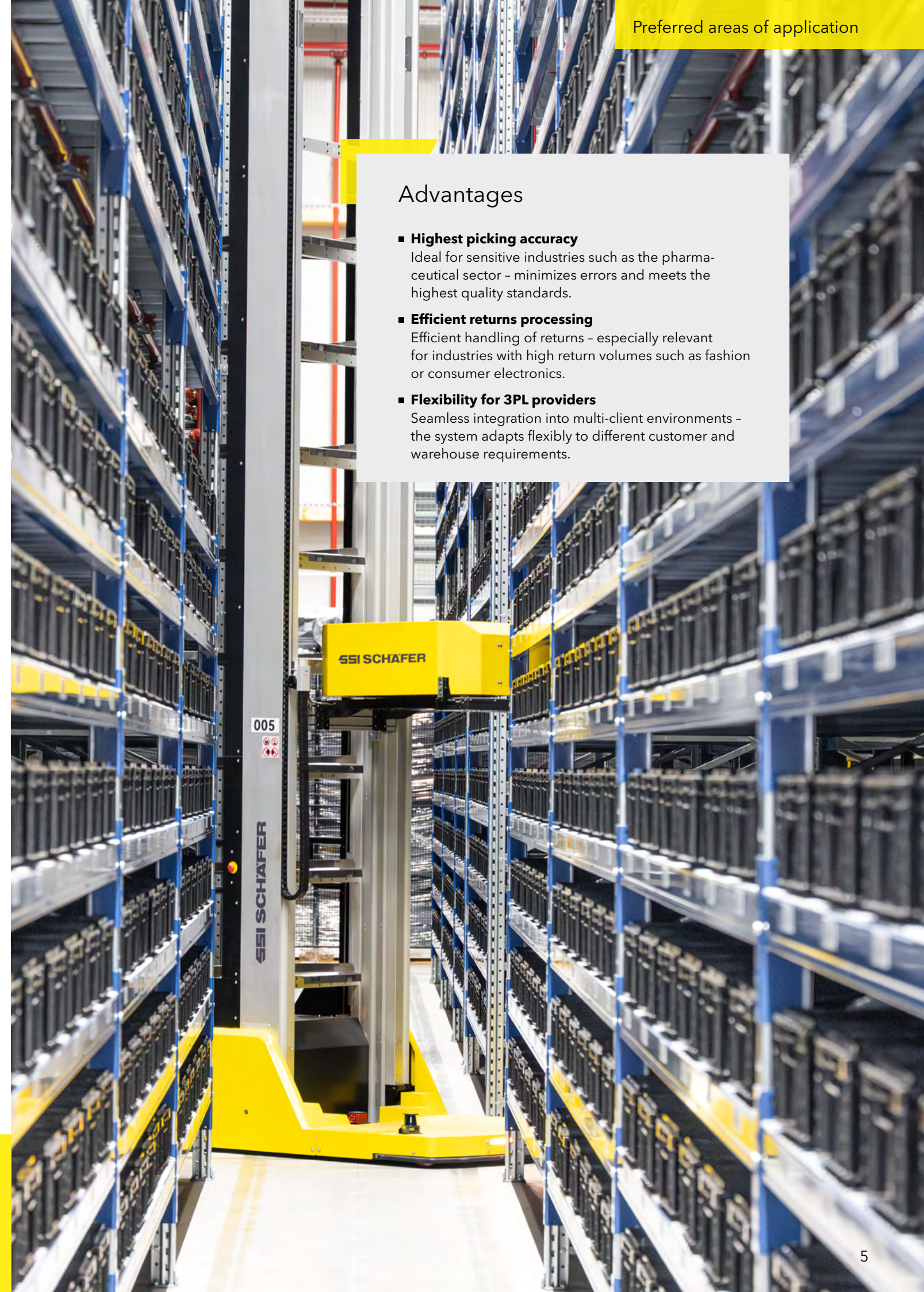
SSI SCHAEFER RackBot Systems are compact, automated storage solutions that can be commissioned quickly and adapted to market conditions flexibly.

