



# LFS Case Study

## Drugstore Chain ROSSMANN

on the track of international expansion



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The internationally leading experts in logistics solutions



# Dynamic expansion of the European logistics chain



With currently more than 1,500 drugstores in Germany and another 720 stores in Eastern and Southeastern Europe, ROSSMANN is one of the largest drugstore chains in Europe. The Group has experienced a permanent sales growth of more than 20 percent per year.

**ROSSMANN started its international expansion in 1993, when the first ROSSMANN store was opened in Lodz, Poland. In order to keep up with the high speed of expansion, ROSSMANN made a strategic decision to expand its entire logistics chain.**

Therefore, the extension of the warehouse in Landsberg into a new central warehouse was planned within the frame of the “Concept 2010”. In Lodz, Poland, the German concept of a central warehouse was copied to supply more than 350 Polish stores. The construction of a new warehouse, following the design of the Landsberg warehouse fitted perfectly into the new warehouse logistics structure. The complex management of all ROSSMANN central warehouses and the regional warehouses in Europe was realized with the warehouse management system LFS, developed and provided by the logistics technology and consulting company Ehrhardt + Partner.

In Germany, the drug store chain ROSSMANN is planning its further expansion with the “Concept 2010”. A main component of this concept is the logistic architecture. With extrapolations of logistic key indicators, the group designed the logistic structure which would in future guarantee a reliable and economic supply of all German regions. The concept includes half a dozen regional warehouses combined with a high performance central logistics centre. ROSSMANN built its German central warehouse in Landsberg in the middle of Germany, between Halle and Leipzig near the highway A9. The management of the logistics complex is realized with the warehouse management software LFS.





In the central warehouse in Landsberg, ROSSMANN's promotion items are stored and picked. In addition, ROSSMANN stores the entire product range of category "C" items. All regional warehouses are supplied with these promotion and C articles. The regional warehouses only store a limited range of approx. 5,500 items including fast moving items and large volume items that these warehouses receive directly from the manufacturers. The other 12,000 items are supplied from Landsberg, where the entire ROSSMANN product range is stored to guarantee the full availability of goods. Another benefit is that Landsberg can be used as a combined central and regional warehouse.

In Landsberg, more than 600,000 transports are realized every day including putaway, relocation and retrieval. Even modern data bases reach their limits under such conditions, as more than 54 million data records are produced within 90 days. Every day, 4,500 to 5,000 pallets arrive in the goods receiving area. The system books those goods receipts and assigns bin locations in the automated pallet warehouse. This warehouse is located in a building complex with a height of more than 40 meters, which corresponds to a twelve-stories high building. The redesign of the existing warehouse into the central logistics facility required an investment of 50 million Euros, the highest investment in the company's history. With more than 500 employees, ROSSMANN is the region's largest employer.



## A safe implementation methodology



For a smooth and safe implementation, a thorough preparation was required to install the technology in the newly constructed hall without affecting the already existing hall and its logistic processes. ROSSMANN has been working with Ehrhardt + Partner for more than ten years and uses the software LFS in all warehouses in six European countries. The server for the German warehouses is located in the company headquarters in Burgwedel near Hannover. The subsidiaries are connected with data lines.

In Landsberg, Ehrhardt + Partner has already participated in creating the system requirements document for the different warehouse areas and the subcontractors. The processes were tested in advance in order to optimize them. With extrapolations based on known data, the dimensions of the materials handling and the requirements to be fulfilled were forecasted. Andreas Balkau, manager of ROSSMANN's department for system coordination in logistics (SKL), describes the collaboration: "We knew right from the start that E+P is a partner with the capacities for such a major project. In addition, we did not have to worry about the interfaces between the numerous systems, like e.g. the ERP system or the personnel planning system."

