



SCHAEFFLER

CASE STUDY

Reference Schaeffler, Germany:
State-of-the-Art Distribution Center
in the Industrial Sector

ssi-schaefer.com

SSI SCHÄFER

A SUPPLIER FOR ALL PURPOSES

The Schaeffler Group is one of the most influential automotive and industrial suppliers. In Germany alone, the group employs 32,700 people.



Over the past few years, the Schaeffler Group has bundled the supply of the European market in three distribution centers. The main objective was to develop a more cost-efficient and flexible supply chain, from the supplier, through the production network, to industrial customers. In addition to the reliable production of assembly line orders, this particularly targets processing the ad hoc orders of industrial customers.

The largest and most important functional European distribution center, EDZ Mitte, is constructed on an area of 94,000 m². This site is located in Kitzingen on a 75-hectare location, which was the former home of the U.S. American Harvey Barracks.

EDZ Mitte at the core of the network supplies Central Europe and the overseas markets. The warehouse products of Schaeffler are delivered after an order is received to

SSI SCHAEFER built a distribution center in Kitzingen, Germany, following the purpose to quickly deliver state-of-the-art components. It is the heart of the new European supply network for Schaeffler's industrial customers.



customers throughout Europe (depending on country and service level) within predefined time intervals. For this reason, the plant in Kitzingen was designed for maximum flexibility, availability, and process efficiency.

SSI SCHAEFER was awarded the contract as general contractor for intralogistics to provide an holistic approach to design, planning, and construction of the turnkey plant.



"We wanted to receive the expertise needed for various technical components as well as the ergonomically designed work stations from one source."

Dr. Jörg Zellerhoff
Technical Project Manager Logistics at Schaeffler Group

MOVING THE FUTURE TOGETHER

The main goal of EDZ Mitte to guarantee a reliable supply of goods to Schaeffler customers had numerous project challenges. Powerful logistics systems and the software system WAMAS®, which was integrated into the Schaeffler leading SAP EWM software, ensure maximum goods availability.

Beyond automating the internal material flows, the challenge that Schaeffler wanted to overcome was the ability to support the system availability with a status-based servicing and partially-automated maintenance. Schaeffler and SSI SCHAEFER collaborated to develop the "Maintenance 4.0 for Intralogistics" solution package, which was first successfully implemented in EDZ Mitte. The system helps to eliminate unplanned downtimes of system critical components, thus lowering maintenance costs.

PROJECT OBJECTIVES

- Optimization of the global supply chain in terms of cost, speed, and flexibility
- Increased product availability and efficiency in order processing
- Significant reduction of delivery times
- Increased logistics performance with lean processes to bundle complex orders
- Packaged solution for predictive monitoring and semi-automated maintenance
- Visualization of system components in the WAMAS® Lighthouse logistics cockpit







Ergonomic work stations for picking and de-consolidation



Fully automated lubrication

FOR THE MOBILITY OF TOMORROW

Based on the plans of Schaeffler relating to the range of items, order structure, and throughput requirements, the SSI SCHAEFER intralogistics specialists designed a highly dynamic system with fully automated processes for in-house material flow, from the receipt of goods to shipment.

After the pallets have been recorded at the incoming goods area, three conveying system lines with integrated checkweighers feed them to the transfer stations for further transport via an electric rail-guided vehicle system. The electric rail-guided vehicle system transports the pallets on an approximate 900 m long circuit either to storage conveyors for the high-bay warehouse (HBW) or to separation of containers for storage in the automated miniload at one of the connected work stations. In the fully automated 7-aisle HBW, seven dual-mast energy efficient Exyz generation storage and retrieval machines assume the storage and retrieval function.

They are equipped with double-deep load handling devices, which allow simultaneous transport of two Euro pallets or four half pallets - with a throughput of up to 230 pallets per hour.

At the same time, the 6-aisle, two-story miniload provides almost 100,000 container storage locations. There, twelve Schäfer Miniload Cranes (SMC) used in stacked pairs ensure a turnover performance of up to 1,500 containers per hour.



with "Schaeffler Concept8"

Pallet transport via electric rail-guided vehicle system



Two-story automated miniloads with Schäfer Miniload Cranes

In addition, as part of the "Maintenance 4.0 for Intra-logistics" concept, smart systems are utilized for status monitoring and for partially automated maintenance of system components. In EDZ Mitte, a total of 58 Schaeffler Smart Checks assume status monitoring of drives relevant to operation for the SMC as well as the Exyz devices. They transfer information for visualizing to the central WAMAS® Lighthouse data platform.