All systems feature a modular design, allowing the integration of additional robots and racks at any time – for smooth operation all year round. Thanks to its minimum footprint and optimum use of space, every system grows dynamically with your requirements and makes maximum use of even limited storage space.

Each RackBot System has its own benefits and areas of application. This allows us to meet your individual requirements and offer you the system that suits you – virtually tailor-made.

Smart solutions that fit every need

- **RackBot System ECO** – the cost-effective start-up solution
- **RackBot System FLEX** – the versatile hybrid system for pallets and mixed bins
- **RackBot System COMPACT** – maximum storage density on smallest of spaces
- **RackBot System ELEVATE** – high-performance picking at any height



Advantages

- **Highest picking accuracy**
Ideal for sensitive industries such as the pharmaceutical sector – minimizes errors and meets the highest quality standards.
- **Efficient returns processing**
Efficient handling of returns – especially relevant for industries with high return volumes such as fashion or consumer electronics.
- **Flexibility for 3PL providers**
Seamless integration into multi-client environments – the system adapts flexibly to different customer and warehouse requirements.

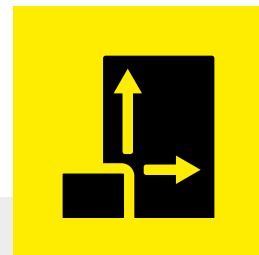
6 Good Reasons for RackBot Systems



No matter whether it is getting started with automation or extending an existing system – RackBot Systems offer a scalable, quick-to-implement solution that can be adapted to your processes. With simple integration, short project lead times and high storage density, you create the basis for sustainable growth and economic efficiency in your intralogistics.

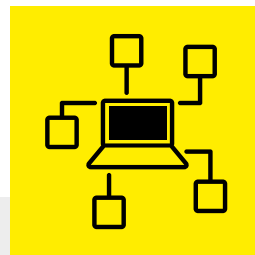
Do these challenges sound familiar?

- **Limited storage capacity and density**
Buildings and spaces are fixed, but SKU volume and variety are increasing – poor use of space is costly.
- **Performance bottlenecks**
Delivery performance suffers during peak times; conventional systems cannot be scaled flexibly.
- **Staff bottlenecks**
The lack of qualified staff and physically demanding tasks make the business unstable and unattractive.
- **High operating costs**
Rising energy, labor and real estate costs reduce profitability and scalability.
- **Low picking accuracy**
Picking errors lead to customer dissatisfaction and manual rework.
- **Slow implementation and delayed ROI**
Common systems require too much time for installation and the realization of benefits.
- **Lacking future-proofing**
Systems quickly become outdated or do not support new workflows or the integration of new technologies.
- **Fragmented system landscapes**
Too many isolated systems lead to inefficiencies and interface errors.



Scalable and adaptable

Start with a system that fulfills your current requirements and can flexibly scale capacity and/or performance in the future.



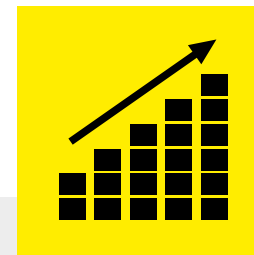
Simple integration

Predefined interfaces ensure smooth integration into your current (IT) environment.



Low start-up costs and fast ROI

Fast amortization – your investment pays for itself after just a few months.



Maximum use of space

The storage density can be increased by up to 130% through dynamic use.



Fast implementation

From project start to commissioning, only 6 to 8 months elapse on average.



Everything from a single source

From the first consultation to ongoing operation: We supply the overall solution including hardware, software and service.

Why Partner With SSI SCHAEFER?

As a general contractor, SSI SCHAEFER combines modern robotics with decades of experience in planning and implementing holistic intralogistics solutions. Technological expertise meets industry expertise - we assume responsibility for the whole system - from technology, software and implementation through to long-term service. Your advantages with SSI SCHAEFER at a glance:

We guarantee:



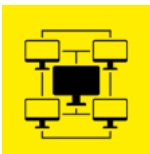
Global presence with local know-how
Our customers benefit from international experience paired with local on-site support - for smooth project implementation and fast response times.