The processes for putaway and retrieval were defined according to the items. The description of the entire process required hundreds of hours of documentation that had to be adapted by each supplier and subcontractor. For the materials handling system only, six subcontractors and just as many suppliers had to be integrated. "For each area of the warehouse that had to be taken into operation, we defined the stability criteria. Only if those

were fulfilled, the system was taken into operation step by step. This was our task, because LFS manages the entire materials handling and the material flow. Because of the size of the project and the requirements this was a special implementation", explains Marco Ehrhardt, managing director of Ehrhardt + Partner. During the test phase, the employees were trained in the new storage technology. ROSSMANN could even take the new high bay warehouse into operation three months earlier than planned, in time for the Christmas season sales. The performance of the former distribution centre was tripled and the total floor space rose to 68,000 square meters.

A central warehouse fulfills two main tasks. It has to store reserves to guarantee the availability of goods and to secure a cost-efficient and quick delivery. For this purpose, the entire product range of 17,500 items is stored in Landsberg. "It was necessary to divide the items into different categories and to create an overall procedure to integrate the items into the logistics process", Andreas Balkau says. In general, there are fast-moving items, promotion items that are only moved in large quantities within a certain period of time, items with a low quantity volume and special items (very small or high-value items like perfume).



## Optimal material flow



### From the goods receipt area to the high bay warehouse

Most items are directly taken from the goods receiving area to the high bay warehouse with 37,000 pallet capacity. From there, an electric overhead track of 400 meters length takes the fast-moving items to the high-performance pallet picking area. Stacker cranes distribute the pallets in the tree-storied area with 2,700 bin locations. The employees drive through the aisles on industrial trucks equipped with three roll containers each and execute picking with Pick-by-Voice. If only a partial quantity of a pallet is required, the pallet is transported to the preparation area, where the items are repacked into containers. Those are later transported to the automated small parts warehouse. The materials handling system, which moves up to 2,000 containers per hour, shows the complexity of the installation. The containers are grouped in trains; some of them have to be turned at a special station because they only have one grip opening. If a truck arrives late and certain items are needed from that truck, these items are directly taken to the preparation area without storing them in the pallet warehouse before.

### Small parts warehouse with Pick-by-Light and container conveyor system

In the small parts warehouse with 80,000 bin locations, a conveyor system takes the containers with the items to the two-storied picking areas. The containers are discharged from the main line when arriving in a station where the required items for the according order are stored. The Pick-by-Light installation indicates to the employee where to pick the items, in which quantity and into which container to place them. After picking, the employee puts the container back onto the conveyor belt, which takes it to the next station. In outgoing goods, the picking containers are distributed on roll containers. In order to simplify and accelerate the shelf replenishment in the ROSSMANN subsidiaries, LFS considers the organization and the structure of the subsidiary when filling the roll containers. In outgoing goods, the filled roll containers are combined with those from the pallet picking area belonging to the same order. In total, approx. 7,000 roll containers leave the central warehouse and are transported to their destinations all over Germany.



## All common picking systems in use – volume-dependent picking



The use of the picking techniques depends on the throughput of the articles and on the package type. Fast-moving items in original packing are usually handled by the Pick-to-Belt installation with a connected high performance sorter. This way, the pickers, who are connected to the system by radio frequency, process up to 10,000 sorting units. Goods of high quantities whose packages or dimensions are not suitable for the installation are handled in the pallet picking area. Those items are mainly promotion items. Items of low quantities or items in outer packaging are picked by the materials handling and the containers that are assigned to the single orders.

Balkau explains: “Usually, we use Pick-by-Voice or Pick-by-Light. We hardly use radio frequency devices. We have made very good experience with volume-dependent picking, which is calculated by LFS. This gives us high flexibility and the opportunity of reacting to extreme changes, which is essential for our company’s business.”

The warehouse management system LFS is at the heart of all processes. “Our requirements are extremely high,” Balkau says. Everything is in a state of flux. The throughput volumes are permanently recorded and the assigned bin locations are optimized. LFS manages the stocks and allows for permanent stocktaking. The system organizes the replenishment from the supply warehouses and initiates purchase orders depending on minimum stocks or prospective orders. The system organizes the items according to their specifications and quantities, either on box or pallet basis. LFS permanently calculates the warehouse occupancy, e.g. in order to assign a bin location to sold-out items which become available again to guarantee quick picking and delivery.

