

TRADING SUCCESSFULLY: SOLUTIONS FOR RETAIL & WHOLESALE

Automate processes, enhance flexibility and efficiency,
optimize availability

ssi-schaefer.com



SSI SCHÄFER

WE ACT IN YOUR INTEREST



The traditional differentiation between the sales channels retail business and mail-order business has often merged into one omni-channel model. End customers in particular benefit from the flexible, location-independent shopping experience. The online business has also gained increasing importance in wholesale. Here, a fast and error-free delivery to the desired location is essential.

Intralogistics challenges:

- Shorter delivery times (same day / next day delivery)
- Smaller quantities and delivery units
- Increasing number of products
- Larger quantity of returns
- Seasonal fluctuations
- Sales promotions such as Black Friday, Cyber Week, Singles Day, etc.
- Omni-channel sales with different order types handled in one distribution center

The SSI SCHAEFER comprehensive product and solution portfolio combined with its exceptional IT expertise provides you with customized and efficient solutions to meet the diverse needs of both retail and wholesale.



SOLUTIONS FROM SSI SCHAEFER

- Manual, semi-automatic and fully automatic storage and picking systems
- Ergonomic work station systems
- Versatile bins and trays
- Efficient returns handling
- Single- and multi-stage picking
- High-performance robotics, modular conveying systems and flexible automated guided vehicles
- Picking of diverse packaging units such as cartons and pallets for B2B and individual items for B2C
- Waveless picking that integrates incoming orders immediately and seamlessly into the picking process
- Process and IT solutions, also for temporary work stations during peak times
- Performant WAMAS® and SAP software solutions

SSI SCHAEFER - WORKING WITH HIGHEST QUALITY

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.

At SSI SCHAEFER, this integrated system philosophy has been the basis of our success for decades. As a global general contractor, SSI SCHAEFER implements complete logistics systems. The services range from comprehensive systems planning and consulting to turnkey systems including tailored service and maintenance offers.

Complete solutions from a single source

SSI SCHAEFER has a broad range of products and solutions covering the entire internal material flow. These form the foundation for solutions specifically developed to meet your precise requirements. Our customers benefit from the fact that we manufacture almost all components within the SSI SCHAEFER Group. With 70 subsidiaries operating around the world and more than 9,500 employees, SSI SCHAEFER is an effective and reliable partner.

Dedication and commitment

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

This includes

- ✓ the commitment to always provide the optimum solution,
- ✓ the commitment to always be there for our customers,
- ✓ the commitment to always fulfill our promises.

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 complete services throughout the entire life-cycle of your systems. Not only today but also tomorrow and in the future. Because as a family-owned company, we take the long-term view.

Specialists for the Retail & Wholesale market sector

Megatrends such as digitalization and urbanization combined with the demographic transformation mean that trading companies are confronted with diverse challenges and a vast product diversity.

SSI SCHAEFER has established its own team of logistics, IT and process experts dedicated to addressing the challenges in this market sector. We implement future-proof solutions for companies in fields such as:

- Furniture
- General Merchandise
- Electronics
- Books & Media
- 3PL
- Do it yourself
- Office Supplies

Regardless of the size of your project, we utilize our extensive expertise to develop and implement modular and scalable intralogistics solutions. These solutions are perfectly harmonized and integrate seamlessly into your processes. We cover the complete product spectrum, enabling us to address your specific needs.







DESIGNED FOR HIGH PERFORMANCE: HOLISTIC SOLUTIONS WITH MODULAR SYSTEMS

Diverse order types, rapid reactions and high availability – even during peak times – distinguish the new world of furniture retail. Ergonomic picking even for large products, zero-error picking and maximum delivery quality represent further challenges. All of these factors require integrated concepts to ensure the highest performance and process reliability. In order to fulfill these requirements, we have developed our comprehensive and flexible modular system to provide customized solutions for the furniture market.

High bay warehouses, ergonomic work station systems and robotics

Safe storage even at more than 40 m height. SSI SCHAEFER offers semi-automatic and fully automatic high-bay warehouses for your needs. You benefit from high storage density, direct access to every article, rapid and reliable processes, and excellent availability along with optimum space usage. Our storage and retrieval machines guarantee fast and flexible material transport with short access times.

