



Case Study, Gerolsteiner Brunnen GmbH & Co. KG, Gerolstein (GER)

HIGHLY EFFICIENT COMPACT WAREHOUSE FOR BEVERAGES



Project Objectives

- ▶ Economic optimization of the distribution logistics by automation
- ▶ Reduction of labour costs in logistics
- ▶ Maximum capacity of storage positions at the headquarter
- ▶ Improvement of truck handling, especially at peak times
- ▶ Increase of availability, delivery capacity, service quality, and throughput

Our Scope of Supply and Services

- ▶ Logistics and construction planning as construction stage concept
- ▶ Simulation and planning of realization
- ▶ Inhouse rack system as channel storage
- ▶ Schaefer Lift&Run-System
- ▶ Visualization
- ▶ Warehouse management system
- ▶ Pallet conveyor system
- ▶ Turn-key project as general contractor
- ▶ Service hotline and maintenance



Gerolsteiner Brunnen GmbH & Co. KG

The internationally operating beverage company located in Gerolstein is provider of the best-selling brand of quality mineral water in the German market and Germany's largest export company for mineral water. To avoid seasonal delivery bottlenecks, the company started in good time with designing the distribution logistics at the headquarter expressly more economic by introducing automation wherever possible.

The Schaefer Lift&Run-System

With its Lift&Run-System SSI SCHAEFER offers an especially economic solution for the highly dynamic handling of pallets in the channel storage. High dynamics, low demand on space, and efficient use of energy turn it into an interesting alternative to the classic pallet SRM, especially for beverage logistics.

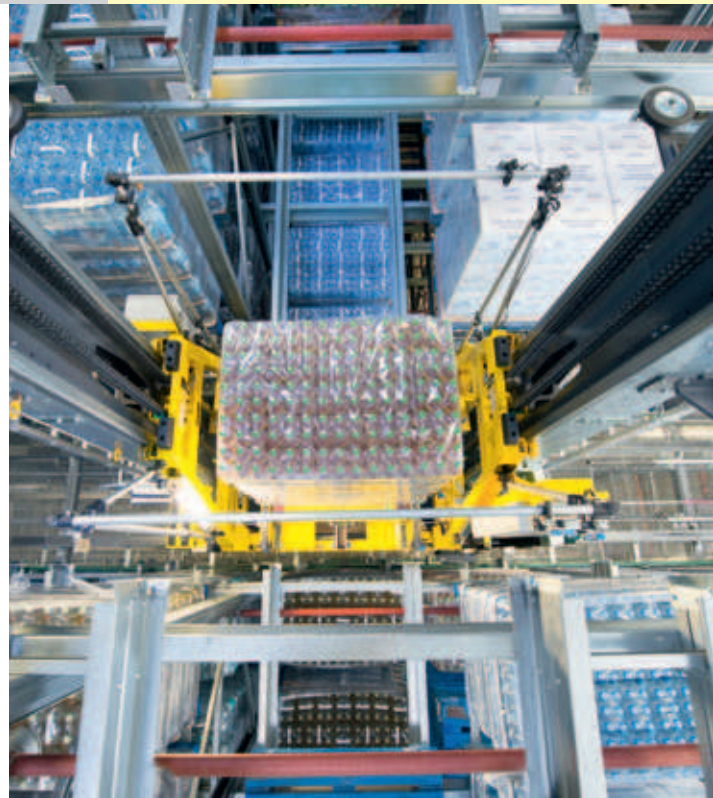
Speciality: the storage machine SLR consists of a transfer carriage with lifting device for the highly flexible load handling device Schaefer Orbiter System. Several of these machines can also be used on top of each other so that the Schaefer Lift&Run-System is easily scalable to specific customer requirements.

