

REFRESHINGLY EFFICIENT: SOLUTIONS FOR THE BEVERAGE INDUSTRY

Optimum goods handling and enhanced productivity with scalable storage and picking solutions.

ssi-schaefer.com



SSI SCHÄFER

BOTTLENECK-FREE FILLING



In recent years the productivity demands on the beverage industry have risen significantly. Growing product diversity, such as mixed drinks, and constantly changing packaging, together with a trend toward single-use containers often make handling using conventional block warehouses inefficient. This creates an increasing demand for efficient and flexible warehouse and picking solutions.

Challenges for logistics

- Punctual provision of full pallets and picked pallets in the correct sequence for rapid loading onto trucks
- Move away from handling full pallets to mixed pallets holding both containers and individual bottles
- Traceability and reliable processes
- More deliveries through smaller, more frequent customer orders
- Pricing pressure and delivery time
- Green Logistics
- Ergonomic picking work stations



SSI SCHAEFER's specialists support you from your initial idea to the finished system, providing flexible and scalable solutions that significantly enhance your efficiency and

productivity. In addition, we also offer you the right software for your manual, semi-automated and fully automated storage systems.

SOLUTIONS FROM SSI SCHAEFER

- Pallet conveying systems, electric overhead conveyors, auto-guided transport systems
- Channel storage systems, standard rack systems
- Static or dynamic pallet storage
- Storage-retrieval machines (SRM) and shuttle systems
- Picking
- Automatic palletizing and depalletizing with articulated arm and portal robots
- Picking (display design)
- Loading unit handling with robots
- Empties detection
- WAMAS® and SAP software solutions for manual, semi-automated or fully automated warehouses

SSI SCHAEFER ENSURES THAT EVERYTHING FLOWS SMOOTHLY

Future-proof logistics solutions must fit seamlessly into your operational processes, be infinitely expandable, and adapt flexibly to new conditions. This requires absolute specialists. Experts who do not think in terms of individual solutions but in terms of systems.

Complete solutions from a single source

Our extensive portfolio of solutions and products covers the entire spectrum of intra-company material flow. This portfolio forms the foundation for industry-specific solutions, designed to meet your exact requirements. Our customers profit from the fact that we manufacture all of the components within the SSI SCHAEFER Group. With our local branches operating around the world and more than 9,500 employees, SSI SCHAEFER is an effective and reliable partner.

At SSI SCHAEFER, this integrated approach has been the basis of our success for decades. As a globally active general contractor, we implement complete logistics systems. Our services range from comprehensive system planning and consulting to IPMA certified project management and turnkey systems – including customer services and maintenance agreements. SSI SCHAEFER offers planning and construction services. Our in-house construction department can assist you throughout your entire project.

Dedication and commitment

Those who know SSI SCHAEFER, know that we are exceptionally committed to our customers.

This includes

- ✓ Commitment to provide the best solution,
- ✓ Commitment to be there for our customers,
- ✓ Commitment to keep our word at all times.

That is why you can always expect absolute dedication from us. We support you worldwide with employees available to assist you, with developing new technological solutions or providing a complete service throughout the entire life-cycle of your systems. Not only today, but also tomorrow and in the future. Because as a family company, we think and plan for the long term.



Experienced specialists for the beverage market sector

SSI SCHAEFER supports you with modular and scalable system solutions for the beverage industry to make your logistics more efficient and sustainable.

We offer you precisely the right solutions for your value chain. These span the connection to your production facilities, the warehouse and picking technology, and also include sequenced shipping staging.

The right IT solution is the key to efficient processes. In addition to the connection to your ERP solution, SSI SCHAEFER's portfolio also includes interfaces with MES, along with

line management and BDE systems. As a consequence, SSI SCHAEFER guarantees the seamless information flow between production and logistics, supplying production with raw materials, secondary and operating materials along with the collection of the finished goods.



