Gradual Transition to Automated Intralogistics

Solutions for Small and Medium-Sized Companies

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Your Challenges, Our Drive



we have learned from our own experience about the special challenges that come with sustained expansion. That's why we're committed to equipping your warehouse for the future so you'll be prepared for the rising customer and market demands of tomorrow. We want to work with you to share our knowledge and build a long-term, sustainable partnership of equals, based on trust.

You will benefit from our holistic approach, which has been the basis of our success since the beginning. Our many years of know-how can help you optimize your warehouse, and we look forward to working with you.

Michael Wegner
Head of Sales PE Germany

Small and medium-sized businesses are especially successful in demonstrating how clever ideas, creativity, and innovation can secure market share and maintain and create jobs. We at SSI SCHAEFER have also gone down this path and have grown solidly over more than eight decades. We have always maintained our status as a family business with pragmatic structures and short coordination paths. At the same time,





Changing Markets and Companies – Time for Something New

According to a report by GTAI, around 20 million companies in Europe are classified as small and medium-sized enterprises, following the European Commission's definition of SMEs. Around 95 percent of them are categorized as MSMEs (= micro, small and medium-sized enterprises[1]).

Consequently, SMEs account for a large share of global economic output. There is a reason for their reputation, given that family-owned SMEs, in particular, are regarded as extremely creative, innovative, and quick to respond, steadily consolidating their reputation as the "engine of the economy." However, SMEs are also subject to persistent cost and competitive pressure. New retail concepts pose yet another challenge due to changes in consumer behavior. Explosively increasing expectations of maximum availability and the shortest delivery times are almost standard fare in the B2C segment, and are increasingly shaping B2B business as well. Both these developments and continuous growth are causing the complexity of logistics to rise steadily.

SMEs, in particular, are feeling the effects of this. In their early years, individual shelves at the hardware store and open spaces are often all they needed in order to stock goods. Companies expand, though, and the general conditions change. The logistics needs to reflect this development, too. Otherwise, constantly increasing order intake will cause bottlenecks and create intolerable cycle times.

Partial Automation for Better, Faster, More Efficient Logistics

Expectations for logistics are constantly growing. The ability to respond continuously requires a high degree of agility and flexibility. Personnel shortages and cost increases need to be accommodated. To remain competitive and able to deliver, companies need to act now to equip their warehouses for the future. In this context, affordable (partially) automated plug-and-play solutions are a very promising option. They form the basis for easy integration into existing processes, even in the face of dynamic requirements, and allow flexible extension as part of ongoing expansion. Clever combinations of individual logistics modules can also be used to further increase performance and efficiency within the processes.



Intralogistics Optimization: Why (Partially) Automated Warehouses Are Ideal for SMEs

In manually maintained warehouses, various factors cause extra work and added costs. Manually carrying out processes leads to a higher error rate, longer delivery times, and, as a result, a higher rate of returns. Another reason for the drop in delivery quality is greater search effort. When capacity is insufficient, goods often get placed wherever space happens to be available. Experienced employees may still have an idea of where the ordered products can be found, but new employees quickly become overwhelmed. This significantly decelerates the pace of order processing, which increases process costs and can rapidly lead to declines in customer satisfaction. That, in turn, risks customer attrition, with an associated fall in profits.

In contrast, automation offers maximum process reliability, eliminating the need for extra work – the costs of which are often difficult to calculate. The associated software also provides transparency about stock. This makes products directly accessible, reducing resource dependency.

Flexible and Economical: Scalable Intralogistics Solutions, Assembled From System Modules

However, the effects of choosing a large-scale automated intralogistics solution right from the start are often difficult to model economically, and this choice could significantly impair performance due to oversizing, or even undersizing. Modular, scalable storage and picking systems can be a much more suitable alternative. The spectrum ranges from manual to (partially) automated systems that grow flexibly with the company's development and its specific requirements. Increases in volume are often difficult to forecast in advance, but when they occur, modular expansion can be used at any time to compensate for them quickly. Companies can thus adjust capacities to actual demand step by step.

Especially in routine processes, this allows companies to save time and money while significantly improving delivery quality as well. All the components are scalable and allow flexible combinations. Therefore, needs-based intralogistics solution packages tailored to the company's specific requirements are available for every phase of business development.