Certified implementation according to the highest standards
We guarantee the highest quality and safety standards - regardless of industry or location.



Sustainable service and support
Our comprehensive service network ensures the long-term availability and constant performance of your system.



Seamless integration into your existing IT and process landscape
Our systems can be integrated flexibly into existing software architectures and material flow systems - for maximum efficiency without data silos.



Not a one-trick pony
Instead of standardized concepts, we offer modular, scalable systems - tailored exactly to your requirements and your growth. Based on your individual requirements, we create the perfect system for you from our broad product portfolio.



RackBot System ELEVATE

Maximum picking performance in the smallest of space

The RackBot System Elevate is responsible for a new generation of autonomous mobile robots (AMRs): ClimbBots. These innovative robots not only move vertically along the racks, but also horizontally. This achieves high system throughput with easy scalability.

ClimbBots move freely in the rack system and reach every storage location independently of each other. This creates an intelligent swarm of robots with maximum flexibility – ideal for modernizing existing warehouses as well as for building new high-density systems.

- **Up to 4,000 bins per hour per 1,000 sqm storage surface**
- **Access times under 2 minutes** using intelligent sequencing
- **Full integration** into the warehouse management system for efficient picking

RackBot ELEVATE offers an efficient alternative to classic automated storage solutions – with less complexity, lower investments and greater scalability.

Advantages

- **Maximum storage density**
Rack heights of up to 12 m, narrow aisles from 900 mm and no cross traffic routes.
- **Simple commissioning**
Immediate readiness for operation, intuitive operation, standardized components.
- **High-performance picking**
200 – 800 bins per hour per picking location
- **Unrestricted bot roaming**
Each ClimbBot can access any position in the system at any time.
- **Flexible integration**
Supports both B2B and B2C processes, batch picking and single-order picking as well as various order management strategies.
- **Economically scalable**
Modular system structure, ROI often under 12 months, reusable system components.

Areas of application with real added value

From compact warehouses with a few thousand bins to large systems with over 300,000 storage locations – the RackBot System adapts itself flexibly.

- **E-commerce & retail distribution centers**
Fast access to bestsellers and seasonal products.
- **Electronics and small parts logistics**
Precise batch picking with optimized workflows.
- **E-grocery, food- and online trade**
With thousands of picks per hour.

Technical Details

System	RackBot System ELEVATE
Target application	High picking frequency in a compact space
Storage unit	Trays, bins
Case weight (kg)	Up to 30
Case dimensions (LxWxH in mm)	650 x 450 x 300–400 (project-specific)
Max. storage height (mm)	12,000
Applied robotics	ClimbBot

RackBot System COMPACT

Maximum storage density in the smallest of spaces

Maximize every square meter with an extremely compact goods-to-person automation system designed for high throughput and fast order processing.

With a storage density of up to 66 bins per square meter, this system combines RackBots (autonomous case handling robots) and RunBots (autonomous mobile high-speed robots) to guarantee access to priority orders and optimize handling processes.

RackBot System COMPACT is available in two variants:

- [3.1] With a flexible telescopic gripper for different bin sizes, up to double-deep – for customers with a wide variety of SKUs
- [3.2] ChainPick technology with gripper hooks for triple-deep storage up to 50 kg – for customers who prefer storage density to performance



Advantages

- **Extremely dense storage**
Up to 66 bins per square meter, ideal for maximum use of space.
- **Demand-based division of labor**
While the RackBots function as mobile storage and retrieval machines, the fast RunBots supply the picking work stations with up to 4 m/s. This increases efficiency and speed.
- **Simple sequencing** through targeted bin handling
- **Optional storage and retrieval of trays**
To pick entire cartons and packages.

Areas of application with real added value

- **E-commerce & fashion**
Fast access to bestsellers and seasonal products.
- **Food and beverages**
Secure, access-critical stock with precision and speed.
- **Electronics and small parts logistics**
Precise batch picking with optimized workflows.