AUTOMATED SUPPLY AND DISPOSAL INTRODUCTION CREATES EFFICIENT MATERIAL FLOWS FOR GREATER FLEXIBILITY

A constantly expanding range of new products and product variants with smaller and smaller batch sizes make beverage production extremely demanding. This requires the efficient production of complex recipes with both small and large lots.

This influences the supply to production along with the trend toward new forms of packaging and more diverse product-specific containers. The requirement-based supply of raw materials, secondary and operating materials to the production lines, along with the removal of empties and finished goods, demands highly flexible logistics. SSI SCHAEFER offers

you a broad portfolio of electric overhead conveyor systems, pallet conveying systems and auto-guided transport systems. These state-of-the-art technological solutions equip your company to face the challenges of the future.



Redesigned logistics at Römerwall

SSI SCHAEFER designed a fully automated high bay warehouse for Römerwall featuring 53,000 pallet slots and two electric overhead conveyors. The solution interconnects production, warehousing, picking, shipping and the empty goods area. The Schäfer Lift&Run system provides the necessary throughput with 16 devices. ORBITER® shuttles store and remove the pallets in channels with a variable depth of up to 22 units. Four Exyz storage-retrieval machines handle the storage and removal of pallets with empties.

In addition, SSI SCHAEFER also implemented efficient material flows to optimize the supply and disposal on the production lines. The existing filling lines, the picking, the empties storage and shipping were all connected via an electric overhead conveyor system.





PRODUCTION SUPPLY AND DISPOSAL



Pallet conveying systems provide flexibility and efficiency in a single system

SSI SCHAEFER's pallet conveying systems are an excellent foundation for efficient processes. The modular design, factory-assembled components and energy-efficient, frequency-controlled drive technology ensure flexible in-house transport between production, storage, picking, and shipping. These systems also guarantee an optimum material flow. Flexibility, ease of installation and a maintenance-friendly design distinguish SSI SCHAEFER's pallet conveyor technology

and enable a customized system design. SSI SCHAEFER manufactures all individual components in-house. This guarantees the consistent quality and reliability of the entire system. In addition to classic pallet conveying technology, SSI SCHAEFER also integrates electric overhead conveyor systems for high-performance transport or long transport paths.

Auto-guided transport systems

SSI SCHAEFER's auto-guided transport systems are an increasingly popular choice when it comes to flexible transport systems between production and the warehouse. The fleet from SSI SCHAEFER features a diverse range of solutions for large and small load carriers that are capable of creating a logistics network, encompassing various warehouse and working areas. The solution can be configured and flexibly expanded to keep pace with your specific requirements.

Auto-guided transport systems flexibly connect diverse areas such as incoming goods, production and shipping with the warehouse.





AUTOMATED FILLED GOODS WAREHOUSES CREATE GREATER PERFORMANCE AND EFFICIENCY

Fluctuating demand, which may occur during the hot summer months, for example, often represents a major challenge for beverage producers due to the limits of their storage capacities. As a result, the warehouse often becomes a bottleneck between production and sales because the throughput can no longer process the rising shipping volumes.

Automated filled goods warehouses from SSI SCHAEFER maximize storage capacities, enhance logistics efficiency and also prevent bottlenecks. Storage-retrieval machines and shuttle systems form the heart of the solution. These systems guarantee rapid and flexible material transport with short access

times. Our storage-retrieval machines have a modular design with a flexible height of up to 45 m. As a consequence, they can be precisely adapted to your specific warehouse requirements and all of your needs.



Refresco receives an efficient automation and material flow concept

SSI SCHAEFER developed a highly efficient automation and material flow concept for the beverage producer Refresco. The solution consists of a high bay warehouse with pallet conveying systems and peripheral units. State-of-the-art conveying technology and interface with SAP EWM guarantees the highest efficiency during peak times for the beverage producer.