Efficiency in the Warehouse: The Benefits of Automation at a Glance

- **Skilled labor shortage and staff availability:** Using automated warehouses, companies can reduce the need for manual labor, compensate for the shortage of skilled workers, and achieve more resource-independent operations.
- **Reduction of extra work and additional costs:** Automated processes reduce the error rate. Delivery quality improves, and fewer returns require time-consuming handling.
- **Effective space utilization:** Automated warehouses usually allow more effective utilization than manual ones because they make better use of the space available. That saves space and allows higher storage density.
- **Better organization and less search effort:** Use of a warehouse management system (WMS) improves stock organization and reduces the effort of searching for the required goods. This saves time and increases the overall efficiency of warehouse processes.

Six Myths of Automating Intralogistics

Fully automating a warehouse has many advantages: It increases efficiency and speed in order processing; compared to purely manual processes, it also contributes to cost reduction and reduces error rates. However, in any specific use case, it's worth considering whether automating is really the best solution.

Below we discuss the most common myths about automation. We explain why they don't always correspond to reality and what automation is really all about.



Myth 1:
Everyone needs automated processes.

Forward-thinking companies may get the impression that implementing fully automated systems is essential for all logistics centers without exception. But this is not always true. For a small product portfolio, a small number of goods or a low storage capacity, a manual solution, or a partially automated one that grows with the company can be a better choice in some cases. Especially when there are no plans for future expansion, it can often be more efficient for companies to process and handle small order volumes partially automatically or manually.

Myth 2:
Integrating all the processes into a single system is too difficult.

Often neglected in system conversion is data migration for introducing or converting to a highly automated storage system. If a company is already using manual and partially automated systems to manage and control warehouse activities, valuable information and data are available. Migrating these requires preparation and informed analysis; the process is substantial but worthwhile. If a company is already using a warehouse management system (WMS), the integration process is much smoother and faster.

Myth 3:
Automation leads to loss of control within the process.

On the contrary: with software, automation provides greater control. The logistics software monitors the processes and provides detailed information on the available items. These visualizations cover not only the system, but also the material flow; the software also provides key performance indicators and offers comprehensive control options.

Myth 4:
Automation is always too expensive.

Looking just at the higher purchase costs for automated solutions doesn't give you the full picture. Their use can achieve a rapid return on investment (ROI) thanks to the process and personnel cost reductions that follow. Depending on the scale, the purchase costs may pay for themselves fully within as little as three to five years. They represent an investment in the future, so quality is a crucial factor; inferior quality can lead to costly downtime or further expense in the long run. Depending on the corporate strategy and development, gradual integration of automated systems may make sense. Investments and process modernizations can be incremental, and performance improves step by step.

Myth 5:
Automating all the processes takes a lot of time.

At first glance, implementing full warehouse automation appears time-consuming for several reasons. First, a provider must determine the equipment required, develop the initial design concept, and select the solution according to the customer's expectations and budget. Only then can the installation and commissioning processes begin. Introducing automation with ongoing operations also presents a particular challenge. A smooth transition requires careful planning. With such planning, the advantages of automated systems, such as storage location optimization, improved technical performance, scalability, and ergonomics, already become clear in the construction phase. Of course, partial or full automation of existing logistics centers is more time-consuming than greenfield projects, but it can be implemented while the system is in operation. Therefore, providers should work with the customer right from the project planning phase to align their strategic business plans and expectations with logistics to optimize for the long term, balancing modernization of the existing system and new construction.

Myth 6:
Automation requires personnel changes.

Automating or modernizing a warehouse does not necessarily entail additional costs, a significant investment of time for training employees, or even their replacement. User-friendly interfaces facilitate the operation of automated logistics processes, so in the future, employees can carry out tasks involving greater responsibility. Compared to manual processes without automated quality control, the probability of errors is minimized. Another important benefit of automation is greater safety. In addition, the goods-to-person principle allows maximum picking quality by delivering the goods directly to the picking workstation.



Warehouse Solutions at a Glance – From Static to Dynamic

Intralogistics solutions ensure transparency, constant availability, and fast order processing. The products range from pallet racks, conveying systems, bin systems, and rack and storage platforms to small parts storage systems, dynamic storage retrieval machines, shuttles, and automated guided vehicles (AGVs).

