

Refreshingly Efficient: Solutions for the Beverage Industry

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

[ssi-schaefer.com](https://www.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 und SAP software solutions for manual, semi-automated or fully automated

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.



All-in-one solutions from a single source

Our wide range of products and services forms the basis of industry-specific solutions that we can tailor to your needs. With such a portfolio, our experts can provide bespoke solutions that cover all areas of your internal material flow. Our customers benefit from the fact that we make all of the SSI SCHAEFER Group's components ourselves. Having more than 10,000 employees globally makes us a strong and reliable partner.

At SSI SCHAEFER, holistic thinking has been the key to our success for many decades. As a global general contractor, we implement complete logistics systems. Our team of consultants provide comprehensive system planning and project management services, which are certified by the International Project Management Association (IPMA). This approach enables us to provide turn-key systems with tailored service and maintenance packages. Upon request, we can also plan and build your project with our in-house construction department.

Dedication and commitment

If you know anything about SSI SCHAEFER, you will be aware that we put our customers at the center of everything we do.

This includes the obligation:

- to always provide the optimum solution
- to always be there for our customers
- to always keep our word

You can expect us to be fully dedicated to your concerns. Whether it be the devotion that our employees give to developing new solutions or the all round service we ensure during the life cycle of your systems, we will always be by your side, no matter where you are in the world. As a family company, we always think of the future and plan for the long term.

Experienced specialists for the beverage industry

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.

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





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.

Automated Guided Vehicles

Automated Guided Vehicles from SSI SCHAEFER flexibly connect the different areas from goods-in to production and goods-out with the warehouse. Our fleet 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.





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.

A new logistics era begins at RheinfelsQuellen

By establishing a leading-edge logistics system at the production location in Duisburg-Walsum, SSI SCHAEFER has elevated the intralogistics processes as well as the entire empties management to a new level for the beverage manufacturer. A fully automated high-bay warehouse, an intelligent and revolutionary material flow control, the use of state-of-the-art algorithms for empties supply, and the use of a range of different warehouse and transport technologies have resulted in a significant increase in efficiency, ensuring cost effectiveness even during seasonal peak periods.

The solution: A four-aisle high-bay warehouse (HBW) with around 53,000 pallet spaces as a matrix solution with 20 storage and retrieval machines, which stock the products in and out on 16 levels. The automated internal pallet transports are largely assumed by two electric monorail systems with no forklift traffic. A circulation system is set up on the top level of the plant. It connects the HBW with the production lines, the picking area, the external goods-in for trading goods, and the empties delivery into the so-called empties yard.





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.



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. SSI 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.



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.

SSI Exyz: Highest energy and cost efficiency for pallet storage

SSI 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.

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 SSI Orbiter LHD. The counterweights integrated into the boom also provide energy savings of up to 25% in comparison to conventional devices during lifting alone.



SSI ORBITER® for flexible and compact storage

The SSI ORBITER® 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.



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. SSI Exyz storage-retrieval machines transport the pallets to their storage channel after they are delivered to the aisle via the conveying systems. SSI Orbiter LHD serves 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