Technical Details

System	RackBot System COMPACT 3.1	RackBot System COMPACT 3.2
Target application	High variety of cartons and bins, dynamic storage strategy	Maximum storage density, standardized loading aids
Storage unit	Trays, cartons, bins	Trays, bins
Case weight (kg)	Up to 30 (up to 50 optional)	Up to 30 (up to 50 optional)
Case dimensions (LxWxH in mm)	300-850 x 300-650 x 80-400	300-850 x 300-650 x 80-400
Max. storage height (mm)	12,000	12,000
Applied robotics	RackBot, RunBot	RackBot, RunBot

RackBot System ECO

Cost-effective entry to automation

RackBot System ECO is a versatile and scalable goods-to-person solution suitable for standardized bins and cartons for the entry level range. It also optimizes storage, picking and transport. While it is particularly suitable for the first steps into automation, it still offers high storage density and fast order processing, for example in production lines (just-in-time supply), spare parts warehouses, and e-commerce start-ups.

Regardless of whether you would like to optimize the storage of bins with a high proportion of mixed goods and low volumes or the storage of large cartons, the RackBot System ECO is a future-proof solution for streamlining processes and improving efficiency.

Areas of application with real added value

- **Production lines** (just-in-time supply) and spare parts storage
- **E-commerce, pharmaceuticals and electronics** to store small load carriers
- **E-commerce fulfillment centers** for high item variety on smallest footprint
- **Retail, 3PL warehouses** - products with carton storage
- **Food and fast mover warehouses:** flexible load handling and different carton sizes

Technical Details

System	RackBot System ECO
Target application	Standardized bins, moderate variety
Storage unit	Bins, cartons
Case weight (kg)	Up to 30 (up to 50 optional)
Case dimensions (LxWxH in mm)	600-850 x 300-650 x 120-331
Max. storage height (mm)	12,000
Applied robotics	RackBot

Advantages

- **Maximum storage density**
Vertical storage of up to 12 meters enables optimum use of space.
- **Fast order processing**
Up to three times the processing speed for highly-efficient handling.
- **Cost savings**
Lower labor costs thanks to the elimination of travel times and the simultaneous transport of up to 9 bins.
- **Round-the-clock operation**
24/7 availability and smooth integration into existing system landscape.

RackBot System FLEX

Unique solution for small and large load carriers alike.

The hybrid solution offers ultimate flexibility, efficiency and scalability for a variety of storage goods. It combines bin picking with pallet handling in one system. Through the combination of RackBots and TransferBots (autonomous mobile robots), it seamlessly handles bins, cartons and pallets and is thus an ideal solution for industries requiring storage solutions with several formats.

Thus, the RackBot System FLEX is ideally suitable for logistics environments with a mixed product range – such as wholesale and retail, small parts and large packages stored together.

- **Optimize picking for mixed SKU orders**
Decisive for omnichannel retail and 3PL processing.
- **Handling of large, loose and irregular objects**
Perfect for automotive and electronic products as well as fast movers.
- **Automate the storage of bulk goods and pallets**
and thus streamline distribution for manufacturers and wholesale suppliers.