These provide the basis for the solutions tailored specifically to customers' requirements. It's important for them to be able to adapt to the rapidly changing environment, allow custom combinations, grow along with the company, and ensure perfect value creation in the process.

Static Racks Bring Order to Any Warehouse

Versatile static racks are the ideal solution for any storage needs. Companies benefit from quick and easy installation and future scalability. Whether for folders, boxes, cartons, or clothing – static racks meet storage challenges efficiently.



Mobile Racks – Strong and Flexible

Mobile racks not only optimize space utilization but provide greater flexibility by freeing up new areas. They offer maximum flexibility for the size and quality of the goods stored, which may vary from extremely large and heavy goods to documents, apparel, small parts, spare parts, tires, or tools.



Storage Platforms Provide Optimal Space Utilization

Rack and storage platforms increase the available area in the warehouse and ensure optimal space utilization. Whether single- or multi-tier installations, platform systems offer a wide range of possible uses and designs.



Pallet Racks: An Effective Solution for Large Load Carriers

Pallet racks are just as practical as Euro-pallets and industrial pallets. Whether for flat pallets, mesh box pallets, long goods, tailor-made large cartons, bulky custom protective packaging (e.g., vehicle bumpers), or other loading aids – traverse racks for single or multiple location storage allow extremely flexible use and ensure fast product turnover.



Flow Racks – a Clever Storage Principle

The FIFO (first-in, first-out) principle is used for storage of goods with expiration dates or batches/product series that require monitoring. The first goods placed into storage are also the first ones removed (FIFO). The flow rack can play an important role as a storage buffer in the goods-in and goods-out areas, or in production.



Vertical Lift Modules: Compact Small Parts Storage and Picking System in One

Vertical lift modules can be compared to an oversized chest of drawers with two rows of trays designed to optimize space utilization in the vertical direction. Between the two rows is a lift, which pulls out the individual trays and moves them to the operator opening. Each tray can be individually loaded with bins or cartons or used without any kind of partitioning.



Shuttle Systems for Channel Storage: Sophisticated Technology with Maximum Efficiency

Shuttle systems for channel storage offer optimal space utilization with maximum flexibility, maximum personnel safety, sustainability, and ease of operation. This innovative technology for automating pallet handling enables enormous increases in efficiency.



Automated Guided Vehicles (AGVs) Function Like Team Members

Automated guided vehicles that follow a route make material flows more efficient and productive. AGVs allow flexible integration into any specific warehouse structures, handling tasks from simple transport to point-to-point transport to full automation in an integrated overall system. Use of autonomous mobile robots (AMR) increases autonomy, since they are able to find their routes on their own and carry out entire tasks autonomously.



Compact Storage and Optimal Performance

Automated small parts storage, in conjunction with SSI Miniload storage retrieval machines, can be configured with a variety of specifically tailored system options. These allow storage of a wide variety of items on precisely fitting load carriers while also ensuring high system availability.

Fully automatic systems offer more advantages than manual or semi-automatic solutions. They also require the highest level of investment – but again, the ROI speaks for itself. Depending on the application, a fully automatic system may be best suited when high technical performance is required, the number of items is high, or very dense storage is desired. Automated systems are scalable and designed for dynamic, compact storage in bins or cartons or on trays. Storage retrieval machines, shuttles, and the corresponding software keep the warehouse processes running efficiently.









Achieve 24/7 Availability and a Constant Material Flow

Optimize Storage Processes on Static & Dynamic Pallet Racks with AGVs

Combining static and dynamic pallet racks (such as flow racks) with automated guided vehicles allows a constant material flow and ensures process reliability. This combination is efficient, attractively priced, and extremely reliable. It can be adapted gradually to existing or newly planned warehouses at any time. It can be integrated into any warehouse management system (WMS) and is also available as a standalone solution.

Advantages

- Simple and uncomplicated configuration
- Modular system for tailor-made warehouse solution
- Maximum safety thanks to stable construction of racks of AGVs



Partially Automated Small Parts Picking on Very Limited Space

Vertical Lift Modules Are More Efficient When Used With Automated Guided Vehicles



The synchronized interplay of one or more vertical lift modules with automated guided vehicles (AGVs) improves quality and efficiency. This approach increases storage density, improves technical performance and picking quality, and virtually eliminates operational interruptions caused by slow material supply or incorrectly supplied parts.