The new 7-aisle high bay warehouse features more than 21,600 pallet slots for storing the palletized beverages. Exyz storage-retrieval machines ensure high energy efficiency and performance in the warehouse. A transport bridge connects the production lines directly with the high bay warehouse. In addition, a fully automatic system transfers half pallets to Euro carrier pallets behind the filling lines. On the way to shipping, the half pallets are automatically separated from the carrier pallets and delivered to the shipping gates via buffer lines.



WAMAS® logistics software is the perfect manager

SSI SCHAEFER's own WAMAS® logistics software guarantees the most efficient use of your storage space. Optimized rack allocation that specifically matches the material flows saves space and guarantees permanent goods availability. Our logistics software handles the stock and storage space management while also steering the material flows and in-house transport. Its visualization functions ensure goods tracking and transparent material flows and also integrate automated components.

In addition to handling day-to-day functions, WAMAS® also offers long-term analyses of resources, capacity usage and other operative performance indicators to enable efficient optimization.



EFFICIENT MATERIAL FLOW WITH THE SMALLEST SPACE REQUIREMENTS

Many companies in the beverages sector still use classical floor block warehousing. This not only provides a relatively small amount of storage for the space used but also involves a large amount of stacker traffic between production, the warehouse and the loading area. However, a broadening product spectrum along with differing containers create new logistics requirements. Conventional concepts can no longer meet these requirements efficiently. Automated high bay warehouses that significantly increase the throughput and require a smaller surface area in comparison to block warehouses are the solution.

RhönSprudel achieves high turnover with a new high bay warehouse

SSI SCHAEFER implemented a 3-aisle high bay warehouse for RhönSprudel at its Ebersburg-Weyhers site. The channel storage system features storage channels up to four slots deep with space for 9,384 pallets. Exyz storage-retrieval machines transport the pallets to their storage channel after they are delivered to the aisle via the conveying systems. ORBITER® shuttles serve as the load handling devices, carrying out the storage and retrieval of the up to 1,000 kg pallets. The high bay warehouse is designed for roughly 100 storage and retrieval actions per hour. This guarantees sufficient throughput even during the high season.

During the production process, the beverage containers are placed on Düsseldorf pallets. Two of these are then stacked on each Euro pallet. The pallet conveying systems transport the loaded pallets to a platform via a vertical conveyor. From here, they are transported to the pre-zone of the high bay

warehouse. In addition to the automated transport and incoming goods, the system also includes a manual goods delivery for stackers in order to store pallets from other production facilities.

SSI SCHAEFER's WAMAS® logistics software handles the allocation and management of the storage spaces. This enables RhönSprudel to dynamically assign each storage channel and also vary the depth. The storage capacity and performance of the system as a whole have been further optimized as a consequence. The scope of delivery also includes a system display that provides the users with an overview of the entire system as well as the individual conveyors.

"Another positive effect is the larger production batch size. This ensures better production capacity usage and higher delivery availability. We are very satisfied with the solution implemented by SSI SCHAEFER and the results."

Thomas Storch, Operations Manager RhönSprudel





The Schaefer ORBITER® System for flexible and compact storage

The Schaefer ORBITER® System enables you to easily implement a space-saving solution. The docking station and the ORBITER® can be flexibly transported via forklift truck to any channel within the channel storage. They can also handle a variety of different pallet types and allow mixed FIFO/FILO storage in one warehouse.

Exyz guarantees the highest energy and cost efficiency for pallet storage

Exyz from SSI SCHAEFER is the ideal solution for the fully automated storage of pallets in high bay warehouses from 8 to 45 m high.

Exyz provides the highest flexibility. The storage-retrieval machine can be used as a single or double boom system for single, double or multiple depth storage and retrieval and is

also available with an ORBITER® design. The counterweights integrated into the boom also provide energy savings of up to 25% in comparison to conventional devices during lifting alone.



EFFICIENCY IN EVERY DIMENSION: STORAGE, BUFFERING, AND SEQUENCING IN ONE SYSTEM

Storage and retrieval without bottlenecks and constant access to all articles with equal performance are the foundations for efficient warehousing. Conventional storage systems are limited by the performance of the pre-zone conveying equipment. This results in bottlenecks during storage and retrieval. Sequencing is only possible through the use of additional and subsequently installed sequencing systems. SSI SCHAEFER's solution is a storage system that integrates buffering and sequencing, offering unmatched efficiency.