The work stations connected to the storage systems are designed using the goods-to-person principle and fulfill the most demanding requirements regarding ergonomics,

safety, performance and employees health. Ergonomic pulling and pushing replace strenuous movements such as lifting and carrying. Intelligent communication and display systems intuitively guide the operators.

Alternatively, SSI SCHAEFER also offers solutions for fully automatic palletizing, depalletizing and picking. Articulated and gantry robots ensure consistent performance and significantly reduce physical strains on the employees.

XXXLutz: WAMAS® logistics software for an e-commerce warehouse



The XXXLutz Group, one of the world's largest furniture retailers, and SSI SCHAEFER have a long-standing cooperation. Together, they have carried out numerous projects including the automated central warehouse in Sattledt (AT) and the e-commerce pilot project in Uffenheim (DE). At the e-commerce warehouse in Vorchdorf (AT), the logistics processes are controlled by the WAMAS® logistics software from SSI SCHAEFER. It determines the optimum routes for picking and transport.

In this way, the software saves pickers and stackers unnecessary travel.

WAMAS® manages more than 3,700 articles distributed among more than 6,000 storage locations and an equal number of pallet locations. The logistics software is capable of managing more than 12,000 storage locations to ensure optimum use of the storage area. WAMAS® has interfaces with XXXLutz's ERP system and shipping software.

JYSK: Intelligent material flow concepts for logistics centers

SSI SCHAEFER is a long-standing partner of the Danish furniture retailer, JYSK. The company is one of Europe's market leaders for bedroom, bathroom and living room articles. In collaboration with JYSK, SSI SCHAEFER has implemented distribution centers in Poland, Sweden and Denmark.

In Uldum, Denmark, SSI SCHAEFER set up three connected high-bay warehouses, two miniload systems, and ergonomic work stations along with an optimally customized logistics software that ensures that all of the processes in the distribution center run efficiently.

The company also assigned SSI SCHAEFER the task of expanding the distribution center. The fourth high-bay warehouse is distinguished by its higher capacity and improved efficiency.

Energy-efficient Exyz storage and retrieval machines are utilized to store and retrieve the pallets. In addition, SSI SCHAEFER also optimized the material flow between the four high-bay warehouses and converted the JYSK systems over to WAMAS®, SSI SCHAEFER's own logistics software.



"During these projects, SSI SCHAEFER demonstrated their high level of expertise and experience in developing solutions. We are extremely satisfied with the final outcome."

Annika Löfgren,
Logistics Manager, JYSK



DYNAMIC AND HIGHLY EFFICIENT: SHUTTLE WAREHOUSES WITH AUTO- MATIC BUFFERING AND SEQUENCING

High throughput, enhanced process efficiency together with rapid and flexible delivery form the central requirements for intralogistics. We have developed multifunctional, modular and scalable solutions to address these challenges.

The 3D-MATRIX Solution®: Dynamics and throughput



The patented 3D-MATRIX Solution® is a highly dynamic system solution for automated warehousing, buffering and sequencing. The special design treats the warehousing cube as a system open on all sides, eliminating the bottlenecks and restrictions of conventional solutions. The matrix consists of three key system components: Shuttle vehicles, lifts and conveying systems that serve all three axes and transfer the goods directly to the connected picking or shipping work stations.

Shuttle systems: Flexibility and maximum performance

SSI SCHAEFER provides you with shuttle systems tailored to your specific requirements and needs, ensuring optimized storage combined with short processing times. Capacity, flexibility and high performance are the key factors. Our scalable shuttle systems combined with the 3D-MATRIX Solution®

enable shorter access times and maximum availability due to the decoupled processes. In combination with the integrated sequencing, this guarantees unmatched process efficiency and throughput.

Gebr. Heinemann: Innovative shuttle system for a full-service warehouse

SSI SCHAEFER implemented the technical devices of the new logistics center in Erlensee for Gebr. Heinemann, one of the world's most important companies in the duty-free sector. The distribution center stocks 35,000 different duty-free articles.

order fulfillment. 64 Navette multi-level shuttles work at the facility and are integrated right into the steel construction of the rack aisles. Orders are picked directly to the shipping cartons at multi-order-picking work stations supported by a Pick to Light system.