Benefits

- 50% time savings during entire picking
- Increase in availability speed by 90%
- 120 m² storage space on a footprint of 11 m² possible
- Constantly timed flow of goods
- Improved utilization and error reduction
- Reduction of buffered stock

Compact, High-Performance Total System Solution for Constant Flows of Goods

Mobile Racks Are Even More Efficient in Conjunction With Automated Guided Vehicles

This bundled solution package, consisting of mobile rack systems and automated guided vehicles (AGVs), allows flexible integration into available hall layouts, saves space, enables a constant material flow around the clock, and helps permanently reduce operating costs. Staff dependency is reduced and the error rate tends to be zero.

Advantages

- 40% less space required than with stationary rack lines
- Only one operating aisle to access stored goods
- Storage capacity increased by more than 90%
- 85% more storage quantity on the same footprint Lagermenge auf derselben Fläche
- A constantly timed flow of goods and error reduction
- Improved utilization and minimization of buffer stocks





The Capacity and Efficiency of Small Parts Handling Can Be Increased Quickly

A Plug-and-Play Solution Package Combines Static Racks With Mobile Robots

The combination of static racks with mobile robots is the ideal solution to ensure customer satisfaction by significantly reducing picking and order processing times. This integrated solution package is perfect for e-commerce. It can be installed quickly in existing facilities and scaled up easily at any time, reducing logistics costs in the long term.

Advantages

- 80% – 130% storage density increase possible
- Can pay for itself within a few months
- Scalable solution; grows with requirements and fluctuations in demand
- One integration partner for the entire solution, including all interfaces
- Implementation in under six months



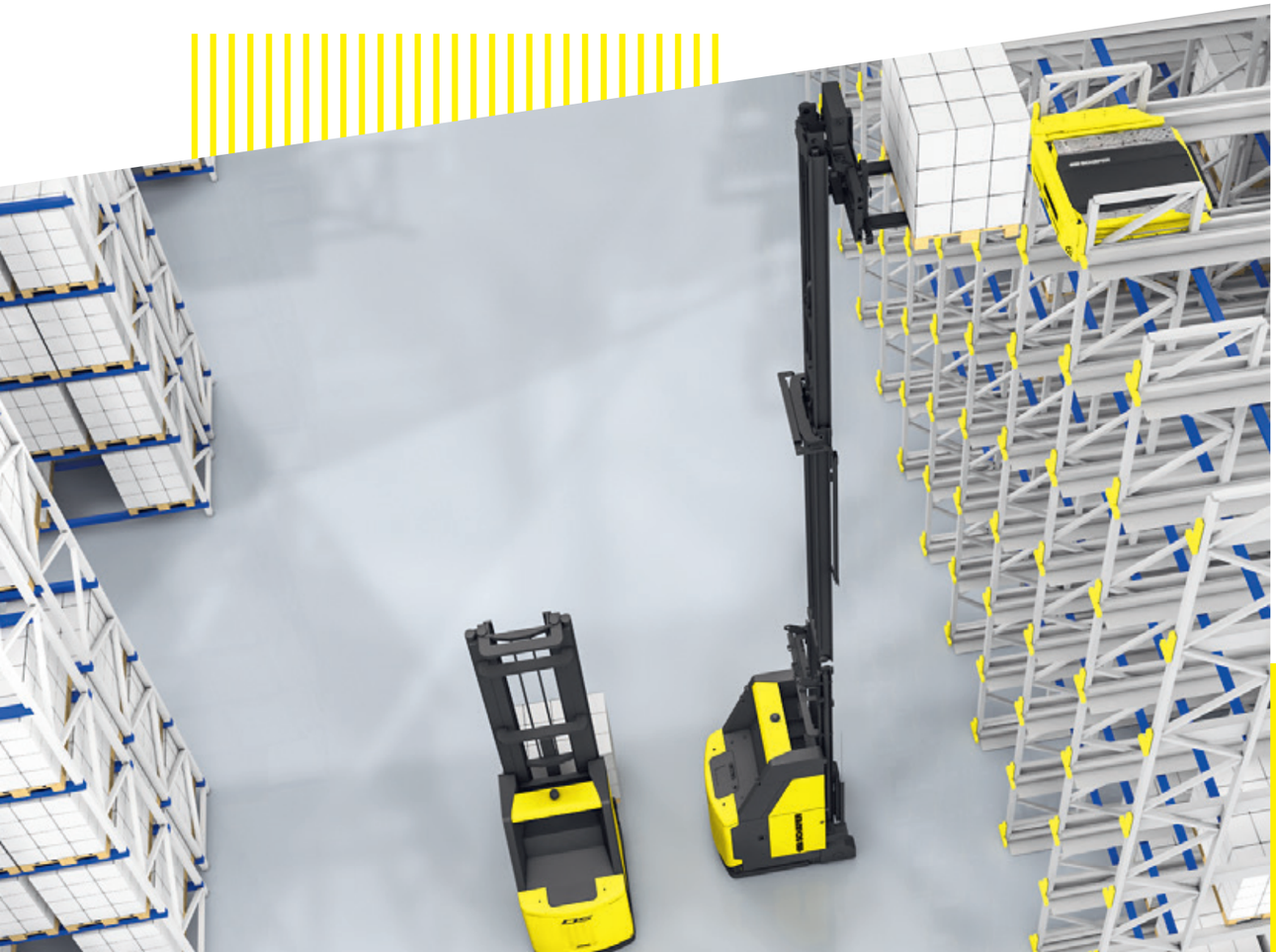
A Partially Automated Channel Storage Solution for Optimized Pallet Handling