Areas of application with added value

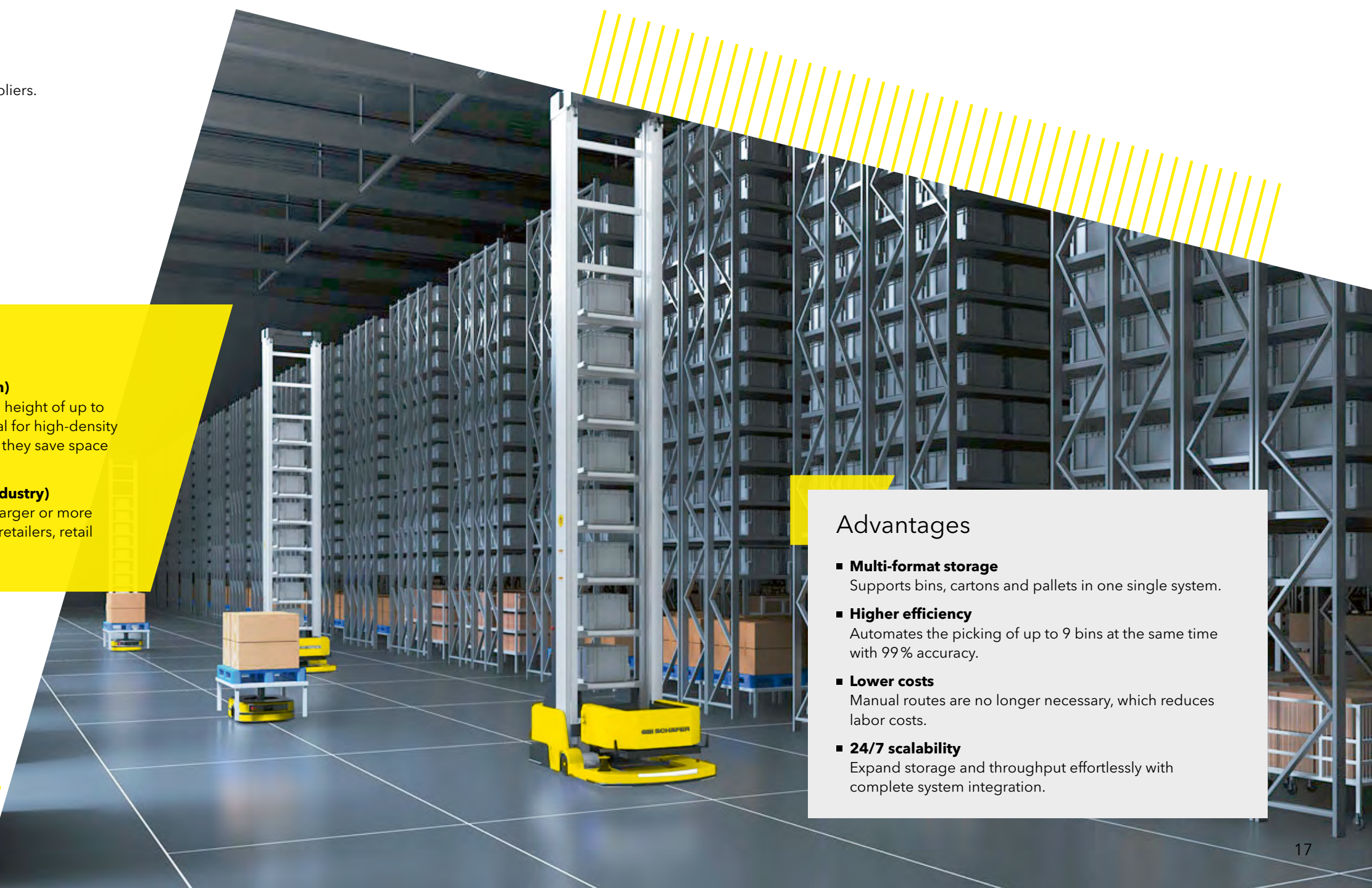
- **Storage of bins and cartons (e-commerce, health care, fashion)**
RackBots navigate efficiently through vertical storage racks with a height of up to 12 meters and ensure the precise picking of goods. They are ideal for high-density inventories, like e.g. medical material, clothes and spare parts, as they save space while simultaneously picking quickly.
- **Storage of bulk goods and pallets (3PL, retail, fast movers, industry)**
TransferBots automate the transport of bulk goods and manage larger or more irregular items without manual transportation. Essential for drink retailers, retail warehouses and industrial supply chains.

Technical Details

System	RackBot System FLEX
Target application	Combination of pallets and bins, various loading aids
Storage unit	Pallets, bins
Case weight (kg)	Up to 50 (up to 1,000 for pallets)
Case dimensions (LxWxH in mm)	600–850 x 300–650 x 120–331
Max. storage height (mm)	12,000
Applied robotics	RackBot, TransferBot

Advantages

- **Multi-format storage**
Supports bins, cartons and pallets in one single system.
- **Higher efficiency**
Automates the picking of up to 9 bins at the same time with 99 % accuracy.
- **Lower costs**
Manual routes are no longer necessary, which reduces labor costs.
- **24/7 scalability**
Expand storage and throughput effortlessly with complete system integration.