The 3D-MATRIX Solution® delivers dynamics and throughput

Due to the special design of the 3D-MATRIX Solution®, the storage cube is treated as an open system from every side. This creates independent processes while simultaneously preventing bottlenecks. The matrix consists of three key components: shuttle vehicles, lifts and conveyor systems.

- The shuttle vehicles work on the x-axis in the depth of the storage channels.
- Lift systems provide vertical transport on the y-axis.
- The conveyor systems handle the horizontal transport on the z-axis and supply the goods directly to the connected picking or dispatch work stations.

All of the movements of the transport equipment are consistently separated from each other, enabling them to be carried out simultaneously.



SiSi facilities: rapid storage and retrieval with integrated sequencing

SSI SCHAEFER created a state-of-the-art distribution center for the German SiSi facilities ("Capri Sun") which also features SAP EWM material flow control. The 3D-MATRIX Solution® forms the heart of the system. The Schäfer Lift&Run system consistently implements the matrix approach for the pallet handling.

The shuttles simultaneously deliver the loading units from the various storage-retrieval devices to the transfer spaces for the lifts. The individual access to the lifts at the transfer spaces enables exact sequencing during retrieval along with

load-dependent storage. As a consequence, the configurable shipping areas can be connected flexibly and supplied in sequence.

The 3-aisle high bay warehouse for finished goods, raw materials, secondary and operating materials consists of 5 vertically arranged storage-retrieval machine levels per aisle with space for approximately 48,000 Euro - and industrial pallets. The storage uses static and dynamic channels with an average channel depth of nine pallets laterally.



Gerolsteiner commissions a fully-automated compact warehouse

SSI SCHAEFER served as the general contractor for the beverage producer Gerolsteiner and implemented a fully-automated compact warehouse. This facility is one of the most state-of-the-art logistics solutions in the beverages industry. The concept implemented includes channel storage, the Schäfer Lift&Run system, ORBITER® shuttles along with intelligent

material flow control via the warehouse management system. This provides Gerolsteiner with optimum space usage, increased availability, delivery capability and service quality, high throughput as well as modern work stations. The storage machines carry out up to 117 storage and 225 retrieval actions per hour.

“Lean and sustainable processes, optimum space usage, increased productivity and service quality, high throughput and intelligent work stations characterize the concept and technology of the new compact warehouse from SSI SCHAEFER. This solution has taken our logistics to a new level.”

Ulrich Rust, Chief Technical Officer Gerolsteiner



SHUTTLE SYSTEMS AND PICKING TECHNOLOGIES ENSURE FLEXIBILITY AND RELIABLE PICKING

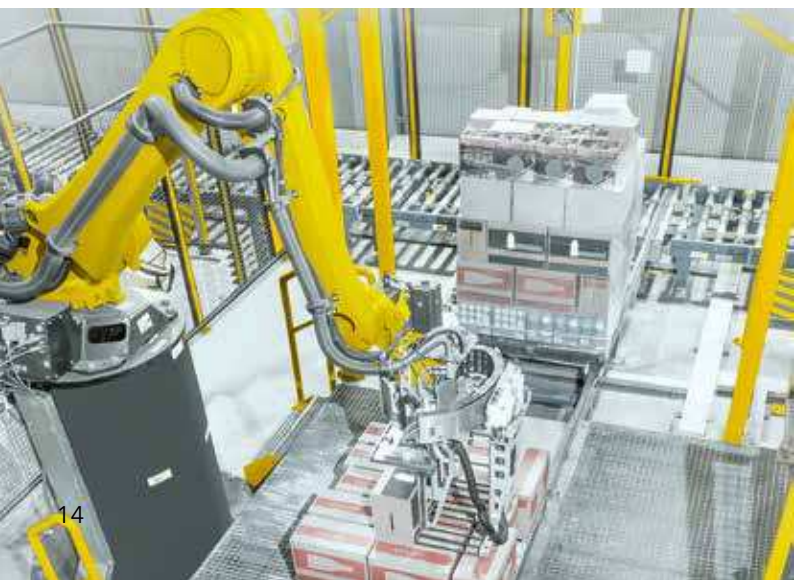
Automation is becoming increasingly prevalent in logistics. Nevertheless, a fully automated concept is not always the ideal solution. Frequent product changes or seasonal volume fluctuations are indicators for the use of semi-automated processes, especially in the beverage industry. That is why SSI SCHAEFER offers solutions and flexible combinations utilizing both picking technologies.