Picture above: The channel vehicle Schaefer Orbiter System (SOS) handles storages and retrievals

Picture below: For storage a total of four vertical conveyors handle the top levels



The extremely flexible SOS moves on two rails and does not need an upper guide rail



Highly effective vertical dynamics of the Schaefer Lift&Run despite moderate drive capacity

The Project

By building a fully automated compact warehouse, SSI SCHAEFER as general contractor realized one of the most modern logistics solutions in the beverage industry for the beverage manufacturer Gerolsteiner. The implemented design with channel storage, Schaefer Lift&Run-System, Orbiter shuttles, and intelligent material flow control from the warehouse management system provides Gerolsteiner with an optimal use of space, increase of availability, delivery capacity, and service quality, high throughput as well as modern work stations. Beyond that, this solution offers options for further growth of the beverage manufacturer.

In two construction phases, from mid 2011 to September 2012, SSI SCHAEFER realized for Gerolsteiner one of the most modern and efficient warehouse and material flow concepts in the beverage industry. First, a warehouse complex with 9,300 storage positions was built directly at the one-way-filling system for storage of one-way products that cover 20 % of the Gerolsteiner truss. After start-up in November 2011, the second construction phase of the compact warehouse started which led to double the capacity.

In the new, six aisle high-bay warehouse Gerolsteiner now has available around 19,000 pallet storage location. Beyond that, the design leaves room for a possible extension of the capacities up to 60,000 storage positions. The entire design is geared to sustainability and the distribution center is modularly expendable. If necessary, a further warehouse complex can thus be smoothly connected to the existing warehouse, the conveyor system, and the IT. With its path-optimized design and efficiency advantages the compact warehouse has further a positive effect on the CO₂-balance of Gerolsteiner, offers significantly more storage capacity, and simplifies the service offers of the beverage manufacturer.

High-Bay Warehouse (HBW)

L x W x H	108 x 50 x 20 m
Loading device	two semi CHEP pallets on Euro pallet four display pallets on one Euro pallet
Storage positions	18,500 units
Weight	max. 1,000 kg
Type of storage	11-fold deep / 12-fold deep
Ambient temperature	15 – 40 °C

HBW – Storage and Retrieval Machines (SRM)

Number of SRMs/aisles	6 pcs. Schaefer Lift&Run
Load handling device	6 pcs. Orbiter
Traveling speed	240 m/min.
Lifting speed	36 m/min.
Throughput	33 double cycles/ 58 single cycles per SRM

Pallet Conveyor System

Components:
roller conveyor, chain conveyor, feed-in/acceptance stations, vertical conveyors, 90-degree turning unit, turning stations (roller and chain), double shuttle car, pallet stacker/destacker, pallet pile alignment station

Warehouse Management System

Hardware	2 HP DL380 High Performance Server
Operating system	Linux
Data base system	Oracle
WMS-Software	WAMAS, connection to SAP LES
Functionalities	- Warehouse management - Goods receiving/shipping - Material flow control - Visualization - Radio data transmission system - Radio data transmission terminals for loading control

“Slim and sustainable processes, optimal use of space, increase of productivity and service quality, increased throughput, and intelligent work stations – the design and technology of the new compact warehouse of SSI SCHAEFER led our logistics to a new level.”

Ulrich Rust, technical CEO, Gerolsteiner Brunnen GmbH & Co. KG

“Due to less handling, the pallets are more stable and significantly cleaner than before. Furthermore, we significantly upgraded the work station profiles with the new logistics system. Today, employees mainly deal with the responsible coordination of processes rather than exhausting operative activities.”

Roland Keul, Head of Logistics, Gerolsteiner Brunnen GmbH & Co. KG

“Due to the automation and the shipping supply following the goods-to-person principle it's no longer necessary to move forklift truck. That way, our CO₂-balance improved by 20 % just considering internal transports aside from the efficiency advantages by the system.”

Harald Jakoby, Head of Technical Planning, Gerolsteiner Brunnen GmbH & Co. KG

- ▶ Total floor space 5,400 m²
- ▶ Space for picking hall approx. 260 m² as special handling area for display construction (packing) on the second floor
- ▶ Space for picking storage integrated
- ▶ Number of items in assortment 61 items (water, carbonated soft drinks)
- ▶ Throughput goods-out 225 Pal/h; storage performance 117 Pal/h
- ▶ Order picking aids Picking list for the display construction (packing)
- ▶ Order picking principle Packing (2 – 4 items on display)



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