RackBot

RackBots combines the flexibility of autonomous mobile robots (AMRs) with the capabilities of a storage-retrieval machine.

The crane load handling device attached to the mobile robot is able to store and retrieve bins, trays, cartons and plastic containers on conveyor belts, racks, work stations and picking locations. The possibility of transporting several loading units means that several storage or retrieval operations are possible per tour.

Advantages

■ Maximum picking height up to 12 m

This allows you to make optimum use of the available space – and significantly increase your storage density as well as your warehouse performance and picking performance.

■ Extensive possibilities

RackBots are also compatible with a wide range of bins. We offer different versions – perfectly coordinated with the different sizes of plastic bins and cartons up to 30 kg or even 50 kg.

■ Multi-case-handling

RackBots can handle up to 9 cartons or bins at once. It has 8 storage compartments and an additional compartment on the load handling device. For bins with a weight of up to 50 kg, you benefit from a total capacity of 6 storage locations.

■ Maximum flexibility

The different RackBot models cover bin sizes from 300 x 300 mm and 400 x 250 mm up to 850 x 650 mm. Thanks to their adjustment range, a single robot can easily handle different load carriers, for example 600 x 400 mm and 400 x 300 mm.



Up to triple-deep storage

Reduce the aisle space by 50% and increase the storage density at the same time.



Visual 3D recognition

Supports the picking of cartons and is compatible with bins of various sizes. Adapts to situations, e.g. when some bins cannot be identified by the code.



Flexible bin sizes

The bin size can be automatically recognized to allow for the flexible removal and placement of bins. Through the use of bin spacing, the total storage density can be increased by more than 30%.



ClimbBot

As the key element of the RackBot System ELEVATE, ClimbBots seamlessly move vertically and horizontally and handle the entire goods-to-person process with a single robot. Unrestricted access to each bin in the system enables exceptionally fast throughput. The ClimbBot is designed for simplicity and efficiency and is revolutionizing warehouse automation.

Advantages

■ The robots scale a single side of a rack with only 2 points of contact, ensuring the robot's high operating times and reducing rack and floor tolerance requirements.

■ The compact design makes narrow aisles possible, which maximizes storage density.

■ The robots move in circles, not in a checkerboard pattern. This saves time and increases efficiency.

■ The possible failure of one ClimbBot has only a very small impact on the overall performance.

■ Since the bins can be picked from both racks in an aisle, rails are only required on one side of the racks.

■ ClimbBots are immediately ready for use, can be quickly and easily put into operation and also scaled.

Technical Data

Horizontal speed	up to 4 m/s
Climbing speed	up to 1 m/s
Operating time	Self-charging for continuous operation around the clock.
Bin dimensions (L x W)	650 x 450 mm
Behälterhöhen	300 mm oder 400 mm
Max. bin weight	up to 30 kg
Storage height	up to 12 m



RunBot

Part of the RackBot System COMPACT

The RunBot optimizes goods transport: The autonomous mobile robot is compact and agile and navigates safely and flexibly thanks to intelligent laser technology. It transports bins with a speed of up to 4 m/s, ensures smooth processes and saves you valuable time in the warehouse.