FULLY-AUTOMATED PICKING: YOUR BENEFITS

- High productivity even at peak times
- Highly economical
- Consistently high quality and reliability, even under peak loads
- Efficient space utilization due to high product density
- Easy integration into existing systems
- Ideal expansion capabilities thanks to modular system
- Relieves employees of heavy physical labor

SEMI-AUTOMATED PICKING: YOUR BENEFITS

- Goods-to-person approach
- Person-to-goods approach with automatic resupply
- Ergonomic work stations/ergonomics@work!®
- The highest picking quality
- Optimum material flow
- Minimized error frequency
- Easy to integrate into your existing picking procedures
- Scalability
- Rapid installation
- High throughput



Shuttle systems for all applications are the high-speed, innovative solution

In addition to classic storage-retrieval devices for pallets and containers, SSI SCHAEFER also offers the market's most comprehensive range of shuttle systems. Whether single-level or multi-level shuttle systems, pallets, trays or cartons, our comprehensive range of systems has the perfect solution for every

modern warehouse. Wherever you need optimized storage with rapid material transport-ensured access times, we offer customer-specific solutions.



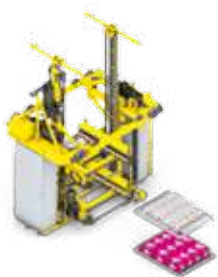
Cuby is the high-performance solution for maximum storage density

The Cuby single-level shuttle is ideal for the fully-automated storage of containers weighing up to 35 kg. This highly efficient system guarantees high availability and energy efficiency. A scalable lifting system with a double-deck function ensures high-performance and optimum material flow combined with a compact facility layout.



Navette: the highest throughput for single containers

The Navette is a flexible multi-layer shuttle system for high throughput and precise scalability. This system consistently implements the matrix approach for handling individual containers. Combined with the 3D-MATRIX Solution®, the system delivers unmatched throughput. The Navette is integrated into the steel construction of the aisles and a single component serves up to eight storage levels, including two in parallel.



The Schäfer Tray System for dynamic trays

The Schäfer Tray System is the ideal solution for storing entire pallet layers on trays and picking individual packaging units. Each vehicle is equipped with two load handling devices and a pulling device. This provides extremely fast handling and minimizes the free space requirements in the rack.

The strategic arrangement of the system's individual components enables highly dynamic and efficient usage with very high throughput.



The Schäfer Lift&Run system provides highly dynamic pallet handling for channel storage systems

The Schäfer Lift&Run system is an economical solution for highly dynamic pallet handling in channel storage systems. It is capable of serving two to four rack levels per aisle. Multiple devices can be vertically arranged for high bay warehouses up to 45 m high. ORBITER® shuttles store and retrieve the pallets in the rack channel.

The low space requirements and efficient energy usage make it a highly attractive alternative to conventional storage-retrieval devices and single-level pallet shuttles.

MAXIMUM SHIPPING EFFICIENCY FOR RAPID TRANSFER FROM THE WAREHOUSE TO THE CUSTOMER

Optimized sequential dispatch preparation in the shipping department is essential in order to prevent unnecessary delays. Automated shipping supply forms the foundation for this. Pallet conveying systems and fully automated shipping buffers eliminate backlogs and long waiting times during loading and unloading. The current material flow is always taken into consideration, safeguarding the optimum provision of the goods for shipping.

