



 **LFS 400**

  Warehouse Management by E+P

**Distribution Center SPOERLE ELECTRONIC:**

**effective warehouse utilization**

**by dynamic warehouse control**



**EHRHARDT + PARTNER**

Software Systems  
for Warehouse Logistics

## SPOERLE ELECTRONIC together with Ehrhardt + Partner

A reorganization of SPOERLE ELECTRONIC's distribution center in Dreieich near Frankfurt, Germany, was necessary in 1989, because the existing warehouse capacity could no longer cope with the speed at which the business was growing.

In 18,000 square meters of warehousing space, SPOERLE ELECTRONIC stores 1,350 pallets in racks, and 45,000 items in 80,000 dynamically controlled pick/pack locations in shelf storage.

2,500 orders with approx. 8,000 positions of the 45,000 items stored, can be picked daily.

700 positions are currently received daily to be able to meet with order demand.



*A 99 percent inventory accuracy is guaranteed by permanent cycle count and cycle count by level zero*

The change from the static to the dynamic (chaotic) warehouse organization during full operation, within three months was a very ambitious project.

### **Rapiness, flexibility and engagement as a service to our partner**

Why did SPOERLE choose an external software-house to do the reorganization, instead of using their own programmers? They were looking for specialists with long term experience, and did not want to reinvent the wheel.

The task was to install the software within three months, and to rearrange the warehouse, without impacting daily operations.

Through outstanding know-how, flexibility and engagement, Ehrhardt + Partner won the contract, not least because other much larger companies considered this task an impossibility within the short time available.

The intention was, that SPOERLE customers should not be disturbed by the reorganization. The shipments of the 2,000 daily orders per telephone, telex or fax continued as usual.

### **A software solution for dynamic warehouse organization**

The new dynamic receiving and putaway functions control every single item, as well as the 80,000 bin locations. The goods are stored based on the available warehouse space. Theoretically, an item might be stored in different bin locations daily. This results in a better utilization of the existing warehouse capacity, because the system chooses the best possible bin location from over 400 racks, carrying out an on-going clean-up of the inventory. Warehouse utilization has reached over 90 percent compared with 50 percent before the system was installed.

Based on the receiving date, the FIFO (first in, first out) philosophy is ensured by the LFS 400 ware-



house management control system throughout all warehouse operations. The goods can be stored and shipped by batch number. Furthermore, the receiving date is attached, as well as production data and the quality assurance check number if required.

## Rapidity is the goal

An IBM AS/400, Model 320 with disk mirroring and an auxiliary power system is installed at SPOERLE. Over 700 terminals of the European-wide SPOERLE marketing organization are connected to this system. The marketing representatives have up-to-date access to the part availability status in the warehouse. Orders placed by 6 pm are shipped the same day and received by the customer the following day. This is achieved due to a second shift at the warehouse and by carefully selected carriers.

This allows for complete control of the inventory, origin and individual production characteristics of each item. These are the prerequisites for ISO 9002 and CECC/IECO certification of the SPOERLE ELECTRONIC warehouse.

The auditing organization is the VDE (Association of German Electrical Engineers). The quality of the sensitive electrical parts is guaranteed throughout the entire material chain, from the manufacturer to the customer.

### Permanent Cycle Counting improves control

Before the LFS 400 was installed, cycle counting was carried out on a defined day, causing a three day closure of the whole warehouse and using up to 100 operators. Due to the permanent cycle count possibility with the LFS 400 warehouse closure is no longer necessary. With the new warehouse management control system "a level zero" cycle count is possible. The system records every bin location where the quantity reaches zero on a cycle count list. All bin locations not reaching zero by a defined date are counted at the end of a business year. The cycle count method is simple and reliable, providing a 99 percent accurate inventory. SPOERLE ELECTRONIC discovered one more advantage: with the old method, underages, which are to be expected with small parts were only found once a year. Today they are found right away.

In huge warehouses such as Dreieich, distance and therefore access time impact costs to a great extent. The LFS 400 helps to optimize ways by using

ABC-criteria according to the turn around times of an item, for the putaway function, for instance.

Potential errors are minimized in the new system, with functions such as "confirm", for example. The operator has to confirm whether the goods have actually been placed in the bin location which the system selected. Every bin location is therefore assigned with a barcode checknumber



which the operator has to scan. The scanned information is transferred online to the computer for verification.

*Confirmation by RF-terminal and database verification*

To cope with the constantly growing volume of orders, SPOERLE ELECTRONIC has two more objectives for the future. One is to increase the warehouse capacity by 70 percent by installing a second floor in the existing warehouse. The other objective is to implement secondary picking together with optimized picking way routines. These methods are already supported by the LFS 400.

With today's primary, order-related picking operations, labels are printed which guide the operator way-optimized through the warehouse. Every picked position is labelled with a unique identifier and can be traced throughout the entire warehouse.

In a second step, a secondary pick/pack is implemented. This means, based on operator availability, a pick/pack series is generated, where picking can be carried out by combining the same items of various orders. The picked quantities are placed in a special "order matching area" outside the stock location. The LFS 400 controls this operation to ensure that only complete orders are moved to the packaging operation. At first, this sounds very complex and not very effective. Reality shows, that this approach is suitable for a large volume of orders and provides a faster route through the warehouse.

# Rapid implementation at SPOERLE ELECTRONIC



One of the specialties of the SPOERLE ELECTRONIC project was, the reorganization of 45,000 items only four weeks after signing the contract with Ehrhardt + Partner. This was at the beginning of October. 400 racks, ten to twelve meters long, two meters high, with an average of ten shelves per rack had to be taken out. Before rearrangement, the racks had been aligned parallel to the conveyor line.

Now the racks have been rotated by 90 degrees. The physical rearrangement activities were supported by a special version of the warehouse management and control system LFS 400. Normal operations were not interrupted during this rearrangement phase. 2,000 to 2,500 orders, with an average of 2.6 positions per order, were handled during this period of time. An early adaptation to the existing order entry system was essential, because the delivery notes, which had to be printed, needed bin location information. Receiving new items had already been handled with the new system since mid-November.

The warehouse reorganization was completed by the end of November 1989. Approximately 45,000 items were rearranged and 80,000 bin locations chaotically controlled by the new system.

Today, after putting secondary picking into operation and implementing the second floor as an additional pick/pack level, 60,000 items are stored in 150,000 dynamically controlled pick/pack locations.

## LFS 400 modules employed:

- Basic Module
- Permanent Cycle Counting by Zero Level
- Differentiated Inventory Inquiry by Batch, Putaway Date and Production Date
- Handheld Terminals with Barcode Scanner for Putaway and Pick/Pack
- Quality Control
- Dynamic, Chaotic Bin Location Control
- Secondary Pick/Pack with Generation of Pick/Pack Series by Item Number
- Order Consolidation
- Interface to Customer Order System

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**EHRHARDT + PARTNER**

Boppard-Buchholz, Germany



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