Moreover, with the "Schaeffler Concept8", 2,500 drives for chain conveyors and roller conveyors are automatically lubricated over the entire 1.97 km conveying system. Custom-designed lubrication pinions continuously deliver lubricant as needed.

FLEXIBLE AND SCALABLE SOLUTION COMPONENTS

Schaeffler relies on the WAMAS® logistics software from SSI SCHAEFER to control internal material flows within the operation at EDZ Mitte. The WAMAS® Lighthouse logistics cockpit also assumes the visualization of the processes and workflows. Configurable dashboards are displayed on the logistics circuit and, by displaying significant KPIs, the logistics processes can be designed more efficiently.

Another key feature are custom work stations that are specifically designed to meet each customer's needs. With 20 Pick & Pack plus ten de-consolidation stations, a total of 30 multi-function work stations were set up by SSI SCHAEFER based on the proprietary ergonomics@work!® concept. Thus, vacuum grippers, telescopic tables, and individually configurable positioning of tools and work devices provide ideal support for the employees.



Other LTB options: In order to completely cover and secure containers stacked on a Düsseldorf pallet, the covers feature end guide grooves for strapping. Another Schaeffler requirement was a smooth vibration welding floor with channel ramps and floor assembly for optimized running properties, high content loads, and extremely quiet transport on the conveyor lines.

Trapezoidal water drainage holes were installed specifically for Schaeffler. First, to ensure water drainage holes that are typically set in the floor were not concealed by the anti-slip mat. Second, to still meet fire protection requirements.

The containers from the miniload are sequentially fed to work stations for order processing to coordinate with the pallet goods from the HBW. A sequence tower is positioned upstream of each work station for this purpose, which ensures a continuous material delivery to the work station with a stock of up to 20 containers. Dialog guided zero-error order picking is performed with the aid of display indicators, integrated checkweighing systems, and scanners.

Additionally, SSI SCHAEFER LTB warehouse and transport containers specifically designed for the customer are also used. They feature superior volume utilization and a reinforced lower and upper edge as well as four stable corner posts. Custom designed floor variants ensure trouble-free transport on all conveyor lines. These attributes guarantee high torsional strength and safe stacking.



Schaeffler relies on closed circuit systems for the intercompany supply to the EDZ. The organization of the fast empty container circuit with two depalletizing robots is a technical highlight of the system.

“Given the challenges of a project such as this, as well as the short implementation phase, we were pleased to have a competent partner such as SSI SCHAEFER by our side.”

Dr. Jörg Zellerhoff
Technical Project Manager Logistics at Schaeffler Group

FIGURES/DATA/FACTS

System Key Figures

Surface area	94,000 m ²
Logistics area	25,000 m ² on two levels
Turnover	3,500 pallets a day

SSI SCHAEFFLER Scope of Supply and Services

High-Bay Warehouse (HBW)	
Storage locations	28,000 Euro pallets 56,000 Düsseldorf pallets
Storage type	Düsseldorf pallets: Double deep Euro pallets: Single deep
Number of storage and retrieval machines / aisles	7 two-mast Exyz-type storage and retrieval machines / 7
Throughput	230 pallets per hour

Miniload	
Design	Double stacking design
Storage locations	99,360
Storage type	Double deep
Number of storage and retrieval machines / aisles	12 Schäfer Miniload Cranes (SMC) / 6
Throughput	1,500 containers per hour

Picking and Transport Containers	
Type LTB 6220 PP (600 x 400 x 220 mm)	<ul style="list-style-type: none"> - 100,000 units - Front side open handles - Loads up to 50 kg - Handles closed laterally - VS01 vibration welding floor - Lateral water drainage holes approx. 10 long side and front side - Front and long side label fields for accompanying documents - One Regupol 7210 LS plus anti-slip mat each container

Conveying System	
Pallet conveying system	1.97 km conveying section
Bin conveying system	2.2 km conveying section
Electric rail-guided vehicle system	900 m long / 50 vehicles

Handling Systems	
Depalletizing and palletizing robot	2
Pick & Pack work stations	20
"Standard" de-consolidation work stations	8
"Combo" de-consolidation work stations	2
Delivery note application	Automatic

Software	
Logistics software	WAMAS®
Visualization system	WAMAS® Lighthouse







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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