Automated Guided Vehicles Make Shuttle Systems Even More Powerful

Automated guided vehicles can be used to partially authorize a compact pallet channel warehouse operated by a shuttle system. This guarantees 24/7 availability of goods during operation, compensating for persistent staffing shortages and providing consistent basic transportation. Software support allows synchronization of transport within the network and, once installed, an existing solution can be expanded gradually if necessary.

Advantages

- Low space usage; easy integration into existing buildings
- High storage density and volume optimization reduce operating costs
- A constantly timed material flow
- Resource-independent 24/7 availability of goods
- Improved utilization and error reduction
- Minimizes buffer stocks on pallets
- Integrated Warehouse Control System (WCS): Improves performance and increases flexibility
- Low initial costs: The system expands with your requirements







Application Examples

Ostendorf

just six months, plastic pipe manufacturer Ostendorf in Emstek automated its existing mobile rack system with automated guided vehicles. The solution benefits Ostendorf by ensuring transparent, error-free processes and making the material flow resource-independent – and thus more efficient – in three-shift operations. The combined solution enables the company to meet its customers' increasingly specific demands and strengthen its position in a highly competitive market.





WFL

Machine tool manufacturer WFL Millturn Technologies was looking for optimization approaches to meet its growing logistical challenges. Installation of vertical lift modules increased the vertical storage capacity for small parts, freeing up an impressive 110 m^2 of floor space in the existing hall. At the same time, picking performance increased by 50%. The devices are controlled directly by SAP, eliminating the need for subsystems and interfaces.

Schönholzer

Schönholzer Transport AG, a logistics company and member of the well-known Swill Planzer Group, offers room for all kinds of goods in 17,000 m2 of warehouse space. To reduce their employees' workload and overcome the very long distances – over 400 meters – between the picking workstations and the goods-out area, Schönholzer used automated guided vehicles (AGVs) to automate and optimize the internal material flow. This automation has allowed them to significantly increase capacity, simplify workflows and guard against a shortage of skilled workers – a problem that plagues this industry like many others.

C+C Krug

Plastics electroplating specialist C+C Krug GmbH, from Ottendorf-Okrilla, also opted to partially automate its logistics processes. The solution they chose consists of three vertical lift modules, a bin and carton conveying system, automated guided vehicles, and two transfer stations. The warehouse concept has been designed for expansion to be carried out over various construction stages.









Smart Software

Process Support and a Fully Digital Workflow

As the complexity of intralogistics processes increases, so does the value of intelligent software solutions that allow modular, flexible use while providing total transparency on the inventory and process levels. Logistics software can link all the modules into a powerful overall system. The wide range of options for controlling manual and (partially) automated solutions can be tailored precisely to customers' individual needs and requirements. The software can easily be coupled to existing ERP systems via open interfaces.