Technical Data

Standard bin type	SSI SCHAEFER automatic bins and cartons or standard hooked bins
Max. bin weight	30 kg; project-specific up to 50 kg
Max. bin height	490 mm; Trays 80 mm
Bin sizes	300-650 mm x 300-450 mm (L) or 650-850 mm x 450-650 mm (W) and Trays
Max. tray speed	up to 4,0 m/s



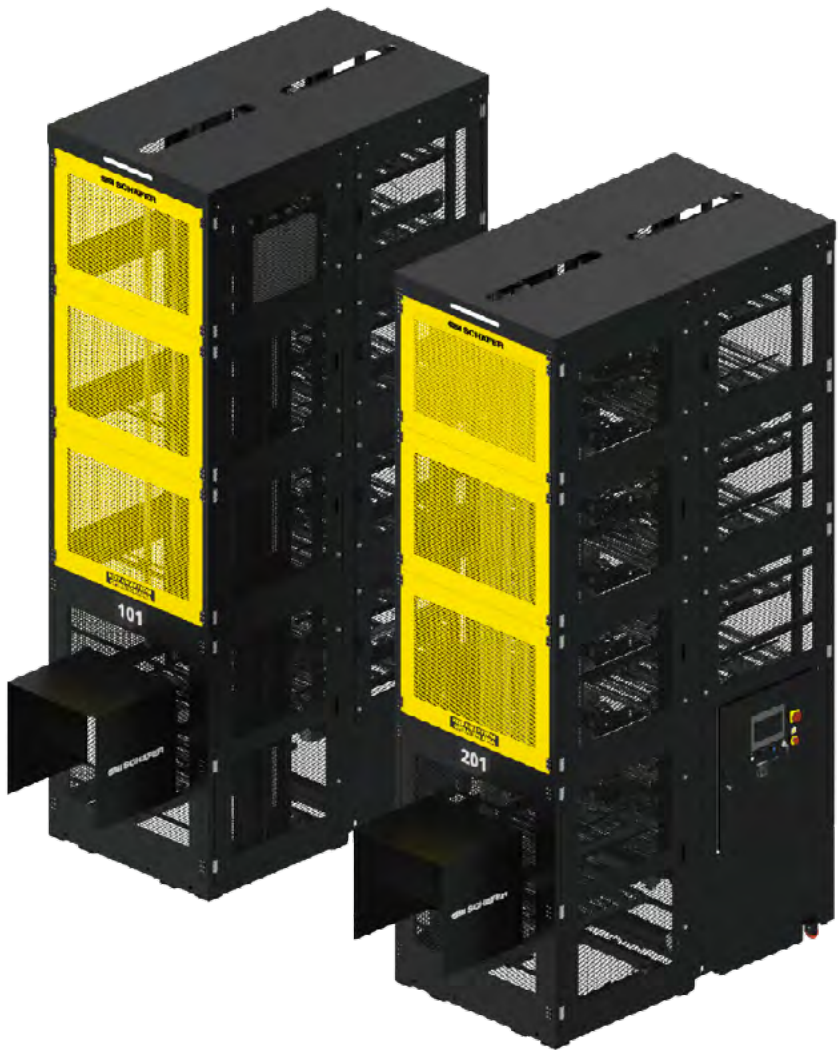
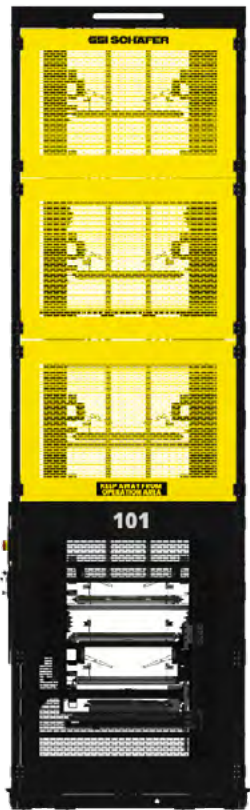
TransferBot

Part of the RackBot System FLEX

TransferBots are high-performance AMRs that are available as additional units for the RackBots as part of the RackBot System FLEX. They integrate advanced software strategies and hardware functions. These heavy-duty AMRs effortlessly perform route planning, obstacle avoidance, transportation of premium goods and autonomous loading within RackBot System FLEX.