Shuttle Systems and Picking Technologies Ensure Flexibility and Reliable Picking

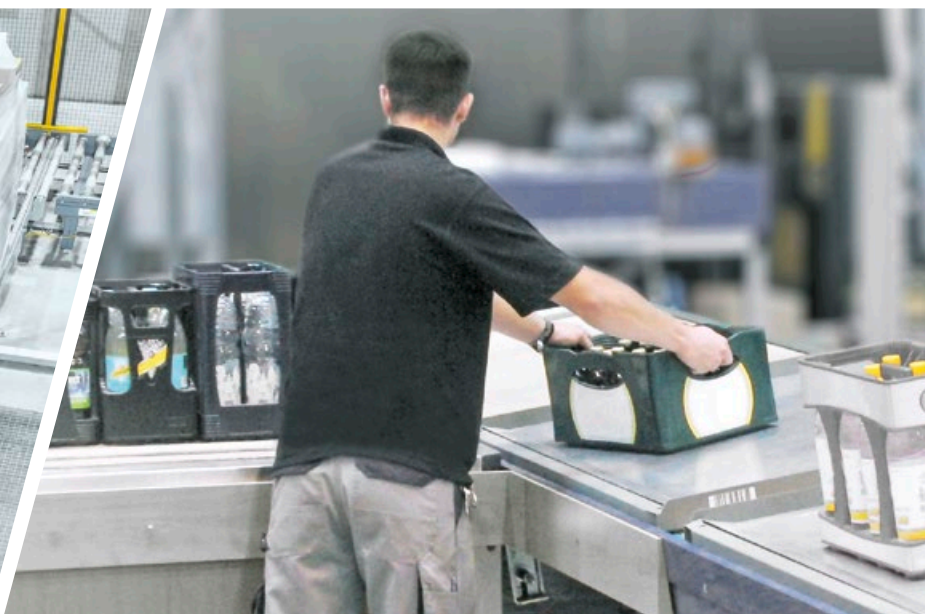
Automation is becoming increasingly prevalent in logistics. Nevertheless, a fully automated concept is not always the ideal solution. Frequent product changes or seasonal volume fluctuations are indicators for the use of semi-automated processes, especially in the beverage industry. That is why SSI SCHAEFER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

Benefits for fully-automated picking

- 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

Benefits for semi-automated picking

- 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 and fast to integrate into your existing picking procedures
- Scalability



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.



SSi Cuby: High-performance for maximum storage density

The SSI 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.



SSi Flexi: Flexible single-level shuttle system

The scalable single-level shuttle for use in highly dynamic automated small parts warehouses with a high variance of transport units up to 50 kg and dynamically adaptable storage location sizes.

Unique: The racking concept with dynamically adaptable storage location sizes. By dispensing with permanently assigned x-storage positions, the racking concept enables space-optimized compartment allocation with maximum storage density.



SSi Lift & Run: Highly dynamic pallet handling for channel storage systems

The SSI 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. The SSI Orbiter LHD stores and retrieves 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.

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.

Gerolsteiner commissions a fully-automated compact warehouse

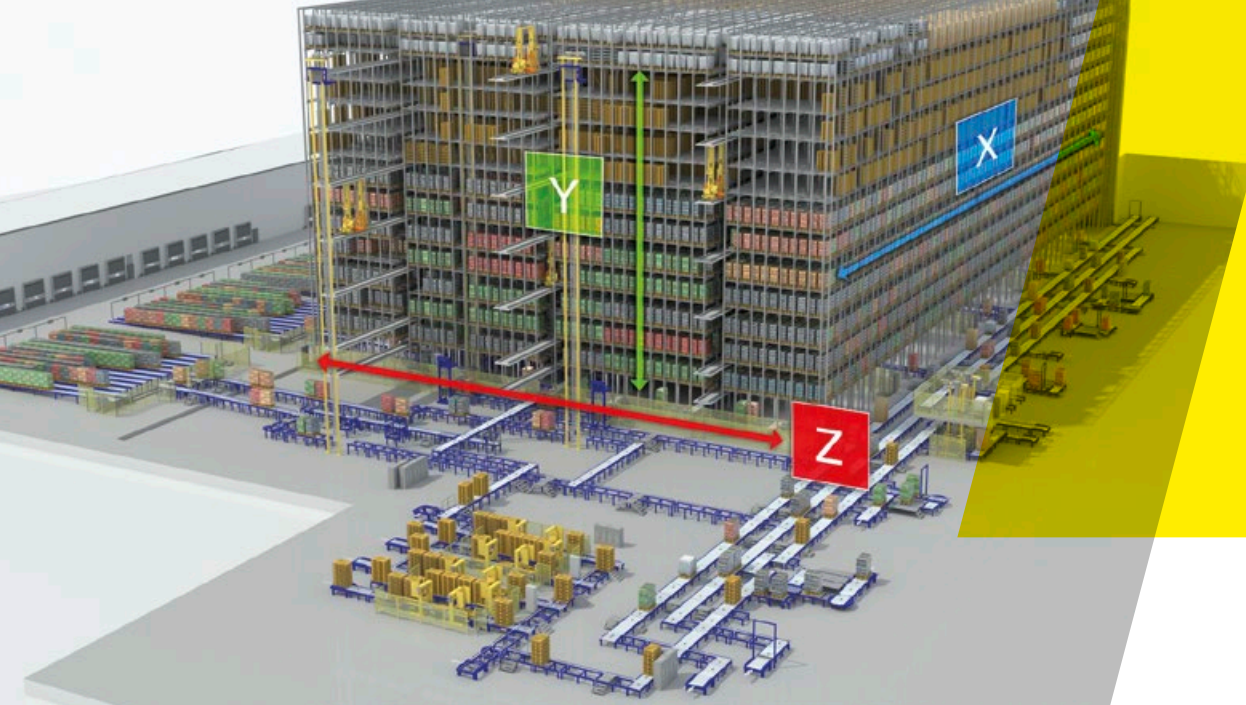
SSI SCHAEFER served as the general contractor for the beverage producer Gerolsteiner and implemented a fully-automated compact warehouse. This facility is one of the most state-of-the-art logistics solutions in the beverages industry. The concept implemented includes channel storage, the SSI Lift & Run,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