The Right Software – What to Look for

- Modular standard software for the entire intralogistics process
- Process optimization through innovative KPI analysis
- Dashboards for real-time data visualization
- Consulting, implementation, and training

Service & Support

Maximum Availability of All Systems

To keep intralogistics systems operating at the highest level of availability at all times, proactive service and short response times are crucial. Failures and downtimes cost money and can affect the reliability of the supply to customers, production plants, and assembly workstations.

Therefore, priority should be given to service and support concepts that allow flexible customization to requirements. Thanks to clearly organized dashboards, system status information and the most important KPIs can be monitored at all times.

The Benefits for You at a Glance:

- Maximum availability of all systems
- Short response times, 24/7 support
- Preventive services – rapid problem solving
- Reactive services – optimal system protection
- Lifecycle management – extending the service life







Planning and Project Start

Thinking It All Through Carefully

Every company has its own specific logistics requirements. So, any successful planning initially requires an in-depth analysis of the current situation.

Whether the plan involves new construction from scratch, an extension or a retrofit, it's always advisable to turn to professionals. Expert consultants can examine the current situation and derive specific requirements from it to design a customized solution for your individual requirements. That saves time and money.

Before you contact vendors, you should have the following data. Taking it as a basis, the vendor can develop a solution concept with the right level of automation and the right technology and help plan for future growth.

If this data is not all available yet, that's not a problem either. With the item master file and order lines, the vendor can perform a comprehensive material flow analysis.

For a customized solution, it's important for the vendor to understand the company's unique business and needs. If additional information relevant to the analysis is not listed here, it should be noted in advance and brought up during the consultation. This allows an efficient, customized overall solution to be designed.

The expert consultant will need the following information:

- Number of SKUs
- Required technical performance
- Types of itemsl
- Type of picking (whole pallet, layers, cases, etc.)
- Description of the processes to automate
- Data collection requirements
- Current software solution (if any) and need for integration
- Current number of employees and shifts (for retrofits and expansion projects)

Choosing the Perfect Location

Integration Into Existing Structures

When it's time to take your first step toward automation, or to optimize or expand processes, the existing system needs to be examined in detail. Where the system is located is just as important for the material flow as the actual parts that need to be transported. If the plan is to continue using the existing system, the following should be considered:

- In what area of the warehouse do you plan to implement the new solution?
- What is the maximum usable height in this area, if applicable?
- How does this area fit into the existing material flow?

Implementation in a Greenfield Project

If construction of a new system, also known as greenfield construction, is planned, the new solution must be considered during the planning phase of the new building, since the modules of a (partially) automated intralogistics solution may have certain structural requirements.

A Warehouse Equipped for the Future

With a new (partially) automated intralogistics system and a more efficient material flow, you can expect significant increases in order volumes. To ensure future scalability, it's important not to locate the new automated logistics solution at a dead end. Be careful to ensure correct placement to allow for future expansion.





Conclusion

A smooth transition to automation requires careful planning. First, determine the equipment required, develop the initial design concept and select the solution according to your expectations and budget. This way, you can decide between modernization of the existing plant and new construction.

Although the purchase costs for automated solutions are higher than for manual systems, their use achieves a rapid return on investment (ROI). Depending on the scale, they may pay for themselves fully within as little as three to five years! Quality is also a crucial factor when investing in the future: In the long run, inferior solutions can lead to costly downtime or further expenses. Therefore, depending on your company's strategy and development, gradual integration of automated systems can make sense. This approach allows you to make investments and modernize processes step by step, improving performance gradually.

As a result, how long your journey takes totally depends on your individual goals and plans. Feel free to contact us at any time for specific questions about your project!

Let's Talk About the Future of Your Warehouse

As your partner, we want to accompany you in your growth and provide you with helpful support in overcoming the challenges that arise along the way. You will benefit from our history as a small company that then expanded, and this history enables us to put ourselves in your shoes. This makes it possible to further develop ideas and jointly transform them into long-term efficient and, at the same time, investment-safe solutions that you can use to respond flexibly to increasing market demands at any time and to implement new business models within the shortest possible time.

Do you need more information? Or do you have questions about a specific project?
We're here for you with one-on-one support!

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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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