

CASE STUDY

AMAG BUCHS NEAR ZURICH, SWITZERLAND



LOGISTICS PERFECTED IN WAREHOUSE AND DISTRIBUTION CENTER FOR REPLACEMENT AUTOMOTIVE PARTS

Whether buying groceries before work in the morning or handling major purchases over the Internet at night, most consumers have long been accustomed to round-the-clock availability of goods. Customers today expect no less when it comes to the availability of their vehicles. In the event of damage, the required spare parts can be delivered in a matter of hours.

That is why AMAG Automobil- und Motoren AG, the Swiss general importer of VW, Škoda, Audi, SEAT and VW commercial vehicles, adapted early on to their customers' increased demands. The company's years-old service philosophy specifies that all original spare parts, tires, consumables and accessory parts be available in the subsidiaries and partner company repair shops within six hours of the order being placed.

To realize this goal, AMAG set up Switzerland's largest automotive spare parts warehouse in Buchs near Zurich. The parts logistics center has room for more than 150 000 different items. Up to 14 000 items are shipped daily from Buchs.

The company's fleet of 120 express delivery trucks can deliver the required parts to dealers and repair shops throughout Switzerland up to twice per day.

PROVEN CONCEPT

In the mid-2000s, it was already obvious to AMAG that their existing warehouse capacity would not be able to keep pace with growth. AMAG therefore requested logistics provider Swisslog to develop a new intralogistics concept.

The company had two fundamental goals: expand logistics capacities at the existing site and, an important requirement for AMAG management, accommodate steadily rising order volume without adding personnel.

"Together with Swisslog we created a distribution center that is perfectly equipped for future challenges. We can handle order throughput times of only one hour even with higher volumes."

Heinrich Maurer,
Head of Logistics Services,
AMAG Automobil- und Motoren AG



Construction of the automated small parts warehouse: on-time completion during a live operation.

Swisslog proposed a three-phase modernization process:

- Firstly, the internal flow of goods needed speeding up and the individual areas throughout the space needed to be connected via automated conveyor systems.
- Phase 2 planned for the construction of an automated small parts warehouse and the introduction of a new warehouse management system. The latter would ensure seamless transparency and control over goods movements and therefore guarantee today's virtually 100 percent delivery accuracy.
- For the third project phase, Swisslog consultants proposed boosting storage capacity and integrating a fully automated high-bay warehouse in the existing building complex.

The goal was clearly defined: On completion of the project phases, AMAG parts logistics would have twice the storage capacity, significantly more efficient processes and better quality assurance.

TRANSFORMATION DURING ONGOING OPERATIONS

The first challenge in implementing the project was constructional in nature.

To create space for the new high-bay warehouse, two bays were commandeered from the existing shed hall. All the construction traffic was routed into the building through an access tunnel. Because there was virtually no storage area outside the building, the individual work steps had to be planned down to the last detail and materials delivered just in time. Constructing the new high-bay warehouse also demanded meticulously planned workflows.

"Any interruption in the spare parts supply could have delayed repairs to vehicles all over Switzerland," explains Heinrich Maurer, Head of Logistics Services at AMAG. The project was therefore carried out during ongoing operations. A total of six stacker cranes were installed with double load handling attachments for two Euro pallets each, an industrial pallet or a base pallet with wire cage.

In preparation for the 25 200-pallet high-bay warehouse, four circulating picking stations and three incoming goods stations were put in place.

A transfer trolley system with 25 positioning conveyors was set up for picking fast moving items. By reducing the amount of oxygen in both the high-bay and miniload warehouses, Swisslog also allowed AMAG to break new ground in fire safety.

The newly built miniload warehouse has 43 600 bin locations across 18 aisles and is based on a smart logistics concept. To store individual spare parts, AMAG employees scan the items, sort them into the correct inserts and then place them into the system containers. Automatic reading stations "pair" the inserts with the system containers in the IT system so the assignment is passed on to the warehouse management system.

During article retrieval, the employee is shown the exact insert in which the item is located. The intelligent planning concept results in sustainable process acceleration. Operators can pick more than 2 000 items per hour at each of the ten stations.

The new warehouse management system monitors all automated and manual processes in the facility.

To accommodate AMAG's special needs, Swisslog adapted its standard Warehouse-Manager™ solution. "Defining and programming the many interfaces to our SAP ET2000 order processing system were especially demanding," recalls Heinrich Maurer at AMAG. But Swisslog rose to the challenge. After intensive testing and optimization rounds, all logistics disciplines went online on time.