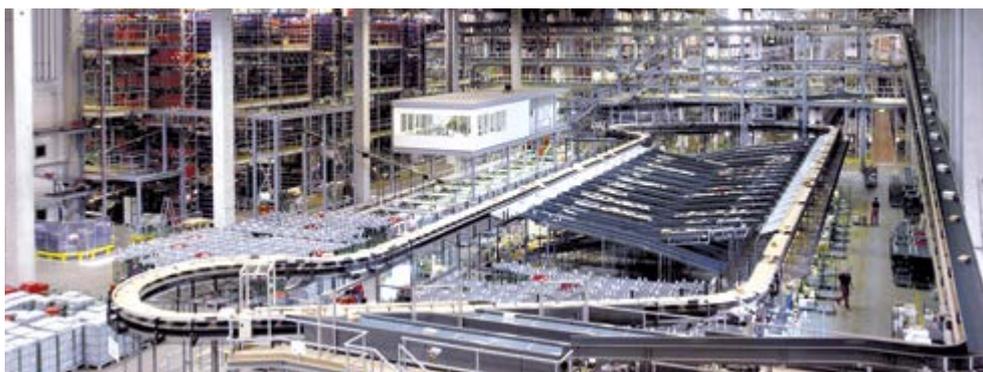




The same applies to the management of the materials handling and the automated systems. As the logistics manager Balkau explains, this is realized with high flexibility: “If one of the material flow computers indicates that a bin location is not available, e.g. because of a failure of a stacker crane, a new bin location is immediately assigned, including the route.” However, there are only few replenishment quantities in the picking aisles to guarantee short replenishment routes. Therefore, the replenishment quantities are distributed on as many aisles as possible in the supply warehouse in order to be able to access the goods in case of a failure in one sector.

The warehouse management system also realizes the resource planning, for example by demanding more employees in a highly frequented picking area. The system also supplies data for personnel planning, e.g. for temporary workers and for the per-day planning of the employees. “LFS enables us to keep an eye on all systems”, Balkau summarizes.

Depending on the subsidiary and the product range, a mixed delivery can take place coming from the closest regional warehouse and the central warehouse in Landsberg. For the alignment within the logistics chain, an online synchronization takes place between the LFS installations of the regional warehouse and the central warehouse in Landsberg. Next to the performance, the parameterization of the software is one of the biggest advantages to ROSSMANN. In the department for system coordination in logistics, business processes are defined, continuously adapted and new warehouse sites are defined. “We have become independent”, Balkau explains. “In September, we are opening a new regional warehouse in Munich and will realize this on our own.”



# The logistic concept of the regional warehouse

The German ROSSMANN regional warehouses in Burgwedel (headquarters), Kiel, Apfelstädt, Leverkusen, Landsberg (as a combined regional and central warehouse) and Munich provide the regional drugstores with fast moving and high volume items. The logistic concept can be explained using the example of the regional warehouse in Leverkusen.

The large regional warehouse in Leverkusen with 14,500 square meters and more than 160 employees is conveniently situated near the motorway A 59. In this warehouse, 14,000 pallet locations are available for manual pallet picking with Pick-by-Voice. Like in the other German warehouses, ROSSMANN uses the voice-directed picking technology, fully integrated into LFS as a standard interactive Voice Picking application. The entire range of Voice devices – more than 500 Voice terminals are being used in Germany – and all radio frequency terminals and computer workstations are connected to the central server in the Burgwedel headquarters. The regional warehouse supplies approx. 300 drugstores in the Cologne area and the Ruhr region. “The idea behind the site in Leverkusen was to avoid long distance transports with low volume,” logistics manager Volker Wieters explains. Low volume C items come from the central warehouse in Landsberg, while the producer directly delivers high-volume items like toilet paper or diapers to Leverkusen. The logistic processes in the regional and the central warehouses are uniform for the entire group and guarantee standardized processes and the highest possible transparency.