The dispatch buffer ensures that the picked orders are consolidated, correctly sequenced in accordance with the schedule and delivery location, and then delivered to the shipping gate just in time. Prior scheduling of the gate allocation and truck arrival times optimizes the shipping provision and reduces waiting times.

SHIPPING SOLUTIONS FROM SSI SCHAEFER

- Pallet conveying systems
- Shipping buffer
- Sequenced dispatch supply
- Trailer loading
- Yard management



Carlsberg's IT-controlled production and distribution center

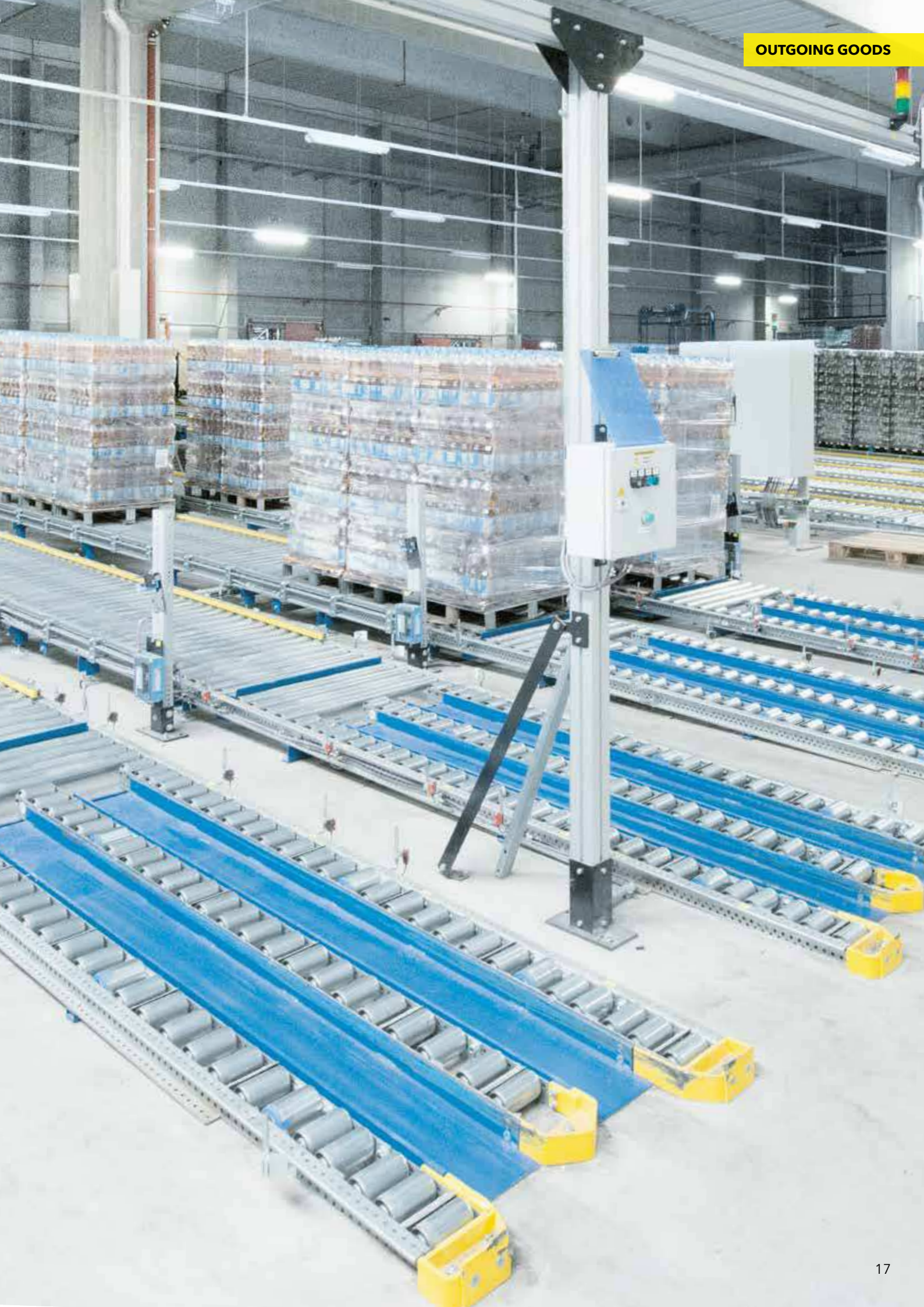
SSI SCHAEFER implemented a central production and distribution center in Fredericia for the renowned Danish brewery, Carlsberg. The solution provides more than 75,000 storage spaces. The WAMAS® logistics software handles the warehouse management. This solution features a customer-specific development for yard management, supply management for the production lines and picking along with sequential delivery to the shipping area.



