

# HIGH PERFORMANCE PICKING SYSTEM



Case Study  
Office Depot Leicester  
Great Britain

## OFFICE DEPOT

Office Depot Inc., headquartered in Delray Beach, Florida, is a supplier of office products and services. No other company serves more customers in more countries with a larger range of services.

The product range includes office equipment (store brands and other brands), office machines and computers, computer software, office furniture and other business products and services. Sales are processed through multiple channels, such as contract sales force, internet sites, direct marketing catalogs and call centers, all supported by a network of cross-docks, warehouses and delivery operations. In fiscal year 2007, Office Depot sold \$15.5 billion worth of products and services with a total of 52,000 employees. A special feature of Office Depot is the 24-hour service all around the globe.

Opening the new distribution center in Leicester in 2007 the performance could be increased by two and a half times. The sophisticated high-tech system technology of the Leicester location sets a high quality standard for future distribution centers.

Office Depot Leicester contributes significantly to the company's profit and stands for reliable and efficient order processing within the group.

What is particularly remarkable is the fact that the project "Office Depot Leicester" only took five months from the start of installation to the start-up the system by SSI SCHAEFER PEEM.



▲ Carton erector

▲ Coding and brochure insertion

▲ Pick by Light station



## CUSTOMER STATEMENT

*We are happy with the order fulfilment system delivered by Schaefer and had a very smooth 'Go-Live'. The system performed well from the start and continues to do so. I was impressed with the overall management of the project, from the detailed handover from the sales team to the projecting team, to the site installation and commissioning. A good two-way communication was maintained throughout the project and I was never in any doubt that Schaefer had Office Depot's requirements at the top of their agenda at all times.*

*The installation was finished on-time and within budget. Office Depot had a very tight programme; however from the day the builder arrived on site to the first order being shipped out, it took just 12 months. Office Depot had 23 weeks for the entire conveyor installation, including installation, commissioning and testing, which for the size and complexity of the system was very impressive.*

**Simon Brammall**  
Project Manager/Office Depot.

## OFFICE DEPOT REQUIREMENTS

Due to continuously increasing order figures in e-commerce as well as increased demand at Viking Direct, Office Depot built a new distribution center at the location in Leicester (GB).

The following requirements for Office Depot Leicester had to be considered in implementing the project:

- ▶ **Doubling the throughput**
- ▶ **Building a high-performance distribution warehouse**
- ▶ **Creating ergonomic workplaces for the employees**
- ▶ **Reaching high quality standards**
- ▶ **Guaranteeing delivery on the same day**
- ▶ **Using cutting-edge technology**

## SSI SCHAEFER PEEM SOLUTIONS

The incoming orders at Office Depot differ greatly in scope, type of products required, quantity etc. Due to these heterogeneous orders, the 24-hour service and the intended same day delivery, Office Depot needed a customized logistics solution by SSI SCHAEFER PEEM.

The throughput time could be reduced considerably by means of compact arrangement of picking areas, cutting-edge conveying system and integration of technologies specifically developed for the customer to pick small parts. Thanks to a highly dynamic control the throughput in the shipping area could be increased to 5,400 packages per hour - even though the package sizes vary considerably. This could be achieved by controlling the distance between the packages and not the length of the packages. Thus the different carton sizes do no longer affect the throughput. The efficiency in shipping could be further increased by using sliding sorters to sort packages according to routes.

**By controlling the distances between the packages the throughput could be increased to 5,400 packages/hour.**

Fast order processing, picking totes with compartments and extraordinarily high picking performance thanks to optimum ergonomics at the workstation facilitate same day delivery.

An additional benefit for Office Depot is that the loop capacity is displayed on large LCD screens. Possible unbalanced capacities in different stations or areas are indicated to enable manual intervention and thus to avoid bottlenecks and a reduction in throughput.

First empty cartons and totes measuring between 400 and 600 mm in length are provided on separate buffer conveyors. At order initiation a routing label is automatically attached to these totes and cartons to ensure the control of the transport units throughout the process. In special ink-jet stations individual logos are attached to the cartons to optically assign them to different distribution channels.

# PICKING IN THREE AREAS

## 1 Automatic picking: S-Pemat

The 450 most frequently ordered products are stored manually in the picking automat S-Pemat; when they are ordered they are dropped according to order onto the conveyor belt with dynamic frequency. At the hand-over position the goods are put directly into the picking cartons or totes. A total of 1,200 totes per hour can be processed.

## 2 Semi-automatic picking

### Pick by Light

At Office Depot there are three separate picking areas for paperless, Pick by Light-supported picking of fast and medium moving products. The display-controlled system guides pickers with exact position indication and quantity to the relevant storage location.

Thanks to a special function it is possible to request product replenishment in advance directly from the Pick by Light workstation by the push of a button - via the warehouse management system - to avoid idle times.

## 3 Semi-automatic picking

### Pick to Tote

Two Pick to Tote workstations at Office Depot guarantee ergonomically favorable and stress-free picking of medium and slow moving products. The established „goods to man“ principle serves to achieve shortened travel times. The ergonomically enhanced workstations are supplied by an automatic storage and retrieval system (ASRS) with a capacity of up to 9,000 storage locations. This system also provides for automatic inventory.

**Performance of up to 1,000 picks/hour**



▲ S-Pemat ▼ Carton filling station - S-Pemat



▼ Pick to Tote station



▼ Manual final check station



▼ High performance package merging control: 5,400 packages/h



▼ RF picking



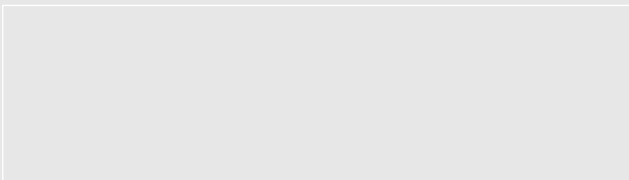
## Facts and figures

### System key figures

Orders per day	18,000
Conveying capacity/day	50,000 packages
System size:	27,000m <sup>2</sup> (picking area + warehouse)
Products (SKUs)	14,000 articles
Working hours per day	12
Throughput in shipping:	5,040 cartons/h
Lines picked per day:	75,000

### Scope of delivery and services

<b>CONVEYING SYSTEM</b>		
Total running meters:		3,300
<b>PICKING SYSTEMS</b>		
<b>Automatic picking</b>	S-Pemat:	800 channels
<b>Semi-automatic picking</b>	Pick by Light:	18 stations
	Pick Faces:	2,500
	RF areas:	2 stations (split case slow)
<b>Picking full case:</b>	Pallet locations:	284
	Dynamic channels:	744
<b>Picking split case incl. PBL:</b>	Dynamic channels:	2,405
	Dynamic channels - pallets:	104
	Static rack locations:	3,300
<b>ASRS (lifting bar devices):</b>	Quantity:	8
	Storage volume	300 m <sup>3</sup>
	Storage positions:	9,150
	Tote performance/h	1,200
	Pick to Tote:	2
	SSI totes:	9,150
<b>SYSTEM COMPONENTS</b>		
<b>Check/carton</b>	Carton closing machines:	3
	Carton erectors:	4
	Brochure insertion devices:	4
	In-motion belt scale systems:	8
	Spiral conveyors:	6
	Vertical continuous conveyor:	2
	Strapping machine:	1
	Label applicators:	5
	Inkjet printers:	8
<b>SOFTWARE SOLUTION</b>		
<b>WCS</b>	Computer hardware	IBM RISC
	Operating system:	AIX 5.3
	Database:	Oracle 10g
	Software:	Convey 2005



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