## Logistics in Eastern Europe

After establishing subsidiaries in Poland, Hungary, Czech Republic and Albania, the fifth international ROSSMANN subsidiary was founded in Istanbul in 2010. Since 1993, ROSSMANN has been present in Eastern Europe. More than 720 subsidiaries have generated a total turnover of approx. 1 billion Euros. ROSSMANN employs 8,000 people in these countries. In Hungary, the central ware-

house in Budapest currently supplies 181 national drugstores; the central warehouse in Prague supplies the 108 Czech stores.

ROSSMANN has been represented in Poland since 1993 and has in the meantime become the market leader with 350 subsidiaries all over the country. At the same time, Poland is the most important foreign market. As ROSSMANN pursues a very ambitious extension plan to have approx. 1,000 subsidiaries in the country by 2013, the central warehouse has been conceived in a way that the extension is logistically feasible. Based on the positive experiences with the central warehouse in Landsberg and other economic considerations, ROSSMANN decided to use the same logistics processes, warehouse structures, equipment, system components, picking technologies and warehouse management system for the Polish central warehouse. In this way, a reproduction was built in Lodz, which did not only have the same building dimensions as the Landsberg warehouse. The extension of the warehouse is currently being realized and will be finished in 2011 with the construction of the high bay warehouse and an administration building.

For Ehrhardt + Partner, implementing the warehouse management system LFS in the central warehouse in Lodz meant little additional effort. The required program changes were completed within a few days. As LFS had already been adapted and parameterized for the Landsberg warehouse, a copy of the software in Polish language could be installed on the IBM i5 in Lodz. The order structures and positions of the Polish market for supplying the subsidiaries and the online shop were comparable to those in Germany. For ROSSMANN, the comfortable transfer of a customized LFS version was also a cost-effective measure.

## Information about the DIRK ROSSMANN GmbH



The drug store chain ROSSMANN with approx. 20,000 employees and more than 1,500 shops (as of May 2010) is the number three of Germany's largest drugstore chains. With a total turnover of 3.125 billion Euros in 2009, ROSSMANN ranks among the top 11 of the German retail trade. The DIRK ROSSMANN GmbH is an owner-managed company that is mainly owned by the family Roßmann. The headquarters are located in Burgwedel near Hannover. The worldwide operating A.S. Watson Group has a share of 40 percent of the company. Today, ROSSMANN drug stores have an average sales area of more than 450 square meters with a high-class finish in red and white, a modern shelf system, a bright lighting system and seasonally changing decoration.

The ROSSMANN Group has been expanding internationally since 1993, especially in Eastern and Southeastern Europe. After establishments in Poland, Hungary, the Czech Republic and Albania, the fifth foreign subsidiary was founded in Istanbul, Turkey, in 2010. More than 720 subsidiaries have gained a total turnover of approx. 1 billion Euros. In Poland, ROSSMANN has 350 stores and is the market leader. In Hungary there are 181 and the Czech Republic has 108 stores with 8,000 employees. 107 million customers have already bought items in a ROSSMANN store in Poland, Hungary or the Czech Republic.

### At a glance – the German central warehouse in Landsberg

From the central warehouse in Landsberg (state of Saxony-Anhalt), ROSSMANN supplies subsidiaries all over Germany with items from its range of products. This range includes classic drugstore articles for home and garden, remedies, beauty and wellness products as well as biological whole food and other food products. The drugstore chain has created a national logistics network building an efficient delivery structure with the regional warehouse in Landsberg and the other regional warehouses. For more than ten years, the ROSSMANN group has been relying on Ehrhardt + Partner GmbH & Co. KG from Boppard-Buchholz in Germany and its warehouse management system LFS for logistics modernizations and process optimizations.