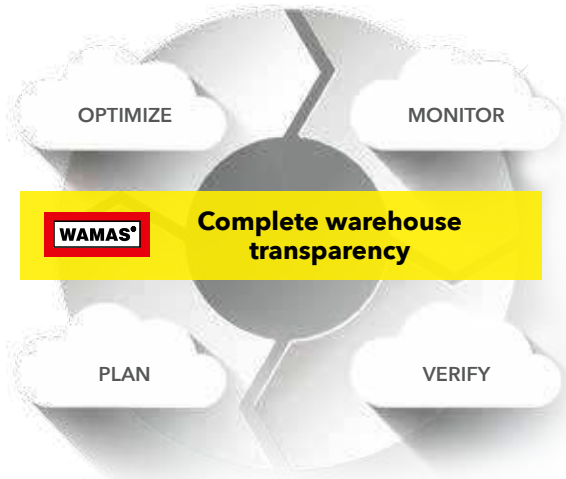
The high bay warehouse for pallets weighing up to 1,000 kg has 18 aisles and is 114 m long. It is capable of storing 700 pallets per hour and retrieving 800 pallets per hour.

This is carried out using 18 storage-retrieval machines. A second, 8-aisle warehouse with 6,000 spaces for pallets weighing up to 500 kg was also constructed. Here, a further eight storage-retrieval machines handle the storage and retrieval of up to 250 pallets per hour.

The warehouse and picking areas are connected to the filling facilities via an electric overhead conveyor with two integrated loops and a total length of more than 4,000 m. 265 vehicles are integrated into the system and achieve a performance of 3,000 storage and retrieval actions per hour.



INTEGRATED PLANNING, CONTROL, VERIFICATION, AND COMMUNICATION: IT SOLUTIONS FOR YOUR INTRALOGISTICS PROCESSES



Today more than ever, effective intralogistics operations require close integrations between IT software and intralogistics technologies. Modular software systems are required and need to adapt in order to communicate with ERP systems. Plus, analyzing material flows in real-time in order to detect problems at an early stage is a must.

WAMAS® logistics software

WAMAS®, the proprietary logistics software from SSI SCHAEFER, fulfills these requirements and more. WAMAS® represents the vital link between goods-in, storage, picking, and outbound delivery, as well as all interconnected process steps. Efficient warehouse operation is ensured thanks to clear visualizations and comprehensive tools for managing processes, resources, and inventory. From the first consultation, right through to the go-live date, we offer an extensive, first-class service wherever you need it.

Certified SAP expertise

As a certified SAP Silver Partner, we can support you in selecting, introducing, and running SAP solutions. With our comprehensive expertise we ensure the implementation of SAP Extended Warehouse Management (EWM) to your requirements. With us, you have an experienced, SAP-certified implementation partner on your side.

WAMAS® is the standard software that combines all of the logistics components into one single intelligent system featuring lot tracking, expiry date monitoring and all essential picking methods.