A high-bay warehouse for pallets and a modern miniload system based on the 3D-MATRIX Solution® concept form the heart of the 32,000 m² logistics facility. SSI SCHAEFER offers a highly dynamic system solution for storing and picking together with a sequencing buffer for shop-specific

The outgoing goods pallets are loaded with the shipping sequenced in the branch layout. Scissor lift tables ensure effortless work in accordance with the ergonomics@work!® principle.

“The figures prove that we achieve a significantly higher efficiency due to the order processing with the 3D-MATRIX Solution® and the modern components. The rapid access to every storage location and the retrieval sequencing within the facility guarantee highly efficient processes. Furthermore, the system concept offers us maximum flexibility.”

Markus Kellermann, Head of Logistic Operations Distribution Center Erlensee, Gebr. Heinemann



MAXIMUM PERFORMANCE IN MINIMUM SPACE: MODULAR WAREHOUSES WITH OPTIMIZED PICKING

Providing an increasing number of articles and delivering a vast range of order sizes within the shortest possible time are major challenges in the electronics sub-market sector. We have developed numerous future-proof solutions with our modular system to address these needs.



Future Electronics: Flexible system concept for a logistics center

With 169 branches in 42 countries, Future Electronics is one of the largest distribution and marketing partner for semiconductor and electronic component manufacturers in the market. SSI SCHAEFER planned and equipped the Future Electronics distribution center in Singapore with a facility concept designed for growth.

Within three years, the company grew so drastically that Future Electronics decided to immediately implement SSI SCHAEFER's layout design including the planned future expansion options.

Following the manual person-to-goods multi-order picking, the order bins are transferred to the conveyor systems at the stations. The bins are then stored temporarily in one of five universal buffer systems (carousels) until the orders are complete. Using this system, 1,700 orders per day are compiled from more than 50,000 permanently stocked articles.



"With the takeover of the distribution center Singapore we were already able to report a throughput increase of 40 percent in 2009 compared to the previous performance figures. With the now completed plant extension by SSI SCHAEFER we were able to once again increase the efficiency by 20 percent. Counting on SSI SCHAEFER has paid off with the delivery of a flexible, expandable solution."

Martin Bates, Senior Director Operations, Future Electronics



Schäfer Carousel System: Efficient storage and picking

The Schäfer Carousel System is a scalable and modular storage and picking system. Utilizing the goods-to-person principle, it works in combination with the ergonomic Pick to Tote work stations. Optimized work processes increase the pick rate per employee to up to 1,000 picks per hour while

reducing the error rate to almost zero - this together with the most gentle product handling. As such, the system guarantees high performance with the greatest efficiency.



ergonomics@work!®: Enhanced efficiency and quality with ergonomic work stations

We developed ergonomics@work!® as a part of the concept for creating work stations designed to enhance productivity and reduce physical strain. This concept includes:

- Efficient and sustainable material flows
- Optimum layout of control elements and displays
- Clear, simple, and logical user guidance
- Natural, skin-friendly and yet robust materials
- Low-noise working environments
- Integrated error detection and support for error correction

MINIMUM TIMES, MAXIMUM FLEXIBILITY: EFFICIENT WAREHOUSING AND ERROR-FREE PICKING

E-commerce has become highly important in recent years. The traditional differentiation between the sales channels retail business and mail-order business is disappearing. Omni-channel business models are on the increase and becoming the standard when selling goods.

Warehouse processes have become far more complex as customers are often very demanding and expect immediate and error-free delivery of the goods. The challenge consists of simplifying the logistics procedures in the warehouse

for guaranteeing maximum flexibility in order to be able to react to the typical changes of the product portfolio in the e-commerce sector and for ensuring the necessary short delivery times.

SUNING
苏宁物流

Suning: Superlative e-commerce logistics center

The Suning Commerce Group is one of China's largest private retail companies. The company's product range encompasses electronic appliances, office supplies, cosmetics, fashion and groceries. At the new distribution center in Nanjing, SSI SCHAEFER installed a miniload system with about 500,000 storage locations, an automated pallet warehouse with 20,000 locations and a static rack with 18,500 fields.