SYSTEM OPERATIONS ON SITE

By opting for Swisslog's System Operations concept, the decision-makers of AMAG parts logistics chose round-the-clock failsafe and cost efficient servicing.

The service contract provides seven Swisslog service specialists at the AMAG site. They are optimally integrated into operations, know the systems inside and out, and are responsible for service management, repairs, spare parts supply and ongoing inspection and optimization of all technical equipment.

This guarantees system availability of virtually 100 percent. The certainty of always being able to deliver spare parts is key for Heinrich Maurer of AMAG:

"The main advantage for AMAG is that Swisslog is fully responsible for the intralogistics solutions. Thanks to System Operations, we have fewer interfaces and can fully concentrate on our core business."

FACTS AND FIGURES

High-bay pallet warehouse

Length x width x height	91 x 47 x 29 m
No. of pallet locations	25 200
No. of stacker cranes	6
No. of picking stations	4

Small parts storage

No. of bin locations	43 600
Items moved per hour	2 000
No. of stacker cranes	18
No. of picking stations	10

Small parts bin conveyor system 1 600 m in length

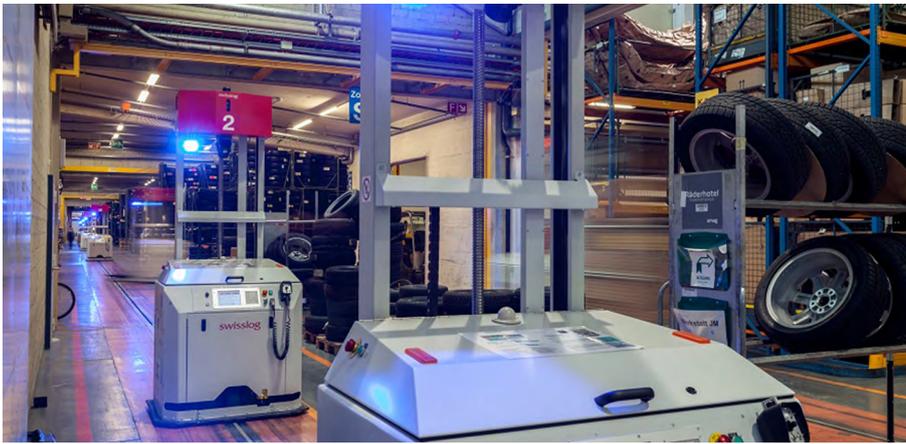
Automated guided vehicle (AGV) system with 20 vehicles



Checking the stacker cranes in the reduced-oxygen high-bay warehouse.



Conveyor systems transport order bins directly to shipping.



Automated guided vehicles: Automating transport routes saved AMAG four full-time jobs.

GOOD-BYE TO MANUAL LOGISTICS PROCESSES

In 2011, AMAG once again turned to the experts at Swisslog as its preferred logistics partner.

This time AMAG planned to eliminate all the remaining manual transport processes between the individual zones and levels. Swisslog was tasked with implementing a solution that would not entail costly construction.

Based on that prerequisite, Swisslog developed a concept for an automated guided vehicle (AGV) system of 20 vehicles including control software, laser-guided navigation and a Wi-Fi-capable communications infrastructure to keep vehicles on track and offer ultimate safety in the warehouse.

Based on the size of the vehicle fleet, the system is the largest in Switzerland and Swisslog's biggest AGV installation in the world to date. Today, the system ensures on-time and seamlessly traceable transport processes.

Delivery errors and transport damage were minimized and transport distances within the warehouse optimized thanks to the 30 percent faster throughput times of the AGVs. "This project's requirements were also sustainably solved and consistently implemented by Swisslog's team of experts. The affected employees were involved early on – overall an exemplary approach," states Heinrich Maurer, expressing his satisfaction with Swisslog's approach.

BENEFITS

- Fewer interfaces thanks to a single partner for planning, implementation and service
- Double the storage capacity
- Faster internal flow of goods
- Seamless transparency, control and delivery accuracy thanks to the warehouse management system and visualization
- System Operations service concept for maximum system availability

SWISSLOG SERVICES

- Planning and implementation of construction and intralogistics
- WarehouseManager system
- Visualization using SPOC
- System Operations service concept



20 automated guided vehicles are in use at AMAG.



The system operations team ensures constant efficiency.