Technical Data

Standard casing type	Pallets, racks, roll containers and storage trolleys
Max. bin weight	600 kg or 1,000 kg
Max. picking height	70 mm
Max. speed	1,5 m/s (with load); 2,0 m/s (without load) or 1,0 m/s (with load); 1,2 m/s (without load)



RackBot Port

Simultaneous loading and unloading of several bins in 3-5 seconds

The RackBot Port is the back end of the RackBot System ECO and FLEX. The RackBot Port ensures highly efficient loading and unloading of the bins and acts as an intermediate station between the RackBots and the manual workflows. This increases the efficiency of the RackBots in their actual task as a mobile storage-retrieval machine.

Advantages

- Multiple loading and unloading
- Efficient and fast
- Flexible and adaptable
- Safe and comfortable

Work Stations

RackBot Systems work in a goods-to-person environment – and precisely this transfer of goods to person is taken over by the work stations. Specially designed for the characteristics of our transport robots and the respective customer requirements, each work station offers safe, efficient and ergonomic access to the goods – entirely in line with the customer's requirements. As the back end of the entire warehouse solution, they offer a highly efficient interface for the loading and unloading of bins, facilitating safe interaction between humans and robots.

Desktop work station

This picking solution enables seamless collaboration, especially with AMRs, and eliminates the need for separate picking and transfer steps. Integrated safety features like supporting feet, protective gratings and the automatic safety door ensure the hazard-free removal of goods. The ergonomic height enhances user comfort and efficiency.



Work stations with conveying system

With this solution, the bins are exchanged between the transport robots and the employees via conveyor belts for loading and unloading. Here, the goods can be conveniently sorted on the conveyor line.

Two-level work station

This intelligent sorting system uses a visual Kanban to guide employees and improve accuracy and efficiency. With an ergonomic, stationary picking area, system operators can sort goods conveniently and safely without having to move around unnecessarily. Each robot can handle up to 30 cartons per hour, with a work station throughput of up to 300 cartons per hour.



Bins for any Use Case

SSI SCHAEFER offers a wide range of bins with many accessories for automated applications. All bins offer smooth running surfaces, resulting in particularly quiet running properties, low bin wear and low system wear. Moreover, they have low floor deflection and the side panels have a high degree of rigidity.

Our wide range comprises more than 2,000 different types, designs and sizes:

- Stackable transport boxes for your specific requirements for the warehouse
- Stackable bins with Euro dimensions for manual, semi- and fully automated storage



Seamless Software Integration

Our solution not only includes robots and rack systems, but also tailor-made software control. All RackBot Systems can be seamlessly integrated into the existing IT landscape and process chains to ensure smooth material flow and optimized business processes. Intelligent algorithms optimize sequencing and picking performance.

The following options are available:

- Solutions from our WAMAS software portfolio
- Integration into SAP
- Integration into your existing WMS

Furthermore, we offer high-performance software for management, control and optimization of the flow of goods and information in the warehouse at the highest level. SSI SCHAEFER's software solutions connect single application components to a convincing and high-performance entire system – and thus exploit the full potential of your warehouse. As a general contractor, we guarantee global service and SLA-covered operation.



Seven Reasons for Choosing SSI SCHAEFER

■ **Stability**

As a financially independent family business, SSI SCHAEFER is committed to long-term solutions. You can trust that our team of experts will be there for you today, tomorrow and in years to come.

■ **Efficiency**

SSI SCHAEFER solutions are scalable and able to grow with your business. You can always upgrade or retrofit.

■ **Quality**

As a systems specialist with its own production facility and software development department, SSI SCHAEFER provides tailor-made and high-quality solutions from a single source, specifically designed to meet your challenges.

■ **Reliability**

Thanks to our worldwide Customer Service & Support network, SSI SCHAEFER ensures smooth operation of your system long term, both during and even long after installation.

■ **Know-how**

SSI SCHAEFER solutions are always up-to-date with the latest technological standards and can be easily integrated into an existing (IT) landscape.

■ **Sustainability**

As a global intralogistics provider, SSI SCHAEFER is committed to sustainable, efficient and future-proof solutions. The company therefore contributes to the goals for sustainable development set by the United Nations.

■ **Internationality**

As a global organization, SSI SCHAEFER has local offices worldwide. With over 80 operative subsidiaries, our team of experts speak your language.

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