3D-MATRIX Solution®: 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.

Capri Sun: Rapid storage and retrieval with integrated sequencing

SSI SCHAEFER created a state-of-the-art distribution center for Capri Sun GmbH which also features SAP EWM material flow control. The 3D-MATRIX Solution® forms the heart of the system. The SSI 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.

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

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





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.



Software Solutions: The Driving Force for Consistently Synchronized Processes

WAMAS logistics software

Our WAMAS logistics software guarantees intelligent solutions for the challenges of today and tomorrow. WAMAS encompasses around 30 years of expertise in the development and implementation of sustainable and scalable intralogistics solutions.

The logistics software can be seamlessly integrated into ERP systems, creating the perfect prerequisites for efficient control of all the logistics processes - from

customer order to the PLC and mobile end devices in manual areas. The software grows with your requirements, supporting your company through any and all expansions.

Proven SAP competence

As a system provider, we are your trusted partner for the selection, implementation, ongoing maintenance and further development of SAP logistics solutions. Our broad range of consulting and implementation expertise is reflected in numerous international projects.

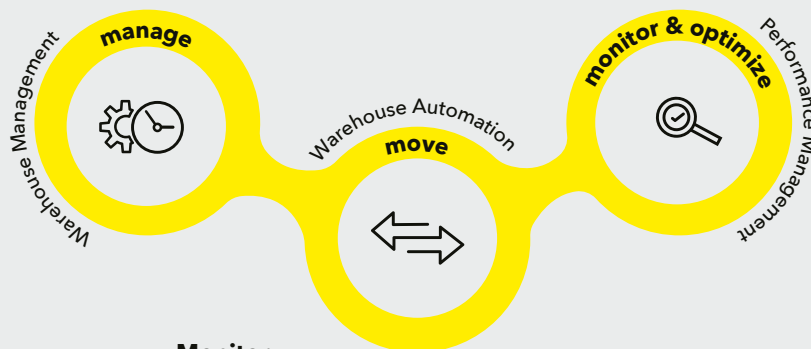
WAMAS® Portfolio

Manage

The state-of-the-art software controls and optimizes manual or highly complex automated processes based on the current daily orders.

Move

Whether forklift transportation, conveyor technology, shuttles or AGVs - WAMAS integrates all components into a high-performance overall system.



