

CASE STUDY

Reference RheinfelsQuellen, Germany:
Refreshingly Efficient -
Start of a New Era of Logistics

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SSI SCHÄFER

INTELLIGENT SOLUTIONS FOR SEASONAL PEAKS

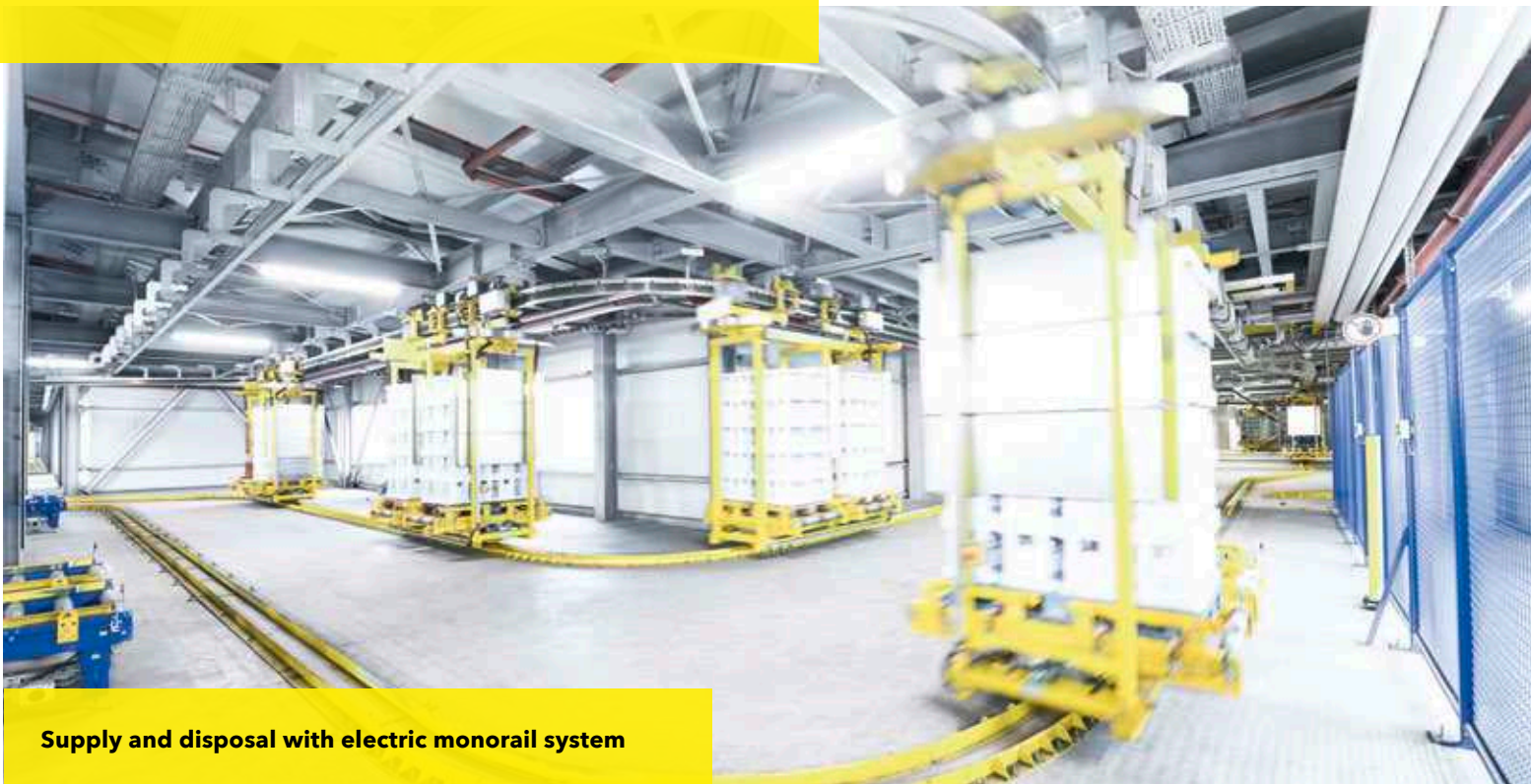
By establishing a leading-edge logistics system at the production location in Duisburg-Walsum, SSI SCHAEFER has elevated the intralogistics processes as well as the entire empties management to a new level for the beverage manufacturer. A fully automated high-bay warehouse, an intelligent and revolutionary material flow control, the use of state-of-the-art algorithms for



RheinfelsQuellen produces around 200 different types of beverages at eight bottling lines in Duisburg. 250,000 beverage bottles are filled here per hour with mineral water, spritzers, vitamin drinks, and isotonic soft drinks.