The Schäfer Carousel System with a capacity to store and pick up to 350,000 articles is utilized for order picking. Customer orders are compiled at the high performance Pick to Tote work stations.

The shipments are either transported directly to the dispatch area or buffered in one of 20 carousels before they are diverted by a sorter with a capacity of 18,000 parcels per hour to the respective shipping destinations and loaded onto trucks. A cross docking station for pre-sorted goods from third parties and a returns center complete the solution.

Suning's IT system is used for administration and stock-keeping, while the SSI SCHAEFER WAMAS® logistics software is applied for control purposes. The result: About 20 million articles are stored and up to 1.8 million positions are processed on a daily basis.



Niemann+Frey: Step by step automation of a spare parts warehouse

Niemann+Frey, a wholesaler for bike spare parts and accessories, permanently maintains more than 50,000 articles in its warehouse. Every day more than six tons of spare parts are picked, packaged and shipped throughout Europe. In 2010 Niemann+Frey implemented a 7,500 m² warehouse in collaboration with SSI SCHAEFER. The facility includes a pallet rack with 4,000 storage locations, a three-level plat-

form with wide-span racks and 12,500 meters of shelving, six packing stations, 16 shipping channels, ten dock levelers and eight loading ramps. Only a few years later, the warehouse was partially automated with two LOGIMAT® storage lifts for storing and picking small parts, along with a bin and carton conveying system that connects the incoming goods with the various picking stations.



niemann+frey

"The collaboration was outstanding - from the project management to the assembly during ongoing operation. A key aspect for me was that we only had one contact person at SSI SCHAEFER despite working with different departments. There are very few companies on the market that offer everything from a single source."

Thomas Schild, Representative and Head of Logistics,
Niemann+Frey

Pick to Tote: Efficient zero-error picking

Fast, gentle, ergonomic: The ergonomic Pick to Tote goods-to-person work station system ensures especially high-speed picking of slow-moving articles with a performance of up to 1,000 picks per hour. The items are picked directly to order

bins and cartons. Clear operator guidance and light barrier monitoring at the destinations guarantee the highest picking quality.





ERGONOMIC, EFFICIENT, RELIABLE: FASTER PICKING, ENHANCED PICKING PERFORMANCE

Increasing e-commerce and fast store delivery, daily and seasonal volume fluctuations, along with continuously changing order structures and customer purchasing behavior, influence the business in the books and media sub-market sector. SSI SCHAEFER has developed the right modules to address these requirements and combines them to create unique and complete solutions.



KNV • LOGISTIK

"Our requirements for the logistics concept in the new warehouse regarding the throughput rate, rapid picking and zero errors were completely fulfilled thanks to the concept implemented by our partner, SSI SCHAEFER."

Uwe Ratajczak, Managing Director, KNV



KNV: State-of-the-art, automated media logistics center

The media wholesaler Koch, Neff & Volckmar GmbH (KNV) is the market leader in German-speaking countries. The company's product range includes more than 540,000 books, DVDs, audio media, games and other book retail articles. KNV works with more than 4,700 suppliers and makes daily deliveries to around 5,500 media outlets in Germany, Austria, and Switzerland using its own transport logistics.

SSI SCHAEFER installed a miniloader system with 56 vertically arranged storage and retrieval machines. This system provides the automatic storage and retrieval of slow and very slow moving articles while making optimum use of the available space.

More than 20 Schäfer Carousel Systems ensure that rapidly required goods are located closely to the work stations and that continuous resupply is available.

A 100%-goods-to-person principle completely eliminates moving times and enables exceptional productivity with more than 400 picks per work station and per hour. This solution also addresses the ever-growing proportion of slow-moving articles in the book retail market that previously required long paths into the depths of the warehouse.

Thanks to the intelligent combination of systems, the entire facility not only provides flexible and efficient processes but also significantly increases quality. The error rate of the entire picking process has been reduced to almost zero.

Even at the manual picking stations, the product removal features scanner-supported user guidance. Technologies support, confirm and monitor all of the logistics processes.

Other elements of the solution: 21 km of carton and bin conveying systems, pallet conveying systems, ten goods-to-person work stations, RF picking stations, 44 Pick by Voice picking stations, 108 Pick by Light picking stations, two sorting loops, handling systems, WAMAS® logistics software.