Monitor

The central information platform WAMAS Control Center provides insights into warehouse operations in real time and constantly shows potential areas for improvement.

Optimize Processes and Save Costs: More Power Through Modernization

Just as some traditional treatments or remedies are making a comeback thanks to modern research, your warehouse performance can also be pushed forward with new warehouse technologies and software releases.

Technology updates streamline warehouse and picking processes and reduces costs. This includes also updates to previous investments. It does not matter if you purchased an installation from us or from another provider. We analyze your logistical situation together with you to increase sustainable performance and profitability. With our years of expertise, we advise you on areas for optimization and recommend customized solutions.

After preparing a return on investment analysis, we offer you:

- Optimization of organizational and warehouse processes
- Implementation of new picking methods
- Expansion to new warehouse areas
- Extension/modernization of mechanics, electrical engineering, control
- Software and hardware upgrading

Innovative Service Portfolio for Maximum Availability of all Systems

Once your system has been successfully commissioned, our experts will continue to support you. Our comprehensive service portfolio offers customized solutions for all requirements.

Preventive Services

- Maintenance
- Inspection
- Safety Inspection
- Rack Inspection
- Training and Certification
- System Monitoring
- System Security

Reactive Services

- 24/7 Technical Support
- Call Out Support
- SSI Augmented Support

Life Cycle Management

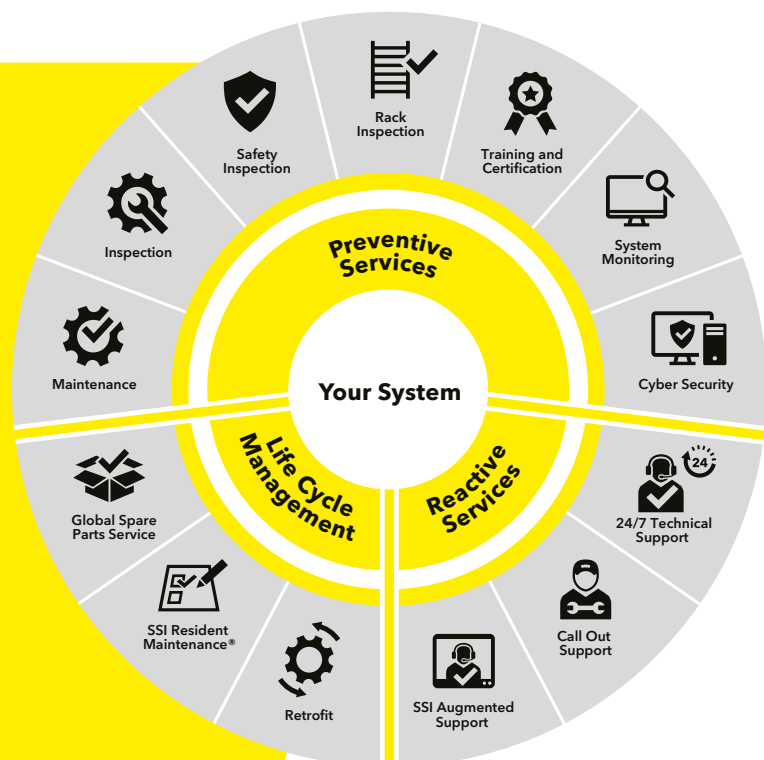
- Retrofit
- SMP
- Global Spare Parts Service

SSI SCHAEFER Maintenance Philosophy (SMP)

With our improved SSI Resident Maintenance® solution, we offer our customers "more than just service".

The SSI SCHAEFER Maintenance Philosophy is based on three core elements:

- Expert employees (SSI Resident Maintenance Team)
- Best-practice processes for technical maintenance and repair work
- Integrated service tools and systems



Six 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 and original equipment manufacturer, 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, both during and 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.

■ **Internationality**

As a global organization, SSI SCHAEFER has local offices worldwide. With over 70 operative subsidiaries, our team of experts speak your language.

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