More than 80 % of those are returnable bottles. The ecological sense of responsibility poses enormous challenges not only to the system layout for optimal material flows, but also to IT with respect to controlling efficient intralogistics processes.

empties supply, and the use of a range of different warehouse and transport technologies have resulted in a significant increase in efficiency, ensuring maximum 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

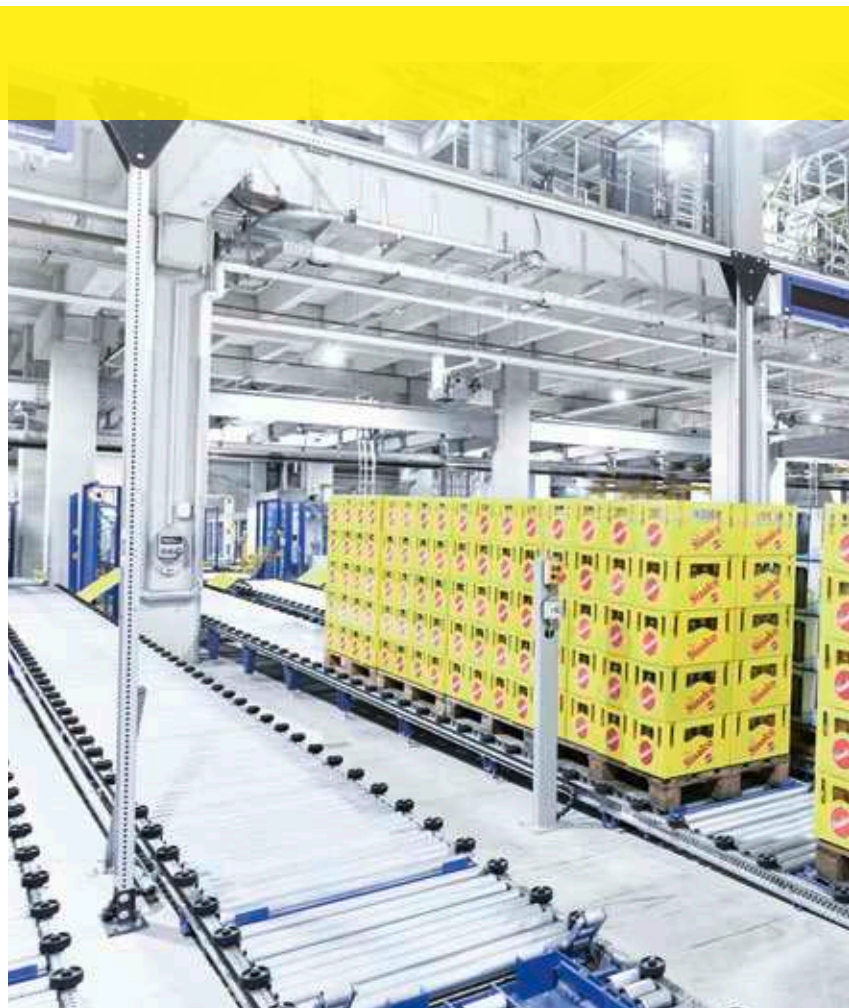
systems with no forklift traffic. A circulation system is set up on the top level of the plant. It connects the HBW with the production lines, the picking area, the external goods-in for trading goods, and the empties delivery into the so-called empties yard.

FULLY AUTOMATED PICKING PROCESSES

The objective of the project was to increase the capacities of RheinfelsQuellen to an inventory coverage of ten days, to simplify the processes by means of automation and a coordinated control of production and capacities while gearing them to increasingly small-scale orders, and to increase cost-saving potential in logistics accordingly. Another challenge was to deliver the right empties in the correct mix, at the right time, in the right quantity to the right line and to ensure fast and

sequenced dispatching while considering the possibility of passing trucks on the factory premises.

In order to maintain hygiene standards and throughput capacity, these material flows impact the HBW system technology. SSI SCHAEFER solved this problem with the smart approach of combining two different automation systems: Empties handling in the HBW is performed on the lower four levels only,



For special requirements SSI SCHAEFER has also developed a new type of inspection system for fully automated empties detection based on its WAMAS® Vision software, programmed special algorithms for the control software, and tailored the features of the HBW. Background: The empties pallets returned from retailers to the logistics center consist mainly of a mix of products and bottle sizes. However, the production systems fill by product. The installed empties management for

reusable bottles includes an intelligent empties assessment and material flow control as well as the system technology.

In the goods-in area, two cameras automatically detect and evaluate the degree to which each pallet is mixed and evaluate the case structure. WAMAS® uses the data from the Vision system to determine how many cases of the relevant empties can be found on the incoming empties pallet and, based on

which in total have a storage capacity of approx. 8,400 pallets. The Exyz storage and retrieval machines equipped with the SSI Orbiter LHD as load handling device, perform the storage and retrieval tasks. Schaefer's Lift&Run system (SLR) is used in the same aisles to handle full pallets in the channel with the remaining 44,400 pallet storage locations. Four SLR, also equipped with the SSI Orbiter LHD as load handling devices, are stacked and operate in each aisle. During peak times,

up to 495 inbound pallets and up to 750 outbound pallets are moved per hour. Added to this are additional transport quantities, which, however, are only processed directly via the electric monorail systems.