The logistics center stores up to 1 million different articles. 75,000 packages per day and accordingly up to 10,000 packets per hour are shipped.

The high-performance pre-zone is a particular highlight and connects the storage system with the Schäfer Carousel System. Goods required in the coming hours are transferred from the miniloader system to a connecting loop. This loop either buffers the goods in the Schäfer Carousel System or transfers them directly to the picking work stations.



FLEXIBLE AND HIGHLY EFFICIENT: INTELLIGENT MATERIAL FLOWS WITH AUTOMATED GUIDED VEHICLES

Optimum stock management, high throughput and rapid order processing are key factors for third party logistics companies (3PL) in order to remain competitive. SSI SCHAEFER has developed solutions for intelligent material flows, highly efficient processes and greatest possible flexibility. Numerous customers successfully utilize these solutions.

2XL: High throughput and barrier-free transport

The Belgian logistics specialist 2XL N.V. decided against fixed conveying systems due to the changing article spectrum and to make flexible use of the available space. At the same time, the company also chose to largely automate the standardized transport on the fixed routes between incoming goods, the high-bay warehouse and the outgoing goods department.

Automated guided vehicles provided the solution. The fleet is connected to the warehouse management system's material flow computer and a laser positioning system supports the navigation. This enables pallets weighing up to 1,200 kg to be transported with a speed of up to 2 m/s.



"Automating the transport procedures by using automated guided vehicles has given us the necessary flexibility and efficiency, and we are now benefiting from barrier-free transport. The entire solution enables us to achieve optimum stock management, high throughput and fast deliveries. We therefore have more capacity to store a wider product portfolio but with less stockholding."

Jean Van den Poel, Company Founder, 2XL N.V.

Automated guided vehicles: Efficient, reliable, scalable

Wherever standardized transport is necessary in a logistics environment, automated guided vehicles can be used to automate processes. Utilizing these systems significantly reduces operating costs while enhancing both efficiency and safety. SSI SCHAEFER's fleet includes a diverse range of innovative solutions for large and small load carriers. The vehicles can be flexibly integrated into every individual

warehouse organization: from simple transport applications to the goods-to-person principle to full automation in a single integrated system. Whereas the WEASEL® is the perfect solution for transporting small articles, larger vehicles equipped with fork lifts or conveyor elements for pallets and roller containers increase the flexibility of transport, storage and picking.

Hermes Fulfilment GmbH: Flexible material flows

Hermes Fulfilment GmbH decided to optimize its distribution center in Haldensleben (Saxony-Anhalt, Germany) in order to expand its capacity. Hermes Fulfilment utilizes the WEASEL® automated guided vehicles as the economical and flexible transport solution to connect different areas.

The innovative fleet offers the company a scalable solution for automated goods transport.

WEASEL®: Always on track even without a driver

The WEASEL® small load carriers can handle bins, cartons, trays and hanging goods, serving as universal transport system. The goods are delivered gently and safely to the desired destination and the solution provides an exceptionally rapid ROI. That is why it is no surprise that the WEASEL® received the "International Forklift of the Year 2016" (IFOY) award in the Intralogistics Solution category. Your advantages:

- Standardized control software
- Easy integration into existing systems with different levels of automation, from manual to fully automatic



IT SOLUTIONS FOR INTEGRATED PLANNING, CONTROLLING, VERIFICATION, AND COMMUNICATION



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 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 order processing, goods movement and resource optimization as well as the provision and analysis of logistics key figures.

RETROFIT

OPTIMIZING PROCESSES AND SAVING COSTS WHILE INCREASING PERFORMANCE THROUGH MODERNIZATION

New warehouse technologies and software releases can significantly enhance your warehouse performance, similar to the way in which the internet has massively boosted the mail-order business.

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.

BASED ON A COST-BENEFIT CALCULATION, WE OFFER YOU THE FOLLOWING:

- 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
- Inspection
- Maintenance
- Safety Inspection

WE ARE THERE FOR YOU WHEN YOU NEED OUR SUPPORT

- 24/7 Technical Support
- SSI Augmented Support
- Technicians on Call
- Global Spare Parts 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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