**ROSSMANN**

# Warehouse figures



## Central warehouse in Landsberg/Germany

- Total floor space 68,000 sqm
- Internal transports (putaway, retrieval, relocation) per day: 600,000
- Picks per day: more than 1,300,000
- Available product range: 17,500 items
- Completely automated high bay warehouse with 37,000 pallet bins and 7 automated stacker cranes
- Silo rack installation of 37 meters height
- Automated small parts warehouse with 80,000 bins
- Materials handling: pallet conveyor, approx. 500 serial meters
- Overhead track with approx. 440 serial meters
- Goods receipts per day: 4,500 to 5,000 pallets
- Goods exit per day: up to 7,000 roll containers
- Employees: more than 500
- Total investment for the extension of the central warehouse: approx. 50 million Euros

## The regional warehouse in Burgwedel/Germany (headquarters)

- Total floor space 40,000 sqm, thereof 8,000 sqm office space
- 1,200 employees (incl. administration)
- Picks per day: more than 150,000
- Available product range: 17,500 items (Online Shop)
- Automated pallet warehouse
- Handover method (container conveyor)
- Pick-to-Light, Pick-by-Voice

## The regional warehouses in Leverkusen, Kiel, Apfelstätt, Munich/Germany

- Total floor space each approx. 14,500 sqm
- Each approx. 160 – 250 employees
- Each approx. 14,000 pallet bins
- Pick-by-Voice for manual pallet picking

## Central warehouse in Lodz/Poland

- The Polish warehouse in Lodz corresponds to the construction and the equipment of the German central warehouse in Landsberg. Therefore, the figures and performances are comparable.

## Central warehouse in Budapest/Hungary

- Total floor space each approx. 12,000 sqm
- 110 employees
- Pick-by-Voice for manual pallet picking

## Central warehouse in Prague/Czech Republic

- Total floor space each approx. 11,000 sqm
- 100 employees
- Pick-by-Voice for manual pallet picking

## Internet addresses

[www.rossmann.de](http://www.rossmann.de)

[www.rossmann.pl](http://www.rossmann.pl)

[www.rossmann.hu](http://www.rossmann.hu)

[www.rossmann.cz](http://www.rossmann.cz)

# Challenges and Solutions

## Main challenges (central warehouse in Landsberg)

- The warehouse was extended and reconstructed. This included a new installation and a modernization of intralogistics during operation without affecting the warehouse operation
- Definition of all business processes by establishing the system requirements documents
- Definition of the optimal logistic structure and the according materials handling system based on extrapolations of process data
- Control of all logistic processes, the materials handling and the automated systems (several material flow computers and stacker cranes) for the sorter, the automated high bay warehouse and the small parts warehouse
- Integration of inhouse developed ERP and personnel planning system
- Alignment with the data of the regional warehouses for optimizing mixed deliveries
- Control of the different picking technologies (Pick-to-Belt, Pick-by-Light, Pick-by-Voice and radio frequency devices)

## Project objectives

- Converting the central warehouse in Landsberg to a national logistics centre
- Storage of the complete ROSSMANN product range
- Nationwide, quick and cost-effective delivery

## Solutions by Ehrhardt + Partner

- Warehouse management system LFS
- Support in preparing the project, definition of the system requirements documents and selection of the suppliers
- Support in the design of the business processes and in connecting and managing the automated systems and the materials handling
- Project management for software integration and process optimization
- Delivery and implementation of Pick-by-Voice hardware
- Certified support and service centre for Pick-by-Voice hardware

## Main benefits for the customer

- Creation of a flexible and high performance logistic infrastructure
- Significant advantages in costs, time and quality in supplying more than 1,500 subsidiaries
- Flexibility in storage and delivery processes
- Flexibility and free resources for using and extending intralogistics
- Transparency in resource planning, stock management and stocktaking
- Extension of the logistics know-how by using the software
- Significant acceleration of the goods throughput
- Flexibility by changing the logistic processes for the items (slow-moving items/fast moving items/promotion items)
- Reliable control and transparent monitoring of the extremely complex automated systems and materials handling
- Adaptation of the logistics processes and integration of new regional warehouses with own resources thanks to the high degree of parameterization of LFS
- Fulfillment of the item-specific requirements in the drug store domain: batch tracing, FIFO (first in-first out), handling of the BBD (best before date)

## Existing system environment

- Integration of different software systems (ERP, personnel planning)
- Central installation of the warehouse management software LFS in Burgwedel by connecting all German sites
- IBM iSeries, connected to the headquarters and the other warehouse sites with a dedicated line (Warehouse Landsberg). In the Polish central warehouse, there is a local IBM i5 Server.

# The power of innovation

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