“We have achieved all of the targets we set. The system is running steadily, and with the automation systems and the IT, we are achieving excellent performance results. This allowed us to reduce logistics costs overall. With this system, SSI SCHAEFER has provided us with a professional, holistic solution, tailored exactly to our needs.”

Olaf Kroh,
Head of Internal Projects, RheinfelsQuellen

the degree in which the empties are mixed and the needs of the production lines, controls their further transport. The needs-based supply of filling lines with empties is a central function of the new logistics system.



FACTS AND FIGURES

System key figures

Total usable space	7,100 m ²
Technical performance	Outbound 750 pal/h, inbound 495 pal/h

Scope of supply and services by SSI SCHAEFER

High-bay warehouse

L x W x H	76 m x 93 m x 43 m
Storage locations	52,736
Storage type	Multiple deep
Loading equipment	EUR pallets
Number of aisles	4
Number of levels	16
Number of storage and retrieval machines	20

Exyz storage and retrieval machine

Quantity	4
Load handling device	SSI Orbiter LHD

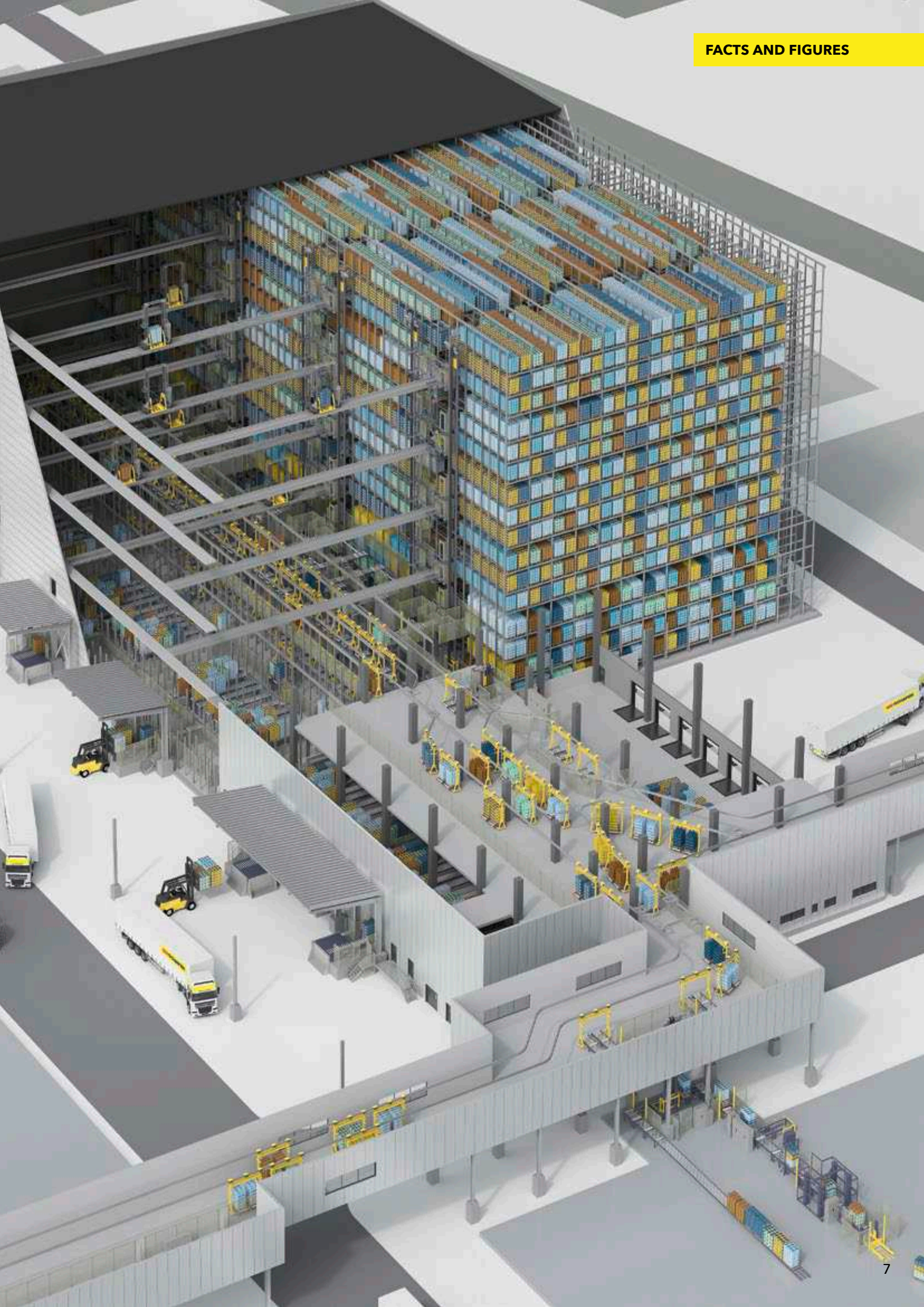
Conveying system

Pallet conveying systems
Electric monorail systems

Software

Logistics software	WAMAS®
Fully automatic empties detection	Inspection system on the basis of WAMAS Vision







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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