RETROFIT

OPTIMIZING PROCESSES AND SAVING COSTS WHILE INCREASING PERFORMANCE THROUGH MODERNIZATION

Just as some traditional treatments or remedies are making a comeback thanks to modern research, your warehouse performance can be increased considerably using new storage technologies and software releases.

Storage and picking processes are easily updated and optimized while costs are reduced. Plus, earlier investments are upgraded with standards that meet current market requirements.

Even if your system is not from SSI SCHAEFER, our team of experts can help bring your current equipment and technologies up-to-date.

CALL TODAY FOR A COST-BENEFIT CALCULATION. YOU'LL FIND SSI SCHAEFER OFFER YOU MORE.

- Optimization for all warehouse processes
- Implementation of new picking methods
- Addition of new warehouse areas
- Expansion/modernization of equipment, electrical engineering, and controls
- Software and hardware upgrading

TAILORED SERVICE AND SUPPORT FOR MAXIMUM RELIABILITY

Even when your system is up and running, our experts remain on-hand offering a wealth of experience and a comprehensive range of products providing solutions for every requirement.

KEEPING YOUR PRODUCTS ON THE MOVE WITH PREVENTATIVE MAINTENANCE AND REGULAR INSPECTIONS

- System monitoring
- Inspections
- Preventative maintenance
- Safety inspections

WE ARE THERE FOR YOU WHEN YOU NEED OUR SUPPORT

- 24-hour hotline
- Remote diagnosis
- On-call technicians
- On-site service
- Global parts replacement service

SSI Resident Maintenance®

SSI SCHAEFER offers a complete full-service maintenance package, which includes on-site service technicians that maintain and service your equipment.

SSI Augmented Support

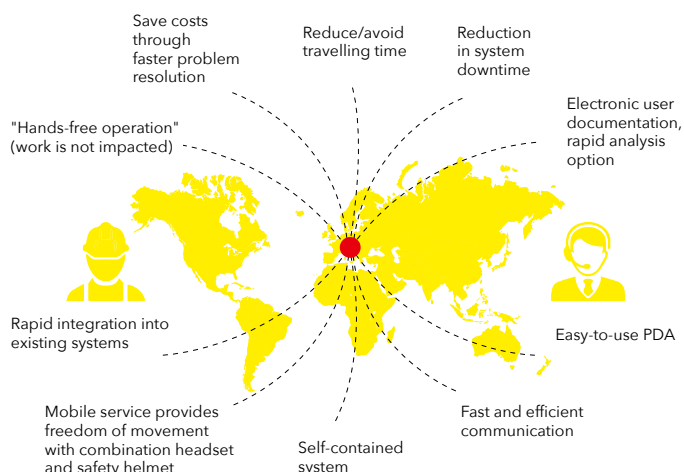
The power of real-time mobile video communication enables live transmission anywhere on earth. Let an SSI SCHAEFER support specialist virtually train your on-site technicians live with video and voice.

Service Portal

Get easy access to documentation for your complete SSI SCHAEFER system; Computerized Maintenance Management System (CMMS) with paperless documentation of all activities, working time, and material use statistics is available for your entire maintenance team. Plus, SSI SCHAEFER offers online ordering for spare parts 24/7.

Training

Training sessions for your employees are available either at your facility or at an SSI SCHAEFER in-house test location.





SIX REASONS FOR CHOOSING SSI SCHAEFER:

- **Security:**

As a financially independent family business we are committed to long-term solutions. You can trust that we will be there for you tomorrow and in the years to come.

- **Efficiency:**

Our solutions are scalable and grow with your business. An SSI SCHAEFER solution is a future-oriented investment.

- **Quality:**

As a specialist in automation, we provide a single-source solution. As an original equipment manufacturer we guarantee quality and the right solutions for your needs.

- **Reliability:**

Thanks to our world-wide Customer Service & Support network we ensure a smooth operation of your system.

- **Know-how:**

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

- **Internationality:**

As a globally acting company we have local offices worldwide and our team of experts speaks your language.



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